



Purpose: For Decision

Cabinet report

Date **16 DECEMBER 2021**

Title **DARK SKIES INITIATIVE**

Report of **CABINET MEMBER FOR ENVIRONMENT, HERITAGE AND WASTE**

EXECUTIVE SUMMARY

1. This Report seeks Cabinet approval for the council to provide key support for an International Dark Skies Association (IDA) accredited Dark Skies Park status application in the south-west of the Island, within the designated Area of Outstanding Natural Beauty, and the following associated actions:
 - (a) Replacement of street lighting within the area included in the application within a set programme of works
 - (b) The preparation of a comprehensive lighting code to be applied within the Dark Skies Park, which would take the form of a Supplementary Planning Document.
 - (c) Ensure annual monitoring and reporting on the success in light pollution control as well as the maintenance of a sky brightness measurement program is carried out.
2. There will be some capital and accrual requirements to succeed in this application. Costs relate to the type of street lighting used in the area, which will need upgrading to meet eligibility criteria.

RECOMMENDATION

3. To approve Option 1 in principle, and the council supports an IDA-accredited Dark Skies Park status application as outlined in this report with the following commitments:
 - (a) Financial support from the council of £49,453 to replace existing street lights where necessary within a defined programme, subject to the approval of the capital programme by full council
 - (b) The preparation of a comprehensive lighting code to be applied within the Dark Skies Park, which would take the form of a Supplementary Planning Document.

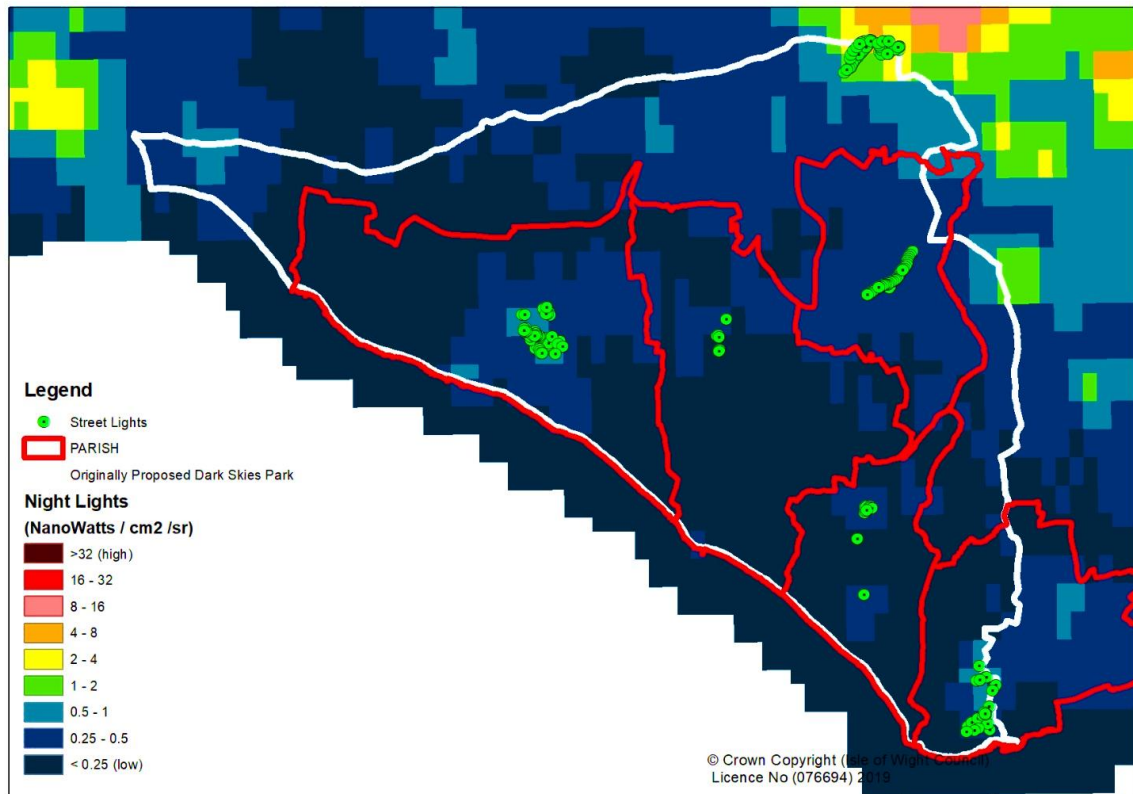
- (c) Ensure annual monitoring and reporting on the success in light pollution control as well as the maintenance of a sky brightness measurement program is carried out.

