

Section 32 Evaluation

KAIKŌURA INTERNATIONAL DARK SKY PLACES – PRIVATE PLAN CHANGE

FOR KAIKŌURA DARK SKY TRUST

JANUARY 2024



Executive summary

This report has been prepared by Kāhu Environmental on behalf of the Kaikōura Dark Sky Trust to support a private plan change submission to Kaikōura District Council. The plan change is required to support the establishment of an International Dark Sky Sanctuary across the Kaikōura district, with the Kaikōura township being designated as an International Dark Sky Community.

Section 32 of the Resource Management Act (RMA) requires objectives in plan change proposals to be examined for their appropriateness in achieving the purpose of the RMA. The policies and methods of those proposals must be examined for their costs, benefits, efficiency, effectiveness, and risk in achieving the objectives. The analysis set out in this report will assist Kaikōura District Council in fulfilling their obligations under s.32 of the RMA.

Exterior lighting can result in sky glow, which can adversely affect the visibility of the night sky. The proposed plan change seeks to avoid sky glow and light pollution to preserve the outstanding night sky resource over Kaikōura. Additional benefits of the proposal will include enhancing the habitats of nocturnal species in the district, improving the amenity for residents and visitors, and creating additional tourism offer in the district.

Consultation and engagement with iwi, Kaikōura District Council, businesses, and the community indicate night sky visibility is important to the Kaikōura district. This report evaluates how the effects of sky glow can be managed through the Kaikōura District Plan. The operative District Plan provisions are reviewed, and alternatives are evaluated. Recommendations are made on a preferred option to meet the objectives and requirements of an International Dark Sky Sanctuary and Community in a way that aligns with the strategic objectives of Kaikōura District Council.

The Kaikōura District Plan contains a chapter of strategic objectives for urban form and development. These set the overall management framework for the district. The strategic objectives that are particularly relevant to this proposal include:

- UDF-O1: To provide for urban growth where any adverse effects on natural and physical resources are mitigated, avoided, or remedied.
- UDF-O4: To provide for sustainable development, including tourism in a way which avoids or mitigates adverse effects on Kaikōura's amenity values and distinctive character.
- UDF-O5: To recognise and enhance the significance of tourism to Kaikōura's economy, and to provide for sustainable tourism growth and development while avoiding, remedying or mitigating adverse effects on the environment.

The proposed plan change and recommended changes to the lighting provisions of the District Plan will assist the Council to fulfil its statutory functions and responsibilities as required by the RMA. The new provisions are summarised below:

- Objectives that enable artificial outdoor lighting for work, recreation and entertainment activities to occur beyond daylight hours while maintaining the health, safety and amenity values of people; and protecting the district's natural darkness and natural features.

- Policies that manage artificial outdoor lighting to minimise light spill, to protect the natural darkness of the night sky and people's ability to view the night sky.
- Performance standards that control artificial outdoor lighting for the purpose of reducing upward light pollution and minimising sky glow, including shielding, regulating light temperatures and managing hours of operation.
- Matters of discretion to guide decision makers when an activity cannot meet the new standards to ensure the brightness and clarity of the night sky is protected from cumulative effects.
- Definitions for technical lighting terms to assist in the interpretation of the new provisions.

Table of abbreviations and definitions

Abbreviation	Term
Candela	Candela is a measurement of light that describes the visible intensity from a light source.
DSI	DarkSky International
HSCT	Hutton's Shearwater Charitable Trust
IDSC	International dark sky community
IDSS	International dark sky sanctuary
KDC	Kaikōura District Council
KDP	Kaikōura District Plan
KDST	Kaikōura Dark Sky Trust
LMP	Lighting Management Plan
Lumen	Lumen is a measurement of light that describes how much light is projected from a light source.
Lux	Lux is a measurement of light that describes how bright a surface will be as a result of a light source.
RMA	Resource Management Act 1991
RPS	Regional Policy Statement (Canterbury)

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1 Introduction

This report has been prepared by Kāhu Environmental on behalf of the Kaikōura Dark Sky Trust (KDST) to support a private plan change submission to Kaikōura District Council (KDC). The plan change is required to support the establishment of an International Dark Sky Sanctuary (IDSS) across the Kaikōura district, with Kaikōura seeking International Dark Sky Community (IDSC) accreditation over the Kaikōura township. To be certified by the DarkSky International (DSI), KDST must be able to demonstrate a regulatory commitment to protecting the dark sky, which requires changes to the lighting provisions of the Kaikōura District Plan (KDP).

This report has been prepared in accordance with s.32 of the Resource Management Act 1991 (RMA). It provides an evaluation of the proposed plan change and recommends provisions to meet the objectives of the plan change.

2 Purpose of proposed plan change

KDST is applying to the DSI for Kaikōura to be certified as an IDSS and IDSC. Dark sky certification could bring several positive benefits to the Kaikōura district, including tourism opportunities (in particular winter tourism), cultural, environmental and educational benefits.

Light pollution is the biggest threat to gaining certification. To qualify as an IDSS and IDSC, light pollution within the region must be managed. A key criterion for achieving dark sky sanctuary and community status is that local authorities need to manage exterior lighting through a lighting management plan. Excess exterior lighting that is not managed can cause light pollution that would undermine the dark sky qualities of the area.

This plan change offers the opportunity to undertake a focused review of the KDP lighting provisions to facilitate IDSS and IDSC certification of the Kaikōura District. To do this, the provisions of the KDP must ensure light pollution within the district is minimised to protect the darkness of the night sky.

A review of the operative KDP indicates the lighting provisions do not specifically address light pollution that adversely effects the night sky. The operative provisions also fail to meet the DSI requirements for dark sky sanctuary and community accreditation. The focus of the dark sky place certification process is to ensure light emissions/pollution from new development within the proposed dark sky sanctuary and community areas can be controlled.

The purpose of the proposed plan change is to review the issues, objectives, policies, rules, methods and assessment criteria to ensure the KDP does the following:

1. Manages new lighting within the district to minimise adverse effects from light pollution to protect the natural darkness of the night sky.
2. Manages new lighting to ensure that the requirements for obtaining international dark sky sanctuary and community statuses can be met.
3. Clearly signals to the community that the darkness of the night sky is an important feature of the Kaikōura district and should be protected.
4. Allows for outdoor artificial lighting when the type and characteristics of lighting used will not have adverse effects on the darkness of the night sky.

5. Ensures the provisions of the KDP are sufficiently clear and direct, to assist decisionmakers assessing and determining applications for lighting.
6. Ensures provisions clearly articulate the expectations of KDC regarding lighting.

The proposed changes will provide more specific standards for the installation of exterior lighting and illuminate signage. Exterior lighting and illuminated signage that meets the prescribed standards will be a permitted activity, with non-compliant lighting triggering an assessment of effects, including effects on the darkness of the night sky. The proposed plan change will also provide clear objectives, policies and assessment criteria to guide assessments of lighting and signage that requires resource consent.

The KDST intends to apply for an IDSS over the entire Kaikōura District and an IDSC over the Kaikōura township.

The proposed provisions will apply to new lighting and replacement lighting that is installed within the district once this plan change becomes operative. These provisions will not apply retrospectively to existing and established lighting.

This plan change has not reviewed the effectiveness and efficiency of the current KDP lighting provisions in relation to residential amenity. The scope is limited to ensuring:

- International dark sky sanctuary and community certification can be gained;
- Light pollution is minimised to protect the darkness of the night sky.

A review of the operative KDP, including the lighting provisions that relate to effects on amenity, is underway. The scope of this proposed plan change is limited to protecting the natural darkness of the night sky and people's ability to view the night sky. The plan change is not expected to affect the district plan review, or the existing lighting provisions that relate to managing amenity. In addition, this plan change will ensure the KDP is cognisant of a current resource management issue ahead of the plan review process.

3 Dark sky places

KDST has worked through the most appropriate dark sky place designation type with the DSI and have settled on aiming for a sanctuary certification for the wider Kaikōura district, with Kaikōura township seeking dark sky community accreditation.

The DSI defines the two types of dark sky places as follows:

A Dark Sky Community is a town, city, municipality, or other legally organized community that has shown exceptional dedication to the preservation of the night sky through the implementation and enforcement of a quality outdoor lighting ordinance, dark sky education, and citizen support of dark skies.

A DSI Dark Sky Sanctuary is public or private land that has an exceptional or distinguished quality of starry nights and a nocturnal environment that is protected for its scientific, natural, or educational value, its cultural heritage and/or public enjoyment (DarkSky International, 2018).

The key differences between an IDSS and a dark sky reserve/park is the typically remote location of sanctuaries. IDSS generally have few (if any) nearby threats to the quality of their dark night skies and do not otherwise meet the requirements for designation as a park or reserve. This can limit opportunities for public outreach, so an IDSS designation is specifically designed to increase awareness of these fragile sites and promote their long-term conservation (DarkSky International, 2018).

There are currently 43 IDSC world-wide, with none located in Aotearoa. Dark sky sanctuaries are not selected by the DSI but are nominated by a group and/or individuals in the community (DarkSky International, n.d.). The goals of creating an IDSC include:

- To identify communities with exceptional commitment to and success in pursuing dark sky preservation and restoration, and their promotion of quality outdoor lighting.
- To promote improved outdoor night-time quality of life for residents and visitors.
- To support protection of human health, nocturnal habitats, public enjoyment of the night sky and its heritage, and/or areas ideal for professional and amateur astronomy.
- To provide local, national, and international recognition for such communities.
- To promote the ideals of DarkSky by encouraging communities to identify dark skies as a valuable community asset and aspiration.

There are currently 17 IDSS world-wide, with two in Aotearoa – Aotea/Great Barrier Island and Rakiura/Stewart Island. Dark sky sanctuaries are not selected by the DSI but are nominated by a group and/or individuals in the community (DarkSky International, n.d.). The goals of creating an IDSS include:

- To recognize public or private lands and their surrounding communities in some of the darkest locations on Earth for exceptional commitment to and success in local implementation of the ideals of dark sky preservation.
- To promote sustainable ecotourism and astrotourism.
- To further the protection of nocturnal habitats, public enjoyment of the night sky and its heritage, and identification of areas ideal for professional and/or amateur astronomy.
- To encourage landowners/administrators, conservation professionals, surrounding communities and private interests to identify dark skies as a valuable resource in need of proactive conservation.
- To provide international recognition for such locations.
- To encourage other sites to become environmental leaders on dark sky issues by communicating the importance of dark skies and by providing an example of what is possible with proper stewardship (DarkSky International, 2018).

3.1 Dark sky place accreditation

Accrediting an IDSC and IDSS requires a large amount of work by the applicant in collaboration with the DSI. Appendix D contains the full eligibility criteria and minimum requirements for both types of dark sky places which are summarised below:

- There must be legal protection of the land, dark sky and recognition from higher authorities of the importance of the dark sky place.
- Public access must be enabled.
- There must be demonstrated public commitment to dark skies, quality lighting and education.
- A Lighting Management Plan must be prepared in accordance with the DSI guidelines.
- Two-thirds of the external lighting fixtures in the dark sky area must meet the requirement of the Lighting Management Plan at the time of application, with a schedule on how to achieve 90% compliance in five years and 100% compliance in ten years.
- Light pollution must be monitored over time and reported on to the DSI.
- Current and future threats to the dark skies over the sanctuary and community must be considered in the application.
- Night sky quality must be established via DSI-approved methods.

The minimum lighting management provisions that the DSI requires/recommends are based on 'Five Principles for Responsible Outdoor Lighting' (Figure 3.1)



Figure 3.1 DarkSky International - Five principles for responsible outdoor lighting

The five principles guide the selection, placement, installation and operation of all new and replacement/retrofitted lights in any dark sky place. The DSI preference is that outdoor light at night should only be used where it is needed and in the appropriate amount for a specific task. The purpose of outdoor light should be specifically to ensure public safety.

KDC has an important role in assisting the KDST to achieve dark sky sanctuary and community certification for the Kaikōura district, which includes this plan change.

3.2 Kaikōura Dark Sky Community and Sanctuary

The Kaikōura district is one of the best places, domestically and globally, to view the night sky. The unique quality of the night sky over the district has been recognised by the KDST, who is working with the DSI to have the Kaikōura district formally recognised as an IDSS, with the township achieving IDSC status. This s.32 report will contribute to the application for IDSS and IDSC accreditation.

The proposed Kaikōura Dark Sky Sanctuary will follow the jurisdictional boundaries of the Kaikōura district – from Hundalee in the south to just north of Kekerengu (Figure 3.2). the boundary extends into the Waiau Toa/Clarence River and mountain ranges in the west to the mean high water springs mark on the eastern coastline. The area of the IDSS will be approximately 2,048km¹. The proposed Kaikōura Dark Sky Community will encompass the urban area of Kaikōura township where there is an established level of artificial outdoor lighting.

¹ <https://kaikouradarksky.nz/about/>

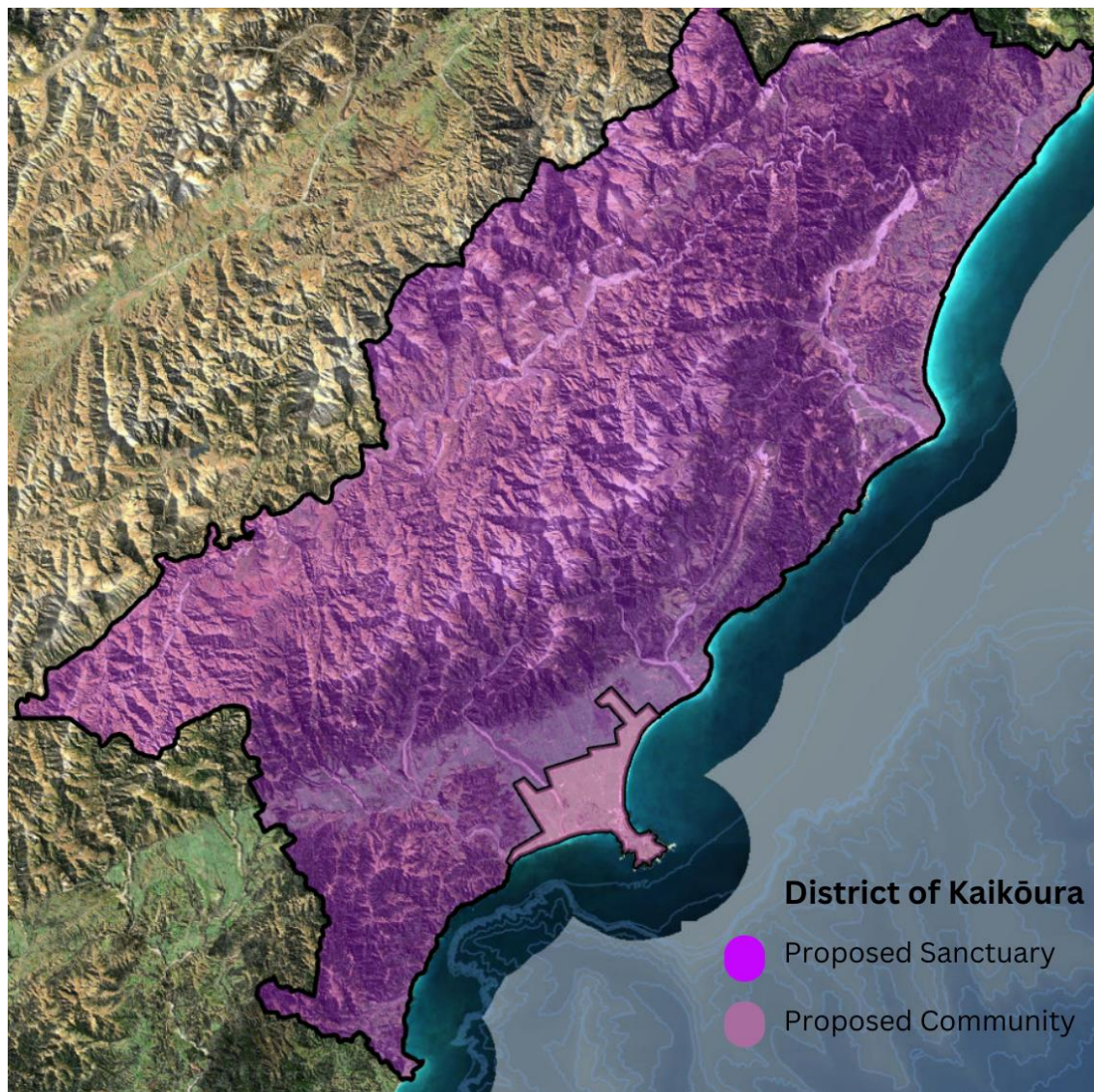


Figure 3.2 Map showing the extent of the proposed Kaikōura Dark Sky Sanctuary (purple) and Kaikōura Dark Sky Community (pink)

4 Benefits of the proposal

4.1 Economic growth and tourism

Dark sky and astrotourism is a developing industry in Kaikōura. Due to the small urban area comparative to the geographic area, dark sky tourism has the potential to incur significant benefits for the economy of Kaikōura, and specifically for the tourism industry.

Destination Kaikōura² has identified dark sky tourism as a key focus for Kaikōura tourism, which will be enhanced by DSI accreditation. The Kaikōura Destination Management Plan 2022-2032 outlines clear ambitions for the dark sky in Kaikōura, including its protection and business

² Destination Kaikōura is the tourism marketing organisation for Kaikōura.

opportunities. The IDSS and IDSC will expand the winter tourism offering of the district – benefiting all associated business (e.g., restaurants and accommodation). The dark sky places will also generate new jobs in Kaikōura for night sky operators and guides. Other potential offerings include self-guided tours with signposted observation spots across the district and community events, including the celebration of Matariki.

4.2 Cultural benefits

Māori ancestors highly valued the night sky and possessed great astronomical knowledge of their surrounding environment. Tātai Arorangi (astronomy) was woven through the Māori way of life and tohunga kōkorangi (master astronomers) would observe the movements and positions of the stars, planets, comets and meteors. They passed this knowledge on through oral traditions such as waiata, whakataukī and karakia.

The knowledge tohunga kōkorangi held regarding the night sky was localised - the stars and planets were indicators of seasonal change, spawning of migrating species and other environmental factors. The ability to view the night sky is integral to Māori in:

- Whakaterere waka (navigation)
- Matariki (Pleiades)
- Māramataka (Māori Lunar calendar)
- Death

The night sky has been integral to the livelihood of Māori for hundreds of years, highlighting the great spiritual connection Māori have with the environment. Lack of visibility of the night sky adversely affects the relationship of Māori with their taonga.

Section 3.1 (Ō Te Hau) of Te Poha o Tohu Raumati (Te Rūnanga o Kaikōura Environmental Management Plan) (TPTR) identifies air as taonga, and Ranginui as the father of the “earthly progeny of Papatūānuku”³. Ranginui is adorned with celestial bodies, and the visibility of those bodies is a value of Te Runanga o Kaikōura. Putting district plan provisions in place will help to protect the darkness of the night sky and enhance indicators of the associated cultural values.

4.3 Environmental benefits

The effects of light pollution on the environment have become a topic of increasing research and discussion over the past 10 years. As cities grow larger and brighter, night skies become less visible. Approximately 56% of the New Zealand population cannot view the Milky Way. This figure is expected to increase significantly over the next 5-10 years based on current and projected rates of development. Kaikōura has a rare opportunity to prevent further light pollution that is concurrent with population growth and development.

Plants and animals depend on the daily cycle of light and dark to govern life-sustaining behaviours such as reproduction, nourishment, sleep and protection from predators. Scientific

³ Te Poha o Tohu Raumati (2007), p. 41

evidence suggests that artificial light at night has negative and potentially fatal effects on many creatures including amphibians, birds, mammals, insects and plants⁴.

4.3.1 Hutton's shearwater / Kaikōura tītī

The Hutton's shearwater, or Kaikōura tītī, is a seabird that is endemic to New Zealand. It is the only New Zealand seabird that breeds solely on the mainland, and the two known colonies are restricted to the mountains behind Kaikōura⁵. From September through to March, the tītī are present over the inshore waters off Kaikōura. They congregate in large flocks in the evening to make their way back inland to the colonies. Outside of the breeding season, the birds migrate to Australia.

The tītī are nocturnal. Fledgling chicks can become disorientated by bright lights when they begin their migratory journey from mid-March to early April⁶. Historically, predation has been the biggest threat to the Tītī, however the impact of artificial light at night is increasingly an issue. Artificial light attracts and disorients the birds on their flight to the sea. The birds are prone to crash landing on land prematurely or colliding with lamp poles or vehicles. Once on the ground, birds are unable to take off again and become victim to cars and domestic predators.

Over 200 tītī were downed by bright lights in and around Kaikōura during the 2014/2015 breeding season⁷. Mitigation is already underway to reduce the impact of the town lights (e.g., streetlights) on the fledgling tītī by the Hutton's Shearwater Charitable Trust (HSCT). The proposed plan change will align with the work the HSCT are doing to reduce light pollution in, and around, Kaikōura.

4.4 Social benefits

4.4.1 Education

A dark sky sanctuary and community in Kaikōura will provide a rare opportunity to educate tourists and locals of all ages about astronomy. Currently, people in 80% of the world cannot see the stars and live below light polluted skies⁸ - a number that is increasing as development and populations expand. The dark sky sanctuary and community are opportunities to safeguard the night sky and educate people about historic uses for stars.

Local education facilities will be able to use the proposed dark sky sanctuary and community to support astrological related courses and the science curriculum. Information and resources on

⁴ <https://www.darksky.org/light-pollution/wildlife/>

⁵ <https://nzbirdsonline.org.nz/species/huttons-shearwater>

⁶ <https://www.doc.govt.nz/nature/native-animals/birds/birds-a-z/huttons-shearwater-kaikoura-titi/>

⁷ <http://www.huttonsshearwater.org.nz/crash-landed-huttons-shearwater-fledglings-and-light-pollution/>

⁸ Falchi, F., et al (2016) The new world atlas of artificial night sky brightness, *Science Advances* 2 (6)

the conservation of fragile local ecosystems and the unique wildlife of the Kaikōura district will be integrated into the education material.

