

LIGHTSCAPE MANAGEMENT



INTRODUCTION



The aim of this section is to describe the primary responsibilities for lighting within and around the National Park and how that lighting is - and will be managed as part of the future strategy. Due to the agreements formed in the South Downs Partnership Management Plan, a lightscape plan solely controlled and managed by the SDNPA is not required. The purpose of the SDNPA PMP is to empower relevant organisations to make choices with a regard for the special qualities of the National Park rather than have the park authority run it all. With such a diverse range of lighting sources, managers and owners, it is essential to clarify who is responsible for what and how lighting of all types – whether private or publically owned – can be controlled.

This section will show how our own SDNPA policies – and those that currently exist under the local authorities within and around the park – provide a consistent and complimentary approach to reducing light pollution, from Parish to County. It has been the intention that every source of permanent lighting in the SDNP has been considered and appropriate mitigation policies or projects developed.

It is best to separate the management of lighting into three main sectors whose administrative functions operate on different spatial levels.

- **Lighting Inside Planning Control**

- **Lighting Outside Planning Control**

- **Streetlights**

Within each sector there are different responsibilities and available mitigation steps available.

Table - Lightscape Management Framework, on the following page summarises these options and illustrates how the remainder of this Lightscape Management Plan will be split.

Approaches to lighting management vary between the authorities and will be described in detail in the appropriate section. However, in all cases it has proceeded with the general principle to reduce light pollution within the National Park.



KEY POINTS

- SDNPA Local Plan has specific policies on lighting and dark skies
- Many Parishes have updated community policies to regard dark skies
- All Local Highways Authorities in SDNPA have street lighting design policies on dark skies
- All Local Authorities in and surrounding have policies on light pollution or dark skies
- £225 Million Private Finance Initiative has upgraded 250,000 street lights across Hampshire, West Sussex and Southampton with regard for light pollution
- Surrey, Portsmouth, East Sussex and Kent have all independently upgraded their street lights with a regard for light pollution
- 228 different forms of planning administration were invited to participate
- In combination, there is widespread and consistent management of light pollution across SDNP and surrounding region.

SECTOR	SPATIAL	RESPONSIBILITY	MITIGATION	REF
INSIDE PLANNING CONTROL	South Downs	South Downs National Park Authority	National Policy Guidance	Page 159
			South Downs Local Plan	Page 159
	Parish	Parishes	Parish Plans	Page 170
	Regional	Local Authority	Local Authority Local Plan	Page 172
	District	Local Authority	Building Regulations	Page 180
Environmental Nuisance			Page 180	
OUTSIDE PLANNING CONTROL	Local	Private Owners	Engaging with Owners	Page 181
			Economic Incentive	Page 183
			Community Infrastructure Levy	Page 183
			Estate Plans	Page 183
			IDSR Reserve	Page 184
STREETLIGHTS	County	Local Highways Authorities	Streetlight Design schemes	Page 185

TABLE - LIGHTSCAPE MANAGEMENT FRAMEWORK

In combination, this approach sets out to establish commitment to protect dark skies not from those just within the South Downs, but for those throughout the catchment region. The SDNPA believes that this far exceeds the examples set by previous International Dark-Sky Reserves.



LIGHTS WITHIN PLANNING CONTROL

Planning law allows the SDNPA – as the planning authority – the power to control the installation and effects of external lighting. Not all lighting, however, is covered by these powers. Although lighting is referenced in UK Planning Policy Guidance’s 1, 17 and 23, the important criteria to note is;

Light itself, and minor domestic light fittings, are not subject to planning controls

This means that the majority of lights identified in the lighting baseline would not be subject to control or enforcement. However, owners of these lights can be encouraged to adopt similar good lighting.

Regardless of planning authority, lighting generally requires planning permission if⁶;

LOCAL PLAN POLICY LINK – SDNPA LOCAL PLAN. DNS: 1.44

- Installation a lighting scheme of such nature and scale that it would represent an engineering operation (i.e. requiring a separate structure) and typically be undertaken by specialist lighting engineers
- Installing lighting such as the floodlighting of sports pitches, car parking of manages
- Installing a lighting scheme on a listed building requires listed building consent, if it is deemed that the character if the building would be significantly affected by the lighting.

⁶ Taken from SDNPA Local Plan. Exact wording may differ between local Authorities.

As the evidence shows, the dominant source of light pollution within the downs originates outside the National Park. Streetlights withstanding, the management of the future development of this light will be subject to the policies set out in the Local Plans of surrounding authorities. Consequently the remainder of this section will deal with the development of consistent protection policy in the following spatial forms;

- South Downs National Park Local Plan
- Regional Local Authority Local Plans
- District Building Regulations and Environmental Nuisance.

In combination, this approach sets out to establish commitment to protect dark skies not from those just within the South Downs, but for those throughout the catchment region. The SDNPA believes that this far exceeds the examples set by previous International Dark-Sky Reserves.



M27. Dumbell Nebula. Simon Downs

“We should have dark skies everywhere but the South Downs would at least give people a chance to discover why a dark sky is so special.”

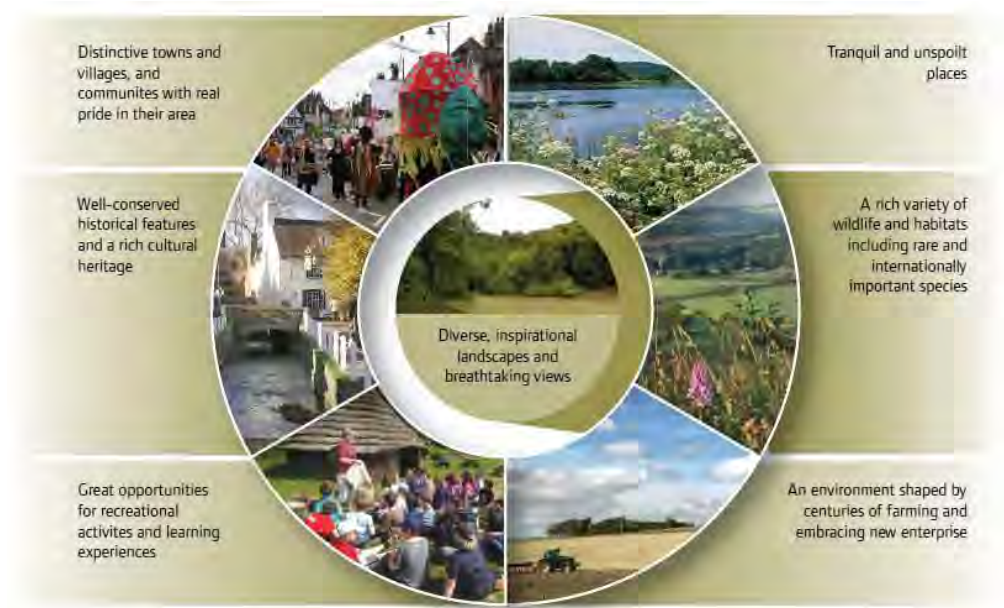
South Downs National Park Local Plan

In the South Downs, planning control was devolved by the existing local authorities to the NPA but many retain some planning control on behalf of the SDNPA.

As the main planning authority for the national park, the SDNP Local plan is developing policies on a wide range of subjects, including dark skies. Due for adoption by the local authorities in 2017 it is an opportunity to include robust and effective policies on light pollution.

Taking on views of residents, businesses and a range of stakeholders, a Local plan encapsulates in specific policies what the community regards as key issues in its future planning decisions. To that end, the SDNPA has developed specific dark sky policies that will apply throughout the entire park; not just on a smaller core area.

Based on **ten lighting principles**, the policies and accompanying text primarily draws on guidance from the Institute of Lighting Professionals. The SDNPA policies adopt a hierarchal structure for decision making, focusing on asking the question if lighting is actually needed before requiring further proof of need. If a need for lighting is demonstrated then further policies will look to minimise its impact and to satisfy IDA requirements for lighting in core areas.



"In such a crowded part of the country some areas that are well protected from light sources are essential for diversity."

SDNPA LOCAL PLAN. APPENDIX: LANDSCAPE.

Draft Policy SD9 – Dark Night Skies

I. Development proposals which conserve and enhance relative tranquillity, in relation to light pollution and dark night skies, and are in accordance with other relevant proposals will be permitted, provided it can be demonstrate that it meets or exceeds the Institute of Lighting Professionals guidance and other relevant standards or guidance (CIE I 50:2003 Guide on the limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations) for lighting within environmental zones, and it has regard for the following hierarchy:

- i) the installation of lighting is avoided
- ii) if lighting is installed it is necessary for its intended purpose or use and any adverse impacts are avoided,
- iii) if it is demonstrated that (i) or (ii) is not achievable, then adverse impacts are appropriately mitigated.

2. To be appropriate, lighting for development proposals should ensure that:

- a) the measured and observed sky quality in the surrounding area is not reduced
- b) lighting is not unnecessarily visible in nearby designated and key habitats.
- c) the visibility of lighting from the surrounding landscape is avoided.
- d) the design of buildings, which results in increased light spill from internal lighting are avoided, unless suitable mitigation measures are implemented.

3. Development proposals that are located in or unnecessarily visible from the dark sky core boundary(as shown on the proposals map), with SQM values exceeding 20 mag per arcsecond² or in areas identified as being vulnerable to change will be subject to the most rigorous scrutiny in order to ensure that relative tranquillity is conserved and enhanced.

Lighting Policy Principles

The SDNPA Local Plan provides the specific policies to be used in planning development and control. The following principles were used to derive those policies. The following sections will describe how these principles feed into the SDNPA Local Plan policies.