BACKGROUND

4. Dark Skies are special areas across the world where there are low levels of light pollution. Under these conditions thousands of stars are revealed at night, this is beneficial to the wildlife and tranquillity of an area along with providing an out of season boost for tourism. Currently there are 64 Dark Sky areas around the world, including: the Channel Island of Sark, the Brecon Beacons National Park and Dumfries and Galloway Dark Sky Reserve.
5. The approval of the Dark Skies Park status application will have several benefits for the Isle of Wight, including:
 - (a) **It helps attracts more visitors:** Gaining Dark Sky status shows communities are providing public education about Dark Skies. This new programming often attracts new visitors. A designation is also a good marketing tool, because it provides new and unique ways to draw visitors.
 - (b) **It brings economic benefits to surrounding communities:** The increase in visitors due to a Dark Sky designation also means an increase in customers for local area businesses. In 2013 a 'Dark Sky Park Economic Impact Assessment' looked at the impact on local business a year after Galloway Forest Park in Scotland became an IDA Dark Sky Park. The report found that for every £1 spent on installing Dark Sky friendly lighting in the area, there was a return on investment of £1.93, due to an increase in tourism. The report concluded the economic benefits were probably much more.
 - (c) **It will support biodiversity in the area:** By making areas darker improves the tranquillity and environmental quality of the area for both people and wildlife. Recent research has suggested that LED street lighting can have serious negative impacts on moth and insect populations. By replacing the street lighting used in the area with new lighting, this would potentially decrease or reverse insect population losses, particularly moths.
6. We are fortunate that much of the Isle of Wight has a high quality of night sky. This is especially apparent within the Isle of Wight Area of Outstanding Natural Beauty (IW AONB).
7. The IDA is the recognised authority on light pollution and was the first organisation to call attention to the hazards of light pollution. The IDA awards different grades of Dark Sky Status to areas of land that are recognised as having exceptional or distinguished quality of starry nights. Dark Sky Status helps to protect these areas for scientific, natural, educational, cultural heritage and public enjoyment.
8. Through the Dark Wight Skies Initiative (www.darkwightskies.com), IW AONB is working in partnership with the Vectis Astronomical Society (VAS), Campaign to Protect Rural England (CPRE) and the Isle of Wight Society to achieve international recognition for the Island's night sky, with IW AONB as the core 'Dark Sky' resource.
9. The Isle of Wight AONB has previously undertaken (over the course of several years) to investigate the possibility of the Isle of Wight becoming a Dark Skies

Community under the provisions of the International Dark Skies Association (IDA). The AONB found that in 2020 they were unable to take this proposal forward so reduced their ambition to a 'Dark Skies Park' with the IDA. The AONB agreed that this proposal would include the area indicated in the Draft Island Planning Strategy (see Figure 1).

10. However, in order to reach the criteria for the IDA 'Dark Skies Park' changes in the



lighting on the roads at Brighthstone were required (see Figure 1).

Figure 1. Proposed Dark Skies Park area

11. The AONB will continue working with partners such as the Vectis Astronomical Society to promote the dark skies of the Isle of Wight for residents and tourists and will look at an unaccredited area of the Island where light pollution does not prevent the enjoyment of dark skies. The AONB will also continue to provide comment to the Isle of Wight Council Planning Department on how light pollution can be reduced in new planning applications so we can maintain the dark skies on the Island.