4.4.2 Community cohesion

The proposed IDSS and IDSC present an opportunity to encourage community cohesion and collaboration in pursuit of a common goal. Establishing Kaikōura as a dark sky place could be a source of pride for the community, which could contribute to social wellbeing outcomes. In addition, achieving IDSS and IDSC accreditation requires a lot of work beyond this plan change, which necessitates network and relationship-building. There are opportunities for the IDSS and IDSC initiatives to initiate and strengthen partnerships within the community and beyond the district, which could further other social initiatives and identify opportunities for dark sky places in other locations.

4.4.3 Health

Darkness at night-time is essential to human health. Humans have a sleep-wake pattern governed by the day-night cycle, which can be disrupted by artificial light. Human bodies produce the hormone melatonin in response to circadian rhythm (a 24-hour cycle), which contributes to overall health. Melatonin has antioxidant properties, induces sleep, boosts the immune system, lowers cholesterol, and helps the functioning of many key organs. Night-time exposure to artificial light, particularly blue light, suppresses melatonin production⁹. Blue light is the most harmful form of light, so transitioning to warmer light (3000K and lower) will reduce the magnitude of effects on human health. Thus, the positive effect of the plan change provisions will go beyond the protection of the night sky.

5 Light pollution

Exterior lighting helps people find their way, identify/advertise specific locations, and provides for safety at night. The increasing demand for light, however, can result in light pollution. This not only obscures views of the night sky, but can also have consequences for health and well-being, cause nuisance or annoyance, and adversely affect ecological systems.

Excess exterior lighting at night is inefficient, overly bright, poorly targeted, improperly shielded, and, in many cases, unnecessary. This light is spilled into the sky rather than being focused on the objects and areas that are the subject of illumination, which is also an inefficient use of power¹⁰.

Light pollution is made up of three broad components:

- Light spill
- Glare

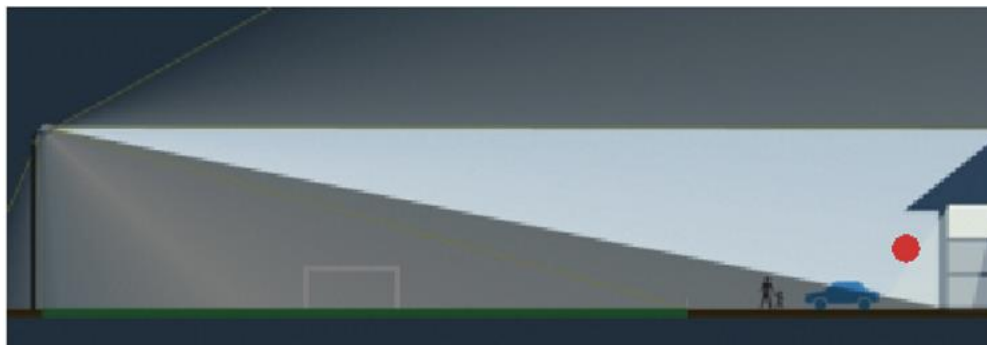
⁹ <https://www.darksky.org/light-pollution/human-health/>

¹⁰ <https://www.darksky.org/light-pollution/>

- Skyglow

5.1 Light spill and glare

Light spill involves light that flows beyond property boundaries (Figure 5.1). Glare is light that hinders or bothers the human eye (Figure 5.2).



Illuminance on vertical plane.

Figure 5.1 Illustration of light spill (Stepheson Turner)



Intensity towards the observer: this concerns the luminous intensity emitted by the luminaire in the direction of the observer.

Figure 5.2 Illustration of glare (Stepheson Turner)

Light spill and glare primarily cause effects on amenity, where light is either too bright or goes into areas that do not need to be lit. Glare and light spill can create a nuisance for people on the receiving end of the unwanted light.

Light spill and glare don't significantly affect the ability to view the night sky. For this reason, the provisions of the KDP that manage light spill and glare, and the effects of these kinds of light pollution on amenity, have not been reviewed. Those provisions will be reviewed when KDC reviews the lighting chapter as a part of the broader plan review. Notwithstanding, the proposed methods to manage skyglow will also provide a level of mitigation of light spill and glare effects on amenity.

5.2 Skyglow

Skyglow, or the brightening of the night sky, is the primary effect that must be minimised to provide optimal night sky viewing. Due to skyglow, the night sky over many urban environments

can be brighter than a natural, starlit sky. This skyglow hides the stars from sight and prevents people from experiencing a natural night, even in areas at a distance from urban development¹¹.

Skyglow has two separate components:

- a) Natural skyglow is that part of the skyglow that is attributable to radiation from celestial sources and luminescent processes in Earth's upper atmosphere.
- b) Artificial skyglow is that part of skyglow attributed to man-made sources of radiation (e.g. exterior lighting), including light radiation that is emitted above the horizontal plane and light radiation that is reflected from the surface of the earth.

Skyglow is caused both by reflected and direct light from installations, so restricting lighting to the minimum illumination necessary will mitigate the effects of skyglow. Lighting needs to be managed to minimise skyglow and reduce light pollution. The DSI sets requirements for the management of artificial skyglow from exterior lighting for dark sky sanctuaries.

5.3 Light temperature

Lighting with lower colour temperatures has less blue in its spectrum and is referred to as being warm. The temperature of a light source is determined by the light wavelength. Longer wave lengths appear as warmer lighting (oranges, reds, and yellows) and have a lower value on the Kelvin scale¹². Shorter wavelengths appear as cool lighting (purples, blues, and greens). The higher Kelvin measurement a light source has, the more blue it has in its spectrum¹³. Blue-rich light scatters easier than warmer colours when it enters the atmosphere and human eyes, which obscures visual details. This disruption is why blue light is considered detrimental to eyesight, sleep, and other health factors. Blue light also disrupts the vision of nocturnal species, such as the Hutton's shearwater.

To minimise blue-rich light pollution, the DSI requires outdoor lights to have a Kelvin-rating of 3000K or below¹⁴. This ensures outdoor lights emit warmer light, which along with shielding and time restrictions, will protect the natural darkness of the night sky within the sanctuary and community areas.

¹¹ <https://www.darksky.org/light-pollution/measuring-light-pollution/>

¹² <https://www.wyomingstargazing.org/how-color-temperature-affects-light-pollution/>

¹³ <https://www.darksky.org/our-work/lighting/lighting-for-citizens/lighting-basics/>

¹⁴ DSI – International Dark Sky Sanctuary Programme Guidelines, June 2018 – Lighting Management Plan Requirement 4

6 Statutory context

6.1 Resource Management Act 1991

The purpose of the RMA is to promote the sustainable management of natural and physical resources. S.5(2) of the RMA states:

“In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while:

- a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.”

The proposal requires the management of natural and physical resources in a way that safeguards the night sky, but also provides for the continued development and growth of the Kaikōura district. The plan change will avoid and mitigate the impacts of exterior lighting on the night sky by introducing objectives, policies, and standards for new and replacement lighting.

Section 6 of the RMA identifies matters of national importance that are required to be recognised and provided for to achieve the purpose of the RMA. Section 6 requires the preservation of the natural character of the coastal environment and requires the Council to recognise and provide for relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga. The natural darkness of the night sky is an important taonga for Māori.

Section 7 of the RMA specifies other matters that are required to be recognised and provided for to achieve the purpose of the RMA. The following matters are relevant to this plan change:

- a) kaitiakitanga
- b) the ethic of stewardship
- c) the maintenance and enhancement of amenity values
- d) the intrinsic values of ecosystems
- f) the maintenance and enhancement of the quality of the environment.

Section 8 of the RMA requires that the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are taken into account to achieve the purpose of the RMA and have been considered as part of this plan change.

6.1.1 Section 32 – evaluation reports

Under s.32 of the RMA, any proposed district plan change must be accompanied by a report that assesses the extent to which each objective is the most appropriate way to achieve the purpose of the RMA. Subsequent policies and methods must also be assessed as being the

appropriate way to achieve the proposed objectives in terms of their efficiency and effectiveness.

The s.32 evaluation must achieve the following:

- Identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for:
 - economic growth that are anticipated to be provided or reduced; and
 - employment that are anticipated to be provided or reduced; and
- If practicable, quantify the benefits and costs referred to above; and
- Assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

Clause 4A of s.32 requires that the evaluation report must summarise all advice concerning the proposal received from iwi authorities and the response to that advice, including any provisions of the proposal that are intended to give effect to the advice. Engagement with iwi and the result of that engagement is discussed in more detail in Section 9 of this report.

6.2 District councils and plans

6.2.1 Functions of district councils

KDC has statutory functions under s.31 of the RMA. These include the establishment, implementation, and review of objectives, policies and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district. Section 31(1)(b) requires the Council to control any actual or potential effects of the use, development, or protection of land.

6.2.2 District plans

Section 72 of the RMA states that the purpose of a district plan is to assist territorial authorities to carry out their functions to achieve the purpose of the RMA.

Section 73 states that there must always be one district plan for each district. District plans must be prepared by the Council in accordance with the First Schedule of the RMA.

The matters to be considered by the Council when preparing or changing the Plan are set out in s.74 of the RMA. This requires the Council to act in accordance with its functions under s.31, the provisions of Part 2, and its duty under s.32. S.74(2) also sets out a number of other matters Council shall have regard to including plans and strategies prepared under other acts.

Section 75(2A) requires a territorial authority to take any iwi planning document into account when changing a district plan. Consideration of the iwi planning document must be had to the extent that its content has a bearing on the resource management issues of the district (section 6.4 below).

Under s.75(3) a District Plan must give effect to:

- a) any national policy statement; and
- b) any New Zealand coastal policy statement; and
- ba) a national planning standard; and
- c) any regional policy statement.

Under s.75(4) a district plan must not be inconsistent with:

- a) a water conservation order; or
- b) a regional plan for any matter specified in s.30(1).

6.3 National policy context

6.3.1 National policy statements

The RMA requires that the KDP give effect to any National Policy Statement (NPS). A NPS is a document prepared under the RMA to provide objectives and policies on matters of national importance. Of relevance to this plan change is the New Zealand Coastal Policy Statement 2010 (NZCPS).

Kaikōura is a coastal district. Part of the proposed dark sky sanctuary and community is located within the coastal environment – necessitating consideration of the NZCPS provisions in this plan change. The NZCPS outlines how the purpose of the RMA will be achieved in respect of the coastal environment (Table 6.1).

Table 6.1 Relevant provisions of the NZCPS

Reference	Provision	Comment
Objective 2	<p>To preserve the natural character of the coastal environment and protect natural features and landscape values through:</p> <ul style="list-style-type: none"> • recognising the characteristics and qualities that contribute to natural character, natural features and landscape values and their location and distribution; • identifying those areas where various forms of subdivision, use, and development would be inappropriate and protecting them from such activities; and • encouraging restoration of the coastal environment. 	<p>The proposed plan change is consistent with Objective 2, as it seeks to preserve the natural character of the coastal environment, namely, the dark sky above the coastal environment. The proposed provisions recognise the characteristics and qualities that contribute to the natural character of the Kaikōura coast.</p>
Objective 3	<p>To take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment by:</p> <ul style="list-style-type: none"> • recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources; 	<p>The proposed plan change is consistent with Objective 3, as the role of tangata whenua as kaitiaki of Papa and Rangi has been recognised.</p> <p>The proposed lighting provisions take the outcomes</p>

	<ul style="list-style-type: none"> • promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act; • incorporating mātauranga Māori into sustainable management practices; and • recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua. 	<p>sought by Te Runanga o Kaikōura in their environmental management plan. Section 3.1 of TPTR identifies celestial darkness as a key value of the runanga and Policy 3.1.3(1) recommends restrictions on lighting to protect celestial darkness.</p> <p>Tangata whenua have been engaged from the start of the project to ensure the establishment and management of the dark sky sanctuary and community is consistent with their objectives as kaitiaki and treaty partners and with TPTR.</p>
Policy 13	<ol style="list-style-type: none"> 1. To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development: <ol style="list-style-type: none"> a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment; <p>including by:</p> <ol style="list-style-type: none"> c) assessing the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character; and d) ensuring that regional policy statements, and plans, identify areas where preserving natural character requires objectives, policies and rules, and include those provisions. 2. Recognise that natural character is not the same as natural features and landscapes or amenity values and may include matters such as: <ol style="list-style-type: none"> a) natural elements, processes and patterns; b) biophysical, ecological, geological and geomorphological aspects; 	<p>The proposed plan change is consistent with Policy 13, as it will work to preserve the natural character of the coastal environment and protect it from inappropriate use and development.</p> <p>Policy 13(2)(e) is particularly relevant, as it recognises natural character is not the same as natural features, landscape values or amenity values. Natural character may include matters such as the natural darkness of the night sky.</p>

	<ul style="list-style-type: none"> c) natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks; d) the natural movement of water and sediment; e) the natural darkness of the night sky; f) places or areas that are wild or scenic; g) a range of natural character from pristine to modified; and h) experiential attributes, including the sounds and smell of the sea; and their context or setting. 	
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6.3.2 National Environmental Standards

The RMA requires that the District Plan give effect to any National Environmental Standards (NES). NES provide technical standards, methods or requirements for matters of national importance.

The plan change does not create any conflict for, or with, any NES. Thus, no further analysis is required as part of this report.

6.3.3 National Planning Standards

Section 75(3)(ba) of the RMA requires the district plan to give effect to any national planning standard. The National Planning Standards were introduced to the RMA as part of the 2017 amendments to improve consistency in plan and policy statement structure, format and content.

The KDP has recently been aligned with the structure of district plans prescribed by the National Planning Standards. Provisions that manage adverse effects of lighting are contained within a specific 'light' chapter as directed by the planning standards. The proposed plan change is consistent with the National Planning Standards - including provisions that manage light spill and glare and specific requirements for common significant light generating activities¹⁵.

6.3.4 Canterbury Regional Policy Statement

The Canterbury Regional Policy Statement (RPS) provides an overview of the resource management issues for the Canterbury Region and polices and methods for the management of these issues.

The RPS contains objectives and policy to preserve and protect character, habitats and features, including the natural character of the coastal environment (Table 6.2).

Table 6.2 Provisions of the RPS relevant to the proposed plan change.

Reference	Provision
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¹⁵ National Planning Standards, Standard 7(32).

Objective 8.2.4 Preservation, protection and enhancement of the coastal environment	In relation to the coastal environment: 1. Its natural character is preserved and protected from inappropriate subdivision, use and development; and 2. Its natural, ecological, cultural, amenity, recreational and historic heritage values are restored or enhanced. Corresponding policies: Policy 8.3.1, Policy 8.3.2, Policy 8.3.3 and Policy 8.3.5
Objective 9.2.1 Halting the decline of Canterbury's ecosystems and indigenous biodiversity	The decline in the quality and quantity of Canterbury's ecosystems and indigenous biodiversity is halted and their life-supporting capacity and mauri safeguarded. Corresponding policies: Policy 9.3.1, Policy 9.3.2, Policy 9.3.3, Policy 9.3.5, and Policy 9.3.6.
Objective 9.2.2 Restoration or enhancement of ecosystems and indigenous biodiversity	Restoration or enhancement of ecosystem functioning and indigenous biodiversity, in appropriate locations, particularly where it can contribute to Canterbury's distinctive natural character and identity and to the social, cultural, environmental and economic well-being of its people and communities.
Objective 12.2.2 Identification and management of other landscapes	The identification and management of other important landscapes that are not outstanding natural landscapes. Other important landscapes may include: 1. natural character 2. amenity 3. historic and cultural heritage Corresponding policies: 12.3.2, 13.3.3

The RPS also contains objectives and policies that recognise the need for KDC to work with local iwi authorities for the benefit of the region (Table 6.3).

Table 6.3 Requirement for KDC to work with iwi under the RPS.

Reference	Provision
Chapter 4: Provision for Ngāi Tahu and their relationship with resources	4.3.15 Territorial authorities will include provisions for the relationship between Ngāi Tahu, their culture and traditions, and their ancestral lands, water, sites, wāhi tapu and other taonga within district plans.
	4.3.16 Include methods for the protection of Ngāi Tahu ancestral lands, water, sites, wāhi tapu and other taonga within district plans.

These provisions provide key outcomes KDC should be aiming for in their district plan. The proposed change to the KDP provides an opportunity for Ngāi Tahu to be involved as kaitiaki of Rangī, the sky, and will result in mutual environmental benefits – as desired by s.4.4 of the RPS. The proposal will also further the work done by the HSCT to protect the Kaikōura tītī from the effects of exterior lighting. This aligns with Ngāi Tahu's desired outcomes for indigenous biodiversity in s.2.3 of the RPS.

6.3.5 Canterbury Regional Coastal Environmental Plan

The Coastal Environmental Plan for the Canterbury Region 2020 (CEP) promotes the sustainable management of the natural and physical resources of the Coastal Marine Area and the coastal environment. The CEP also promotes the integrated management of that coastal environment and cannot be inconsistent with the RPS (Section 6.3.4 above).

The proposal is consistent with the provisions in the CEP that manage the effects of activities on the natural character of the coastal environment (Table 6.4).

Table 6.4 Provisions of the CEP relevant to the proposed plan change.

Reference	Provision
Objective 6.1	<p>To protect, and where appropriate enhance, the following areas, sites and habitats of high natural, physical, heritage or cultural value:</p> <ul style="list-style-type: none"> a. Areas of Significant Natural Value (identified in Schedule 1, and shown on the Planning Maps in Volume 2); b. Those Areas listed in Schedules 2 and 3; c. Areas within the intertidal or subtidal zone that contain unique, threatened, rare, distinctive or representative marine life or habitats (including coastal wetlands) or are significant habitats of marine species generally; d. Areas used by marine mammals as breeding, feeding or haul out sites and breeding, roosting or feeding areas of indigenous bird species; e. Areas, including adequate buffer zones, that contain locally, regionally, nationally or internationally significant: ecosystems, vegetation, individual species, or habitat types, (for example coastal lakes, wetlands, lagoons, estuaries); f. Historic, archaeological, and geo-preservation sites in the coastal marine area; g. Coastal landforms and landscapes, submerged platforms and seascapes that are regionally, nationally or internationally representative or unique, including the Kaikoura coast, Banks Peninsula, Kaitorete Spit, and the Timaru reefs; h. Areas identified in consultation with Tāngata whenua including wahi tapu, Urupā, tauranga waka and mahinga kai; i. Areas of significant amenity value, including recreational attributes; j. Areas having high natural character in the coastal environment; k. Areas having significant heritage values; and l. Habitats of species which are important for commercial, recreational, traditional, or cultural purposes.

The proposed plan change will contribute to the protection of the natural coastal environment by ensuring the effects of lighting activities on the night sky are avoided or mitigated. The management of light pollution in the coastal Kaikōura district will work to maintain and enhance the natural character of coastal landscapes, protect amenity values and will protect the habitat of coastal nocturnal species, such as the tītī.

6.4 Te Runanga o Kaikōura Environmental Management Plan

Te Runanga o Kaikōura developed TPTR in 2007 to outline cultural values and their expectations for environmental management as treaty partners and kaitiaki. Section 3.1 (Ō Te Hau) addresses issues and values to do with the air and atmosphere. Indicators associated with air quality, and relevant to this plan change, include:

- Visibility;
- Celestial darkness; and,
- Darkness, unimpeded by light.

The brightness and clarity of the night sky falls under Section 3.3.3, which focuses on the protection of amenity values held by Ngāti Kuri, including the ability to have undisturbed celestial darkness. Te Runanga o Kaikōura identify increased lights from development activity as a key resource management issue that threatens celestial darkness. Policy 1 addresses this issue:

In some areas, Te Rūnanga o Kaikōura may recommend light suppression or limitation, and / or height restrictions on buildings, to protect amenity values, including celestial darkness.

The proposed lighting provisions compliments Policy 1 in TPTR by managing artificial outdoor lighting to protect the ability of people to view a bright and clear night sky across the Kaikōura District.

7 Existing Kaikōura lighting provisions

7.1 Operative Kaikōura District Plan

In the Kaikōura district, lighting is controlled by the following provisions in the LIGHT chapter of the KDP:

- Issues, objectives and policies.
- Rules
- Assessment criteria

The provisions identify outcomes sought for the district in the objectives and policies and apply zone specific provisions to control the exterior lighting. The key resource management issue addressed by the operative provisions is amenity and the protection, sustenance, and enhancement of the amenity values in each zone. There is one issue and one objective – both of which relate to amenity. Objective LIGHT-O1 cross references the amenity objectives in each zone.

There are three policies in the light chapter, which maintain residential amenity (P1), maintain celestial darkness for seabirds (Hutton's shearwater) (P2) and cross-reference the amenity policies in non-residential chapters (P3).

While the operative provisions do protect the night sky to an extent, this is not the intent of the provisions. This gap means exterior lighting is not adequately assessed for their impact on the natural darkness of the night sky, or on people's ability to view the night sky. For example, there may be an unshielded lighting activity that in isolation does not have an impact on amenity and is not within the flight path of the Hutton's shearwater, however, may result in skyglow.

This gap in the issues, objectives, and policies filters through into the performance standards and assessment criteria for lighting activities. The operative KDP does not have rules. Instead, the performance standards have been drafted to apply as rules do. The operative standards require lights to be shielded to minimise light spill onto adjoining sites and roads. Only the Kaikōura Peninsula Tourism Development Area and Ocean Ridge Development Area require lights to be shielded from above to prevent upward light spill.

The provisions in the operative KDP that are particularly relevant to the proposed plan change are outlined in Appendix E.

7.2 Kaikōura signage bylaw

Illuminated signs can contribute to light spill and skyglow which adversely affect the natural darkness of the night sky. The issues, objectives and policies contained within the signs chapter of the KDP focus on traffic/pedestrian safety and amenity values with relation to signage. There are no district plan rules to manage signage in the district. Rather, signage is controlled by a bylaw.