1. Development must meet or exceed the Institute of Lighting Professionals guidance and other standards or guidance for lighting within environmental zones

2. Light should avoid being visible from the surrounding landscape

3. Any development must not reduce the measured and observed sky quality in the surrounding area

4. Light should not unnecessarily visible in dark sky zones

5. Light should not unnecessarily visible in any adjacent wildlife sites

6. Where possible, existing lighting should be brought up to specification when considering new installations

7. Control measures such as timers, curfews, proximity sensors, or additional shielding should be used where possible

8. Non-UV Narrow band colour temperatures of less than 3100K should be used, particularly close to nocturnal wildlife sites

9. Large open buildings that vent a large proportion of indoor light should be avoided; unless suitable controls are implemented

10. Skylights should be avoided, unless suitable control measures are implemented.

“Having seen the skies properly whilst in Egypt, I feel we are missing one of the most spectacular free sights the world has to offer.”

I. Development must meet or exceed the Institute of Lighting Professionals guidance for lighting within environmental zones

The Institute of Lighting Professionals has produced guidance on obtrusive light. They define light pollution in three categories;

- Skyglow
- Glare
- Light Intrusion

The guidance sets out specific constraints for lighting within environmental zones. Within each zone, targets are applied for skyglow, light intrusion, glare, luminaire intensity and building luminance. Any proposed lighting should meet or exceed this guidance.

The SDNPA Local Plan dark skies hierarchy emulates the I.L.P message;

‘Think before you light – the right amount of light, where wanted, when wanted’

Table 1 and Table 2 below detail the requirements of this condition. The SDNPA is assumed to be mostly an E1 grade, with occasional E2 and E3 (e.g. Petersfield). E0 is not attainable for the SDNP as it implies banning lights which is not possible or lawful for a National Park to enforce.

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UMESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	Areas with intrinsically dark landscapes. National Parks, AONB’s
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small towns centres or suburban locations
E4	Urban	High district brightness	Town/City

TABLE 1: ENVIRONMENTAL ZONES. INSTITUTE OF LIGHTING PROFESSIONALS REPORT – GUIDANCE NOTES ON THE REDUCTION OF OBTRUSIVE LIGHT. REFERENCE SDNPA LOCAL PLAN. DARK NIGHT SKIES. 1.45.

Zone	Sky Glow ULR [Max %]	Light Intrusion (into windows) E _v [lux]		Luminaire Intensity I [candelas]		Building Luminance Pre-Curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average L [cd/m ²]
E0	0	0	0	0	0	0
E1	0	2	0 (I*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

TABLE 2: OBTRUSIVE LIGHT LIMITATIONS FOR EXTERIOR LIGHTING INSTALLATIONS – GENERAL OBSERVERS

ULR = Upward Light Ratio of the Installation is the maximum permitted percentage of luminaire flux that goes directly into the sky.

Some lighting schemes will require the deliberate and careful use of upward light, e.g. ground recessed luminaires, ground mounted floodlights, festive lighting, to which these limits cannot apply. However, care should always be taken to minimise any upward waste light by the proper application of suitably directional luminaires and light controlling attachments.

E_v = Vertical Illuminance in Lux - measured flat on the glazing at the centre of the window.

I = Light Intensity in Candelas (cd)

L = Luminance in Candelas per Square Metre (cd/m²)

Curfew = the time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. If not otherwise stated - 23.00hrs is suggested.

* = Permitted only from Public road lighting installations

LOCAL PLAN POLICY LINK

Draft Policy SD9 (See above)

SDNPA LOCAL PLAN. DNS: 5.56 (See above)

SDNPA LOCAL PLAN. DNS: 5.57:

For much of the rural landscape of the South Downs National Park this will be an EI 'Intrinsically Dark' zone, but this should be checked prior to an application. The NPA will encourage that, if it is feasible, further reductions are made (e.g. removing below/near horizontal light paths from fixtures or adopting EI specifications in an E3 zone). Often this can be achieved with little further disruption.

OTHER RELEVANT STANDARDS

In addition to the Institute of Lighting Professionals Guidance on Obtrusive lights other appropriate guidance's should be used. Although the list is long and can be found in the I.L.P guidance, the following reports are worth noting.

CIE 150: 2003 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations.

As a precursor to the I.L.P guidance, this report provides much of the detailed specification for the derivation of lighting limitation in environment zones. Other aspects such as the impact to wildlife and astronomy are also covered which is an appropriate consideration for any National Park.

Sport England Design Guidance Note. Artificial Sports Lighting (2012)

Sport facilities require specific lighting levels for the sport and level of participation. Whilst the source illumination will be higher than those stipulated in I.L.P guidance, this report details appropriate lux levels for outdoor sports.

Local Highways Authority Design Guides

Proposals with streetlights should meet or exceed current design guides from the Local Highways Authorities. Although standards differ there is a regard to reduce light pollution in and around the National Park.

"We see very few starry skies here and being able to visit or even know there was somewhere not too far away to experience the starry skies in the bowl of the sky would be immensely relaxing and happy."

2. Light should be avoid being visible from the surrounding landscape

Light from all sources – direct and indirect – have an impact on sky quality. Whilst targets can be met in regard to upward light and intensity, the scattering of light from surfaces can create a significant visual impact on the landscape. Although the I.L.P guidance stipulates targets for the illumination of buildings, it is important that the effect of illumination from secondary surfaces have regard.

LOCAL PLAN POLICY LINK - SDNPA LOCAL PLAN: DNS: 5.58

Proposals should take due consideration of the overall visual impact the lighting will have on the landscape. This may include ground surface reflectivity, the number of lights, the daytime intrusion and the general overall footprint of the lighting. This is to consider the visibility of the lights from the surrounding landscape (e.g. viewpoints or along South Downs Way), in accordance with Policy SD7 (Safeguarding Views).

3. Any development must not reduce the measured and observed sky quality in the surrounding area

4. Light should not be unnecessarily visible in dark sky zones

The lighting impact should not reduce the measured and observed sky quality in the area. If the Milky Way or other dark-sky indicator objects – Andromeda Galaxy – can be easily seen with the naked eye from the proposed site, then the lighting impact should not overtly impact on that visibility. This can occur either by creating skyglow, intrusion or by glare which can interrupt the continuity of dark landscapes.

A Sky Quality Monitor can be used to approximately determine the sky brightness. Any additional lighting should not increase the ambient brightness in the immediate surrounding area.

LOCAL PLAN POLICY LINK - SDNPA LOCAL PLAN. DNS: 5.60

In the darkest sites, where control is more important, the overall impact of the lighting should ideally not be visible in any direction or in any form (glare, skyglow, spill and reflection) and not reduce the measured and observed quality of easily visible astronomical features (i.e. the Milky Way and Andromeda Galaxy) within the area.

5. Light should not be unnecessarily visible in any adjacent wildlife sites

This is to minimise light pollution falling into adjacent wildlife sites. There are a number of key habitats and species that benefit from dark skies across the park.

LOCAL PLAN POLICY LINK - SDNPA LOCAL PLAN. DNS: 5.61

Key habitats, particularly woodlands, should not be considered as a 'natural shield' to lighting, due to the inherent disruption of a light source on an otherwise unlit habitat. Consideration should be made to shield or remove lighting that would spill into sensitive habitats, particularly if nocturnal species are present. Direct illumination of Bat Roosts must be avoided.

6. Where possible, existing lighting should be brought up to specification when considering new installations.

Any new lighting installation will inevitably have some impact on dark skies, no matter how well mitigated. With proposals with existing lighting, there is an opportunity to offset any new increase by reducing the impact of existing lighting. Whilst this may not be possible in all cases, any reduction in inefficient installations will benefit the dark skies.

LOCAL PLAN POLICY LINK - SDNPA LOCAL PLAN: DNS 5.62

In some circumstances it may be possible to reduce the impact of an existing stock of lighting in addition to those under application. Any new additional lights should be considered by offsetting against existing stock.

7. Control measures such as timers, curfews, proximity sensors, or additional shielding where possible

8. Non-UV Narrow band colour temperatures of less than 3100K should be used, particularly close to nocturnal wildlife sites

There are many measures that can be used to reduce the impact of lighting. Technologies continue to improve and are recommended to eliminate all unnecessary spill of light. Careful selection of colour temperature can also help reduce the impact on wildlife that prefers redder, warmer temperatures.

LOCAL PLAN POLICY LINK - SDNPA LOCAL PLAN: 5.63

Lighting should be subject to appropriate mitigation or control measures should be used to further control unnecessary light pollution. Examples include:

- the use of 'curfews' or automatic timers,
- use of proximity 'PIR' sensors, timers or any additional shielding or coving, including angling the front surface of lights to the horizontal
- use of different surfaces types to reduce the amount of reflectivity
- screening or shielding to reduce the impact of reflectivity.

9. Large open buildings that vent a large proportion of indoor light should be avoided, unless suitable controls are implemented.

10. Skylights should be avoided, unless suitable control measures are implemented.

Although the IDA requests controls for external light, the spill of indoor light onto the South Downs Landscape often presents a greater impact. Whilst many sources are switched off later in the night, the spread of large glass fronted and sky-lit developments can create significant sources of visible light.