STRATEGIC CONTEXT

12. The Corporate Plan 2021-2025 sets out three key areas for action. The Dark Skies Park status, if achieved, will support the action of:

Responding to climate change and enhancing the biosphere: The Dark Skies Park status will support and enhance the AONB and Biosphere designations and will support biodiversity gain in the proposed area.

13. The IDA-accredited Dark Skies Park status aligns with the following plans and strategies of the council.

<p><u>Draft Island Planning Strategy</u></p>	<p>The Strategy will set out how, in spatial planning terms, the Island will develop up to 2027. In principle, the Island Plan Core Strategy is about “place shaping” and delivery.</p> <p>The revised IPCS is currently out to consultation.</p> <p>Once it has been adopted the Island Planning Strategy will play an integral role in contributing to realising the vision the council has for the Island and facilitating growth.</p> <p>The draft strategy includes a Dark Skies Policy.</p>
<p><u>Health and Wellbeing Strategy</u></p>	<p>This strategy aims to improve the health and wellbeing of everyone on the Island. It focuses on making faster improvements for those who are most vulnerable and experience a poorer quality of life.</p>
<p><u>Regeneration Strategy</u></p>	<p>This 2019-2030 Regeneration Strategy for the Isle of Wight aims to set out how the council is leading the agenda to ensure the economic future of the Island and create the Island that is a great place to grow up, live, work and visit. The strategy sets out where we are today and the actions and activities that we believe will enable the vision for the future to be realised.</p>
<p><u>Island Biodiversity Plan</u></p>	<p>The Biodiversity Action Plan is made up of a series of documents produced from 2000 to 2005. <u>Habitat Action Plans</u> have been produced to provide a framework for action to conserve and enhance the Island’s biodiversity.</p>
<p><u>Climate and Environment Strategy 2021-2040</u></p>	<p>Outlines the need to meet, and action plan to achieve, net zero across the Island by 2040, as well as multiple actions to help improve the Island’s natural environment and to support Island designations including the Biosphere Reserve.</p>
<p>Local Transport Plan</p>	<p>The strategy accords with the developing revised local transport plan (LTP4)</p>

MANAGEMENT AND GOVERNANCE

14. If successful in attaining Dark Skies Status for the Isle of Wight, there is a need for annual monitoring and reporting on the success in light pollution control as well as the maintenance of a sky brightness measurement program. It is expected the report will be collated by the Dark Wight Skies Partnership; however, as the competent authority it is probable the IOW Council will need final sign off and delivery of the report to the IDA.

CONSULTATION

15. Consultation has taken place between the AONB team, Planning Services, and Island Roads, and there was consensus over the benefits of a Dark Skies Park designation to the Island. Each Service area has committed to supporting application and to undertake relevant actions to achieve the designation.
16. Extensive consultation (local authority, interested groups, communities, parishes, and individuals) was undertaken over five years regarding the proposition to nominate an area of the Isle of Wight as a Dark Skies Community and subsequently Dark Skies Park (designated areas) under the IDA (International Dark Skies Association).
17. However, the original Dark Skies Community and Dark Skies Park bids were not successful for a number of reasons including the issues around street lighting.
18. The Draft Island Planning Strategy was published for public consultation between 30 July 2021 – 1 October 2021. 35 specific comments were received in relation to the proposed policy EV12: Dark Skies (see Figure 2), all of which were in support of the proposal. These did include some observations around the practicalities of implementation, particularly for existing residential properties and settlements within the proposed area.

Figure 2. Draft Island Planning Strategy, policy EV12: Dark Skies

EV12
Dark skies

The council supports the creation of a dark skies park in the south west of the Island. Development proposals will be supported within the proposed dark skies park (as shown on the policies map) where they have demonstrated that all reasonable and proportionate opportunities to reduce light pollution have been explored and incorporated.

Development proposals that include roof glazing and large expanses of glazing will not be supported, unless through appropriate design the impacts can be mitigated.