Bylaws are a tool councils can use to manage activities as an alternative to planning provisions and are created under the Local Government Act 2002. Section 145 specifies when a bylaw is appropriate:

145 General bylaw-making power for territorial authorities

A territorial authority may make bylaws for its district for 1 or more of the following purposes:

- a) protecting the public from nuisance:
- b) protecting, promoting, and maintaining public health and safety:
- c) minimising the potential for offensive behaviour in public places.

Bylaws do not control effects of an activity on the environment or values such as amenity. Therefore, although the existing signage bylaw manages illuminated signs to an extent, it is not an appropriate tool to protect the environmental and amenity value of the night sky. Appendix F contains the provisions of the Kaikōura Signage Bylaw that pertain to illuminated signs.

Sections 16 and 17 of the Bylaw¹⁶ specify signage that has obtained resource consent is permitted under the bylaw.

¹⁶ Table 1 of the draft Signage Bylaw

The proposed changes to the KDP have been developed to work alongside the signage bylaw, which has recently been reviewed. The revised bylaw incorporates some DSI requirements to ensure consistency across KDP and bylaw lighting provisions. Where illuminated signage is permitted by the Bylaw, the illumination must be shielded and must only illuminate the face of the relevant sign. The timing of illumination is also restricted between the times of 23:00 and sunrise. The proposed changes below include a standard that limits sign size, as the cumulative impact of larger signs has the potential to contribute to skyglow.

It is acknowledged that the bylaw sufficiently manages adverse effects of signage on public health and safety and reduces potential nuisance effects. The purpose of the plan change is to protect the natural night sky from the effects of light pollution. The proposed provisions focus on achieving this purpose and have been designed to dovetail with the bylaw.

8 Proposed plan changes

This section only outlines the proposed provisions for inclusion in the KDP. Appendix A contains a marked-up copy of the existing provisions showing the proposed provisions as tracked changes.

The proposed provisions have been informed by technical advice received from S&T Lighting and feedback from consultation.

8.1 Definitions

Table 8.1 contains key definitions that will be included in the proposed plan change. These definitions will support the interpretation of the new lighting provisions – providing clarity when implementing the objectives, policies, and standards. Proposed additions are underlined, and a marked-up version of the definitions is provided in context in Appendix A.

Table 8.1 Proposed definitions for inclusion in the Kaikōura District Plan

Term	Definition ¹⁷	Comment
<u>Any sign the whole or any part of which is internally or externally illuminated by any means</u>	<u>Any sign the whole or any part of which is internally or externally illuminated by any means</u>	The DSI defines illuminated signs as follows: “Any informational or advertising sign that is illuminated by either internal or external means” ¹⁸ The proposed definition is included to align with the DSI and bylaw definitions.
<u>Skyglow</u>	<u>The lighting of the night sky caused by light directed into the sky either directly (from light sources that project light above the horizontal) or</u>	DSI definition – included for clarity.

¹⁷ Definitions are taken from the DarkSky International website.

¹⁸ International Dark Sky Sanctuary Designation Guidelines, Footnote 7, pg. 7.

	<u>indirectly (light that is reflected from a surface).</u>	
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8.2 Light chapter

8.2.1 Policy direction

The operative KDP contains one issue relevant to lighting which focuses on the amenity values of each zone, or environment, within the district. The existing issue recognises excess light as a resource management issue but only in the context of amenity values. The issues contained within the operative KDP fail to recognise the effects that some outdoor lighting can have on the ability to view the night sky.

A new issue is proposed to be inserted into the Light chapter to identify the effect of excess exterior lighting on the darkness of the night sky as a key resource management issue in Kaikōura (Table 8.2). There is clear direction from both higher-order planning documents and iwi management documents that maintaining and enhancing the darkness of the night sky is important from a resource management and regional economic development perspective. The NZCPS recognises the darkness of the night sky as a feature of natural character that requires protection. Te Runanga o Kaikōura value celestial darkness and the ability to view the night sky. Thus, controls are required to manage effects of activities on that feature.

The proposed objectives and policies (Table 8.2) will work to resolve the issue of light pollution by facilitating lighting for safety and functionality in ways that minimise light pollution and protect the darkness of the night sky.

The visibility of the night sky is most affected by artificial lighting that is projected upwards and excessive lighting that is reflected upwards – particularly lighting that creates more blue light. The proposed provisions will mitigate such lighting through standards that control light temperature, hours of operation and light shielding.

The proposed new issue meets the good practice guidance for resource management issues in the following ways:

- The environmental opportunity for improvement is identified;
- The issue can be addressed by the Council under its functions and responsibilities set out in the RMA;
- The wording is succinct; and,
- The issue sets out what is being affected, how and where.

Proposed additions are underlined, and deletions are ~~struck through~~. A marked-up version of the Light chapter is provided in Appendix A.

Table 8.2 Proposed lighting provisions for inclusion in the Kaikōura District Plan

Issue	Objective	Policy
<p><u>LIGHT-I2: Effects of artificial light on the night sky.</u></p> <p><u>Light emitted from exterior lighting can adversely affect the darkness of the night sky and people's ability to view the night sky.</u></p>	<p><u>LIGHT-O2: Manage effects on the night sky.</u></p> <p><u>To provide for exterior lighting that enables night-time activities, safety and security, while protecting the darkness and people's ability to view the night sky.</u></p>	<p>Light-P1: Manage light effects on residential amenity.</p> <p>To ensure noise and lighting spill does not adversely affect the amenity enjoyed on residential sites.</p>
		<p>LIGHT-P2: Manage light effects on sensitive fauna.</p> <p>To ensure the level of noise and lighting is compatible with a comprehensive living environment and avoids adverse effects of celestial on the darkness of the night sky and the behaviours of seabirds fauna – in particular Hutton's Shearwaters.</p>
		<p><u>LIGHT-P3: Manage the effects of exterior lighting on the darkness of the night sky.</u></p> <p><u>Minimise skyglow caused by light emitted from exterior lighting, including by:</u></p> <ol style="list-style-type: none"> 1. <u>Directing light downwards, including through the use of shields and other devices</u> 2. <u>Minimising upward reflection of light</u> 3. <u>Utilising light colour temperatures of 3000 K or lower</u> 4. <u>Limiting the use of lighting to periods when illumination is required.</u> 5. <u>Specific design and operation control for lighting for outdoor recreational activities</u>
		<p>NOISE-P3 <u>LIGHT-P4</u>: Cross-references to light policies in other chapters.</p> <p>Refer: GRUZ-P1, SETZ-P1, COMZ-P4, MFZ-P2, DEV1-P1.</p>
<p>Commentary</p>		
<p>The ability to view the night sky is a valuable amenity of the district and it is appropriate that this is maintained and protected. The objective of the plan change must achieve the purpose of the RMA and higher-level policy statements, such as the NZCPS and Canterbury RPS. Protecting the darkness of the night sky constitutes protecting the natural character of the Kaikōura district, which is consistent with the NZCPS and RPS (see Section 6.3 for further assessment). The objectives of the IDSS and IDSC are consistent with the purpose of the RMA, as they will protect the night sky, as a natural resource, and provide for the wellbeing of ecosystems and the Kaikōura community.</p> <p>An increase in the amount of unnecessary outdoor lighting will adversely affect amenity, the behaviours of nocturnal species and the ability to view the night sky.</p>		

Although operative Policy LIGHT-P2 requires council to consider the effects of lighting on celestial darkness, the purpose of the policy is to protect the behaviours of seabirds (particularly Hutton's shearwater). It is proposed that the intent of this policy remains unchanged, however a wording update is proposed to make it consistent with the remainder of the chapter.

A new policy (LIGHT-P3) is proposed to protect the night sky for people to observe.

The new objective and modification of the policies are considered to sufficiently manage the effects of artificial lighting on amenity, sensitive fauna and the darkness of the night sky.

8.2.2 Rules and assessment criteria

The operative performance standards are grouped by zone. It is proposed a general set of standards is introduced to set district-wide lighting rules because the IDSS and IDSC will apply to the whole district (Table 8.3). Each zone will retain the existing lighting standards to ensure the objectives for that zone can be achieved.

Proposed additions are underlined, and deletions are ~~struck through~~. A marked-up version of the Light chapter is provided in Appendix A.

Table 8.3 Proposed lighting standards and assessment criteria for inclusion in the Kaikōura District Plan.

Rule	Commentary
LIGHT-R(1) Exterior lighting	
1. Activity Status: Permitted Where: a. Compliance is achieved with LIGHT-S1 – LIGHT-S(X)	There are currently limited rules for lighting in the KDP. All lighting is managed through permitted activity standards. If an activity cannot meet the relevant standards, it becomes restricted discretionary.
2. Activity Status: Restricted Discretionary Where: a. Compliance is not achieved with LIGHT-S1 – LIGHT-S(X) Matters of discretion: 1. The matters of discretion of any standard that is not complied with.	Introducing rules to manage the effects of lighting on the night sky will make the Light chapter consistent with other chapters in the KDP and the National Planning Standards.
Standards	Commentary
<u>LIGHT-S(X)</u>¹⁹	
1. <u>All exterior lighting shall:</u> a. <u>be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source; and,</u>	It is important for outdoor artificial lighting to be shielded to ensure that light is directed downwards, focusing on the area to be lit. Shielding ensures that a light source is screened and, when mounted, the light is directed in such a way that none is emitted at or above the horizontal plane.

¹⁹ The number of the district-wide standards will be updated once they are included in the KDP. (X) is a placeholder.

<p>b. <u>have a correlated colour temperature of light emitted of 3000 Kelvin or lower.</u></p>	<p>Shielding artificial outdoor light sources is required by the DSI to achieve IDSS and IDSC accreditation.</p> <p>The measurement of 3000K is specified as the maximum acceptable Kelvin by the DSI. The temperature of lighting determines the impact it has on the night sky. Warm-toned lights are encouraged, as they contain less blue light.</p> <p>A maximum limit of 3000K on outdoor lighting is required by the DSI to achieve IDSS and IDSC accreditation.</p> <p>See Section 5 for an explanation of lighting temperature.</p>
<p>2. <u>Exterior lighting that does not comply with SX(1) above may be displayed from 6.00am to 10.00pm for the following purposes:</u></p> <p>a. <u>Searchlight (unless required in an emergency)</u></p> <p>b. <u>Outside Illumination of any built or natural feature for aesthetic purposes.</u></p> <p>and</p>	<p>The specified times are a compromise between human activity and when the night sky is at its brightest. The listed lighting sources have the potential to produce large amounts of light pollution. It is proposed to reasonably limit these sources to times when they will most likely be used.</p> <p>Item (b) on the listed light sources includes sports grounds. Often sports grounds have bright lights to allow sports and recreation activities to be played beyond daylight hours. Restricting the time in which these lights can operate will achieve the objectives if the dark sky sanctuary and community without being too onerous on the users of public recreation facilities.</p> <p>Limits on the hours of operation for significant light sources are required by the DSI to achieve IDSS and IDSC accreditation.</p>
<p>3. <u>All exterior lighting complies with the relevant zone-specific standards (refer LIGHT-S1, LIGHT-S2, LIGHT-S3, LIGHT-S4 and LIGHT-S5).</u></p>	<p>This standard ensures the zone-specific standards are still referenced for general lighting activities.</p>
<p><u>Exceptions to LIGHT -SX</u></p> <p>a. <u>Exterior lighting controlled by motion-activated switches limiting the duration of illumination to less than five (5) minutes after activation are exempt from complying with standard (1) above.</u></p> <p>b. <u>Night-time works for the construction, maintenance and upgrading of network utilities and energy generation facilities undertaken by a network utility operator are exempt from complying with standard (1) above.</u></p> <p>c. <u>Exterior lighting required under civil aviation or maritime transport legislation are exempt</u></p>	<p>The DSI recognises lighting is required at night for security and safety purposes. An exemption is provided for non-compliant lighting that is limited to a time limit of less than five minutes, as it is recognised that these lights will have little contribution to light pollution given the short operation time. An exemption is also provided for lighting required for essential/emergency works and lighting required by civil, aviation or maritime legislation to ensure safety is maintained.</p>

<p>from complying with standard (1) above.</p> <p>d. <u>Lighting from operational vehicles.</u></p> <p>e. <u>Exterior lighting for outdoor recreation activities that complies with LIGHT-SX.</u></p>	
<u>LIGHT-S(X)²⁰</u>	
<p><u>Exterior lighting for the purposes of outdoor recreational activities shall:</u></p> <p>(i) <u>Be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source; and</u></p> <p>(ii) <u>Have a correlated colour temperature of light emitted of 5700 Kelvin or lower.</u></p> <p>(iii) <u>Not operate between 10pm and 6am</u></p> <p>(iv) <u>Only light the playing surface and viewing areas</u></p> <p>(v) <u>Provide the following controls:</u></p> <ol style="list-style-type: none"> 1. <u>Automatic curfew control or timer to ensure the lighting is off between 10pm and 6am.</u> 2. <u>If the lighting has a lighting level for competition, it shall also have a selectable lower lighting level for training.</u> <p><u>Note: In achieving compliance with (i) – (v) above, plan users should refer to applicable technical guidance on the relevant illumination levels of playing surfaces for the applicable sporting code.</u></p>	<p>The standards for outdoor recreational activity lighting have been developed to meet the requirements of IDSC accreditation.</p> <p>Similar to generic outdoor lighting, it is important for outdoor lighting for recreational activities to be shielded to reduce skyglow. The DSI requires light for these purposes to be focused on the playing surface and viewing areas to minimise excess light emissions.</p> <p>The measurement of 5700K is specified as the maximum acceptable Kelvin by the DSI for outdoor recreational activities. The level of lighting should also be appropriate to the activity being lit. The DSI recognises competitive sports may require specific lighting levels, which can be reduced for training activities.</p> <p>Lighting should also not operate between 10pm and 6am, with an automatic curfew timer installed to ensure this. It is considered unlikely that any outdoor recreational activities would occur within those times.</p>
Assessment criteria	
<p>h. What is the effect on fauna such as seabirds?</p>	<p>These criteria will be added to the existing assessment criteria in Appendix 6 of the KDP.</p>

²⁰ The number of the district-wide standards will be updated once they are included in the KDP. (X) is a placeholder.

<p>i. Is the exterior lighting necessary for operational or functional purposes?</p> <p>j. Are any mitigation measures proposed, including shielding of light and sound proofing of buildings?</p> <p>k. <u>What is the effectiveness and practicality of any measures proposed to mitigate the effects of sky glow, including the height, orientation, angle, light colour temperature, and shielding of the exterior light source.</u></p> <p>l. n/a</p> <p>m. <u>If exterior lighting for outdoor recreation activities has this been designed to comply with Australian Standard AS 2560.2:2021 Sports Lighting, Part 2: Specific Applications, or subsequent standards?</u></p>	<p>The existing criteria are used to assess lighting and noise activities, so (j) has been modified to only pertain to noise. Applications to breach the new performance standards will be assessed against new criteria (h), (i), (k) and (l), in addition to the existing matters.</p>
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In all zone-specific standards, reference to shielding and the hours of operation for lighting has been modified to ensure consistency with the proposed standards (Appendix A).

8.3 Sign chapter

8.3.1 Policy direction

The Sign chapter in the operative KDP focuses on traffic and pedestrian safety and amenity values within the district. The provisions currently fail to recognise the effects that illuminated signs can have effects on the natural darkness of the night sky.

Illuminated signage are a form of artificial lighting which can adversely affect people's ability to view the night sky. Illuminated signs contribute to the cumulative effects of urban lighting to light pollution if they are not shielded. The effects of illuminated signs are currently regulated by the bylaw to an extent.

The plan change proposes the inclusion of a new issue in the Sign chapter to recognise excess light emitted from illuminated signs can have an impact on the ability to view the night sky (Table 8.4). The proposed objective and policy aim to resolve this issue by minimising light pollution from illuminated signs to protect the darkness of the night sky. The proposed provisions do not preclude illuminated signage and recognise some businesses require signage that is visible at night.

Proposed additions are underlined, and deletions are ~~struck through~~. A marked-up version of the Sign chapter is provided in Appendix A.

Table 8.4 Proposed signage provisions for inclusion in the Kaikōura District Plan

Issue	Objective	Policy
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<p><u>SIGN-I3 Effects of illuminated signage on the night sky.</u> <u>Light emitted from illuminated signs can adversely affect the darkness of the night sky and people's ability to view the night sky.</u></p>	<p><u>SIGN-O3: Managing the effects of illuminated signs on the night sky.</u> <u>To provide for illuminated signs while protecting darkness and people's ability to view the night sky.</u></p>	<p><u>SIGN-P3: Manage the effects of illuminated signs on the darkness of the night sky.</u> <u>Minimise skyglow caused by light emitted from illuminated signage, including by:</u></p> <ol style="list-style-type: none"> 1. <u>Directing light downwards, to focus only on the sign to be illuminated, including through the use of shields and other devices;</u> 2. <u>Limiting the level of illuminance and size of signs; and</u> 3. <u>Limiting the use of illuminated signs to periods when required for business purposes.</u>
Commentary		
<p>The ability to view the night sky is a valuable amenity of the district and it is appropriate that this is maintained.</p> <p>Illuminated signs can contribute to light pollution from artificial lighting, which adversely affects the ability to view the night sky.</p> <p>Managing the design, location and timing of illuminated signs will contribute to the protection of the brightness and clarity of the night sky. This is required by the DSI to achieve IDSS and IDSC accreditation.</p>		

8.3.2 Rules and assessment criteria

Kaikōura primarily relies on the Signage Bylaw (Section 7.2) to control the impacts of signage on health, safety and nuisance. As discussed above, the protection of the night sky is beyond the scope of the bylaw. Having appropriate controls on illuminated signs is important to avoid light pollution which contributes to skyglow.

Performance standards that manage the effects of illuminated signs are proposed to compliment the bylaw. The existing KDP provisions do not include rules or standards – relying on the bylaw to manage the effects of signs to achieve the objectives and policies of the district plan.

The proposed plan change maintains illuminated signs as a permitted activity but introduces performance standards that align with the DSI accreditation requirements. If the permitted activity standards cannot be met, the activity will become restricted discretionary. The assessment criteria will include an assessment of the effects of the activity on the night sky.

Illuminated signs that meet the permitted standards will be permitted in the commercial and mixed zones, which is consistent with the operative bylaw²¹.

²¹ Kaikōura Signage Bylaw 21(B)

Under the bylaw, some signs in the residential²² and tourism²³ zones are able to be externally lit if the lighting is shielded, does not light beyond the face of the sign and, in some instances, is only lit within certain hours. These bylaw standards manage the effects of illuminated signs on health and safety, nuisance and amenity values. The proposed plan change will consider illuminated signs in all zones outside of the Commercial and Mixed-use zones discretionary activities. This means effects of illuminated signs on the night sky in all other zones will be managed by assessing the activity against the proposed objective and policy.

The proposed standards (Table 8.5) will manage the effects of illuminated signs in the Commercial and Mixed-use zones. Illuminated signage that does not meet the relevant performance standards will require resource consent as a restricted discretionary activity. Illuminated signs outside of the Commercial and Mixed-use zones will be a discretionary activity. This is considered the best approach to managing the effects of illuminated signs on the night sky without contradicting the bylaw.

Proposed additions are underlined, and deletions are ~~struck through~~. A marked-up version of the Sign chapter is provided in Appendix A.

Table 8.5 Proposed signage standards and assessment criteria for inclusion in the Kaikōura District Plan

Rule	Commentary
<u>SIGN-R(1) Illuminated signs in the Commercial and Mixed-use zones</u>	
3. <u>Activity Status: Permitted</u> <u>Where:</u> b. <u>Compliance is achieved with SIGN-S1</u>	There are currently no rules or standards for signage in the Kaikōura District Plan. All signs are controlled through the Signage Bylaw. Introducing rules to manage the effects of illuminated signs on the night sky will make the Signs chapter consistent with other chapters in the KDP and the National Planning Standards.
4. <u>Activity Status: Restricted Discretionary</u> <u>Where:</u> b. <u>Compliance is not achieved with SIGN-S1</u> <u>Matters of discretion:</u> 2. <u>The matters of discretion of any standard that is not complied with.</u>	Introducing rules to manage the effects of illuminated signs on the night sky will make the Signs chapter consistent with other chapters in the KDP and the National Planning Standards. Illuminated signs in the Commercial and Mixed-use zones will be permitted if they can meet the permitted activity standards below and comply with the requirements of the KDC Signage Bylaw. Any non-compliances will trigger a restricted-discretionary consent. New assessment criteria are proposed, which will guide an assessment of the effects of illuminated signs on the night sky.
<u>SIGN-R(2) Illuminated signs in all other zones</u>	
5. <u>Activity Status: Discretionary</u> <u>Where:</u> a. <u>Any illuminated sign is located outside of the Commercial and Mixed-use zones.</u>	Where an illuminated sign is proposed outside of the Commercial or Mixed-use zones, this will be a discretionary activity. The proposed objective and policy will guide the assessment of the effects of any illuminated signs in these zones on the night sky.
Standards	Commentary

²² Kaikōura Signage Bylaw 22(B)(1)(e)

²³ Kaikōura Signage Bylaw 26(B)(2) and (6)

SIGN-S(X)²⁴ Illuminated signs in the Commercial and Mixed-use zones	
<ol style="list-style-type: none"> 1. <u>The luminance levels of internally illuminated signs shall not exceed 100 candelas per square metre (cd/m²) between the hours of sunrise and sunset; and</u> 2. <u>No illuminated signs shall operate outside the hours of the activity for which the sign relates;</u> 3. <u>Illuminated signs shall not exceed 4m² in area; and</u> 4. <u>Any external illumination of a sign:</u> <ol style="list-style-type: none"> i. <u>Shall not be from an upward facing light source;</u> ii. <u>Shall be from a light source that is shielded from above in such a manner that the edge of the shield is below the whole of the light source; and</u> iii. <u>Shall be focused only on the sign to be illuminated</u> 	<p>Internally lit illuminated signs are permitted by the bylaw in the following zones:</p> <ul style="list-style-type: none"> • Business A • Business B • Business C • Kaikoura Airport and Business Park • Mixed Use Area of the Ocean Ridge Comprehensive Living Zone. <p>There are currently no assessment criteria for signage in the KDP. The proposed assessment criteria ensure the effects of the activity on the night sky are also considered.</p> <p>To gain IDSS and IDSC accreditation, the DSI requires illuminated signs to be managed in terms of light spill, night-time light pollution and brightness (glare). The proposed standards address these issues, while recognising the need for illuminated signage to promote business in certain zones.</p> <p>Managing the brightness of signs, ensuring the light is shielded and reducing the hours of operation will protect the clarity and brightness of the night sky.</p>
Assessment criteria	
<ol style="list-style-type: none"> a. <u>What is the extent to which the performance standards are not complied with?</u> b. <u>What is the reason for exceeding the performance standards?</u> c. <u>What is the nature of, and sensitivity of, the environment where the illuminated sign is located?</u> d. <u>What is the colour and luminance intensity of the proposed illuminated sign?</u> e. <u>What are the hours of operation of the illuminated sign?</u> f. <u>What is the effectiveness and practicality of any measures proposed to mitigate the effects of skyglow from the illuminated sign, including the height, orientation, angle, light colour temperature, and shielding of the exterior light source?</u> 	<p>These criteria will be added to the existing assessment criteria in Appendix 6 of the KDP.</p> <p>There are currently no assessment criteria for signage in the KDP because activities are controlled under the bylaw. If an activity cannot meet the proposed performance standards, it will become restricted discretionary and will be assessed against the proposed criteria.</p>

²⁴ The number of the district-wide standards will be updated once they are included in the KDP. (X) is a placeholder.

g. <u>What is the effect on fauna such as seabirds?</u>	
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8.4 Methods and environmental results

This plan change proposes two changes to the implementation methods, being:

- Limits on type, use and time outdoor areas are lit.
- Requirements regarding shielding and filtering of all outdoor lighting and illuminated signs.