LOCAL PLAN POLICY LINK - SDNPA LOCAL PLAN: 5.64

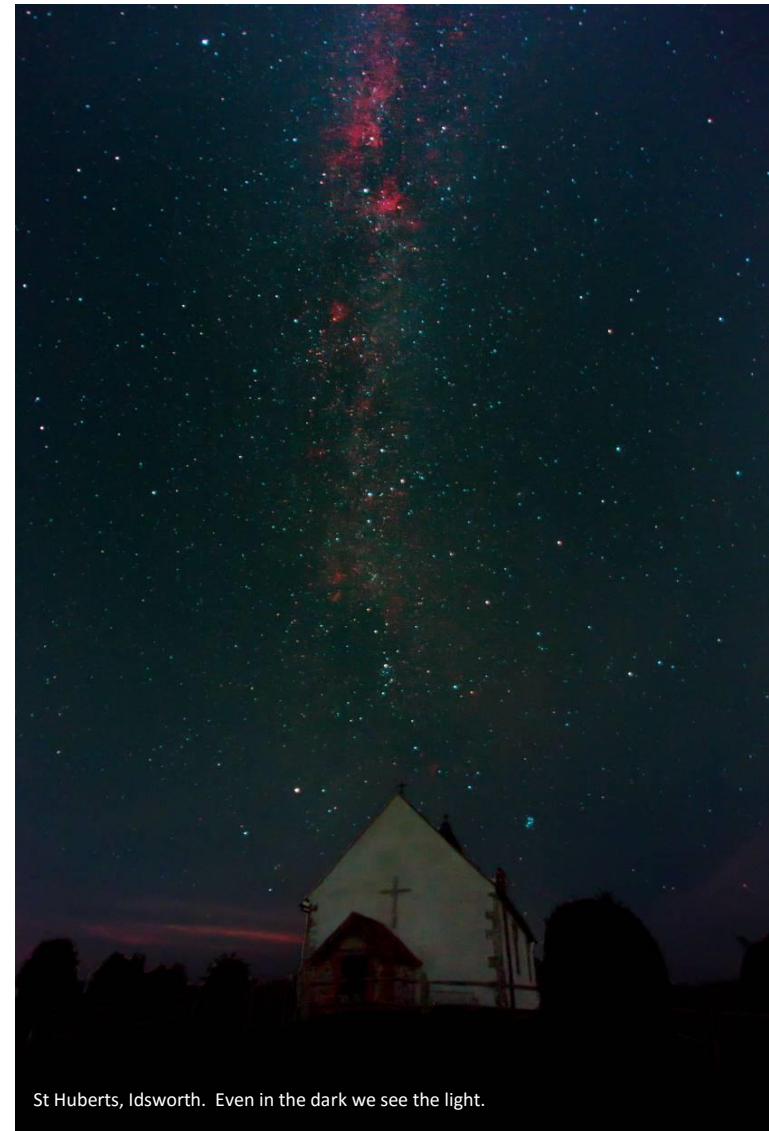
The spill of lights from large open glass windows and sky lights often present a greater source of light pollution than externally mounted lights. Consequently it is important to control the lighting coming from these types of developments. The design of building should reduce the impact of light spill from internal lighting or suitable mitigation measures should be put in place.

WHAT A LIGHTING PROPOSAL NEEDS TO INCLUDE

To be able to satisfy the lighting hierarchy as defined in SDNPA Local Plan policy SD9, a proposal will need to include a comprehensive lighting plan. Unless definitive answers can be determined from the plan, the proposal will not be given consent.

LOCAL PLAN POLICY LINK – SDNPA LOCAL PLAN. DNS: 5.65

Where a proposal involving outdoor lighting, a statement will be required to justify why the lighting proposed is necessary for its intended use and that shows every reasonable effort to mitigate skyglow and light intrusions has been addressed and accompanied by a computer calculation indicating task luminance, uniformity, horizontal values of overspill beyond the property line and vertical luminance values of light intrusion on adjacent property windows.

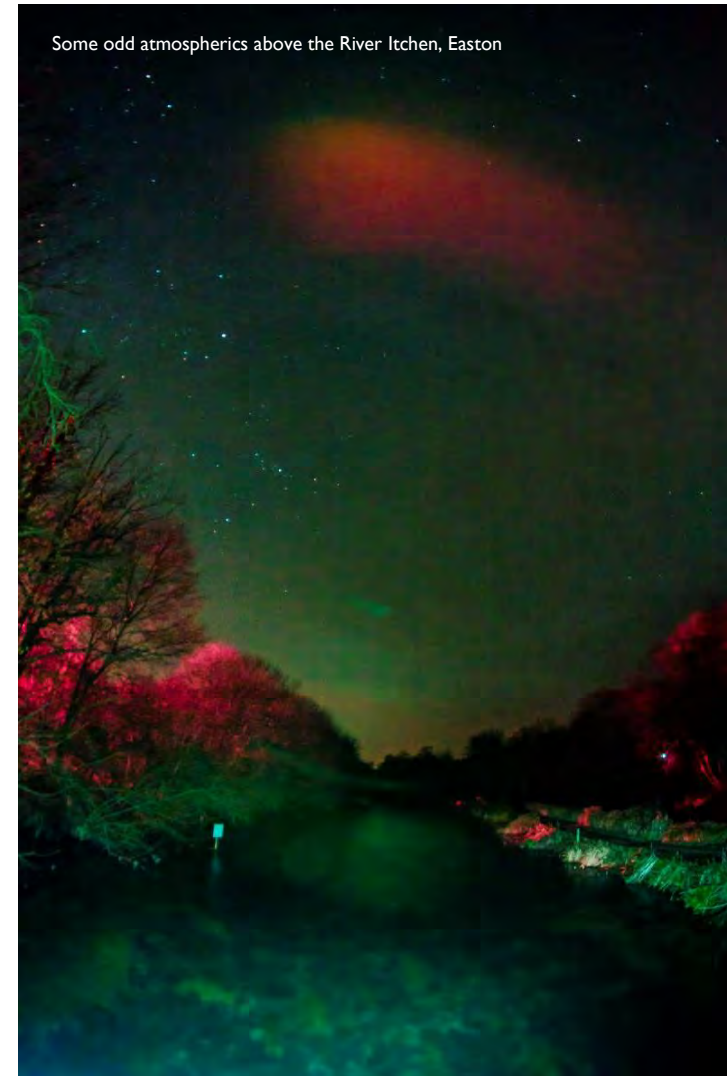


Policy in Practice

As the eighth largest planning authority, the SDNPA receives around 5,000 planning applications a year; many applications with lighting requirements. Over the last two years there have been over 50 applications called into the SDNPA for specific dark skies consultation ranging from sheds, schools, sports facilities and large scale housing developments. The lights have ranged from small domestic style lighting to floodlights and residential street lighting schemes. In each case the SDNPA has required lighting design schemes that are consistent with local policy showing good dark sky friendly installations.

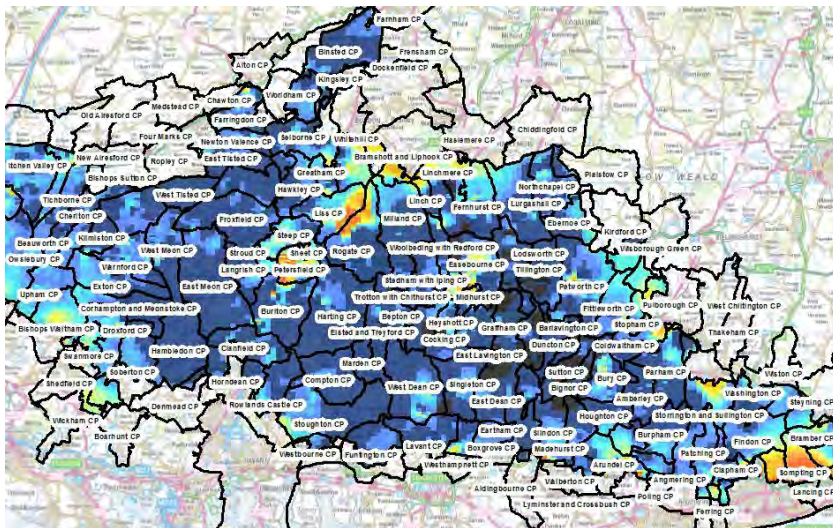
Although some are not highly visible or community led, they are examples of good dark sky friendly lighting within the community. In order to satisfy minimum requirement Ei, approximately 222 lights should be installed for the total 110,000 residents of the total National Park. It is estimated that the total number of lights installed under these applications is around 200. However, the population is significantly less within the rural communities. If this number applies to rural populations then this requirement has at least been partially met.

Our future strategy will continue to complete and encourage dark sky friendly designs through the planning system.



Parish Plans

Parishes have a number of options to include local issues into local authority planning. Though not mandatory, Village Design Statements (VDS) and Community Plans have been available, but Neighbourhood Plans offer the means for local authorities have a regard for local issues. With a high number of parishes within the park and the dark skies core, inclusion of dark skies within these plans offers a further local application of the SDNP local plan



The Localism Act, which received Royal Assent on November 15 2011, introduced new rights and powers to allow local communities to shape new development by coming together to prepare neighbourhood plans.

Neighbourhood planning can be taken forward by two types of body - town and parish councils or 'neighbourhood forums'. Neighbourhood forums are community groups that are designated to take forward neighbourhood planning in areas without parishes.

Neighbourhood forums and parish councils can use new neighbourhood planning powers to establish general planning policies for the development and use of land in a neighbourhood. These are described legally as 'neighbourhood development plans.