If external lighting cannot be avoided the colour temperature of lighting should not exceed 2700K

FINANCIAL / BUDGET IMPLICATIONS

19. The funding will be subject to the approval of a capital bid as part of the budget-setting process taken to Full Council in February 2022.
20. The key financial implication involves the replacement of LED street lights within the area proposed for the Dark Skies Park to alternative lights of a different colour temperature as part of the annual programme of maintenance and repair at a cost estimate of £49,453. Replacing the LED units as part of the maintenance programme will significantly reduce the overall cost of the project.

21. There are 181 street lights within the defined dark skies park area and these typically have a colour temperature of 5700K. There are 11 different street light types across this area which includes 18 heritage style installations. The street light types vary depending on the lighting level required at the point of installation and is also a function of the mounting height of the street light when a greater spread of light may be required to illuminate a larger area such as a junction.
22. After the original IDA application, the cost of replacing these 181 street lights was notified to AONB to be £82,118 which included the replacement units and the associated labour cost of installation. Since the original application, it has become possible to reduce the upgrade cost to £49,453 (being the material cost of the replacement units only, based on current prices). This represents a lower cost option of £32,665 less than the original quoted price.
23. Since the original quote was offered, an opportunity has presented itself to allow the upgrade of the communication nodes across the entire street lighting stock on the island. The PFI street lighting has a remote management system that allows each of the street lights to be controlled independently from a central office in Newport and this system utilises these nodes. The provider of the street lighting equipment has agreed to work with Island Roads to facilitate an upgrade of lights to a newer and more efficient node as part of the normal test and inspection visits, thus effectively allowing a cost-efficient upgrade to be achieved by removing repeat visit costs and reducing overall labour costs.
24. It is therefore logical to apply this same benefit to the upgrade of the 181 units in the proposed Dark Skies Park area and pass this saving onto the council. Island Roads consider that it would only take an additional five minutes or so at each light column to replace the LED bulb with a new unit at the warmer temperature and are therefore able to offer a reduced upgrade price that is free of any installation costs. The requirements to achieve this offer is that the timing of the upgrade coincides with our time requirements to undertake testing, inspection, and node upgrades on the existing lighting equipment. This is currently planned to commence in early 2022 but would also need to include the lead time for delivery of the new units which is currently circa two months from order.
25. Any lightbulbs replaced during this process would be stored and where possible used in other parts of the Island as required (although this would be subject to checking any manufacturers' guarantees, etc.)

IMPACT ON YOUNG PEOPLE AND FUTURE GENERATIONS

26. There may be potential for the Dark Skies Park status to provide future training and employment opportunities for young people.
27. The Dark Skies Park status may also enhance children's' interest in space, science, stars, and/or astronomy and biodiversity as it will offer new outdoor learning opportunities.
28. Some emerging research suggests that high levels of street lighting may have a negative impact on young people's health. It is possible that changing street lighting could reduce these negative impacts, although it appears that further research in the area would be required to determine this. Therefore, achieving Dark Skies status and changing the lights could have positive health benefits for young people.

CLIMATE, ENVIRONMENT & UNESCO BIOSPHERE IMPACT

29. To achieve International Dark-Sky Association (IDA) Recognition and create a dark skies park in the south west of the Island, it is necessary to upgrade the existing street lighting to comply with the colour temperature requirements of the IDA. This requires replacing the existing luminaires with new units with the required colour temperature.
30. Lighting with lower colour temperatures has less blue in its spectrum and is referred to as being “warm”. Higher colour temperature sources of light are rich in blue light. IDA recommends that only warm light sources be used for outdoor lighting and has set their standard as ‘no more than 3000K.’
31. The change in lighting is not expected to change the brightness, as long as the wattage of bulbs doesn’t change – it will only change the colour of lighting from cooler to warmer.
32. Lighting will be subject to annual review and included in the trimming and dimming policy.
33. Isle of Wight Council’s Draft Island Planning Strategy policy EV12 Dark Skies (see Figure 2) sets out the future expectation that if external lighting cannot be avoided the colour temperature of lighting should not exceed 2700K. This is warmer than the IDA standard of no more than 3000K. Replacement street lights can be provided at either 3000K or 2700K.
34. There is now compelling scientific evidence that artificial light at night (ALAN) has significant adverse effects on biodiversity and important ecological processes, such as pollination. Recent research by Newcastle University and others has shown that street lighting directly affects moth populations, with LED lighting in particular significantly reducing caterpillar numbers in grass and hedgerow habitats directly under lamps.
35. However, there are a range of mitigation measures that could potentially address these declines. The team at Newcastle, in collaboration with partners on the Isle of Wight, would like to test ALAN mitigation measures in a real-world context including: 1) modifying/filtering LED lamp technology away from harmful ‘blue light’; 2) dimming of existing street lamps; 3) part-lighting (i.e. switching lights off at midnight) and 4) motion-triggered lighting options.
36. Depending on the effectiveness on reducing biodiversity declines, the best option(s) could be rolled out across the Biosphere Reserve, especially in the overall context of achieving Dark Skies status.