In addition to the proposed provisions, non-regulatory methods will be employed to help manage the effects of exterior lighting to protect the night sky. Non-regulator methods include:

- Education on the IDSS and IDSC and how exterior lighting affects the dark sky in those places. Education could include adding dark sky material to the curriculum at local schools and providing material in different forms around the district for tourists.
- There is an opportunity to integrate digital devices (e.g. LED lights) that can be managed remotely. This would allow the brightness of prominent lighting features to be adjusted at certain times to promote darkness.
- Collaboration with stakeholders, such as Waka Kotahi, to support the transition of high light-emitters to warm coloured light fittings (i.e. less than 3000K in line with proposed provisions).

These methods will be achieved through the proposed district plan provisions. The anticipated environmental results include:

- Minimal adverse effects of outdoor lighting on the brightness and clarity of the night sky.
- Avoidance of unnecessary light pollution in the Kaikōura District.
- Preservation of the ability to view the night sky.

8.5 Planning maps

The proposed changes will be applied to the entire Kaikōura district. Therefore, there is no need to amend the planning maps as a part of this plan change.

9 Consultation

9.1 Legislative requirements

Schedule 1(3) of the RMA identifies the people who must be consulted when preparing a plan, which includes plan changes. The provisions relevant to this plan change are:

3. Consultation

- 1) During the preparation of a proposed policy statement or plan, the local authority concerned shall consult—

- a) the Minister for the Environment; and
 - b) those other Ministers of the Crown who may be affected by the policy statement or plan; and
 - c) local authorities who may be so affected; and
 - d) the tangata whenua of the area who may be so affected, through iwi authorities; and
 - e) any customary marine title group in the area.
- 2) A local authority may consult anyone else during the preparation of a proposed policy statement or plan.
 - 3) Without limiting subclauses (1) and (2), a regional council which is preparing a regional coastal plan shall consult—
 - a) the Minister of Conservation generally as to the content of the plan, and with particular respect to those activities to be described as restricted coastal activities in the proposed plan; and
 - b) the Minister of Transport in relation to matters to do with navigation and the Minister's functions under Parts 18 to 27 of the Maritime Transport Act 1994; and
 - c) the Minister of Fisheries in relation to fisheries management, and the management of aquaculture activities.
 - 4) In consulting persons for the purposes of subclause (2), a local authority must undertake the consultation in accordance with section 82 of the Local Government Act 2002.

4A Further pre-notification requirements concerning iwi authorities.

- 1) Before notifying a proposed policy statement or plan, a local authority must—
 - a) provide a copy of the relevant draft proposed policy statement or plan to the iwi authorities consulted under clause 3(1)(d); and
 - b) have particular regard to any advice received on a draft proposed policy statement or plan from those iwi authorities.
- 2) When a local authority provides a copy of the relevant draft proposed policy statement or plan in accordance with subclause (1), it must allow adequate time and opportunity for the iwi authorities to consider the draft and provide advice on it.

Schedule 1(3) of the RMA specifies certain groups that local authorities must consult with during the preparation of a proposed plan (Table 9.1).

Table 9.1 Groups consulted pursuant to Schedule 1, Clause 3 of the RMA.

Group	Party
Councils	Marlborough District Council
	Hurunui District Council
	Environment Canterbury
Iwi/hapū/marae	Te Runanga o Kaikōura
	Ngāi Tahu
Government ministries	Minister for the Environment
	Minister of Conservation
	Minister of Transport
	Minister for Economic Development
	Minister of Climate Change
	Minister of Agriculture
	Minister of Education
Other	MP for Kaikōura – Stuart Smith
	MainPower
	Kiwi Rail
	Waka Kotahi
	Spark
	Genesis

9.2 Iwi engagement

KDST and Kāhu Environmental have been engaging with Te Runanga o Kaikōura from the outset of this project.

KDST presented an overview of the project to the Runanga at a hui on March 12th, 2023. Following the development of the private plan change documents (s.32 evaluation report and plan provisions), a copy was provided to the Runanga for review. On November 8th, 2023, KDST and Kāhu Environmental held an online hui with Lorraine Hawke²⁵ from Te Runanga o Kaikōura. Below is a summary of the questions and responses that arose from the hui.

Questions / Feedback from Te Runanga o Kaikōura	Response provided to Te Runanga o Kaikōura
Would the Dark Sky Accreditation by the International Dark Sky Association place any	The accreditation as a Dark Sky Sanctuary would be from DarkSky International – a body who are passionate about protecting and recognising dark sky places across the globe. A Dark Sky Place accreditation recognises the exceptional quality of the night sky in these locations and recognises where a community is demonstrating exceptional dedication

²⁵ Leader of the Environmental Pou of Te Runanga o Kaikōura.

<p>limitations on cultural rights/values?</p>	<p>to the preservation of the night sky through the implementation and enforcement of a quality outdoor lighting rules (the plan change), dark sky education, and community support of dark skies. More information about DarkSky International and Dark sky places can be found at https://darksky.org</p> <p>It is considered that accreditation as a Dark Sky Place will fully support Te Rūnanga o Kaikōura in the protection of this valuable natural resource.</p>
<p>What area with the Dark Sky Sanctuary cover?</p>	<p>The Kaikōura Dark Sky Trust are hoping the entire district would be recognised as a dark sky place. 98% could be a 'Sanctuary' due to its pristine night skies, large area of protected lands, environmental vulnerability and lack of light pollution. The township and a small area around would be designated a 'Community' as this area contains sports lighting, illuminated signs and a higher density of housing and public facilities. (A map of the proposed Dark Sky Community and Sanctuary is provided in Figure 3.2)</p> <p>The proposed District Plan rules for lighting would apply across the whole district (both the proposed Community and Sanctuary), but there would be additional rules managing illuminated signs and sports lighting in the Community where these activities are present.</p>
<p>Would the District Plan Change mean that permission or resource consent is required for working on the roads etc?</p>	<p>There are exemptions proposed in the District Plan Rules, that mean lighting required for particular purposes would be excluded from the need to be shielded, and meet the colour temperature of 3000 Kelvin. These exemptions include:</p> <ul style="list-style-type: none"> • Lights on timers and motion sensors • Night-time works for the construction, maintenance and upgrading of network utilities and energy generation facilities undertaken by a network utility operator • Exterior lighting required under civil aviation or maritime transport legislation • Lighting from operational vehicles. <p>Thank you for your comments regarding boats. We will consider further and look to include an exemption for lighting from boats</p>
<p>Is there anticipated to be any financial burden associated with the plan change that the community will be subject to, or result in increases in cost to ratepayers?</p>	<p>In terms of compliant lighting, shielded lights and light fittings with a lower Kelvin are becoming more readily available as the demand is growing. Lighting that meets the requirements of the rules in the proposed plan change are readily available at lighting suppliers (e.g. Mitre 10) for a similar cost to other lighting. In addition, reducing lighting on private property to</p>

	<p>only where and when it is needed will assist to reduce energy costs.</p> <p>The plan provisions will not apply retrospectively, so all lighting that currently exists remains lawful and does not require immediate action to change. It is hoped that as people decide to upgrade lighting and install new lighting, dark sky compliant lighting will be installed.</p> <p>In regards to Council lighting costs, since retrofitting the street lights with LED, shielding light fittings and dimming some lights, the energy bill has reduced significantly.</p>
Request to engage with Ngāi Tahu	<p>Following the Hui on the 8th of November, emails have been sent to Ngāi Tahu prior to the Christmas close down period. An email has been received from Ngāi Tahu that this has been passed to their planning team. We are awaiting a response.</p>

9.3 Consultation on Kaikōura Dark Sky Places

Extensive consultation has been undertaken since the conception of this project. The project team is dedicated to ensuring all the appropriate people are engaged to facilitate buy-in to the proposed provisions. Consultation and engagement are recognised as iterative processes, with a live consultation document being updated when any new activities are undertaken, or responses are received. Table 9.2 summarises the responses received about the project to date.

Table 9.2 Summary of consultation to date

Party	Support	Comment
Neighbouring Councils	Yes	<p>No concerns or cross-boundary issues.</p> <p>Townships in Hurunui are some distance from Kaikōura and already have some lighting provisions in anticipation of becoming a dark sky place.</p> <p>Environment Canterbury are currently amending the Regional Policy Statement to recognise the night sky as a valuable resource.</p>
Government ministers	TBC	<p>Newly appointed government ministers were notified of the plan change in January 2024. Any feedback received will be provided to KDC. The local representatives of those ministers (e.g. Department of Conservation and Waka Kotahi) have been consulted (see below).</p> <p>The MP for Kaikōura supports the proposal.</p>
MainPower	Yes	<p>Support the proposal and recognise the benefits for Hutton's shearwater (which Main Power sponsor). Utility structures are generally not lit, or it would not be a significant burden to meet the proposed regulations.</p> <p>Concerns were raised over temporary/emergency works, which has informed the proposed provisions.</p> <p>Support was confirmed after MainPower reviewed the draft s.32 and provisions on 19/10/2023.</p>

Spark	Yes	Spark provided comment on this report and proposed provisions on 22/09/2023. Their recommendations were considered and incorporated where appropriate. Spark recognised the benefits of the proposal – including community collaboration towards a common goal and digitally controlled lighting.
Department of Conservation (DoC)	Yes	No DoC huts or facilities are externally lit within the proposed IDSS. DoC Recognise the benefits the plan change will have for Hutton’s shearwater. DoC provided confirmation that they are supportive of this report and proposed provisions on 29/09/2023.
Waka Kotahi	Yes	Waka Kotahi provided feedback on the draft s.32 report and provisions on 04/10/2023. The signage provisions were updated in accordance with that feedback to ensure illuminated signs can be used for road safety and traffic management by maintenance and construction teams. Waka Kotahi confirmed the amendments met their requirements.
Other interest groups	Yes	Fonterra is confident farmers in Kaikōura can comply with the provisions over time. They support the provisions not being applied retrospectively. Federated Farmers responded in support of the draft s.32 and provisions on 28/10/2023. No concerns were raised about the effects of the plan change on farmers. The local heritage group indicated no concerns with the proposed plan change. There has been no response from the southern regional office for Pouhere Taonga Heritage NZ. No response was received from Forest and Bird or Maritime NZ.

Other groups that have been consulted include:

- Schools
- Community groups
- Recreation clubs and organisations
- Environmental groups
- Kaikōura businesses
- Emergency services

All groups who have responded to consultation efforts support the proposed IDSS and IDSC, with some conditions. The key concerns raised include whether the new regulations will be applied to existing lighting; and how temporary and emergency activities will be provided for. These concerns have informed the proposed provisions. The plan change takes a phased approach, with the provisions applying to new and replacement lighting. Exceptions have been put in place to ensure necessary maintenance and construction works and emergency activities are still able to take place at night.

10 Plan change evaluation

10.1 The appropriateness of objectives to meet the purpose of the RMA

When amending an existing plan, the RMA requires the proposed provisions to be evaluated against both the objectives of the plan change and the relevant objectives in the existing plan. This dual assessment means a plan change cannot be solely justified by its own objectives. The plan change must be consistent with the broader plan objectives and not undermine them.

The purpose of the proposed Kaikōura dark sky places plan change is outlined within Section 2 of this report. The operative objectives within the KDP that are relevant to this plan change provided in Appendix E. The objectives particularly relevant to this plan change are discussed below.

The ability to view the night sky and enjoy its brightness and clarity are a natural quality of the Kaikōura district and a characteristic of the amenity value of the area. These features are also highly valued by Te Runanga o Kaikōura. The operative objectives of the KDP focus on maintaining and enhancing amenity values and natural and visual qualities of Kaikōura. Other objectives recognise and provide for cultural values.

The objectives of the proposed plan change involve protecting the natural darkness of the night sky by managing the effects of artificial light. The proposed objectives compliment the operative objectives by also maintaining and enhancing natural amenity values and cultural values. The proposed objectives are consistent with the objectives of the operative KDP and achieve the purpose of the RMA.

The operative KDP objectives do not fully capture the objectives of the proposed plan change. While the operative provisions focus on maintaining and enhancing amenity values, the definition of amenity does not include the brightness and clarity of the night sky. Therefore, new objectives are proposed in the Light and Signs chapters of the KDP to protect the natural value of the night sky. By managing artificial outdoor lighting, the proposed objectives will contribute to preserving amenity and natural character values across the district.

The plan change will include two new objectives: Light-O2 and Sign-O3. These proposed changes are described in Section 8.

The existing objective in the Light chapter cross-references the amenity objectives in each zone. While amenity will be enhanced by protecting the night sky, relying on generic objectives is an inappropriate response to the resource management issue identified by this plan change. The inclusion of Light-O2 provides clear direction that the darkness the dark sky is a value of the Kaikōura district that needs to be protected. It provides for outdoor lighting while ensuring the aspects of lighting that cause skyglow are managed. Objective Sign-O3 will have a similar effect, but is specific to illuminated signs, which also contribute to light pollution and sky glow.

The operative objectives do not achieve the objectives of the proposed plan change. Introducing new provisions to specifically address the protection of the night sky is an appropriate response to light pollution and will allow the effects of lighting activities to be efficiently and effectively managed.

10.2 Options for achieving the objectives

Four options to achieve the proposed objectives of the plan change have been considered (Table 10.1).

Table 10.1 Options to achieve the objectives of the plan change.

Option	Description
Option 1: Status Quo (no change from the Operative Plan)	This option retains the existing provisions in the KDP to manage outdoor lighting within the Kaikōura district.
Option 2: Bylaw	This option involves controlling lighting within the district by the Council developing a bylaw under the Local Government Act 2002.
Option 3: Plan change to amend provisions of the KDP applying across the Kaikōura district.	This option would retain the existing provisions which manage lighting within the KDP but refine the provisions to better respond to the identified issue. This option would apply over the whole of the Kaikōura District, regardless of location or zone.
Option 4: Non-regulatory methods	Option 4 involves the use of non-regulatory methods to control lighting within the district, such as: <ul style="list-style-type: none"> • Education • Publishing Lighting Design Guides (which would be voluntary guidance, and not incorporated by reference into the KDP).

10.3 Recommended option

The best approach is a combination of Options 3 and 4.

- Option 3 involves retaining the current statutory control of lighting (including illuminated signs) using the operative KDP and signage bylaw. New provisions will be added to reflect the resource management issue this plan change identifies.
- Option 4 supplements Option 3, in that KDC can use non-regulatory method (e.g. education) to highlight the importance of the dark sky sanctuary and community. These methods can provide the community with additional detail about the need to manage lighting and how they can do this by installing specific types of lighting.

Overall, it is considered that a combination of Options 3 and 4 is the most efficient and effective way of achieving the objectives.

The provisions of the operative district plan are inadequate to implement the requirements of the DSI. Without the proposed provisions, KDC will have ineffective policy and planning methods to manage lighting. This risks dark sky sanctuary and community certification not being achieved.

KDC has sufficient information to act. Kaikōura has been recognised by the KDST and DSI as an appropriate location for an international dark sky sanctuary and community and the dark sky is recognised as an important amenity value for the district. The implementation of the proposed provisions is intended to provide clear direction within the district plan that the dark sky is an important amenity feature of the district that requires protection and consideration when

assessing development proposals. The costs associated with implementing the provisions as the preferred option, are outweighed by the benefits.

It is considered that there is little risk associated with the implementation of the preferred option.

10.4 Policies

The plan change will introduce two new policies: Light-P3 and Sign-P3 (Section 8). Policy Light-P3 ensures outdoor lighting is provided for while protecting the clarity and brightness of the dark sky. Policy Sign-P3 will also reduce skyglow but is specific to illuminated signs.

The current provisions of the plan are focused on protecting visual amenity and preserving 'celestial darkness' for light-sensitive fauna. While these do protect the brightness and clarity of the night sky to an extent, it is not the intent of operative policies. The proposed provisions will ensure the KDP can specifically address the resource management issue identified by this plan change and will ensure the adverse effects of lighting on the night sky are appropriately managed.

10.5 Rules

The proposed plan change proposes a number of amendments to the rules and methods within the KDP. These amendments are outlined in detail in Appendix A. This section provides an assessment of the proposed changes in accordance with s.32 of the RMA.

10.5.1 Light chapter

Lighting that meets the standards in the operative KDP is a permitted activity, which means that resource consent is not required for the activity if it complies with any conditions and standards specified for that activity. Councils must be confident that compliance with any conditions and standards will adequately manage the effects expected (including cumulative effects)²⁶.

Outdoor artificial lighting is currently controlled by performance standards, that if complied with, mean that the installation of lighting is a permitted activity within all environmental zones. There are no rules associated with the performance standards, so it is unclear what activity status applies if an activity cannot comply with the standards. In saying that, matters of discretion are provided, which implies an activity would become restricted discretionary. It is proposed to introduce rules for lighting activities to make the Light chapter consistent with other KDP chapters and the National Planning Standards.

Lighting is an activity that is usually ancillary to another activity, so requiring resource consent for the installation of all lighting is considered too onerous on plan users. The effects of different lighting types and design are known and measurable, so it is an activity that KDC can effectively manage using permitted activity standards.

This plan change proposes to add three specific performance standards for outdoor artificial lighting to the Light chapter of the KDP (section 8.2.2). These performance standards will apply to all lighting within the Kaikōura district. The proposed changes are primarily driven by the

²⁶ www.qualityplanning.org.nz

need to reflect the DSI lighting guidelines to gain accreditation. The DSI requirements have been proven to control skyglow in accredited dark sky places around the world. Controls on shielding, temperature and hours of operation reduce skyglow – protecting the brightness and clarity of the night sky.

The operative KDP has zone-specific performance standards (see Appendix E), which will remain as a part of this plan change. The proposed standards will apply to all zones in addition to the existing standards. Currently the standards control light spill beyond the boundary of properties, but there are no controls for glare or skyglow.

The DSI requirements to manage skyglow must be put in place to achieve dark sky sanctuary and community accreditation. These have informed the proposed standards (Table 8.3), including:

- Shielding of light fittings (proposed standard LIGHT-S(X)(1)) - Shielding light fittings is a requirement of the lighting DSI guidelines for dark sky sanctuary and community accreditation regardless of the number of lumens a light source emits²⁷.
- Limits on the colour temperature of lighting (proposed standard LIGHT-S(X)(2)) - The DSI guidelines for a dark sky sanctuary and community require that lighting policy within any dark sky area must restrict lighting so that the light colour temperature does not exceed 3000K²⁸.
- Limits on the hours of operation for certain lighting activities (proposed standard LIGHT-S(X)(3)) – The DSI requires outdoor lighting at night to only be used when needed and at appropriate levels to carry out the activity²⁹.
- Limits on the extent, illuminance, colour temperature and timing of lighting for outdoor recreation and sport activities³⁰.

The proposed plan change provides exemptions to the proposed performance standards for temporary or intermittent lighting activities. Outdoor artificial light that is controlled by motion activated switches which limit the duration of illumination to less than 5 minutes is exempt from the temperature and hours of operation standards. This exemption is provided for within the DSI

²⁷ DSI – International Dark Sky Sanctuary Programme Guidelines, June 2018 – Lighting Management Plan Requirement 3; DSI – International Dark Sky Community Programme Guidelines, June 2018 – Lighting Management Plan Requirement 1

²⁸ DSI – International Dark Sky Sanctuary Programme Guidelines, June 2018 – Lighting Management Plan Requirement 4; DSI – International Dark Sky Community Programme Guidelines, June 2018 – Lighting Management Plan Requirement 1

²⁹ DSI – International Dark Sky Sanctuary Programme Guidelines, June 2018 – Lighting Management Plan Requirement 2

³⁰ DSI – International Dark Sky Community Programme Guidelines, June 2018 – Lighting Management Plan Requirement 1

dark sky sanctuary guidelines³¹ and ensures lighting that is primarily designed for security and access purposes, is not unduly limited.