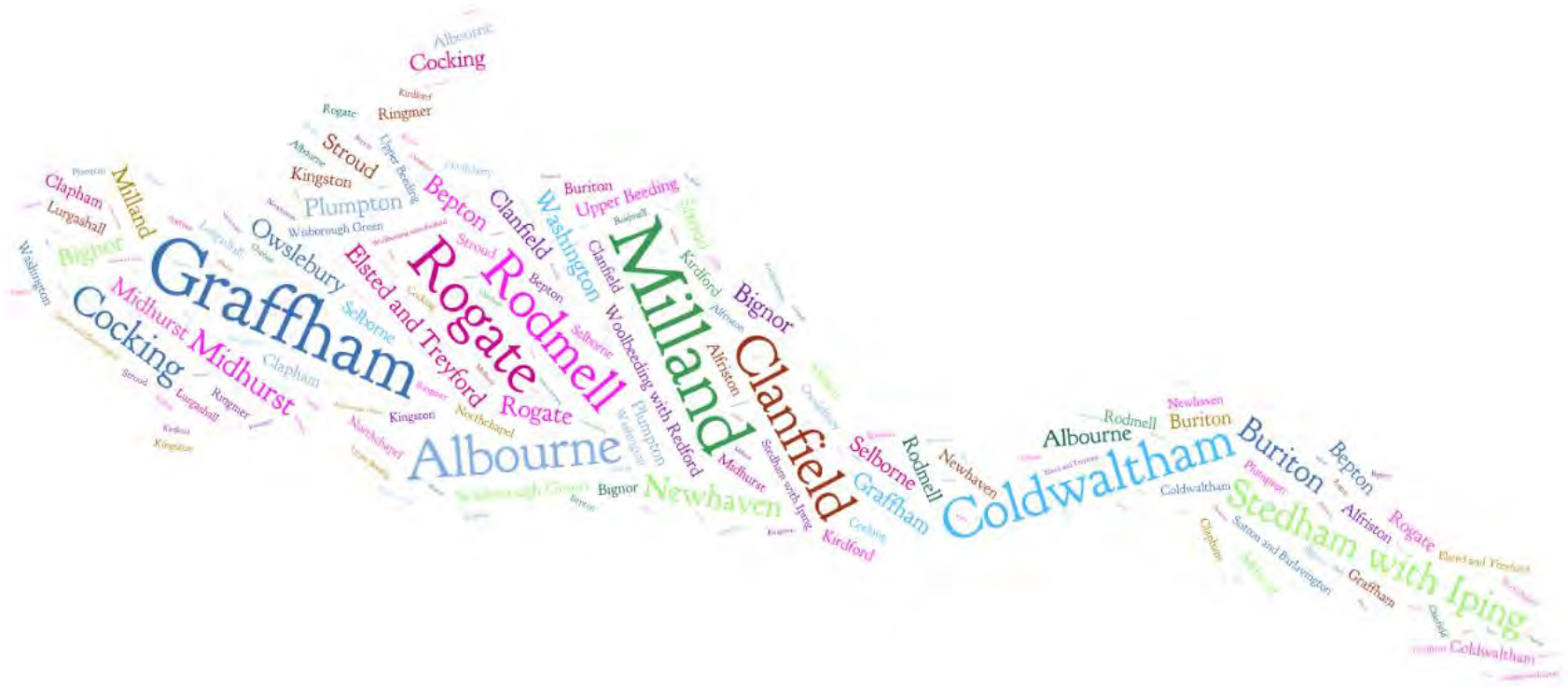
Proposed neighbourhood development plans or orders need to gain the approval of a majority of voters of the neighbourhood to come into force. If proposals pass the referendum, the local planning authority is under a legal duty to bring them into force.

As Parish Plan timescales and needs may not fall within the dark skies application time line the SDNPA will continue to develop dark skies policies. There have been a number of responses, mostly from parishes with dark skies. All have replied favourably and show their support and commitment to protecting dark skies.



Andromeda Galaxy amongst the gargoyles and grotesques at Arundel Cathedral (Outside SDNP)

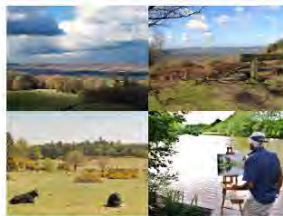
“Astronomy departments at local Universities will benefit greatly from this.”



**MILLAND
NEIGHBOURHOOD PLAN**

2015-2030

PRE-SUBMISSION CONSULTATION VERSION (APRIL 2015)



Rogate and Rake

Neighbourhood Development Plan
2015 - 2035

Pre-Submission Draft for consultation



**Storrington, Sullington &
Washington Neighbourhood
Plan**

2015-2031

Pre-Submission Plan



Published by Storrington & Sullington and Washington Parish
Councils for the Submission Consultation under the Neighbourhood
Planning (General) Regulations 2012.

February 2015



SELBORNE VILLAGE COMMUNITY PLAN



2013

"I watched a meteor shower on Beachy Head and I've never seen anything like it! My wife and I often go up to Beachy Head just to look at the night sky."



Regional Local Authority Local Plans

Under the Localism Act 2011, there is a legal duty on local planning authorities, county councils in England and public bodies to engage constructively, actively and on an on-going basis to maximise the effectiveness of Local and Marine Plan preparation in the context of strategic cross boundary matters. This is referred to as the 'Duty to Cooperate'.

The duty to cooperate is not a duty to agree. But local planning authorities should make every effort to secure the necessary cooperation on strategic cross boundary matters before they submit their Local Plans for examination.

To effectively establish commitment from our partners and neighbours for protecting dark skies, the SDNPA has actively approached local authorities relevant to this issue. Specifically we have asked the local authorities;

- Details of any existing policies on light pollution the LA already has that could indirectly benefit the SDNP.
- Confirmation of whether and how the Authority might develop such policies if they do not exist.
- Within emerging and future Local Plans, acknowledgement that the dark skies of the South Downs NP is a receptor of light pollution from adjoining towns and cities.



"Please prohibit additional street lighting/car park lighting in villages where there is currently none."

The Winchester District Local Plan Review 2006 Policy DPI10 references light pollution in general terms where schemes should be designed to reduce impacts to an acceptable level. This 2006 plan is now being updated.

The Winchester District Local Plan Part 1 - Joint Core Strategy(2013) covers Winchester District including the area that now lies in the South Downs National Park (SDNP) and has been adopted both by Winchester City Council and by the SDNPA.

The Winchester District Plan Part 2 (2014) Development and Allocations Document is currently being developed and will also form part of the Development Plan which will be replacing the saved policies of the 2006 Plan. Light pollution is covered in;

- DM17 – Site Development Principles
- DM19 – Development and Pollution
- DM23 – Rural character (see box)

Of specific relevance to the SDNP, from Local Plan part 2;

6.4.59: The nature of the development may lead to intensification of uncharacteristic use in the area. Noise and lighting pollution may be more noticeable in rural areas due to the relative tranquillity of the surroundings. The rural character and tranquillity of the area will be taken into account when assessing the appropriateness of developments that may give rise to pollution.

Policy DM23 – Rural Character. (Extract)

Outside defined settlement boundaries, development proposals which accord with other relevant policies will be permitted where they do not have an unacceptable effect on the rural character of the area, by means of visual intrusion, the introduction of incongruous features, the destruction of locally characteristic rural assets, or by impacts on the tranquillity of the environment.

The following factors will be taken into account when considering the effect on the rural character and sense of place:

Tranquillity – developments should not have an unacceptable effect on the rural tranquillity of the area, including the introduction of lighting or noise occurring as a result of the development, taking account of the relative remoteness and tranquillity of the location. New lighting will generally not be permitted in unlit areas and the type, size, design and operation of any lighting may be controlled where necessary by the use of conditions.



The district plan was published in June for its final period of public consultation before it goes forward to independent examination by a planning inspector. The SDNP is now not able to make any fundamental changes to the policy for this plan.

Policy DP27: Noise, Air and Light Pollution in the draft Mid Sussex District Plan 2014 – 2031 includes the following text;

The environment, including nationally designated environmental sites, nationally protected landscapes, areas of nature conservation or geological interest, wildlife habitats, and the quality of people's life will be protected from unacceptable levels of noise, light and air pollution by only permitting development where:

- The impact on local amenity, intrinsically dark landscapes and nature conservation areas of artificial lighting proposals (including floodlighting) is minimised, in terms of intensity and number of fittings;
- The applicant can demonstrate good design including fittings to restrict emissions from proposed lighting schemes.

The degree of the impact of noise and light pollution from new development or change of use is likely to be greater in rural locations, especially where it is in or close to specially designated areas and sites.



The Worthing Core Strategy was adopted in 2011. Although this does not include any specific policies relating to light pollution the Built Environment and Design Policy 16 (and its supporting text) does take 'pollution' into account - and this would include the consideration of light pollution. The policy itself requires development in Worthing to make good use of natural and artificial light.

A Core Strategy was intended to be the Development Plan until 2026 changes made to the planning system at a national level have meant that a full review of this plan is now being undertaken. The Council has recently adopted a Local Development Scheme which commits the Council to the progression of a new Local Plan for Worthing over the next three years. This process will allow for further consideration to be given to the issue and the impact of light pollution within Worthing and the surrounding area.

The latest iteration of the Emerging Local Plan 2014;

Policy 15: Quality of the Built Environment and Public Realm

Supporting text, paragraph 4.8: Lighting is an important element of design quality; whilst necessary for safety reasons it can also add character and highlight elements of architectural quality. However, it is also important to ensure that light shines on its 'target' and does not waste energy or contribute to 'skyglow', which detracts from the night sky's natural state and is a form of visual pollution.

Extract from Policy itself:

"...Lighting incorporated into developments should provide the minimum for public safety, be energy efficient, designed to illuminate the target only and avoid light pollution."



**Horsham
District
Council**

Horsham District Council has recently concluded the Examination hearings into the Local Plan (known as the Horsham District planning Framework) and are awaiting the Inspector's report. The

SDNP were consultees into the preparation of this document and comments have helped to shape the policies in the plan.

With regard to dark night skies, this issue is addressed through reducing light pollution more generally.

Paragraph 9.10 references the need to ensure that appropriate lighting is used to prevent unnecessary light pollution and that this is particularly important in rural areas.

Policy 24 (Environmental Protection) specifically requires that pollution (with light pollution specifically identified) is minimised.

The Council also has a policy on protected landscapes (policy 30) which includes the need for development outside the national park to ensure that it does not impact on the natural beauty and public enjoyment of this landscape. As dark night skies contribute to both of these aims, the policy is also consistent with this issue.

Finally the Council is working in partnership with local communities and the SDNP in the preparation of neighbourhood development plans in parishes which are within HDC and the SDNP planning areas, and are supportive of policies which protect dark night skies within these plans.



