Cranborne Chase
Area of Outstanding Natural Beauty

FACT SHEETS & GOOD PRACTICE NOTES

Number 7

GOOD PRACTICE NOTE

GOOD EXTERNAL LIGHTING

Background

This AONB Partnership has been concerned about avoiding and reducing light pollution for a considerable period of time. The first Position Statement produced by the AONB Partnership focussed on control of light pollution through the prevention of upward and sideways escape of light from external lights.

This AONB is keen to achieve International Dark Sky Status. It is also well aware that good lighting does not create light pollution and can frequently provide better illumination than poorly designed schemes.

Good Lighting

Good lighting delivers the right amount of light, where it is needed, and when it is needed. In many cases lighting does not need to be on constantly. Significant economies can be made by fitting motion sensors so that lights only come on when activity likely to need light is sensed. Simple 'curfew' periods when lights are switched off, such as very late evening and early morning, can reduce amounts of wasted light. In areas where some lighting is appropriate, a programme of dimming lights can operate at periods where there is minimal use of the location. All these arrangements help reduce the potential for light pollution, reduce the harmful effects of extended periods of 'daylight' on wildlife and humans, and not only reduce costs but also save energy.

Common Issues

Lighting that is in the public domain has been receiving close attention in recent years. Many highway lighting authorities have taken considerable steps to install flat glass units, parallel with the surface to be lit, which have internal optics designed to illuminate the street or highway without emissions above the horizontal or excessive stray light around the column. This makes the light source itself invisible other than at very close quarters.

External domestic lighting tends to be chosen for security purposes, although it is often too bright for the lighting task, left on constantly and directed so that it can dazzle potential witnesses to any misdemeanour while providing the criminal with useful shadows to hide in. Unfortunately, such lighting usually involves the simple and cheap floodlights available in DIY stores, which also cause light nuisance into neighbouring properties, glare into the eyes of walkers and car drivers and add to pollution of the night sky.

Farmyard lighting is often a larger-scale version of domestic 'security' lighting. However, the light output of the lanterns should be proportionate to the task and it is better to install multiple, flat glass asymmetric lower lumen lanterns around the yard than try to blast the area with a single, high power lantern from one end. In addition there is light pollution from skylights in the roofs of large farm buildings.

Between the private and public domain lighting there is the substantial area of retail and shopping car park lighting. Much of their negative effects would be negated by using the latest lighting fittings that do not allow upwards or sideways dispersion of light.

Domestic / local scale

Good lighting at a domestic scale is clearly covered in the 'Guidance Notes for the Reduction of Obtrusive Light'* published by the Institution of Lighting Professionals (ILP). The importance of aiming lights so that they light only the areas intended to be illuminated is emphasised.

When considering lighting schemes the manufacturers can provide contour diagrams of light intensity which demonstrate the capabilities of a particular light fitting. As has already been mentioned, flat glass, sometimes asymmetric fittings are the most appropriate for lighting entrances, driveways, and routes. They are also likely to be effective, as smaller scale units, for 'security' lighting.

Units that are liable to cause pollution are simple and traditional bulkhead and lantern style lights that emit light in all directions. Similarly wall lighters, that are currently popular with designers, have their place when they direct light downwards and illuminate a surface, for example a path to the door of a hotel or restaurant. However, when they point light sideways and upwards, creating significant light pollution, not only is there the danger of glare to people using the area but there may be dark shadows on the ground beneath, which creates a hazard.

Sports lighting

Sports lighting is gradually taking over from road lighting as the most significant source of light waste and skyglow in the United Kingdom. Like other kinds of lighting it can cause skyglow, light intrusion, glare, and unnecessary sideways light dispersion. It is comparatively easy to direct sports lighting onto the area to be lit using the technical capabilities of lighting units. Correct angling and

shielding are vital if pollution, light nuisance and waste are to be avoided, and for small areas such as tennis courts or a single football pitch flat glass units are necessary.

Good design and effective implementation are both important. A good example of an unobtrusive sports lighting scheme in a rural area, almost invisible from any distance away, is that at Ringwood Football Club; unfortunately many other clubs demonstrate bad lighting.

A key point to note with sports lighting is that higher levels of performance have higher standards of illumination. It would not, therefore, be sensible or cost effective to apply the standard for a Premier League stadium to a school football pitch.

Effectiveness

The probability is that cheaper lighting units will not perform as well and energy is likely to be wasted. Not only should a scheme be demonstrated to be effective at the planning stage but it also needs to be checked after installation to ensure that replacement, less effective, units have not been used or that the correct units have not been installed incorrectly.

Correctly installed good lighting simply means that the light is directed where it is needed rather than being dissipated and wasted. Walls lights and bollards are other examples where correct internal fittings directing light downwards can not only provide safe lighting on steps and walkways but also provide pleasing aesthetic effects. Without the correct fittings glare and dazzle can occur, which puts the users of the areas at risk.

Types of light

Technology is moving from tungsten lighting to halogen lighting and onwards to LED lighting. LED lighting is particularly attractive because of its low energy use, low cost, longevity and other positive factors. However, there are some complications relating to the type of light that is emitted. Often the light is described by its light temperature, which is measured in degrees Kelvin. Lights which are described as ‘daylight’ are often in the 5000-6000 degrees Kelvin range which is blue-rich, and often too bright for the task; there are concerns that not only does the excessive light bounce from the ground and from vegetation, and therefore dissipate upwards causing pollution, but also has negative effects on wildlife. A ‘warm white’ light in the region of 3000 degrees Kelvin is currently regarded as the most user friendly light, moving away from the orange tinge of traditional tungsten lights but not having the problems of blue/white lights of the so-called ‘daylight’ bulbs. There is, however, a technical issue because the daylight bulbs appear to be rather easier to produce and therefore there is a tendency to use them because of their lower cost.

Lighting schemes should not be based entirely around the cost savings of conversion to LED. Consideration should be given to the benefits of using the

more appropriate light spectrum of the warm white lights in the 3000 degree Kelvin bracket.

Greater detail on light fittings can be found in Bob Mizon's paper 'Lighting: types, qualities, and impacts March 2016'.

AONB Recommendations

This AONB **recommends,** in order to avoid light pollution, that all external lights are explicitly authorised by the local planning authority and that the authorisation should comply with the AONB Position Statement on Light Pollution. This Good Practice Note provides greater detail and elaborates on how to achieve good lighting, good security, and minimal light pollution.

As the range and availability of light fittings is continuously evolving, the AONB team advises that an internet search of the major manufacturers is made when a lighting scheme is being considered. Reputable manufacturers and suppliers will provide plans of light contours, so that the likely light distribution pattern can be assessed.

This AONB also recommends that:

- All old-fashioned 'security' lights should be phased out and all new ones should be of the horizontally mounted flat glass asymmetric type. Old ones should be renewed at the earliest opportunity.
- Lighting should illuminate only the area or premises to be lit, and nowhere else.
- Bulkhead and lantern style lights should have internal baffles and/or external shields fitted to avoid upwards and sideways displacement of light, or alternative, well-directed types of units should be fitted.
- All planning applications that involve lighting should identify the lighting layout and the type in their submitted documents.
- If a development does require lighting and the appropriate details are not provided then the planning authority should require these details before making a decision on the proposal.

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* www.theilp.org.uk/documents/obtrusive-light