Light fittings that are shielded or shields for light fittings are easily obtainable at lighting suppliers. This standard is not expected to be onerous on plan users, either in terms of ability to obtain appropriate lighting or in cost.

The proposed performance standards are drafted in such a way that they can be interpreted by plan users, despite the inclusion of some technical lighting terminology. Lighting options that comply with the requirements of the performance standards should be readily available to plan users, through common lighting manufactures and suppliers. To support this, the KDST intends to coordinate with local lighting retailers to ensure compliant lighting options are available at stores. The KDST will make efforts to educate retailers on the proposed provisions to ensure they are able to inform customers. It may be possible for suitable light fittings to be identified as 'dark sky' compliant.

The proposed provisions are easy to monitor and enforce. Monitoring can be undertaken by council compliance officers with minimal additional training needed.

The proposed performance standards for outdoor artificial lighting are considered to be effective in achieving the objectives of the plan change and the objectives of the KDP and the most efficient way of achieving these objectives.

10.5.2 Outdoor sports and recreation lighting

The proposed plan change seeks to include a new suite of performance standards within the Light Chapter in the KDP to specifically manage outdoor sports lighting at recreational facilities within the proposed Dark Sky Community Area.

Outdoor sports and recreational lighting is essential for ensuring that evening sports and recreation activities can occur, particularly in winter. As a result of the large areas that need to be lit and the level of brightness required to undertake sporting activities safely, these facilities can be a major light pollution source and an appreciable contributor to skyglow.

For this reason, outdoor sports and recreational lighting is an activity that warrants a specific set of performance standards. The DSI recognises lighting for recreational activities would generally be unable to meet some performance standard (such as light colour temperature) that are proposed for general outdoor lighting. Not providing for sports and recreational lighting would be unduly restrictive, as any new lighting activity would be unlikely to comply with the performance standards and would require resource consent. As the facilities that need sports and recreational lighting are often community-run organisations, obtaining resource consent for all new lighting would strain their limited resources.

Outdoor sports lighting, and it's effect on skyglow, can be controlled by the proposed performance standards, including:

³¹ DSI – International Dark Sky Reserve Programme Guidelines, June 2018 - Lighting Management Plan Requirement 3

- Limits on the colour temperature and extent of lighting.
- Requiring lighting levels to be designed in accordance with the Australian Standards AS 2560 Guide to Sports Lighting.
- Limiting hours of operation of outdoor sports and recreational lighting to between 6am and 10pm.
- Requiring controls on sports lighting, including automatic curfew controls, local control and competition and training levels.

The proposed provisions have been tailored to the specific requirements of outdoor sports and recreational lighting. These recreational lighting provisions are required for IDSC certification and have been approved by the DSI. Their purpose is to ensure that good lighting design and controls are applied to sports lighting to mitigate unnecessary skyglow.

It is anticipated that an applicant for new recreational/sports lighting within the proposed IDSC would be likely to engage the services of a lighting consultant or supplier with sports lighting design experience. That expert would be able to interpret and apply the proposed lighting standards to the requirements of the recreation facility. While these rules are more technical and therefore less straightforward to interpret, it is unlikely that the average plan user will need to understand how to apply the provisions to their activity.

10.5.3 Illuminated signs

The DSI guidelines for dark sky sanctuaries and communities require that illuminated signs are regulated, including requirements for hours of operation and limitations on the colour and brightness of signs. This plan change seeks to balance the requirements of the DSI with practical considerations for business owners in the Kaikōura district.

The proposed performance standards will manage the effects of illuminated signage appropriately without needing to restrict the colours signs are permitted to display. It is recognised that limiting the design of illuminated signs to a single colour on a black background would unreasonably restrict business owners from using signs that reflect their branding. By requiring shielding and limiting the hours of operation, brightness (100cd/m²) and size of illuminated signs, the cumulative impact of such signs on skyglow will be sufficiently reduced.

10.5.4 Street lighting and public safety

Street lighting is a major light source within the district. Many lighting standards in operative district plans in New Zealand specifically exclude the application of lighting rules within plans to street lighting. This is generally because street lighting may not meet the lighting standard limits in all instances but is deemed as necessary for all-night safety and security for the public at large.

Reducing the temperature of streetlighting from 4000K to 3000K will reduce the amount of blue light that is being emitted into the atmosphere. Due to improvements in LED technology, both the 3000K and 4000K versions of streetlights have better colour rendering, which provides

better visual conditions over previous lighting options³². A report commissioned by Waka Kotahi found no significant difference between the 3000K and 4000K light options with regards to safety. Therefore, limiting streetlight bulbs to a maximum of 3000K would not be adverse to public safety, and would be consistent with the restrictions on all other forms of lighting across the district.

11 Cost and benefit analysis

11.1 Costs

The most obvious cost of implementing the proposed provisions is a potential increase in the cost of light installations that comply with the proposed permitted activity standards within the IDSS and IDSC areas.

The implementation of the provisions requires plan users to install new lighting to meet the permitted activity starts of the District Plan. Light fittings that are shielded, or shields for light fittings are easily obtainable at lighting suppliers. As with lamp lumens, plan users should easily be able to ascertain the light colour temperature (Kelvin) of any proposed light fitting, by referring to the packaging or manufacturers details (if purchasing online. A review of lighting available at lighting retailers indicates that a number of light fittings are readily available at under 3000 Kelvin, (3000K), with equivalent price points to other lighting available. There may be a small cost to those installing lights in terms of time, availability, and cost of obtaining lights to meet the proposed performance standards. These costs will only apply to new and replacement lighting, so will be distributed over time.

The proposed provisions will also result in time and resource costs to KDC to ensure that staff and plan users are aware of and are able to interpret and apply the new provisions. There may be a small increase in monitoring cost to the Council, which is likely to be limited to a short period following the plan change becoming operative. There will also be a financial cost to developers, the community, and other interested parties who wish to engage in the plan change process.

11.2 Benefits

The benefits of the proposed amendments include specifically recognising the brightness and clarity of the night sky as an amenity value of the Kaikōura district that needs to be protected. A separate policy with this focus also ensures that plan users are directed to consider the aspects of outdoor lighting that will be controlled to minimise skyglow – namely light colour temperature, shielding and hours of operation.

The primary benefit that will occur from the implementation of the provisions, is that new lighting will be managed to meet the requirements of the DSI and will assist in ensuring that an IDSS and IDSC can be established and accredited within the Kaikōura district. Section 4 of this report outlines in detail the economic, social, cultural and environmental benefits that an international dark sky sanctuary and community would incur. These benefits are intrinsically linked, and dependent on the inclusion and implementation of the provisions proposed by this plan change.

³² S&T Lighting advice

The provisions focus on reducing light output and only lighting areas that are necessary. There will be benefits to the environment, including the habitats of nocturnal species, though the minimisation of skyglow.

Those using lighting are also likely to experience reduced energy use and cost as a result of only lighting areas as and when required. Safety will be maintained by continuing to provide for lighting for safety purposes, but unnecessary light pollution will be minimised. The proposed provisions are not expected to have any adverse impact on public or road user safety. The elimination of glare and over-lighting will provide safer visual conditions. It is expected that less lighting will be continuously operating at night, with motion detection being more widely implemented.

The proposed lighting provisions are not expected to impact on a person's ability to carry out activities outdoors after dark. A positive effect on residential amenity is anticipated due to improved quality of views of the night sky, and a reduction in spill light and glare from new outdoor lighting installations.

12 Conclusion

This report provides a summary assessment of the plan change consistent with s.32 of the RMA. The report describes the purpose of the plan change and summarises an evaluation of:

- The objectives of the plan change;
- The broad plan change options;
- The proposed amendments to the policy framework to introduce new policies; and
- The proposed methods and standards.

The report concludes that the plan change is the most appropriate way to achieve the purpose of the RMA.

Appendix A Marked up version of Kaikōura District Plan

No mark up – Kaikōura Operative District Plan operative plan provisions

Underline text – New text proposed to be added by the plan change

Strikeout ~~Strikeout~~ text – Text proposed to be removed by the plan change

LIGHT – Light

Key defined terms for this chapter	
Term	Definition
Adjoining	land shall be deemed to be adjoining other land, notwithstanding that it is separated from the other land only by a road, railway, drain, water race, river or stream.
Amenity or Amenity Values	has the same meaning as defined in Section 2 of the Resource Management Act 1991, which at the notification date of this Plan, means: "those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes."
Boundary	means any boundary of the net area of a site and includes any road boundary or internal boundary. Site boundary shall have the same meaning as boundary.
Building (NPS)	Means a temporary or permanent movable or immovable physical construction that is: partially or fully roofed; and fixed or located on or in land; but excludes any motorised vehicle or other mode of transport that could be moved under its own power.
Internal Boundary	of a site means any boundary of the net area of a site other than a road boundary.
Notional Boundary	means a line 20 metres from any side of a dwelling or the legal boundary where this is closer to the dwelling.
Residential Unit (NPS)	Means a building(s) or part of a building that is used for a residential activity exclusively by one household, and must include sleeping, cooking, bathing and toilet facilities.

Site (NPS)	<p>Means:</p> <p>an area of land comprised in a single record of title under the Land transfer Act 2017; or</p> <p>an area of land which comprises two or more adjoining legally defined allotments in such a way that the allotments cannot be dealt with separately without the prior consent of the council; or</p> <p>the land comprised in a single allotment or balance area on an approved survey plan of subdivision for which a separate record of title under the Land transfer Act 2017 could be issued without further consent of the Council; or</p> <p>despite paragraphs (a) to (c), in the case of land subdivided under the Unit Titles Act 1972 or the Unit Titles Act 2010 or a cross lease system, is the whole of the land subject to the unit development or cross lease</p>
<u>Skyglow</u>	<p><u>The lighting of the night sky caused by light directed into the sky either directly (from light sources that project light above the horizontal) or indirectly (light that is reflected from a surface).</u></p>

Cross-references

In addition to the zone chapters, several district-wide and overlay chapters also contain provisions that may be relevant to light, including:

GRZ - General Residential Zone

GRUZ - General Rural Zone

SETZ - Settlement Zone

COMZ - Commercial Zone

MFZ - Marine Facilities Zone

DEV1 - Kaikōura Peninsula Tourism Development Area

DEV2 – Ocean Ridge Development Area

Issues

LIGHT-I1	Effects of artificial light across the district
Refer: GRZ-I1, GRUZ-I1, SETZ-I1, COMZ-I1, MFZ-I1, DEV1-I1, DEV2-I1.	
LIGHT-I2	<u>Effects of artificial light on the night sky</u>
<u>Light emitted from exterior lighting can adversely affect the darkness of the night sky and people's ability to view the night sky.</u>	

Objectives

LIGHT-O1	Managing light effects across the district
Refer: GRZ-O1, GRUZ-O1, SETZ-O1, COMZ-O1, MFZ-O1, DEV1-O1, DEV2-O1.	
LIGHT-O2	<u>Manage effects on the night sky</u>
<u>To provide for exterior lighting that enables night time activities, safety and security, while protecting the darkness and people's ability to view the night sky.</u>	

Policies

LIGHT-P1	Manage light effects on residential amenity
To ensure noise and lighting spill <u>does</u> not adversely affect the amenity enjoyed on residential sites.	
LIGHT-P2	Manage light effects on sensitive fauna
To ensure the level of noise and lighting is compatible with a comprehensive living environment and avoids adverse effects of celestial on the darkness of the night sky and the behaviours of seabirds fauna – in particular Hutton's Shearwaters.	
LIGHT-P3	<u>Manage the effects of exterior lighting on the darkness of the night sky</u>
<p><u>Minimise skyglow caused by light emitted from exterior lighting, including by:</u></p> <ol style="list-style-type: none"> <u>1. Directing light downwards, including through the use of shields and other devices</u> <u>2. Minimising upward reflection of light</u> <u>3. Utilising light colour temperatures of 3000 K or lower</u> <u>4. Limiting the use of lighting to periods when illumination is required.</u> <u>5. Specific design and operation control for lighting for outdoor recreational activities</u> 	

NOISE-P3 LIGHT-P4	Cross-references to light policies in other chapters
Refer: GRUZ-P1, SETZ-P1, COMZ-P4, MFZ-P2, DEV1-P1.	

Rules

<u>Light-R1</u>	<u>Exterior Lighting</u>
	<p>1. <u>Activity Status: Permitted</u></p> <p><u>Where:</u></p> <p>a. <u>Compliance is achieved with LIGHT-L1 – LIGHT-S(X)</u></p>
	<p>2. <u>Activity Status: Restricted Discretionary</u></p> <p><u>Where:</u></p> <p>a. <u>Compliance is not achieved with LIGHT-L1 – LIGHT-(SX)</u></p> <p><u>Matters of discretion:</u></p> <p><u>1. The matters of discretion of any standard that is not complied with.</u></p>

Standards

<u>LIGHT-SX</u>	<u>Light standards in all zones</u>
<p>1. <u>All exterior lighting shall:</u></p> <p style="padding-left: 20px;">a. <u>be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source; and,</u></p>	<p><u>Matters of discretion:</u></p> <p>a) <u>The effects of not meeting the standard.</u></p> <p>b) <u>Refer to Appendix 6: Assessment Matters for guidance on what matters</u></p>

<p>b. <u>have a correlated colour temperature of light emitted of 3000 Kelvin or lower.</u></p> <p>2. <u>Exterior lighting that does not comply with SX(1) above may be displayed from 6.00am to 10.00pm for the following purposes:</u></p> <ul style="list-style-type: none"> a. <u>Searchlight (unless required in an emergency)</u> b. <u>Outside Illumination of any built or natural feature for aesthetic purposes.</u> <p><u>and</u></p> <p>3. <u>All exterior lighting complies with the relevant zone-specific standards (refer LIGHT-S1, LIGHT-S2, LIGHT-S3, LIGHT-S4 and LIGHT-S5).</u></p> <p><u>Exceptions to LIGHT -SX</u></p> <ul style="list-style-type: none"> a. <u>Exterior lighting controlled by motion-activated switches limiting the duration of illumination to less than five (5) minutes after activation are exempt from complying with standard (1) above.</u> b. <u>Night-time works for the construction, maintenance and upgrading of network utilities and energy generation facilities undertaken by a network utility operator are exempt from complying with standard (1) above.</u> c. <u>Exterior lighting required under civil aviation or maritime transport legislation are exempt from complying with standard (1) above.</u> d. <u>Lighting from operational vehicles.</u> e. <u>Exterior lighting for outdoor recreation activities that complies with LIGHT-SX.</u> 	<p><u>may be relevant to consider for the proposed activity.</u></p>
<p><u>LIGHT – SX</u></p>	<p><u>Light standards for exterior lighting for outdoor recreational activities in the</u></p>

	<u>Residential, Commercial and Mixed-use zones</u>
<p><u>Exterior lighting for the purposes of outdoor recreational activities shall:</u></p> <ul style="list-style-type: none"> (i) <u>Be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source; and</u> (ii) <u>Have a correlated colour temperature of light emitted of 5700 Kelvin or lower.</u> (iii) <u>Not operate between 10pm and 6am</u> (iv) <u>Only light the playing surface and viewing areas</u> (v) <u>Provide the following controls:</u> <ul style="list-style-type: none"> <u>(1) Automatic curfew control or timer to ensure the lighting is off between 10pm and 6am.</u> <u>(2) If the lighting has a lighting level for competition, it shall also have a selectable lower lighting level for training.</u> <p><u>Note: In achieving compliance with (i) – (v) above, plan users should refer to applicable technical guidance on the relevant illumination levels of playing surfaces for the applicable sporting code.</u></p>	<p><u>Matters of discretion:</u></p> <ul style="list-style-type: none"> a) <u>The effects of not meeting the standard.</u> <p><u>Refer to Appendix 6: Assessment Matters for guidance on what matters may be relevant to consider for the proposed activity.</u></p>
LIGHT-S1	Light standards in the General Residential, Settlement, and Marine Facilities Zones
<ol style="list-style-type: none"> 1. Exterior lights shall be directed away from adjacent properties and roads 2. Exterior lights shall not result in lux spill which exceeds 3 lux maximum, horizontal and vertical, onto adjoining properties measured at any point more than 2m inside the boundary of the adjoining property. 	<p><u>Matters of discretion:</u></p> <ul style="list-style-type: none"> a. The effects of not meeting the standard. b. Refer to Appendix 6: Assessment Matters for guidance on what matters may be relevant to consider for the proposed activity.

LIGHT-S2	Light standards in the General Rural Zone
<ol style="list-style-type: none"> 1. Exterior lights shall be directed away from adjacent residential units and roads 2. Exterior lights shall not result in lux spill which exceeds 3 lux maximum (horizontal and vertical) onto adjoining residential units, measured at any point more than 2m inside the notional boundary of the adjoining Residential unit. 	<p>Matters of discretion:</p> <ol style="list-style-type: none"> a. The effects of not meeting the standard. b. Refer to Appendix 6: Assessment Matters for guidance on what matters may be relevant to consider for the proposed activity.
LIGHT-S3	Light standards in the Commercial Zone
<ol style="list-style-type: none"> 1. Exterior lights shall be shielded or directed away from adjacent sites and roads. 2. Exterior lights shall not result in lux spill which exceeds: <ol style="list-style-type: none"> a. 3 lux maximum (horizontal and vertical) onto adjoining residential sites or b. 10 lux maximum (horizontal and vertical) onto adjoining non-residential sites. 3. Light spill shall be measured at any point more than 2m inside the boundary of the adjoining site. 	<p>Matters of discretion:</p> <ol style="list-style-type: none"> a. The effects of not meeting the standard. b. Refer to Appendix 6: Assessment Matters for guidance on what matters may be relevant to consider for the proposed activity.
LIGHT-S4	Light standards in the Kaikōura Peninsula Tourism Development Area
<ol style="list-style-type: none"> 1. All exterior lighting shall be directed away from adjacent sites and roads and shall not result in lux spill which exceeds 3 lux maximum (horizontal and vertical) onto sites outside the zone, measured at any point more than 2m at or within the boundary of any site zoned residential, or within the notional boundary of any site zoned rural; 2. all exterior lighting shall be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source; 3. No exterior illumination of any building for aesthetic purposes shall occur between <u>10.00pm and 6.00am</u> 2300 and sunrise 	<p>Matters of discretion:</p> <ol style="list-style-type: none"> a. The effects of not meeting the standard. b. Refer to Appendix 6: Assessment Matters for guidance on what matters may be relevant to consider for the proposed activity.

<p>the following day, except that the rear of the hotel may be lit between these hours if such lighting is screened from adjoining sites;</p> <p>4. the height of any external light pole, other than at the rear of the hotel if such lighting is screened from adjoining sites, shall not exceed 1.5m above modified ground level.</p>	
<p>LIGHT-S5</p>	<p>Light standards in the Ocean Ridge Development Area</p>
<p>1. Exterior lights shall be directed away from adjacent sites and roads</p> <p>2. Exterior lights shall not result in lux spill which exceed 2 lux maximum (horizontal and vertical) onto adjoining sites measured at any point more than 2m inside the boundary of the adjoining sites.</p> <p>3. Exterior lighting shall be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source/bulb.</p> <p>4. No persons shall illuminate or display the following outdoor lighting from 1st August to 30th April:</p> <ul style="list-style-type: none"> a. Searchlight (unless required in an emergency) b. Illumination of any public recreation facility c. Outside illumination for aesthetic purpose of any building by floodlight 	<p>Matters of discretion:</p> <ul style="list-style-type: none"> a. The effects of not meeting the standard. b. Refer to Appendix 6: Assessment Matters for guidance on what matters may be relevant to consider for the proposed activity.

Methods Other Than Rules

<p><u>LIGHT-M1</u></p>	<p><u>Education</u></p>
<p><u>Education on the International Dark Sky Sanctuary and how exterior lighting affects the sanctuary will help protection efforts.</u></p>	

Principal Reasons

<p><u>LIGHT-PR1</u></p>	<p><u>Exterior light can contribute to light pollution</u></p>
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Exterior lighting can contribute to skyglow, which has an adverse effect on the darkness and people's ability to view the night sky. Kaikōura has been identified as a place that has naturally bright and clear night sky. Managing the temperature, hours of operation and light spill of outdoor lighting will maintain and protect the night sky darkness. The protection of the night sky will have benefits for environmental, cultural, social and economic values.

Anticipated Environmental Results

<u>LIGHT-A1</u>	<u>Anticipated environmental results relating to signs</u>
	1. <u>Protection of the darkness of the night sky and people's ability to view the night sky.</u>

SIGN – Signs

The purpose of signs and other forms of outdoor advertising is to convey information to the public. Such information may include identifying properties, giving notice of forthcoming events, informing of the availability of goods and services and giving directions to pedestrians and traffic. Although signs are essential throughout the District for the information they provide to the public, they have the potential to cause adverse environmental effects, particularly in respect of transport safety and visual amenities.

The ability of the environment to accommodate signs varies considerably between ~~commercial, residential and rural~~ environments. The greatest concentration of outdoor advertising is in commercial areas where signs are necessary for business promotion. However, in residential and rural areas, where the maintenance and enhancement of amenity values are important, the potential adverse effect of signage is of greater significance.

Key defined terms for this chapter	
Term	Definition
Amenity or Amenity Values	has the same meaning as defined in Section 2 of the Resource Management Act 1991, which at the notification date of this Plan, means: "those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes."
<u>Illuminated sign</u>	<u>Any sign the whole or any part of which is internally or externally illuminated by any means</u>
Sign (NPS)	Means any device, character, graphic or electronic display, whether temporary or permanent, which: <ol style="list-style-type: none"> a. is for the purposes of: <ol style="list-style-type: none"> i. identification of or provision of information about any activity, property or structure or an aspect of public safety; ii. providing directions; or iii. promoting goods, services or events; and b. is projected onto, or fixed or attached to, any structure or natural object; and c. includes the frame, supporting device and any ancillary equipment whose function is to support the message or notice.