**Brighton & Hove
City Council**

The Brighton & Hove Local Plan was adopted on 21 July 2005. Under the new planning system, Local Plan policies are automatically 'saved' for three years from adoption. The saved policies will be replaced in stages by emerging development plan documents (DPDs). Local Plan policies will be shown as deleted when they are superseded by policies in newly adopted DPDs. The first document due to be adopted will be the City Plan Part One

With regard for light pollution there are several references in the Local Plan 2005. In addition to policy SU9 Pollution and Noise Control;

QD25 External lighting (Extract)

Planning permission will not be granted for lighting units which emit over-intense light in the context of the use of the building or space to be illuminated and / or can be seen to cause detriment to amenity, environment, and highway safety or cause significant light pollution, especially upward light pollution.

QD26 Floodlighting (Extract)

Floodlighting which creates significant illumination beyond those areas requiring illumination or will result in detriment to amenity or to sensitive areas and their settings will not be permitted.

There is specific reference to National Parks

3.115 (Extract) The impact of floodlighting can be particularly harmful to sensitive areas and their setting, for example, conservation areas, listed buildings, sites important for nature conservation, the countryside and the Area of Outstanding Natural Beauty (National Park). The planning authority will ensure, therefore, that all floodlighting proposals are sympathetic and appropriate to the area in which they are to be located. Where appropriate, planning conditions will be imposed, restricting the intensity and hours of illumination.



The Arun District Local Plan 2011-2031 and supporting documents were submitted on 30th January 2015 for independent examination to the Secretary of State for Communities and Local Government via the Planning Inspectorate.

Light pollution is specifically referenced in section 21 – Quality of the environment:

Policy QE DM2 - Light pollution

Planning permission for proposals which involve outdoor lighting must be accompanied by a lighting scheme prepared according to the latest national design guidance and relevant British Standards publications. Outdoor lighting schemes will be considered against the following criteria:

- a. No adverse impact on neighbouring uses or the wider landscape;
- b. Light levels being the minimum required for security and working purposes
- c. Minimising the potential glare and spillage; and
- d. The degree to which outdoor lighting can be powered by on-site renewable sources

Where appropriate, the local planning authority will seek to control the times of illumination.

Developments shall also be consistent with all other Local Plan Policies.

Referencing the following policy outcomes;

- **To protect residents from light pollution**
- **To protect the dark skies across the District and of the South Downs National Park**



On 14th July 2015, Chichester District Council adopted the Chichester Local Plan: Key Policies 2014-2029. The Chichester Local Plan places an amount of emphasis on the importance of the views and landscape of the South Downs National Park.

Specifically relating to light pollution, criteria 10 of Policy 40 Sustainable Design and Construction

requires that;

all new dwellings or for new non-domestic buildings, provide evidence on how the reduction of the impacts associated with traffic or pollution (including air, water, noise and light pollution) will be achieved.

There is also a requirement within Policy 32 Horticultural Development Areas, that planning permission for new glasshouse, pack-house and poly-tunnel development need to demonstrate there is no significant adverse impact resulting from artificial lighting on the occupants of nearby sensitive properties or on the appearance of the site in the landscape.

The adopted Chichester Local Plan includes a commitment for it to be reviewed within 5 years. The Council can review existing policies and if necessary take the opportunity to further address the concerns relating to light pollution from adjoining towns and cities and the impact on the South Downs National Park.

“We often get people visiting from more urban areas who are amazed at the spectacular star display on a clear night. Something to be treasured.”

The following local authority policies were found via on-line search rather than response:



The Local Plan Second Review was adopted at the end of March 2006 and remains part of the Statutory Development Plan. The Local Plan: Second Review will eventually be superseded by the new Local Plan.

P5 - 4.91 Details of any external lighting scheme required as part of any new development should be submitted as part of the planning application. In order to minimise light pollution and increase energy efficiency, the District Council will need to be satisfied that the lighting scheme proposed is the minimum required for security and working purposes and that it minimises potential pollution from glow and spillage. On the edge of settlements and in rural locations, landscaping measures should be provided to screen the lighting installation from view. Light pollution can be particularly intrusive in rural areas and can harm the character of the countryside. Artificial lighting can also have a detrimental effect on wildlife, particularly nocturnal animals and nesting birds. Conditions will be attached to any floodlighting approvals given for evening usage of sport facilities and community buildings to control light intensity, light spillage and hours of use. **The Observatory at Clanfield is particularly sensitive to excessive light pollution.**

A Lighting assessment is required:

With all applications for:

- external lighting systems associated with sports pitches, car parks and garage forecourts
- any major residential or commercial development in the countryside.

Schemes should be prepared by a recognised independent consultant and submitted with applications so we can consider the effects of the lighting. Reports need to provide information about sky glow (%) and source intensity (measurements in lux).



Waverley is currently updating local plan 2002. The last new Local Plan consultation took place between 3 September - 17 October 2014.

Chapter 2 – Development – Light pollution

2.20 Light pollution can affect both urban and rural areas, but it is a particular problem in the countryside where dark skies at night are one of the special and intrinsic qualities of the rural landscape. Artificial lighting can obscure the stars, introduce an urban character into rural areas, intrude on residential amenity and affect the wildlife of an area. Light pollution also represents a waste of energy and resources.

2.21 In determining proposals involving a lighting scheme, such as lighting for security or operational purposes, consideration will be given to the impacts on residential amenity, people passing the site (including motorists) and on visibility of the dark night sky. Schemes should involve a minimum amount of lighting necessary to achieve its purpose and should minimise glare and light spillage from the site.

“I would like to stress the importance of maintaining our dark skies in the National Park.”



Lewes District Council

The Lewes District Local Plan was adopted in March 2003 and sets out the current planning strategy for the District. It is under review and will ultimately be replaced by the Local Development Framework

Environmental Principles - External Lighting;

ST7 Details of any external lighting required as part of any new development should be submitted with the planning application. Planning permission will not be granted unless the District Council is satisfied that the proposed lighting scheme is the minimum necessary for security and working purposes and that it minimises potential pollution from glare and spillage.

4.21 The potential pollution from external lighting schemes in new development is causing increasing concern amongst many people. This policy is intended to allow the Local Planning Authority an opportunity to examine the lighting schemes proposed in new developments, to ensure that they are not excessive for their requirements and minimise spillage and glare out of the built-up area into the countryside or into the sky. Such spillage can have a detrimental effect on landscape character and atmosphere of remoteness in rural areas and introduce a suburban character into the countryside.

4.22 The District Council will endeavour to achieve a reduction in light pollution where there is an opportunity in determining planning applications. With regard to safety and security, bright lights are not necessarily more effective than a low-level, downwardly directed lighting. Therefore there should not be a conflict with Policy ST8. (Policy ST7 will not apply to street lighting, as this is the responsibility of the Highway Authority, East Sussex County Council, and does not require planning permission).



It was adopted by on 20th February, 2013

The Eastbourne Core Strategy Local Plan sets out the key direction and planning framework for Eastbourne.

The Eastbourne Borough Plan (2001-2011) was adopted in 2003 and contains a number of saved policies which are still used to determine planning applications. The saved policies will remain as local policies until they are replaced by new policies in further Local Development Documents.

Pollution Control

3.23 Maintaining air, land and water quality is essential for human health and safety, and for the ecological well-being of the environment but pollution can arise from a variety of sources, including vehicular traffic and particular industrial and construction activities. Responsibility for pollution control rests with a number of different agencies but PPG238 advises that the land use planning interest must focus on any potential for pollution arising from a proposed development, and the extent that it may affect the current and future use of land. It is, therefore, appropriate to resist development which would pose an unacceptable risk of noise, smell, dirt, soot, smoke, **light**, vibration, radiation and other harmful emissions. Where it can be demonstrated that pollution risks can be mitigated the Council will impose a planning condition or a legal obligation that appropriate measures are put in place.

Policy NE13: Pollution Mitigation Measures

Planning approval for developments which pose a risk of pollution to air, land or water, will be required to incorporate adequate pollution control measures. Planning permission will be refused where it is considered that a development poses an unacceptable risk of pollution.

The Havant Borough (Core Strategy) is the principal document in the council's Local Plan. It covers the Borough of Havant, setting out the spatial planning strategy for the area up to 2026.

DM10 Pollution

Development that may cause pollution of water, air or soil or pollution through noise, smell, smoke, fumes, gases, steam, dust, vibration, light, heat, electromagnetic radiation and other pollutants will only be permitted where all of the following relevant criteria can be met:

1. The health and safety of existing and future users of the site, or nearby occupiers and residents is not put at risk.
2. National air quality standards or objectives would not be breached.
3. The water environment would not be detrimentally affected.
4. It would not lead to an unacceptable deterioration in the quality or potential yield of coastal, surface and ground water resources.
5. External lighting is of the minimum level of illumination and duration required for security and operational purposes.
6. External lighting would not interfere with safe navigation in either Chichester or Langstone Harbours and other coastal locations.

Local Plan Part 2: Development Sites and Policies is one of three documents within the Fareham Local Plan. The Local Plan also includes Local Plan Part 1: Core Strategy (adopted in August, 2011), and Local Plan Part 3.

3.18

Pollution (air, light and noise) is an issue that must be addressed in all new developments. Where appropriate, external lighting schemes required as part of a new development should be submitted as part of the planning application. It is important that light pollution is kept to a minimum in order to protect visual amenity and outlook from neighbouring properties, but to also ensure natural light is maximised and schemes are energy efficient. On the edges of the urban area and in areas outside the defined urban settlement

boundaries, landscaping measures should be provided to screen installations from view. Conditions may be attached to the provision of floodlighting in order to control usage and hours of operation.

The Council adopted the Eastleigh Borough Local Plan Review (2001-2011) on 25 May 2006.

Lighting

3.26 Lighting can have a significant impact on people's perception of their environment, especially at night. Building facades can be altered quite dramatically by different lighting and, at night, the principal distinction between urban and rural areas is often that one is lit and the other not. The perception of our physical environment can, therefore, be altered very significantly by the ways in which it is lit, or indeed by whether it is lit at all.