LEGAL IMPLICATIONS

37. Gaining official Dark Skies Park status does not carry any legal power.

EQUALITY AND DIVERSITY

38. An Equality Impact Assessment can be found at Appendix I.

39. The actions outlined in this report are not expected to have any impacts relating to equality.

PROPERTY IMPLICATIONS

40. The property implications for the council will relate to the management of any council-owned property, that will be in accordance with the Dark Skies policy in the Island Plan Core strategy. This can be undertaken on a case-by-case basis as necessary and in accordance with any future comprehensive lighting code.

OPTIONS

41. Option 1: Agree to support the Dark Skies Park status application with the following commitments:
- (a) Financial support from the council of £49,453 to replace existing street lights where necessary within a defined programme, subject to the approval of the capital programme by full council
 - (b) The preparation of a comprehensive lighting code to be applied within the Dark Skies Park, which could take the form of a Supplementary Planning Document.
 - (c) Ensure annual monitoring and reporting on the success in light pollution control as well as the maintenance of a sky brightness measurement program is carried out.
42. Option 2: Do not support the application

RISK MANAGEMENT

43. **Risk 1: programme – financial.**

The most likely risk to the Dark Skies Park application is a lack of available funding for the required changes to street lighting to meet the eligibility criteria.

This risk will be mitigated by applying for a capital bid as part of the budget-setting process taken to Full Council in February 2022. Dark Skies Park requirements will also be monitored on an ongoing basis for any future changes to requirements, which will be discussed with all relevant parties should changes arise in the future.

44. **Risk 2: programme – political/national policy/legislation**

At the time of writing, there are no known plans for updates to legislation around street lighting, with no reference made to street lighting in the 2021 Environment Act.

This risk will be mitigated by monitoring any pending policy and/or legislation. Again, should there be any changes to policy or legislation, this may lead to expenses should lighting need to be changed or upgraded, which will be mitigated as above.

45. **Risk 3: increased cost of supply, installation, and maintenance**

There is potential for prices to increase prior to installation taking place as there are similar issues with global supply chains at the minute owing to hardware and driver shortages.

This risk will be mitigated by requiring regular reports and updates on purchases and supply and requiring advanced notice of any additional sums required.

EVALUATION

46. Although there are currently no legal requirements for local authorities to meet Dark Skies requirements, there may be several benefits to making the changes required to meet the criteria of the status, including improving the environment for local moth populations, which are known to be in decline as a result of LED streetlighting.
47. The Isle of Wight has effectively made great steps towards Dark Sky status through the new street lighting introduced in recent years. As such, the infrastructure expenditure now required to pursue the application for Dark Sky status is minimal.

APPENDICES ATTACHED

48. Appendix I – Equality Impact Assessment

BACKGROUND PAPERS

- [South Ayrshire Dark Sky Lighting](#)
- [Dark Sky Park EIA Report](#)
- [LED streetlights reduce insect populations by 50% | UK Centre for Ecology & Hydrology \(ceh.ac.uk\)](#)
- [Streetlights reduce moth populations \(butterfly-conservation.org\)](#)
- [Reduced street lighting at night and health: A rapid appraisal of public views in England and Wales \(nih.gov\)](#)

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