Site (NPS)	<p>Means:</p> <ul style="list-style-type: none"> a. an area of land comprised in a single record of title under the Land transfer Act 2017; or b. an area of land which comprises two or more adjoining legally defined allotments in such a way that the allotments cannot be dealt with separately without the prior consent of the council; or c. the land comprised in a single allotment or balance area on an approved survey plan of subdivision for which a separate record of title under the Land transfer Act 2017 could be issued without further consent of the Council; or d. despite paragraphs (a) to (c), in the case of land subdivided under the Unit Titles Act 1972 or the Unit Titles Act 2010 or a cross lease system, is the whole of the land subject to the unit development or cross lease
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Cross-references
<p>In addition to the zone chapters, several district-wide and overlay chapters also contain provisions that may be relevant to signs, including:</p> <p>TRAN - Transport</p> <p>LIGHT - Light</p> <p>HH – Historic Heritage</p>

Issues

SIGN-I1	Traffic and pedestrian safety
Signs and outdoor advertising have the potential to compromise traffic and pedestrian safety.	
SIGN-I2	Amenity value
The provision of signs and outdoor advertising has the potential to adversely affect amenity values.	
SIGN-I3	<u>Effects of illuminated signage on the night sky</u>

Light emitted from illuminated signs can adversely affect the darkness of the night sky and people's ability to view the night sky.

Objectives

SIGN-O1	Traffic and pedestrian safety
To recognise the need for signs and outdoor advertising that convey necessary information provided that any adverse effects are avoided or mitigated.	
SIGN-O2	Amenity value
To provide for signs and outdoor advertising that maintain and enhance amenity values of the Kaikōura District.	
SIGN-O3	<u>Managing the effects of illuminated signs on the night sky.</u>
<u>To provide for illuminated signs while protecting darkness and people's ability to view the night sky</u>	

Policies

SIGN-P1	Manage effects of signs on traffic and pedestrian safety
<ol style="list-style-type: none"> 1. To prevent the display of signs and outdoor advertising that may adversely affect motorist and pedestrian safety by causing confusion or distraction or obstructing the views and access of motorists or pedestrians. 2. To promote the construction and display of signs and outdoor advertising in a manner that does not provide any danger to people or property in the Kaikōura District. 3. To discourage signs and outdoor advertising in public places or reserves unless they are signs required for direction, public information or public safety. 	
SIGN-P2	Manage effects of signs on amenity values
<ol style="list-style-type: none"> 1. To control the number, location, size and type of signs in the environments of the Kaikōura District in recognition of the character and amenity of particular areas. 2. To encourage signs to be located on the site of a particular activity. 3. To promote a consistent style of signage throughout the District. 	
SIGN-P3	<u>Manage the effects of illuminated signs on the darkness of the night sky.</u>
<u>Minimise skyglow caused by light emitted from illuminated signage, including by:</u>	
<ol style="list-style-type: none"> 1. <u>Directing light downwards, to focus only on the sign to be illuminated, including through the use of shields and other devices.</u> 	

2. Limiting the level of illuminance and size of signs
3. Limiting the use of illuminated signs to periods when required for business purposes

Rules

<u>SIGN-R1</u>	<u>Illuminated signs in the Commercial and Mixed-use zones</u>
	<p>1. <u>Activity Status: Permitted</u></p> <p><u>Where:</u></p> <p>a. <u>Compliance is achieved with SIGN-S1</u></p>
	<p>2. <u>Activity Status: Restricted Discretionary</u></p> <p><u>Where:</u></p> <p>a. <u>Compliance is not achieved with SIGN-S1</u></p> <p><u>Matters of discretion:</u></p> <p><u>1. The matters of discretion of any standard that is not complied with.</u></p>
<u>SIGN-R2</u>	<u>Illuminated signs in all other zones</u>
	<p>3. Activity Status: Discretionary</p> <p><u>Where:</u></p> <p>a. Any illuminated sign is located outside of the Commercial and Mixed-use zones.</p>

Standards

<u>SIGN-S1</u>	<u>Illuminated Sign standards in the Commercial and Mixed-use zones</u>
1. <u>The luminance levels of internally illuminated signs shall not exceed 100</u>	<u>Matters of discretion:</u>

<p><u>candelas per square metre (cd/m²) between the hours of sunrise and sunset; and</u></p> <p>2. <u>No illuminated signs shall operate outside the hours of the activity for which the sign relates;</u></p> <p>3. <u>Illuminated signs shall not exceed 4m² in area; and</u></p> <p>4. <u>Any external illumination of a sign:</u></p> <p style="padding-left: 20px;">i. <u>Shall not be from an upward facing light source;</u></p> <p style="padding-left: 20px;">ii. <u>Shall be from a light source that is shielded from above in such a manner that the edge of the shield is below the whole of the light source; and</u></p> <p style="padding-left: 20px;">iii. <u>Shall be focused only on the sign to be illuminated</u></p>	<p>a. <u>The effects of not meeting the standard.</u></p> <p>b. <u>Refer to Appendix 6: Assessment Matters for guidance on what matters may be relevant to consider for the proposed activity.</u></p>
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Methods Other Than Rules

SIGN-M1	Signs bylaws
Development and implementation of a by-law regulating the size, type, form, number and location of signs and outdoor advertising.	
SIGN-M2	Consultation with Waka Kotahi NZ Transport Agency
The Council will consult with Transit New Zealand <u>Waka Kotahi NZ Transport Agency</u> in developing suitable controls for signs adjacent to State Highways <u>1</u> .	

Principal Reasons

SIGN-PR1	Signs can affect traffic and pedestrian safety
Signs and outdoor advertising have the potential to adversely affect traffic safety. They could be placed in inappropriate locations or be of inappropriate sizes, forms or designs and may distract drivers. The potential adverse effects of signs on traffic safety are most significant on roads such as State Highway 1 where the potential for traffic accidents is significant due to higher traffic volumes and speeds.	
However, the resource consent process raises difficulties with applications for signs. On the one hand, all signs are intended to be highly visible. On the other hand, rules in the	

District Plan would normally seek to avoid and mitigate the high visibility for which signs are designed. It is often difficult to balance the need to permit signs with the need to control their effects through the consent process. This creates problems for applicants, problems for Council officers in their assessment of sign consents, and problems for decision makers when deciding whether to grant or refuse consent. It can also result in time and financial outlay disproportionate to the visual effects of signs.

Section 32 of the Resource Management Act allows effects of activities to be controlled by means other than rules in a District Plan. A signs bylaw on its own is considered the most effective and efficient way of controlling adverse effects of signs. A bylaw allows effects of signs to be adequately controlled through a permit system, while avoiding the additional time and expense involved in the resource consent process. For these reasons, the District Plan contains no rules relating to signs or outdoor advertising.

Advertising signs are restricted in the bylaw to sites on which they relate. This is to avoid proliferation of signs along the margins of roads and adjacent to intersections. However, ~~Transit New Zealand~~ Waka Kotahi NZ Transport Agency has a policy of providing for tourist and motorist service signs at appropriate locations on state highway reserves to advertise qualifying activities which are remote from the highway.

Signs located on footpaths have the potential to impede pedestrian access. In particular, signs located on footpaths in the West End commercial areas have the potential to have adverse effects on pedestrian safety due to the number of businesses and the number of people using the footpaths in this area. For this reason, "A" frame or sandwich board signs are limited under the Signs Bylaw.

SIGN-PR2

Signs can affect amenity values

Signs and outdoor advertising can adversely affect amenity values. In rural and residential areas, the protection of amenity values is particularly important. Signs and outdoor advertising should not detract from the amenity of living environments. Signs in commercial areas may also detract from the amenity of commercial environments.

The number, size, form and location of signs is therefore controlled in all areas, under the Signs Bylaw.

SIGN-PR3

Illuminated signs can contribute to light pollution

Illuminated signs can contribute to skyglow, which has an adverse effect on the darkness of the night sky and people's ability to view the night sky. Kaikōura has been identified as a place that has naturally bright and clear night sky. Managing the brightness, hours of operation and light spill of illuminated signs will maintain and protect the night sky darkness. The protection of the night sky will have benefits for environmental, cultural, social and economic values.

Anticipated Environmental Results

SIGN-A1	Anticipated environmental results relating to signs
	<ol style="list-style-type: none">1. Signs and outdoor advertising necessary to convey information for the social, economic and cultural welfare of the community.2. Minimal adverse effects of outdoor advertising on traffic and pedestrian safety.3. Improved pedestrian access in the West End commercial areas.4. The avoidance and mitigation of any adverse effects of signs and outdoor advertising on the visual amenities of the Kaikōura District.5. The establishment of information signs at the entrances to Kaikōura township and at other sites of natural, cultural and historic interest.6. Regulation on the size, type, form, number and location of signs in the Kaikōura District.7. <u>Protection of darkness of the night sky and people's ability to view the night sky.</u>

Appendix 6 - Assessment Criteria

Lighting and Noise - All Zones

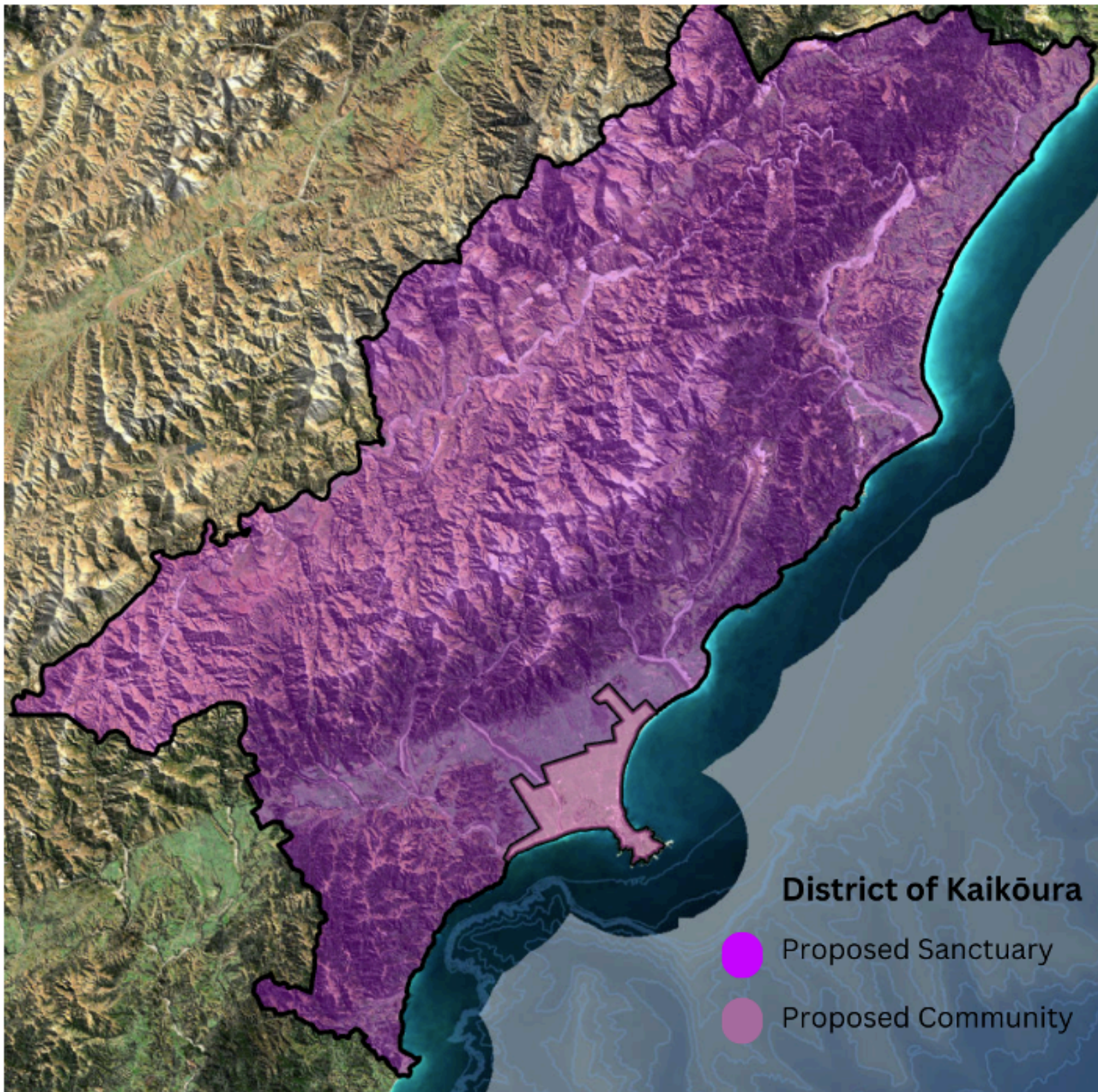
- a. What is the extent to which the performance standards are not complied with?
- b. What is the reason for exceeding the standards?
- c. What is the nature of, and sensitivity of, the environment receiving the increased light or noise?
- d. What is the proximity of any adjoining residential activities, visitor accommodation, or community activities?
- e. What is the colour and luminance intensity. of the proposed lighting?
- f. What is the nature, frequency, and severity of the increased noise?
- g. What is the duration of the increased noise or light spill?
- h. What is the effect on fauna such as seabirds?
- i. Is the exterior lighting is necessary for operational or functional purposes?
- j. Are any mitigation measures proposed, including ~~shielding of light~~ and sound proofing of buildings?
- k. What is the effectiveness and practicality of any measures proposed to mitigate the effects of sky glow, including the height, orientation, angle, light colour temperature, and shielding of the exterior light source.
- l. In the Kaikoura Peninsula Tourism Zone, what are the visual effects and effect on the character of the area of increased pole heights?
- m. If exterior lighting for outdoor recreation activities has this been designed to comply with Australian Standard AS 2560.2:2021 Sports Lighting, Part 2: Specific Applications, or subsequent standards?

Signs - All Zones

- a. What is the extent to which the performance standards are not complied with?
- b. What is the reason for exceeding the performance standards?
- c. What is the nature of, and sensitivity of, the environment where the illuminated sign is located?
- d. What is the colour and luminance intensity of the proposed illuminated sign?

- e. What are the hours of operation of the illuminated sign?
- f. What is the effectiveness and practicality of any measures proposed to mitigate the effects of skyglow from the illuminated sign, including the height, orientation, angle, light colour temperature, and shielding of the exterior light source?
- g. What is the effect on fauna such as seabirds?

Appendix B Dark Sky Management Area map



Appendix C International Dark Sky Accreditation Guidelines

DARKSKY INTERNATIONAL

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*TO PRESERVE AND PROTECT THE NIGHTTIME ENVIRONMENT AND OUR HERITAGE OF
DARK SKIES THROUGH ENVIRONMENTALLY RESPONSIBLE OUTDOOR LIGHTING*



DarkSky

International Dark Sky Sanctuary Program Guidelines

September 2023

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DEFINITION OF AN INTERNATIONAL DARK SKY SANCTUARY

An International Dark Sky Sanctuary (IDSS) is a public or private land possessing an exceptional or distinguished quality of starry nights and nocturnal environment, and that is specifically protected for its scientific, natural, or educational value, its cultural heritage, and/or public enjoyment. An IDSS differs from a Dark Sky Park or Reserve in that it is typically situated in a very remote location with few (if any) nearby threats to the quality of its dark night skies and does not otherwise meet the requirements for designation as a Park or Reserve. The typical geographic isolation of Sanctuaries significantly limits opportunities for public outreach, so an IDSS designation is specifically designed to increase awareness of these fragile sites and promote their long-term conservation.

GOALS FOR INTERNATIONAL DARK SKY SANCTUARY

CREATION

- To recognize public or private lands and their surrounding communities in some of the darkest locations on Earth for exceptional commitment to and success in local implementation of the ideals of dark sky preservation
- To promote sustainable ecotourism and astrotourism
- To further the protection of nocturnal habitats, public enjoyment of the night sky and its heritage, and identification of areas ideal for professional and/or amateur astronomy
- To encourage land owners/administrators, conservation professionals, surrounding communities and private interests to identify dark skies as a valuable resource in need of proactive conservation
- To provide international recognition for such locations
- To encourage other sites to become environmental leaders on dark sky issues by communicating the importance of dark skies and by providing an example of what is possible with proper stewardship

DESIGNATION BENEFITS

Achieving an IDSS designation celebrates the efforts made by any public or private organization in protecting the natural nighttime environment of the identified Sanctuary. It encourages the sustainability of actions already undertaken in the area, and enhances resident and visitor awareness of environmental stewardship and responsibility.

Designation as an IDSS entitles the Sanctuary to display the DarkSky logo in official publications and promotions and retain the use of this logo by affiliated groups. DarkSky will promote and highlight ongoing Sanctuary efforts to protect night skies, and maintain pages on its website identifying and describing all IDSSs.

ELIGIBILITY (ALL MUST BE MET)

To be eligible for consideration as an IDSS, a candidate Sanctuary must meet all of the following requirements:

- 1) A proposed IDSS must be a public or a private land legally protected for scientific, natural, educational, cultural, heritage and/or public enjoyment purposes.
- 2) The IDSS must provide an opportunity for regular public nighttime access, with or without supervision. A portion of designated land may meet this requirement, or access must be available for a substantial fraction of given nights. In some cases, such as when working with areas that protect endangered wildlife, archaeological sites, or other sensitive resources, this requirement may be waived or adjusted to meet important conservation goals.
- 3) In order to ensure public accessibility on private lands, the landowner(s) must allow the public to transit any part(s) of the property not included in the formally declared IDSS as required to reach designated viewing areas.
- 4) The Sanctuary must provide an exceptional dark-sky resource where the night sky brightness at the zenith is routinely equal to or darker than 21.5 magnitudes per square arcsecond in the visual band¹ and where significant light domes are not present toward the local horizon in any direction.

MINIMUM REQUIREMENTS FOR ALL SANCTUARIES

- 1) A quality comprehensive Lighting Management Plan (LMP) must be adopted by the agency administering the proposed IDSS. The LMP regulations must be binding upon all private and public landowners within the area of protection. Certain exceptions to this requirement may apply but are subject to DarkSky approval. Minimum standards are described below in the section titled "Lighting Management Plan Guidelines."²
- 2) Evidence of commitment to dark skies and quality outdoor lighting as demonstrated

¹ These conditions correspond approximately to a zenith luminance of 0.25 mcd/m² and a naked-eye limiting magnitude (NELM) of +6.7.

² Lighting required by law under the authority of any entity having higher legal jurisdiction over the Sanctuary may be formally exempted from the requirements of this section.

by at least two-thirds of existing outdoor lighting fixtures in the IDSS conforming to the requirements of the Lighting Management Plan at the time of application.

- 3) A schedule on which 90% of all outdoor lighting in the IDSS will conform to the Sanctuary's LMP within five years of receipt of the IDSS designation and a written commitment that 100% of the lighting will conform within 10 years of the designation.
- 4) A sky brightness measurement program must be established and maintained either by the Sanctuary administering authority or by another public or private organization (e.g., university, research center, DarkSky chapter, astronomy club) to follow the evolution of light pollution in the IDSS and ensure that the night sky quality does not degrade over time. Applicants are encouraged, but not required, to submit their measurements to the citizen science projects such as My Sky At Night (myskyatnight.com) and Globe At Night (globeatnight.org).
- 5) A description of current and potential future threats to dark skies over the Sanctuary.
- 6) The importance of dark skies and natural darkness and the benefits of quality lighting are paramount in Sanctuary external communications. If the Sanctuary typically provides interpretive programs, then dark skies must be one of the central themes communicated through on-site interpretation.³ If interpretive programs are not typically offered, then publications, flyers, press releases, media, or other outreach are appropriate substitutes.
- 7) Dark skies in the protected area are acknowledged as an important scientific, natural, cultural, and/or scenic resource value by jurisdictions higher than community level (e.g., county, province, state), as shown by the inclusion of appropriate language in official documents.⁴
- 8) Once established, the Sanctuary must erect and maintain appropriate signage indicating the International Dark Sky Sanctuary designation along a roadway entrance, along a footpath entrance if no roadway exists, or in a similar setting. If approved by DarkSky International, language as an alternative to "International Dark Sky Sanctuary" may appear on the signage and in Sanctuary communications regarding the IDSS status. Once the sign is erected a photograph documenting this sign must be taken and sent to DarkSky International for records along with a description of its location.
- 9) Night sky quality must be established through all of the following:
 - A) The core of the Sanctuary must have identified the sources of light pollution

³ "Dark skies education" refers not only to astronomy education but also education about wildlife, energy efficiency, safety, and human health. Astronomy education events such as star parties only count as "dark skies education" if they prominently feature material about dark skies and outdoor lighting.

⁴ Examples of such documents include General Management Plans, Resource Management Plans, and Facility Development Plans. Consult DarkSky International staff as to whether a particular type of management document meets this requirement.

through calculations, maps, photographs, or any other proper method *and* clearly identify actual present and anticipated future threats to the night sky quality. A plan must be put in place to address these current and future threats.

- B) A determination of whether the minimum sky quality standard⁵ has been met through sky brightness measurements made via a DarkSky-approved data collection method. Measurements must be distributed over a sufficiently long enough period of time in order to average out fluctuations over timescales ranging from nights to seasons in length. Applicants should discuss their measurement protocol with the International Dark Sky Places Program Manager.

LIGHTING MANAGEMENT PLAN GUIDELINES

The LMP must contain at least the following minimum provisions:

- 1) The written policy meets or exceeds applicable agency or departmental policies regarding outdoor lighting and conforms to all applicable local, regional, and national laws.
- 2) The use of outdoor light at night is only prescribed when it is strictly needed, where it is needed, and in the appropriate amount for a specific task. The purpose of outdoor light that is allowed under the policy should be specifically to ensure public safety.
- 3) All outdoor lighting fixtures must be fully shielded⁶ irrespective of purpose or the number of lumens of light it emits, and make appropriate use of timers and motion sensors. Lighting controlled with motion-activated switches limiting the duration of illumination to less than five minutes after activation is exempt from the other requirements of this section.
- 4) Lighting must be chosen to minimize the amount of short-wavelength light emitted into the nighttime environment. The Sanctuary's LMP must restrict lighting in this respect according to one of the following prescriptions:
 - A) The correlated color temperature (CCT) of lamps must not exceed 3000 kelvins;
or
 - B) Allowed lighting must not emit more than 25% of its total spectral power at wavelengths < 550 nanometers; *or*
 - C) The scotopic-to-photopic (S/P) ratio of allowed lighting must not exceed 1.3.