3.27 Light spillage can be considered to be a form of pollution and an annoyance because it obscures the night sky and can cause discomfort and loss of privacy. Well-designed lighting appropriately sited, on the other hand, can clearly improve public safety and improve people's perception of their environment. Whilst many forms of lighting do not constitute development requiring planning permission, there are numerous land uses such as sports pitches and car parks for which lighting is an essential element.

36. ES Permission will be refused for proposals which do not incorporate well designed lighting, where lighting is necessary. Lighting should be concentrated in those areas where it is required and spillage, either horizontally or vertically, should be minimised. The size and design of the lighting columns should not detract from the character of the locality.

Building Regulations

Building regulations are statutory instruments that seek to ensure that the policies set out in the relevant legislation are carried out and approval is required for most building work in the UK. The regulations that apply across England and Wales are set out in the Building Act 1984 and are administered usually by the local building control department or approved inspectors, such as District Councils.

Any electrical work or fixing lighting on the outside of houses, requires the use of a registered installer to make the building as energy efficient as possible. Energy efficiency is required when;

- When a dwelling has been extended
- When an existing lighting system is being replaced as part of re-wiring works.

An example of efficient lighting is where reasonable provision should be made to enable effective control and/or use of efficient lamps such that:

- Either, lamp capacity does not exceed 150 Watts per light fitting and the lighting automatically switches off when there is enough daylight and when it is not required at night;
- Or the lighting fittings have sockets that can only be used with lamps having an efficacy greater than 40 lumens per circuit-Watt.

Environmental Nuisance



The Clean Neighbourhoods and Environment Act 2005 makes light nuisance subject to the same criminal law as noise and smells. It applies to "artificial light emitted from premises so as to be prejudicial to health or a nuisance". (section 102, Clean Neighbourhoods and Environment Act, which amends section 79 of the Environmental Protection Act 1990). It enables individuals' recourse to identify and mitigate against any lighting that causes a nuisance by a

premises. Street lighting – as it is not on 'premises' – are unlikely on to qualify, but local highways authorities can install shields when requested.

Local authorities have a duty to take reasonable steps, where practicable, to investigate any complaints of artificial light nuisance; it is expected that the following sources will generate most complaints such as domestic and commercial security lights, sports facilities and exterior lighting of buildings.

As for all statutory nuisances, when assessing a case of potential statutory nuisance the Environmental Health Practitioner should take account of a range of factors including:

- Duration
- Frequency
- Impact – i.e. material interference with use of property or personal well-being; actually or likely to be adverse to health
- Local environment
- Motive – i.e. unreasonable behaviour or normal user
- Sensitivity of the plaintiff – statutory nuisance relies on the concept of the average person, and is not designed to take account of unusual sensibilities

In support of this legislation, The 1998 Transport White Paper A New Deal for Transport – Better for Everyone stated that;

'where lighting is essential, it should be designed in such a way that nuisance is reduced and the effect on the night sky in the countryside minimised'. Exterior lighting in rural areas can have a particular impact.

"Dark skies are very precious and becoming increasingly rare. It's vital to keep them for our relation to the natural world. Lights are kept on unnecessarily all over the place which also wastes fuel of course."

LIGHTS OUTSIDE PLANNING CONTROL



As the external lighting baseline showed, the dominant style and ownership of lights were off the shelf heritage style lanterns and security lights that would and have not required any form of planning permission. This is set to continue for the foreseeable unless there a change to national policy in this regard; but that is beyond the scope of this application. Consequently, without any planning controls, the SDNPA must develop suitable mitigation projects that help to manage the thousands of installation of this type. Ideally they must inform users and residents to;

- Light only when needed
- Use appropriate lighting for the task in hand
- Protect dark skies.

In addition to the mitigations described below, the SDNPA has gone to great lengths to mitigate this source of lighting and potentially, offers the biggest payback in terms of education and behavioural change.

One of the obstacles we must mitigate is the uncertainty and control over the lumen output of domestic lighting. As the external lighting survey showed, although we can confident that much of the domestic lighting is of low output and capable of meeting requirements, it has been difficult to provide 100% accuracy on the subject. To that end, the SDNPA in its future strategy will immediately look to;

- Investigate and implement an enhanced lighting survey
- Continue to press for 500 lumen lighting regardless
- Investigate topology and view-shed analysis within the landscape
- Expand the external lighting survey to other villages
- Where possible, include farm land estates in surveying

The results from these mitigation will feed into analysis and help us succeed a higher and more confident measure of conformity.

Engaging with Owners and Communities

Where potential major sources have been identified, letters have and will continue to be posted to inform owners of the project and encourage to work with the SDNPA to reduce light pollution. Nearly all of this lighting would have been installed before the National Park came into force, or been installed badly by the owner. Often it is a case of not being aware of the impact and in some cases – pubs for example – over lighting is thought to assist business. In these cases we have written to the owners to encourage change. As the SDNPA should not be regarded as a provider of funds for private retrofitting, much will depend upon the individual. If the SDNPA is seen as the lighting provider then there is little or no incentive for individuals to change behaviour; a sustainable solution must depend on the actions of individuals.

Lighting Projects

In general, the most community lighting projects will be;

- Public Houses
- Churches
- Village Halls
- Rural Business
- Streetlights

Only Churches, Village Halls (if there is one within the Parish) and Streetlights offer any means to provide *highly visible* demonstration. In most cases, Churches and Village Halls are generally unlit or already have some control measures in place. The availability of future funding streams through Community Infrastructure Levy, (in this section below) provide an opportunity to mitigate this requirement.

However, as the street lighting changes were conducted after consultation by the local lighting authorities with the parishes, they can be considered as a *highly visible* project in good lighting with the community. In total 2,700 street lights were updated with the National Park. Whilst they are not 'community owned', the SDNPA believes that minimal requirement E(i) is at least partially met. Our future strategy will build on this and focus on community action to increase this number.

Some Examples of Lighting Projects

Results from our external baseline, pledge comments, planning applications and general familiarity of the Downs allows us to identify sources of pollution that require action. Whilst dealing with every source of pollution is not possible before submission, there have been some successes. The SDNPA will continue to identify sources of pollution and engage with owners to reduce pollution, to bring the total number of compliant fittings up to required levels.

Queen Elizabeth Country Park

Bridging the gap between the larger Hampshire and West Sussex cores, Queen Elizabeth Country Park is located on the A3 and is often the first point of call for residents from the South Coast into the South Downs. It is designated as a dark Sky Discovery Site and is used by local astronomy groups for night events or solar observing sessions. As an Open Access site, it allows visitors to roam freely across its Downland and woodland habitats. With South Downs Way running through the middle, the park is strategically situated as a honey pot site to many visitors wishing access to the South Downs and its dark skies.

The main visitors centre however, is currently fitted with a number of bulkhead, security and car park lights that are outside the ideal guidance for lighting. The car park streets lights are of inefficient design and are on most nights. Whilst the centre does sit within a natural bowl, sheltered by woodland and the bank of the A3 – which passes some metres above it – the resulting sky bloom can be detected with sky quality measurements. As the SDNPA Western Area office resides within the facility, it was important to address this pollution before persuading others to do the same.

The centre is due for a major update within the next few years, and part of this work will involve a change to the car park function, access and lighting. The SDNPA and Hampshire CC officers are placing an appropriate lighting scheme as part of this upgrade to comply with SDNPA policies. In the interim, many bulkhead lights have been adapted with dark sky friendly shielding or angled correctly to reduce upward light. Timers have also been

fitted to the main car park street lights and are now managed according to usage and safety.

SDNPA Main Office

The South Downs Centre is the main office for the National Park Authority. Based in the north wing of Capron House and the Memorial Hall in Midhurst, the South Downs Centre is helping to preserve two Grade II listed buildings and restore them to the highest possible level of sustainability. This has been a complex undertaking as both buildings were in need of significant repair and upgrading. A BREEAM accreditation of 'Excellent' was achieved at design stage and the goal is that the South Downs Centre should become a beacon of sustainability in the National Park.

External lighting on the centre, hall and car park was a feature of this restoration, but due to its listed building status presents a conflict with lighting guidance. As the baseline showed, heritage Victorian style lighting – as would be consistent with the building character – does not satisfy the upward light criteria for the environmental zone. In this case building character, particularly in the daytime, is of greater importance than lighting. However, to reduce the light pollution as much as possible, eyelet styles have been used and the main car park lights – by far the bulk of the lumen output – have excellent optics (ULR<0) and are switched off at night.

Iford Youth Hostel

Part of a planning application the Hostel was noted to have a lighting scheme that was inappropriate to its rural setting, between Lewes and Newhaven. Although many miles from the core, the light pollution was quite considerable and often on with little use. To comply with planning requirements, the lighting has been retrofitted to remove any sources that have a ULR > 0, and are now fitted with timers. Needless and over bright street lights have been removed from the car park and new efficient designs have been used throughout. The site is an excellent location to stay and access skies.

“Each time a new large scale development is proposed, e.g. fracking site, we are threatened with losing this experience.”

Economic Incentive

There is little point in the SDNPA funding economic incentives for a wholesale change to domestic lights or demanding a curfews, for the following reasons;

- It would be far too costly.
- Many modern style lights that are fully cut off, are not a suitable to the heritage style lantern which is more in keeping with the rural aesthetic.
- Enforcement.
- It would not be sustainable.
- New lights could be installed without knowledge
- The Authority should not be overly draconian
- Easily open to abuse

But perhaps the most important reasons are from an environmental responsibility point of view:

Light pollution will only truly minimise when it is an instinctive learned behaviour that causes individuals to question their lighting needs. A SDNPA that would fund its way to darkness regardless of residents' perceptions is not a sustainable or efficient choice as it removes personal responsibility. It is far better to educate and inform residents so that they can make better choices, and that those behaviours are passed on to future generations.