⁵ Any designated IDSS that no longer meets this standard will be included in a List of Endangered Sites published on the DarkSky website. DarkSky reserves the right to suspend or revoke the IDSS designation of a Park with night sky quality that falls below the minimum requirement.

⁶ "Fully shielded" is defined such that the light source is screened and its light directed in such a way that none is emitted above the horizontal plane passing through the lowest light-emitting portion of a fixture.

These metrics may be found listed in manufacturer data sheets for lighting products.

- 5) Visitor activities with respect to the introduction of unnecessary artificial light at night into the Sanctuary environment are regulated. This must include reasonable limits on the lighting of camping equipment and recreational vehicles, as well as a general prohibition of inappropriate “light painting” and similar activities. Note that this requirement is in no way intended to compromise visitor safety.
- 6) Operation of illuminated signs,⁷ except those strictly required for wayfinding, is prohibited. Any permitted illuminated signs shall adhere to the following regulations:
 - A) Displays must be single-color on a black background; *and*
 - B) Luminance of the sign as a whole after sunset may not exceed 100 nits (100 candelas per square meter).

LIGHTING INVENTORY

A lighting inventory is a formal audit of all outdoor lighting in a Sanctuary. It is used to determine rates of compliance with the LMP and to identify lighting equipment in need of rehabilitation through retrofitting or replacement. A complete inventory of outdoor lighting in the Sanctuary is a requirement for IDSS status, and it must be accompanied by a plan under which Sanctuary lighting will be brought into compliance with the LMP under the terms specified in “Minimum Requirements for All Sanctuaries” (above).

The following must be taken into consideration when collecting and reporting lighting inventory data:

- 1) When there are numerous outdoor light fixtures, it is acceptable to group lights by facility or area. Whether the fixtures are fully shielded, are special purpose fixtures under 500 initial lumens total, and what the lighting application is must be noted for each fixture or group of fixtures.
- 2) Daytime photographs, or manufacturer diagrams/cut sheets if available, of each fixture type must also accompany the inventory.
- 3) Inoperable fixtures *must* be inventoried. Only those fixtures physically disconnected from power supplies may be counted as compliant for the purpose of determining the rate of LMP compliance.

A sample table from a portion of a Lighting Inventory is shown here.

⁷ “Illuminated sign” is defined here as any informational or advertising sign that is illuminated by either internal or external means. Descriptive terms are adjusted here according to the type of illumination.

International Dark Sky Sanctuary Designation Guidelines

Location	Fixture	Fully-Shielded?	Operable?	Special Purpose <500 lumens	Application	Conforms with LMP?
Visitor Center	12 fixtures on 14' pole, 70 W HPS	YES	YES	NO	Parking log, timer off at 10 PM	YES
	2 door lights, 100 W MH	YES	NO	NO	Building egress	YES
	6 bollard (post) lights, 32 W CFL	NO	YES	NO	Walkway	NO – see plan
Restrooms	2 carriage style lights at doorways, 40 W incandescent	NO	YES	YES	Historic Preservation, egress	YES
Maintenance Yard	6 wall packs, 250 W MH	NO	YES	NO	Occasional nighttime operations	NO – see plan
	8 Glare-busters, 11 W CFL	YES	YES	NO	Egress, Security	YES

PROVISIONAL STATUS

In some cases, a location interested in becoming an International Dark Sky Sanctuary may lack the resources to satisfy all the requirements set forth in this document. If certain minimum standards have been met, a Sanctuary may apply for and be granted Provisional status at the discretion of the DarkSky Board of Directors. Provisional status recognizes the Sanctuary’s ongoing work toward full designation and is intended to be used as leverage to enable the necessary lighting retrofits.

Provisional status expires after three years. At any time before the end of the provisional period, a Sanctuary may reapply for full status. Material submitted for the

consideration of full status may be an addendum to the initial application provided the material includes a current assessment of night sky quality, goals, outreach, and programs listed in the original application.

A Sanctuary may apply for Provisional status if *all* of the following conditions are met:

- 1) A Lighting Management Plan has been approved by the Sanctuary managing agency.
- 2) Initial sky quality measurements indicate that the minimum night sky quality criteria are fulfilled.
- 3) An inventory of outdoor lighting in the sanctuary has been performed.
- 4) Appropriate outreach efforts have been undertaken.

Applicants requesting Provisional status should send a nomination package to DarkSky International that contains at least the following information:

- Documented intent to create and support an IDSS
- Initial sky quality measurements
- A Lighting Management Plan
- An action plan describing how the aspiring Sanctuary will meet minimum requirements within three years of receiving the Provisional status

IDSS APPLICATION PROCESS

NOMINATION

The nomination may be initiated by a qualified DarkSky member nominator.⁸ Nominators are encouraged to correspond with DarkSky International staff and the Sanctuary throughout this process, from initial contact with DarkSky International through submission of the final nomination package.

In addition, the application must include evidence, such as in the form of a letter of support, from the Sanctuary managing agency, such as a superintendent or administrator, consenting to consideration for IDSS status.

STEPS FOR APPLICANT

- 1) Make initial contact with IDA by phone or email to discuss the process and receive guidance, followed by continued communications to consult with

⁸ A “DarkSky qualified nominator” is defined as an individual or organization holding a DarkSky membership in good standing at the time that the IDSS application is submitted. The Sanctuary managing agency itself may join DarkSky as an organizational member and self-nominate.

DarkSky International staff and to review progress.

- 2) Designate a formal point of contact (POC) person, such as a project manager, and provide that person's name, telephone number, address, and email information to DarkSky International staff. Before and after designation any changes to this POC, or their contact information, must be communicated to DarkSky International immediately in order to ensure continuous communication at all times.
- 3) Obtain a letter of nomination from a qualified DarkSky member nominator, as well as a supporting letter from the Sanctuary managing agency. Solicit additional letters of support from community organizations, clubs, groups, universities, etc.
- 4) Send the completed application in PDF or Microsoft Word format to DarkSky International staff for preliminary review at least one month before the chosen submission deadline date. DarkSky International staff will confirm that the application is complete and ready for submission or else return it with comments and suggestions for improvement.
- 5) Submit the final application in plenty of time for DarkSky International staff to review and prepare your application to make the bi-monthly deadline that you prefer. Requests to rush applications will *not* be honored. Planning well ahead is therefore essential if the proposed Sanctuary is planning to meet a particular deadline.

TO BE INCLUDED IN AN IDSS APPLICATION

- 1) Map(s) of the area to be designated clearly indicating the Sanctuary's legal boundaries and its geographic context.
- 2) Letters of nomination from an DarkSky member nominator and the Sanctuary administrative authority.
- 3) Any management documents⁹ supporting dark skies and/or natural nighttime darkness as a valued natural resource.
- 4) Documentation of sky quality, light pollution measures, satellite images, maps, photographs, or other evidence that demonstrates the noteworthiness of the Sanctuary's dark-sky resource. Measurements of night sky brightness must be obtained using DarkSky-approved night sky brightness measuring equipment. Measurements must document the approximately darkest and brightest areas of the Sanctuary. Data included in the application must contain an updated night sky brightness survey of the Sanctuary completed no more than two years before the application's submission along with any other relevant information.

⁹ Examples of such documents include General Management Plans, Resource Management Plans, and Facility Development Plans. Consult DarkSky International staff as to whether a particular type of management document meets this requirement.

DarkSky International staff may be consulted for advice concerning how to establish a night sky brightness measurement and monitoring program.

- 5) Lighting Management Plan.
- 6) Lighting inventory and a plan to bring 90% of outdoor lighting into compliance with the Sanctuary's LMP within five years of receiving the IDSS designation, as well as a written commitment to bring the Sanctuary into 100% compliance within 10 years of designation.
- 7) Any documentation of the cultural/historical/scientific significance of the Sanctuary and ongoing efforts to preserve and promote these resources.
- 8) Description and documentation of any interpretive programs or products related to dark skies and natural nighttime darkness.
- 9) A summary of future plans for activities in the Sanctuary after receiving IDSS accreditation.
- 10) Proposed wording of an alternative designation title (e.g., Dark Sky Wilderness, Dark Sky Refuge), if desired, along with a justification for the request.
- 11) If the candidate IDSS is a privately owned property, documentary evidence ensuring public access and transit as described in the section titled "Eligibility," item 3.

DARKSKY REVIEW PROCESS

Six application submission deadlines occur in each calendar year, commencing in January and continuing every other month. Before the Sanctuary's final application is submitted, it is highly recommended that the Sanctuary be in regular communication with the International Dark Sky Places Program Manager to perfect the application before the next application deadline.

DarkSky International staff forwards applications to the DarkSky Places Committee (DSPC) for review at the deadline. Endorsement of applications by the DSPC is by a 2/3 supermajority vote; otherwise, the DSPC will return applications with reasons for denial of an endorsement and specific recommendations for improvement. If endorsed, the applicants will be notified and the International Dark Sky Places Program Manager will present the application to the DarkSky Board of Directors (BOD). A waiting period of 10 calendar days then commences during which the BOD has the right to deny IDSS status should it determine that any problems with the application exist.

If the BOD registers no objection within the waiting period, the IDSS designation is considered immediately awarded by DarkSky. The Sanctuary has the right to choose when the designation is made public, but it must organize the announcement to be made at the same time as the DarkSky public notice unless otherwise agreed by both

parties. Along with the announcement notice, DarkSky will publish the Sanctuary's application on its website. By submitting the application, the Sanctuary agrees in advance that the application will be made publicly available.

If approved, the location is awarded the IDSS designation and listed along with their application on the DarkSky website. By submitting the application, the Sanctuary consents to its complete application and all supporting materials being made publicly available.

If an application is denied final approval by the BOD, a letter will be sent to the applicant outlining elements of the application that need improvement along with specific recommendations for ways to remedy any problems the BOD identifies. Applications may be resubmitted for future consideration after remediation is complete. Resubmitted applications will be considered without prejudice.

DarkSky realizes that certain circumstances surrounding an IDSS application may cause some potential authors of letters of support (or opposition) to feel uneasy about publicly declaring their opinions about the IDSS designation. In the interest of providing the Dark Sky Places Committee with as full a picture of community sentiment about applications as possible, some letters may be suppressed from online publication if it is felt that making the letters publicly available will subject their authors to retaliation or harassment. A prospective IDSS seeking this protection for letter writers must make a formal written request. The International Dark Sky Places Program Manager must approve suppression of publication of any part of an application. Note that suppression of online publication does not prevent either the DSPPC or the BOD from reading all submitted letters.

POST-DESIGNATION REVIEW AND MAINTENANCE

The IDSS designation is not awarded in perpetuity. Rather, it is subject to regular review by DarkSky and possible revocation if the minimum program requirements are not maintained. More details may be found in the "Reassessment of IDSS Designations" section below.

To ensure that Sanctuaries remain exemplary in their protection and restoration of the natural nighttime environment, DarkSky will periodically reevaluate each site in the International Dark Sky Places Program. This is done to confirm that Sanctuaries continue to meet the minimum requirements and are making adequate progress toward LMP compliance goals outlined in this document.

Each designated IDSS must submit to DarkSky International a written report of its activities related to the maintenance of its designation on or before 1 October of each calendar year. The report is a short (typically fewer than 10 pages) synopsis of the Sanctuary's activities and initiatives during the intervening year.¹⁰ The report should include dates and brief descriptions of any interpretive events, lighting retrofit projects,

¹⁰ Examples of acceptable annual reports are available on the individual IDSS pages on the DarkSky website.

outreach efforts, etc. New measurements of the night sky brightness in the Sanctuary must be obtained and included in the report. Samples of printed materials and press articles should also be included.

Annual reports should not be burdensome to produce, as they are intended as a compilation of information accumulated throughout the year. Annual reports and supporting documentation must be submitted electronically to the International Dark Sky Places Program Manager in either PDF or Microsoft Word format. If the annual report is not received by DarkSky International in a timely fashion, DarkSky may suspend the location's IDSS status until the annual reporting requirement has been met (see the following section). On or about 1 August and 1 September of each year, the International Dark Sky Places Program Manager will remind local contacts at each IDSS of the pending 1 October annual report submission deadline.

A designated IDSS is exempt from the annual reporting requirement in the calendar year in which the IDSS designation was awarded. If the designation is received after 1 October of a given calendar year, the IDSS's first annual report to DarkSky International will be due on 1 October of the following calendar year.

REASSESSMENT OF IDSS DESIGNATIONS

An IDSS designation is intended to represent the beginning of an ongoing relationship between the Sanctuary and DarkSky to our mutual benefit. DarkSky will periodically review the nature of that relationship in the required annual reports as described in the previous section. From time to time, DarkSky also receives comments from visitors to Sanctuaries that raise concerns about the veracity and timeliness of information provided to DarkSky by site administrators. DarkSky may, at its discretion, investigate claims in which it is alleged that IDSSs are not living up to commitments made to DarkSky and the public in their applications to the Program. This section details the DarkSky procedure for carrying out such investigations, and the rights of IDSSs in such matters.

INVESTIGATION AND DUE PROCESS

An allegation of impropriety concerning any of the elements of participation in the Program outlined in this document is subject to DarkSky investigation and potential disciplinary action including temporary suspension and/or permanent revocation of the IDSS designation. DarkSky International staff shall perform due diligence in gathering facts concerning such allegations it deems credible, and will prepare a report of its findings for consideration by the Dark Sky Places Committee (DSPC). The DSPC commits to weighing the evidence fairly and impartially, and to seek to resolve disputes whenever possible through dialog. A Sanctuary subject to an investigation shall be notified in a timely manner and solicited for evidence contrary to the specifics of the allegation at hand. The Sanctuary will be given an opportunity to correct any

deficiencies with regard to the Program guidelines established by the DarkSky investigation within a reasonable time period to be prescribed by the DSPC.

Failure to achieve consensus through these means risks a DSPC recommendation for suspension or revocation of the IDSS designation. If made, such a recommendation will be forwarded to the BOD for formal ratification before coming into force. The BOD's decision on any disciplinary matters involving an IDSS shall be considered definitive and binding.

Any IDSS so investigated has the right to review the allegations against it and all factual information collected by DarkSky pertinent to the allegations.

REINSTATEMENT FOLLOWING SUSPENSION

If the DSPC recommends a suspension of an IDSS designation and the BOD ratifies the suspension, the Sanctuary administration shall be immediately notified. The status of a suspended IDSS shall be changed to "Provisional" in all DarkSky communications until the designation is reinstated or revoked; however, the process of obtaining reinstatement of a designation is not the same as that outlined in the "Provisional Status" section of these guidelines.

To obtain reinstatement of a suspended designation, the IDSS must provide evidence to the DSPC's satisfaction that the specific issues identified by the DSPC as grounds for the suspension have been corrected and that all Program guidelines are once again met. The DSPC will consider the evidence presented by the IDSS and render a judgment to:

- Accept the reinstatement petition, *or*
- Reject the petition and recommend revocation, *or*
- Return the petition with further instructions and a defined deadline for an IDSS response.

A suspension left unresolved after one year from the date of the BOD's assent to the suspension automatically becomes a permanent revocation. Revocation entails removal of the IDSS from DarkSky's roll of approved International Dark Sky Places, and from mention on the DarkSky website and in member and external communications. DarkSky reserves the right to take legal action against any former IDSS whose designation is duly revoked but continues to use the DarkSky name or logo in advertising, communications, and/or signage.

SALE OR TRANSFER OF LAND OWNERSHIP

DarkSky considers the rights and privileges outlined here in association with IDSS status to be simultaneously permanent and revocable. Furthermore, DarkSky requires that the responsibilities and obligations of the landowner(s) at the time IDSS status is achieved are incumbent upon all future landowner(s) if the Sanctuary lands are sold or their title is otherwise transferred to any other public or private owner. A new owner or

owners may unilaterally withdraw from participation in the program at any time by indicating these wishes in writing; otherwise, DarkSky will hold a new owner or owners accountable to the provisions of these guidelines in perpetuity. Any failure of new ownership to abide by the conditions for continued participation in the program laid out in this document, whether indicated by withdrawal or abandonment of responsibilities, will cause DarkSky to take action as described above (see “Investigation and Due Process”) which may result in the permanent revocation of IDSS status.

DARKSKY INTERNATIONAL

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*TO PRESERVE AND PROTECT THE NIGHTTIME ENVIRONMENT AND OUR HERITAGE OF DARK SKIES THROUGH
ENVIRONMENTALLY RESPONSIBLE OUTDOOR LIGHTING*



DarkSky

International Dark Sky Community Program Guidelines

**2018 Version
Updated September 2023**

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DEFINITION OF AN INTERNATIONAL DARK SKY COMMUNITY

An International Dark Sky Community (IDSC) is town, city, municipality, or other similar political entity that has shown exceptional dedication to the preservation of the night sky through the implementation and enforcement of quality lighting policies, dark-sky education, and citizen support of the ideal of dark skies.

GOALS FOR IDSC CREATION

- To identify communities with exceptional commitment to and success in pursuing dark sky preservation and restoration, and their promotion of quality outdoor lighting
- To promote improved outdoor nighttime quality of life for residents and visitors
- To support protection of human health, nocturnal habitats, public enjoyment of the night sky and its heritage, and/or areas ideal for professional and amateur astronomy
- To provide local, national, and international recognition for such communities
- To promote the ideals of DarkSky by encouraging communities to identify dark skies as a valuable community asset and aspiration

DESIGNATION BENEFITS

Achieving this designation brings recognition of the efforts made by the Community government, residents, and public and private organizations to protect the night sky and the nocturnal environment dependent on it. The IDSC designation enhances awareness of dark sky matters on the part of Community residents and visitors.

Designation as an IDSC entitles the Community to display the International Dark Sky Community logo in official publications and promotions and on signs at entrances or within the Community, and to retain the use of this logo by other groups within the Community when identifying the area itself.¹ DarkSky will promote and highlight ongoing Community efforts to protect night skies, and will maintain pages identifying and describing all IDSCs on its website.

¹ For instance, a Community can identify itself as “Flagstaff, the world’s first International Dark Sky Community” or other words to the same effect, or an organization within the Community can state “located in Flagstaff, an International Dark Sky Community.”

ELIGIBILITY

The Community must have some type of legal organization that is officially recognized by outside groups. This can be in the form of a town, city, municipality, or other legally organized community (such as urban neighborhoods and subdivisions), but need not be an incorporated entity. Unincorporated or otherwise informally organized communities are eligible for IDSC status if their governing jurisdictions enact public policy consistent with the requirements of “Minimum Requirements for All Communities” (below) that are legally binding in at least the territory of the Community.

MINIMUM REQUIREMENTS FOR ALL COMMUNITIES

- 1) A quality comprehensive lighting policy like the IDA-IES Model Lighting Ordinance (MLO)² that includes all of the following minimum standards for permanent lighting installations^{3,4}:
 - A) Full shielding⁵ of all lighting fixtures over 1,000 initial lamp lumens⁶
 - B) A limit on the emission of short-wavelength light through one of the following restrictions:
 - i) The correlated color temperature (CCT) of lamps must not exceed 3000 kelvins; *or*
 - ii) Allowed lighting must not emit more than 25% of its total spectral power at wavelengths <550 nanometers; *or*
 - iii) The scotopic-to-photopic (S/P) ratio of allowed lighting must not exceed 1.3.
 - C) A restriction on the total amount of unshielded lighting, such as a limit on lumens per net acre or a total site lumen allowance in unshielded fixtures (or equivalent wattages)
 - D) A policy to address over-lighting. This may be accomplished by limiting the average illuminance for any outdoor application, over the entire task area, to no more than 10% over the light levels recommended by, for example, the Illuminating Engineering Society (North America), the Society of Light and Lighting (United Kingdom), or other similar organization.

² Online: <https://darksky.org/resources/guides-and-how-tos/model-lighting-ordinances/>. (Accessed 2023 Sep 25).

³ More information on developing a lighting policy may be found on the DarkSky website: <https://darksky.org/resources/guides-and-how-tos/outdoor-lighting-for-policy-makers/>. (Accessed 2023 Sep 25).

⁴ Lighting required by law under the authority of any legal jurisdiction higher than that of the Community may be formally exempted from the requirements of this section.

⁵ “Fully shielded” is defined as a light source screened and its light directed in such a way that none is emitted above the horizontal plane passing through its lowest light-emitting part.

⁶ “Initial lamp lumens” is defined as the number of lumens of light emitted by a lamp when new and not counting any depreciation of output due to the age of the lamp. This information can be found in manufacturer data sheets.