Therefore, there is little point in pursuing the economic incentive for change in favour of education and awareness. Consequently, an International Dark Skies Reserve status would be the biggest the driver for change, by fostering a sense of environmental responsibility in its residents. This is in keeping with the IDA Vision statement;

IDA Vision Statement

3. Educate about the values of environmentally responsible outdoor lighting while collaborating with other like-minded organisations.

Whilst wholesale retrofitting of all residents lighting is not feasible for the reasons above, there is however, scope to provide funding for community buildings through the Community Infrastructure Levy.

Community Infrastructure Levy

In April 2015 the Government scaled back Section 106 – the system that makes sure that developers make a financial contribution to communities when they build new homes and supermarkets. It can now only be used to secure affordable housing and some on-site mitigation. In its place the Government has introduced the new Community Infrastructure Levy (CIL).

The SDNPA want to make sure that communities continue to benefit from any new development and are putting a Community Infrastructure Levy (CIL) in place for the entire National Park. This will allow us to place a financial change on developers who build new homes and supermarkets and use this money to benefit key National Park priorities such as green infrastructure, sustainable transport, education and – where appropriate – external lighting.

As part of the identification of threats, the SDNPA will look to identify possible opportunities for retrofitting and bring the total number of compliant fixtures to a higher value. It is likely that community buildings or businesses would be those targeted by CIL – village halls, churches etc - rather than individual residences.

Estate Plans

The South Downs has a number of large estates across the landscape; such as Cowdray, West Dean and Goodwood. Many of these estates are in the process of developing long term estate plans in consultation with the SDNPA. They offer the ability to proactively plan for better lighting before planning issues arise.

Community Charter

Not all parishes were able or willing to develop village design statements or neighbourhood plans. The SDNPA is however, keen to encourage similar community statements that build on the enthusiasm the residents have for dark skies.

One such parish, Buriton in Hampshire, is keen to develop the idea of a community charter that enables residents to pledge to install correct lighting. If successful the SDNPA would like to broaden this approach and develop a South Downs wide charter.

Due to the similarities, it may be possible to investigate further applications to the IDA under the Dark Sky Communities scheme. A Charter will look to encourage conformity in this respect.

An International Dark-Sky Reserve

Nothing will galvanize attention onto light pollution that attaining a dark sky designation. Having the nocturnal landscape recognised as an important natural resource will empower residents to take more care of it. Many residents have mentioned the reasons why they live in the rural area, quoting the dark skies.

We have seen behavioural change in residents, visitors and partners after the South Downs National Park was designated from two Area's of Outstanding Beauty. We have every confidence that a dark sky designation will produce improvements in behavioural change that are long term and embedded into future generations.



“The South Downs is my favourite walking area and to have it listed as a Dark Sky area will be fantastic.”

STREETLIGHTS



As the NPA authority does not directly manage the street lights, local highways authorities – through the partnership management plan – should have regard for the special qualities. The following management guidance illustrates that the main local highways authorities have shown clear commitment to protect dark skies and reduce lighting pollution.

All of the Local Highways authorities in and around the park have;

- Reduced the upward light spill of lanterns
- Have dimming schemes

The local authorities (HCC and WSCC) within the core areas have;

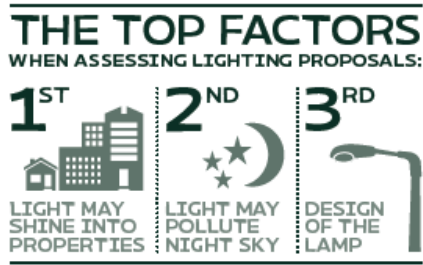
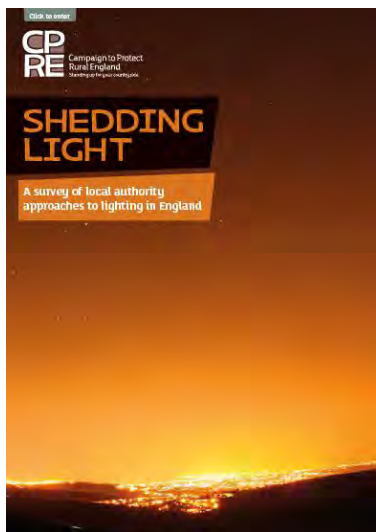
- Used lanterns with zero ULR and high DLR
- Kept part night lighting schemes (WSCC)
- Have dimming schemes
- Have had regard for the dark skies of the National Park

Around 2,700 Streetlights have been upgraded across the South Downs, with specific mitigations for dark skies. This figure is approximately 10% of the total estimated lights within the park but outside the core zone (15,000 houses with two lights). This figure rises to 30% if the total lumen output is used rather than number. As the sky quality is very much dependent upon the output of bright street lights rather than more numerous dimmer domestic fittings, the lumen percentage appears to more appropriate within the South Downs.



“This excellent idea should be extended into other areas.”

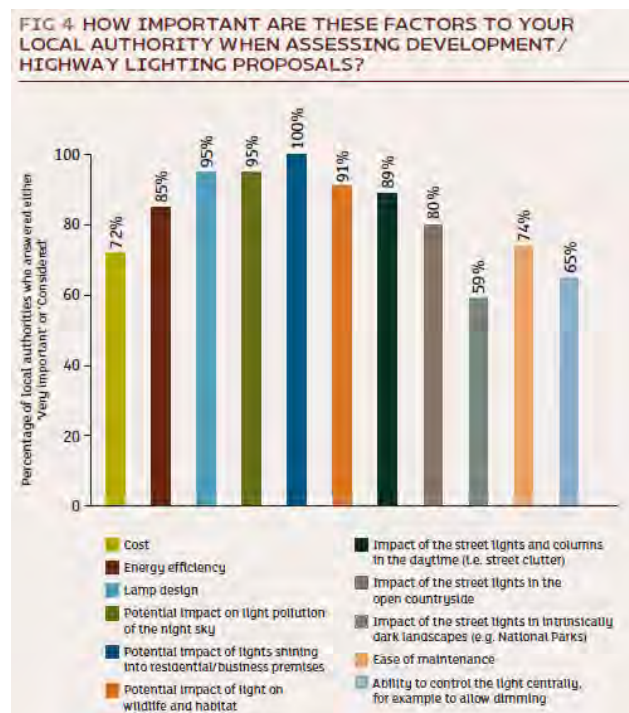
Local Authority Approaches to Street Lighting



Building on their Night Blight report, the Campaign to Protect Rural England ‘Shedding Light’ report, showed what were the main drivers and issues in street lighting scheme design and provision from Local Authorities. A UK wide survey, 83 local authorities responded – including 17 county councils, 31 district councils, 10 metropolitan borough councils, 18 unitary authorities and 7 London Boroughs.

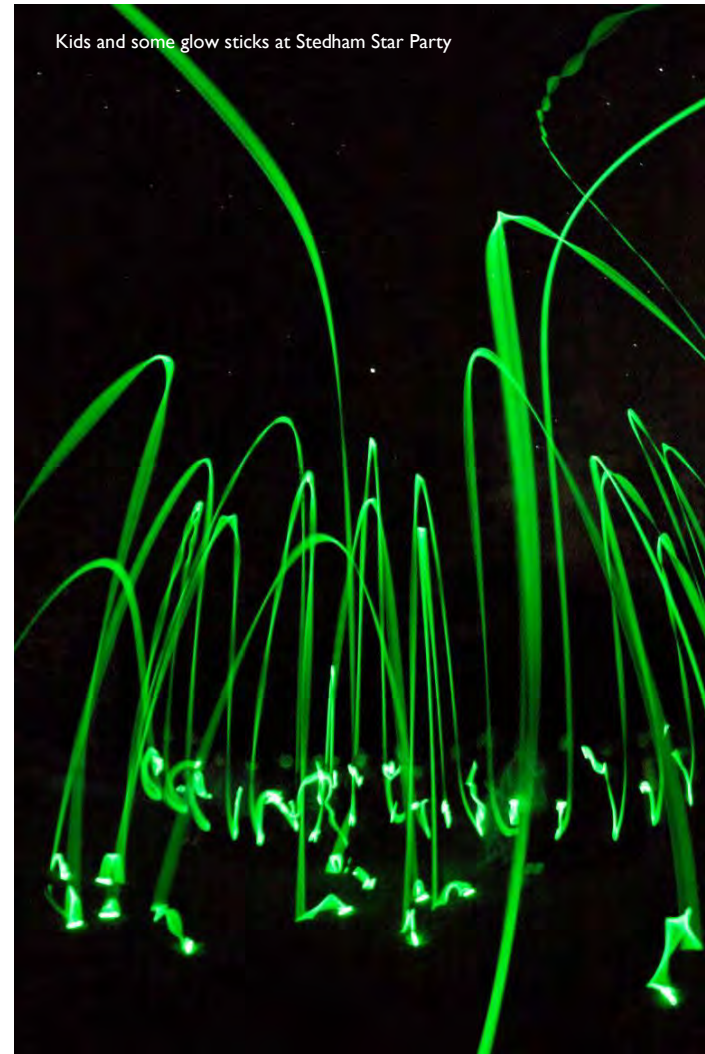
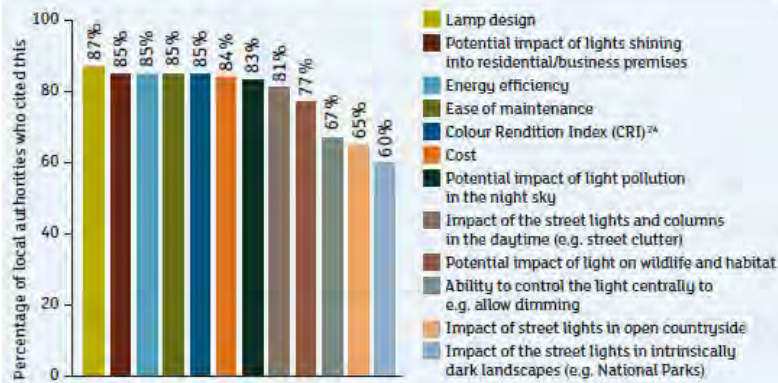
As the report showed there were many factors and issues to be considered when designing lighting schemes, with many authorities in the process of upgrading stock. Although light pollution was an important aspect the impact of street lighting in intrinsically dark landscapes was not one of the highest factors (60% see Fig 6). We hope that a Dark-Skies Reserve in the South Downs will help to push this consideration higher up in street lighting designs.

As figure 4 shows, however, ‘potential impact on light pollution on the night sky’ was one of the highest drivers for change, indicating the commitment of Local Authorities to protect dark skies, including those within the South Downs. This commitment is seen in the choices of dark sky friendly design schemes across the region.



“If you are able to establish a dark skies reserve, will you be able to do anything about the noise pollution from aircraft, which gets worse year by year.”

FIG 6 HOW IMPORTANT ARE THESE FACTORS WHEN YOU ARE CHOOSING NEW STREET LAMPS?



Kids and some glow sticks at Stedham Star Party

“Dark skies are so precious, so are the South Downs. The pace of today’s life means we all need dark skies at night to remind us that we are privileged to be a small part of an amazing universe and we should learn to care for nature on our Earth.”

Sec South Coast Street Lighting PFI



Though the exact specifications and policy documents differ between the two Counties the choices over lighting largely use the same style lanterns and approaches. Both Counties follow the general presumption that⁷;

Street lighting should not be provided in National Parks (EI Zones) unless the County Council or the Local Lighting Authority, can demonstrate an overriding road safety issues which cannot be overcome by any means.

From their Street Lighting Policy Document 4th edition, HCC have designated the rural areas of the National Park as an EI zone which requires minimal upward spill and lighting intrusion;

From section 5.3: Obtrusive Lighting; (extracts)

Considerations shall be given to the restriction of obtrusive light by;

- The control of the type of light source
- Restricting the level of light emitted by the luminaire at high angles usually between 70 and 90 degrees.

The use of full horizontal cut off luminaires for mounting height above 6m will have a substantial effect on restricting obtrusive light.

Astronomical observations can be particularly affected by obtrusive light from road lighting installations. Therefore considerations will be given to the level and type of lighting provided in close proximity to control the light output of the luminaire.

⁷ The net one up



The provision of street lighting is documented in the HCC Street Lighting guide 4th edition (2010). There is clear commitment by Hampshire CC to reduce light pollution and protect the dark skies of the South Downs National Park.

This reflects the results of the External Light Baseline – Streetlights.

Residential Roads S5 – S6

- 6m WRTL ‘Libra Performer’ with 24/36W PLL lamp and dimming ballast, fitted with Mayflower post top mounted (maximum tilt 5 degrees)

Residential Roads S4

- 6m WRTL ‘Libra Performer’ with 36/55W PLL lamp and dimming ballast, or WRTL ‘Arc 80’ with 60W Cosmopolis lamp and dimming ballast, fitted with Mayflower, (maximum tilt 5 degrees)

Main Roads ME5 to ME3a and CE Classes

- 8/10/12m Philips Iridium 253/254 flat glass with 100-250W SON/T or 90-140W Cosmopolis lamp and dimming ballast, (maximum tilt 5 degrees)

Heritage Lantern Types in addition to Development Standard Highway Lighting when appropriate

- Metcraft – Gladstone, Victoria (includes others not in SDNP)

For future development there a clear commitment to require the best light distribution and control. From ‘Development Standard for Highways Lighting 5/5/2015)

‘Within the National Park ambient luminance should be considered as very low and lower lighting levels for traffic is justified’

Residential Roads S4, S5, S6

- 6m Philips WRTL ‘Mini Luma’, 12-20 LED, 1.4 KLm upwards, Cool White, fitted with Mayflower post top mounted (maximum tilt 5 degrees)

Main Roads M5 to M3 and C Classes

- 8/10/12m Philips WRTL Luma, versions 1 to 3, Cool White, fitted with Mayflower post top mounted (maximum tilt 5 degrees)

From the HCC FAQ:

‘All lights are being dimmed to reduce carbon emissions but safety is a priority. However, there is no definitive research to prove that reducing light levels leads to an increase in crime.’

The current dimming regime is 25% from dusk (35 lux) to midnight, 50% midnight to 5am and 25% 5am to dawn (18lux).



National Park

The provision of street lighting is documented in the WSCC Lighting of Developer Promoted Highways Schemes in West Sussex (Revision 2015). With the current part night lighting regime, there is clear commitment by West Sussex CC to reduce light pollution and protect the dark skies of the South Downs

‘The basic start position of the design philosophy is West Sussex is considered a rural county with most subsidiary roads being considered as quiet with slow moving vehicles.’

Subsidiary Roads Class S6/P6 – S4/P4

- 6m Philips/WRLT ‘Mini Luma’, 12-20 LED, 1.4 Klm, Cool White, fitted with Mayflower, maximum tilt 5 degrees.
- Heritage: Metcraft Victoria, LED 1-3 Modules Philips Fast Flex Neutral White
- Switching to part night 12 till 5.30 off or dimmed to 60% light output

Traffic Routes Classes M5 to M3 and C

- 8/10/12m Philips WRLT Luma, versions 1 to 3, Cool White, fitted with Mayflower post top mounted (maximum tilt 5 degrees).
- Switching to part night 12 till 5.30 off or dimmed to 60% light output

This reflects the results of the External Light Baseline – Streetlights

“As the County lighting Engineer for West Sussex I fully support the National Park’s bid to achieve a dark sky environment. Lighting is expensive to install, maintain and energise and to waste these resources, hiding our magnificent star strewn sky, is not an acceptable outcome. We have worked for many years with local astronomers to achieve our goal of lighting where it is needed for safety and convenience and using modern technology to restrict sky glow wherever possible for the enjoyment of our residents”.

Kevin Moss

Team Leader. West Sussex Street Lighting PFI monitoring tea

Highways Agency

Development of streetlights on Major roads must comply with;

- TD34 Design of Road Lighting for the Strategic Motorway and All Purpose Trunk Roads,
- British Standard (BS 5489 - 2013)

A listed consultee (Local Planning Authority) TD34 requires a consultation with the National Park within the design process. The recent upgrade to the A3 Ham Barn roundabout reflect this design process and a due regard for National Parks and reducing above horizontal light spill.

TD 34/07

4. Design Process

4.3 Consultation shall be undertaken as necessary during the design process in order to:

- ii. identify the most appropriate and acceptable methods of lighting for environmentally sensitive areas and/or conservation areas.

Although TD34 is currently being updated, the 2007 references National Parks

BS 5489-1:2003 (Excerpts)

5.3: Minimizing light in directions where it is neither necessary nor desirable

Control of the light distribution of installations is necessary in order to limit obtrusive light and sky glow.

In some cases lighting can be intrusive at night, e.g. in rural and open areas where lighting can be seen as an intrusion in an otherwise darkened environment.

Light above the horizontal should be minimised in all road lighting installations by controlling the intensity of the light from luminaries at high angles.

Lighting schemes in, or adjacent to, environmentally sensitive areas, seen from within these and adjacent areas, should be given particular attention. Such areas includes green belts, **national parks** and areas of outstanding natural beauty. Similarly, schemes close to the edge of residential areas should also receive special attention. In these case the light distribution should be controlled to minimise light spill on adjoining areas, by selection of an appropriate install intensity class from BS EN 13201-2:2003.

STREETLIGHTS OF SURROUNDING AUTHORITY



Surrey County Council were not part of the SEC South Coast PFI and have developed a separate lighting scheme and design guide for future development.

From their general considerations from 'Developer street lighting notes and specifications';

'In conservation areas, of very close to them and in other environmentally sensitive areas special design apparatus may, at the complete discretion of the Authority, be required.

All designs are required to meet the adoptable standards for the County. The design shall minimise light spill off the highway, and utilise column locations on property boundaries of building lines.

Annex 2 – Specified Equipment

Residential

- WRLT Libra, 55w PLL

Major Traffic Routes

- Curved Glass WRTL Arc 80, 45W to 140W. (zero ULR)
- Flat Bowl WRTL Arc 80, 45W to 140W

Street lights will be dimmed between the hours of 11pm and 5.30am



East Sussex were not part of the SEC South Coast PFI and have developed a separate lighting schemes requirements. Historically, the implementation of highways lighting systems designed by outside consultants was frequently been problematic and result in delays and additional cost to the Developer. For this reason, ESCC insist that all lighting designs must be procured through their own Highway Lighting Team. Consequently, no developer guide is available.

In 2012 east Sussex County Councils Cabinet agreed to implement a number of changes to the provision of street lighting.

'This was in accordance with the Councils policy to help reduce energy consumption and also light Pollution'

These changes included changing the yellow lights to white LED lights (Philips Luma) and dimming some lights along the main roads between midnight and 6.00am. Part night lighting has been chosen for;

- Quiet streets where there is integration between Eastbourne lighting with the par-night lighting introduced in Willingdon in Jan 2013
- Quiet streets at the base of the South Downs National Park which is currently applying for Dark Sky reserve Status.



As Southampton City Council is part of the SEC South Coast PFI, the Development Standard for Highways Lighting is identical to Hampshire CC.

Residential Roads S4, S5, S6

- 6m Philips WRTL 'Mini Luma', 12-20 LED, 1.4 Klm upwards, Cool White, fitted with Mayflower post top mounted (maximum tilt 5 degrees)

Main Roads M5 to M3 and C Classes

- 8/10/12m Philips WRLT Luma, versions 1 to 3, Cool White, fitted with Mayflower post top mounted (maximum tilt 5 degrees)



"We lived in the South Downs for over 30 years before moving to Wales, the sky wasn't bad but you could always see an orange glow on the horizon."