- E) Regulations of new installations of publicly owned outdoor lighting:
- i) A provision that clearly indicates where, when, and under what circumstances new publicly owned outdoor lighting, including street lighting, is warranted, and will be permitted; *and*
 - ii) A provision that requires that adaptive controls⁷ and/or curfews⁸ be employed in all future installations of public outdoor lighting
- F) There must be restrictions on the installation and operation of illuminated signs,⁹ including *all* of the following:
- i) Luminance levels for operation between sunset and sunrise shall not exceed 100 nits (100 candelas per square meter, cd/m²) as measured under conditions of a full white display; and
 - ii) During the first hour after sunset and during the last hour immediately preceding sunrise, sign luminance shall not exceed 100 nits (100 candelas per square meter, cd/m²); and
 - iii) Signs may only be illuminated while the associated activity is taking place; for businesses, sign illumination must be extinguished completely during the hours the business is closed; and
 - iv) The luminous or illuminated surface area of an individual sign must not exceed 18.6 square meters (200 square feet).
- G) Outdoor recreational and/or athletic field lighting may be exempted from the strict shielding and short-wavelength emission requirements above provided that *all* of the following conditions are met:
- i) Illuminating Engineering Society (IES) lighting guidelines (RP-6) are followed according to the appropriate class of play
 - ii) Field lighting is provided exclusively for illumination of the surface of play and viewing stands, and not for any other applications
 - iii) Illuminance levels must be adjustable based on the task (e.g., active play vs. field maintenance)
 - iv) Off-site impacts of the lighting will be limited to the greatest practical extent possible
 - v) A strict curfew requirement (e.g., lights must be extinguished by 10 PM (2200 h) or one hour after the end of play, whichever is later) is observed
 - vi) Timers must be installed to prevent lights being left on accidentally overnight by automatically extinguishing them

⁷ “Adaptive controls” is defined as devices such as timers, motion sensors, and light-sensitive switches used to actively regulate the emission of light from light fixtures.

⁸ “Curfew” is defined as a period of time at night during which lighting must be significantly dimmed in output or extinguished in accordance with an expected decrease in human presence.

⁹ “Illuminated sign” is defined as any informational or advertising sign that is illuminated by either internal or external means. Descriptive terms are adjusted here according to the type of illumination.

- H) Affects an amortization period, applicable to *all* publicly *and* privately owned lighting, to end not more than 10 years from the effective date of the outdoor lighting policy, after which all non-conforming lighting extant at the time of enactment must be brought into compliance with the policy.
- 2) Community commitment to dark skies and quality lighting as shown by:
- A) City owned lighting conforming with, or committed to conforming with, the lighting policy (if the latter, a detailed plan with a timeline for completion in no more than five years); *and*
 - B) Municipal support of dark skies and quality lighting as demonstrated by city publications, flyers, public service announcements, funding of lighting upgrades, etc.
- 3) Broad support for dark skies from a wide range of community organizations such as chambers of commerce, local electrical utilities, DarkSky Chapters, lighting retailers, homeowners' associations, and others.
- 4) Community commitment to dark skies and education as shown by at least one of the following:
- A) Planning and execution of at least two community dark sky awareness events¹⁰ per year. This may be organized through a local astronomy club, municipality, school, etc.
 - B) Inclusion of dark sky awareness documents (DarkSky brochures or Community-created brochures) with other Community informational documents for residents and visitors.
 - C) Inclusion of dark sky education in Community schools and curriculum.
- 5) Success in light pollution control as demonstrated by at least one of the following:
- A) Examples of a number of construction projects appropriate to the Community population and amount of new construction and renovation activity, built under the lighting policy and demonstrating its effective application
 - B) Alternative evidence of success in light pollution control, to be discussed with the International Dark Sky Places Program Manager for compliance.
- 6) A sky brightness measurement program must be established and maintained either by the Community or by a public or private entity (e.g., university, research center, DarkSky Chapter, astronomy club) to follow the evolution of light pollution in the IDSC. Applicants are encouraged, but not required, to submit their measurements to the citizen science projects such as My Sky At Night (myskyatnight.com) and Globe At Night (globeatnight.org).
- 7) Once established, the Community must erect and maintain appropriate signage indicating the International Dark Sky Community designation along a roadway entrance, along a footpath entrance if no roadway exists, a public gathering place such as a square or common, or at a municipal government center such as a city or town hall. If

¹⁰ Note that astronomy education events such as star parties do *not* qualify as “community dark sky awareness events” unless the presentation explicitly includes a message relating to dark skies and outdoor lighting.

approved by DarkSky International, language as an alternative to “International Dark Sky Community” may appear on the signage and in Community communications regarding the IDSC status. Once the sign is erected, a photograph documenting it must be taken and sent to DarkSky International along with a description of its location.

PROVISIONAL STATUS

In some cases, a Community interested in the program may lack all of the resources required to achieve a designation outright. If resource unavailability otherwise hinders the progress of a Community’s application, that Community may apply for and be granted Provisional status at the discretion of the DarkSky Board of Directors. Provisional status recognizes the Community’s ongoing work to become an International Dark Sky Community and is intended as a leverage point to successfully enable actions such as lighting upgrades and retrofits.

Provisional status expires after three years. At any time before the end of this period, a Community may reapply for full status. Material submitted for the removal of Provisional status may be an addendum to the initial application as long as the material includes a current assessment of the goals, outreach efforts, and lighting policy listed in the original application and clearly demonstrates that any program requirements left unmet at receipt of the Provisional status have been satisfied.

To be considered for Provisional status, send a nomination package to DarkSky International that includes *all* of the following information:

- 1) Documented intent to create and support an International Dark Sky Community (IDSC)
- 2) An enacted and legally effective outdoor lighting policy, and summary of outreach efforts to date
- 3) A description of the circumstances that currently prevent the Community from meeting the minimum IDSC requirements
- 4) An action plan describing steps the aspiring Community will take to meet all program requirements in the specified Provisional status period

IDSC APPLICATION PROCESS

NOMINATION

The nomination may be initiated by a DarkSky qualified nominator¹¹ who has personally

¹¹ A “DarkSky qualified nominator” is defined here as an individual or organization holding a DarkSky membership in good standing at the time that the IDSC application is submitted. The Community itself may join DarkSky as an

reviewed a Community's outdoor lighting and commitment to night sky preservation. Nominators are encouraged to correspond with DarkSky International staff and the Community throughout this process. In addition, the application must include evidence, such as in the form of a letter of support, from the Community government (e.g., mayor, council) consenting to the nomination for IDSC status.

STEPS FOR APPLICANT

1. Make initial contact with DarkSky International by phone or email to discuss the process and receive recommendations, followed by continued communications to update DarkSky International staff on progress and receive continued assistance.
2. Designate a formal point of contact (POC) person, such as a project manager, and provide their telephone number, address, and email address to DarkSky International staff. Before and after designation, any changes to this POC, or their information, must be communicated to DarkSky International immediately in order to ensure accurate communication at all times.
3. Obtain a letter of nomination from a qualified DarkSky member nominator, as well as a supporting letter from elected representatives of the Community, such as the mayor and/or council of a municipality. Solicit additional letters of support from Community organizations, clubs, groups, universities, etc.
4. Upon completion, send the application to DarkSky International staff for review of the document at least one month before the chosen submission deadline date. DarkSky International staff will confirm that the application is complete and ready for submission or return it with suggestions for improvements.
5. Submit the final application packet electronically in PDF and/or Microsoft Word format to DarkSky International staff for formal review. Submit in plenty of time for staff to review and prepare your application to make the bi-monthly deadline that you prefer, as found on the DarkSky website. Requests to rush applications will *not* be honored; planning ahead is essential if the Community wishes to meet a specific deadline.

TO BE INCLUDED IN IDSC APPLICATION PACKAGE

1. Map of the Community clearly indicating its legal boundaries, and basic factual information about the Community; *and*
2. Letters of nomination support by DarkSky qualified nominator and elected representatives of the Community such as the mayor and/or council; *and*
3. The Community's lighting policy, meeting the minimum requirements as stated in the "Minimum Requirements for All Communities" section; *and*
4. Documentation of examples of Community commitment and construction or renovation projects demonstrating effective application of the lighting policy; *and*

organizational member and self-nominate.

5. Proposed alternative wording for the IDSC (e.g., Dark Sky Village, Starry Sky City), if desired, with a justification for the request.

DARKSKY REVIEW PROCESS

Six application submission deadlines occur in each calendar year, commencing in January and continuing every other month. Before the Community's final application is submitted, it is highly recommended that the Community be in regular communication with the International Dark Sky Places Program Manager to perfect the application by the next application deadline.

The International Dark Sky Places Manager will forward applications to the International Dark Sky Places Committee (DSPC) for review. DSPC review lags the submission dates by one two-month cycle. The total elapsed time between deadline and final IDSC designation approval is approximately 10 weeks.

Endorsement of applications by the DSPC is by a 2/3 supermajority vote; otherwise, the DSPC will return applications with reasons for denial of an endorsement and specific recommendations for improvement. If endorsed, the applicants will be notified, and the International Dark Sky Places Program Manager will present the application to the DarkSky Board of Directors (BOD) for final review and approval. A waiting period of 10 calendar days then commences during which the Board of Directors has the right to deny IDSC status should it determine that any problems with the application exist.

If the BOD registers no objection within the waiting period, the IDSC designation is considered immediately awarded by DarkSky. The Community has the right to choose when the designation is made public, but it must organize the announcement to be made at the same time as the DarkSky public notice unless otherwise agreed by both parties. Along with the announcement notice, DarkSky will publish the Community's application on its website; by submitting the application, the Community acknowledges in advance that the application will be made publicly available. If an application is denied final approval by the DarkSky BOD, a letter will be sent to the applicant outlining elements of the application that need improvement along with specific recommendations for ways to remedy any problems the BOD identifies. Applications may be resubmitted for future consideration after remediation is complete. Resubmitted applications will be considered without prejudice.

DarkSky realizes that certain circumstances surrounding an IDSC application may cause some potential authors of letters of support (or opposition) to feel uneasy about publicly declaring their opinions about the IDSC designation. In the interest of providing the DSPC with as full a picture of Community sentiment about applications as possible, certain letters may be suppressed from online publication if it is felt that making the letters publicly available will subject their authors to retaliation or harassment. A prospective IDSC seeking this protection for letter-writers must make a formal written request. The International Dark Sky Places Program Manager must approve suppression of publication of any part of an application. Note that suppression of online publication does not prevent either the DSPC or the DarkSky BOD from reading all submitted letters.

POST-DESIGNATION REVIEW AND MAINTENANCE

The IDSC designation is not awarded in perpetuity. Rather, it is subject to regular review by DarkSky and possible revocation if the minimum program requirements are not maintained. More details may be found in the “Reassessment of IDSC Designation” section below.

To ensure that Communities remain exemplary in their protection and restoration of natural nighttime darkness, DarkSky will periodically reevaluate each site in the International Dark Sky Places Program. This is done to confirm that the Community continues to meet the minimum requirements and is making adequate progress toward LMP compliance goals outlined in this document.

Each designated IDSC must submit to DarkSky International a written report of its activities related to the maintenance of its designation on or before 1 October of each calendar year. The report is a short (typically less than 10-page) synopsis of the Community’s activities and initiatives during the intervening year.¹² The report should include dates and brief descriptions of any interpretive events, lighting retrofit projects, outreach efforts, etc. Samples of printed materials and press articles should also be included, if available.

Annual reports should not be burdensome to produce, as they are intended as a compilation of information accumulated throughout the year. Annual reports and supporting documentation must be submitted electronically to the International Dark Sky Places Program Manager in either PDF or Microsoft Word format. If the annual report is not received by DarkSky International in a timely fashion, DarkSky may suspend the site’s IDSC status until the annual reporting requirement has been met (see the following section). On or about 1 August and 1 September of each year, the International Dark Sky Places Program Manager will remind local contacts at each IDSC of the pending 1 October annual report submission deadline.

A designated IDSC is exempt from the annual reporting requirement in the calendar year in which the IDSC designation was awarded. If the designation is received after 1 October of a given calendar year, the IDSC’s first annual report to DarkSky International will be due on 1 October of the following calendar year.

REASSESSMENT OF IDSC DESIGNATIONS

From time to time, DarkSky receives comments from visitors to Communities that raise concerns about the veracity and timeliness of information provided to DarkSky by site administrators. DarkSky may, at its discretion, investigate claims in which it is alleged that IDSCs are not adhering to commitments made to DarkSky and to the public in their applications to the Program. This section details the DarkSky procedure for carrying out such investigations, and the rights of IDSCs in such matters.

An allegation of impropriety concerning any of the elements of participation in the Program outlined in this document is subject to DarkSky investigation and potential remedial action

¹² Examples of acceptable annual reports are available on the individual IDSC pages on the DarkSky website.

including temporary suspension and/or permanent revocation of the IDSC designation. DarkSky International staff shall perform due diligence in gathering facts concerning such allegations it deems credible, and will prepare a report of its findings for consideration by the DSPC. The DSPC commits to weighing the evidence fairly and impartially, and to seek to resolve disputes whenever possible through dialog. A Community subject to an investigation shall be notified in a timely manner and solicited for evidence contrary to the specifics of the allegation at hand. The Community will be given an opportunity to correct any deficiencies with regard to the Program guidelines established by the DarkSky investigation within a reasonable time period to be prescribed by the DSPC.

Failure to achieve consensus through these means risks a DSPC recommendation for suspension or revocation of the IDSC designation. If made, such a recommendation will be forwarded to the DarkSky Board of Directors for formal ratification before coming into force. The Board's decision on any disciplinary matters involving an IDSC shall be considered definitive and binding.

Any IDSC so investigated has the right to review the allegations against it and all factual information collected by DarkSky pertinent to the allegations.

REINSTATEMENT FOLLOWING SUSPENSION

If the DSPC recommends a suspension of a Community's IDSC designation and the Board ratifies the suspension, the Community administration shall be immediately notified. The status of a suspended IDSC shall be changed to "Provisional" in all DarkSky communications until the designation is reinstated or revoked; however, the process of obtaining reinstatement of a designation is not the same as that outlined in the "Provisional Status" section of these guidelines.

To obtain reinstatement of a suspended designation, the IDSC must provide evidence to the DSPC's satisfaction that the specific issues identified by the DSPC as grounds for the suspension have been corrected and that all Program guidelines are once again met. The DSPC will consider the evidence presented by the IDSC and render a judgment to:

- Accept the reinstatement petition; *or*
- Reject the petition and recommend revocation; *or*
- Return the petition with further instructions and a defined deadline for an IDSC response.

REVOCAION

A suspension left unresolved after one year from the date of the Board's assent to the suspension automatically becomes a permanent revocation. Revocation entails removal of the IDSC from DarkSky's roll of approved International Dark Sky Places, and from mention on the DarkSky website and in member and external communications. DarkSky reserves the right to take legal action against any former IDSC whose designation is duly revoked but continues to use the DarkSky name or logo in advertising, communications, and/or signage.

Appendix D Relevant operative KDP provisions

Reference	Provisions
Issues	
<p>LIGHT-I1</p> <p>Effects of artificial light across the district.</p>	<p>Refer: GRZ-I1, GRUZ-I1, SETZ-I1, COMZ-I1, MFZ-I1, DEV1-I1, DEV2-I1.</p> <p>All the issue statements cross-referenced in LIGHT-I1 relate to protecting the amenity values of each zone in the district.</p>
Objectives	
<p>LIGHT-O1</p> <p>Managing light effects across the district.</p>	<p>Refer: GRZ-O1, GRUZ-O1, SETZ-O1, COMZ-O1, MFZ-O1, DEV1-O1, DEV2-O1.</p> <p>All the objectives cross-referenced in LIGHT-O1 relate to protecting, sustaining and enhancing the amenity values of each zone in the district.</p>
Policies	
<p>LIGHT-P1</p> <p>Manage light effects on residential amenity.</p>	<p>To ensure noise and lighting spill do not adversely affect the amenity enjoyed on residential sites.</p>
<p>LIGHT-P2</p> <p>Manage light effects on sensitive fauna.</p>	<p>To ensure the level of noise and lighting is compatible with a comprehensive living environment and avoids adverse effect of celestial darkness and the behaviours of seabirds in particular Hutton's Shearwaters.</p>
<p>NOISE-P3</p> <p>Cross-reference to light policies in other chapters.</p>	<p>Refer: GRUZ-P1, SETZ-P1, COMZ-P4, MFZ-P2, DEV1-P1.</p>
Rules	
<p>LIGHT-S1</p> <p>Light standards in the General Residential, Settlement, and Marine Facilities Zones.</p>	<ol style="list-style-type: none"> 1. Exterior lights shall be directed away from adjacent properties and roads. 2. Exterior lights shall not result in lux spill which exceeds 3 lux maximum, horizontal and vertical, onto adjoining properties measured at any point more than 2m inside the boundary of the adjoining property.
<p>LIGHT-S2</p> <p>Light standards in the General Rural Zone.</p>	<ol style="list-style-type: none"> 1. Exterior lights shall be directed away from adjacent residential units and roads. 2. Exterior lights shall not result in lux spill which exceeds 3 lux maximum (horizontal and vertical) onto adjoining residential units, measured at any point more than 2m inside the notional boundary of the adjoining Residential unit.

<p>LIGHT-S3</p> <p>Light standards in the Commercial Zone.</p>	<ol style="list-style-type: none"> 1. Exterior lights shall be shielded or directed away from adjacent sites and roads. 2. Exterior lights shall not result in lux spill which exceeds: <ol style="list-style-type: none"> a. 3 lux maximum (horizontal and vertical) onto adjoining residential sites or b. 10 lux maximum (horizontal and vertical) onto adjoining non-residential sites. 3. Light spill shall be measured at any point more than 2m inside the boundary of the adjoining site.
<p>LIGHT-S4</p> <p>Light standards in the Kaikōura Peninsula Tourism Development Area.</p>	<ol style="list-style-type: none"> 1. All exterior lighting shall be directed away from adjacent sites and roads and shall not result in lux spill which exceeds 3 lux maximum (horizontal and vertical) onto sites outside the zone, measured at any point more than 2m at or within the boundary of any site zoned residential, or within the notional boundary of any site zoned rural; 2. all exterior lighting shall be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source; 3. no exterior illumination of any building for aesthetic purposes shall occur between 2300 and sunrise the following day, except that the rear of the hotel may be lit between these hours if such lighting is screened from adjoining sites; 4. the height of any external light pole, other than at the rear of the hotel if such lighting is screened from adjoining sites, shall not exceed 1.5m above modified ground level.
<p>LIGHT-S5</p> <p>Light standards in the Ocean Ridge Development Area.</p>	<ol style="list-style-type: none"> 1. Exterior lights shall be directed away from adjacent sites and roads 2. Exterior lights shall not result in lux spill which exceed 2 lux maximum (horizontal and vertical) onto adjoining sites measured at any point more than 2m inside the boundary of the adjoining sites. 3. Exterior lighting shall be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source/bulb. 4. No persons shall illuminate or display the following outdoor lighting from 1st August to 30th April: <ol style="list-style-type: none"> a. Searchlight (unless required in an emergency) b. Illumination of any public recreation facility c. Outside illumination for aesthetic purpose of any building by floodlight
<p>Assessment criteria</p>	
<p>Appendix 6</p> <p>Assessment matters relating to specific performance standards</p>	<ol style="list-style-type: none"> 1. Lighting and noise – all zones <ol style="list-style-type: none"> a. What is the extent to which the performance standards are not complied with? b. What is the reason for exceeding the standards? c. What is the nature of, and sensitivity of, the environment receiving the increased light or noise?

	<ul style="list-style-type: none">d. What is the proximity of any adjoining residential activities, visitor accommodation, or community activities?e. What is the colour and luminance intensity. of the proposed lighting?f. N/Ag. What is the duration of the increased noise or light spill?h. Are any mitigation measures proposed, including shielding of light and sound proofing of buildings?i. In the Kaikoura Peninsula Tourism Zone, what are the visual effects and effect on the character of the area of increased pole heights?
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Appendix E Relevant Kaikōura Signage Bylaw Provisions

Reference	Provisions
Part III – Authorised signs	
Section 16: Signs authorised by resource consent	<p>A. All signs displayed in accordance with any resource consent (whether granted before or after the commencement of this bylaw and including any deemed resource consent under Part XV of the Resource Management Act 1991) are authorised signs.</p> <p>B. All signs lawfully established before the commencement of this bylaw are authorised signs under Section 10 of the Resource Management Act.</p>
Section 17: Signs under legislation	<p>A. All signs required to be displayed by any other legislation and displayed in accordance with the provisions of that legislation are authorised signs.</p> <p>B. All signs authorised to be displayed by any other legislation and displayed in accordance with the provisions of that legislation are authorised.</p> <p>C. All signs permitted by any operative regional or district plan under the Resource Management Act are authorised signs.</p> <p>D. Any sign discharging a statutory function is permitted under this bylaw.</p>
Part IV – Prohibited signs	
Section 18: Prohibited signs	<p>A. No person shall display any prohibited signs.</p> <p>B. No permit shall be granted by the Council for any prohibited sign.</p> <p>C. Prohibited signs are:</p> <p>2. Flashing signs or flickering and flashing lights used for advertising</p> <p> 4. Signs causing direct glare</p> <p> 5. Signs which have lights which externally illuminate signs and result in illumination of residential properties or buildings</p> <p> 6. All external light fixtures illuminating a sign not shielded so that the light is confined to the surface of the sign and directed away from the public roadways and residential areas</p> <p> 16. Signs with light spill greater than 2 lux on the boundary of the site the sign is located on</p>

Part V – Permits	
Section 21: Signs in business zones	<p>B. All illuminated signs in business zone</p> <ol style="list-style-type: none"> 1. All external light fixtures illuminating a sign shall be shielded so that the light is confined to the surface of the sign and directed away from the public roadways and residential areas. 2. No illumination shall be allowed on any advertising face area adjacent to the residential zone.
Section 22: Residential Zones	<p>B. Residential zones: standards</p> <ol style="list-style-type: none"> 1. Subject to subclauses 22.B.2, 22.B.3 and 22.B.4 any sign permitted in a residential zone shall: <ol style="list-style-type: none"> e. Have all external light fixtures illuminating a sign shielded so that the light is confined to the surface of the sign and directed away from the public roadways and residential areas; and
Section 23: Rural Zones	<p>B. Rural zone: standards</p> <ol style="list-style-type: none"> 1. Subject to Clause 23.B.2 a sign shall: <ol style="list-style-type: none"> b. Not be illuminated; and 2. Signs on strategic routes (identified as State Highway 1(SH1) and Route 70 (Inland Road) shall: <ol style="list-style-type: none"> b. Not be illuminated; and
Section 24: Marine facilities zone	<p>B. Marine facilities zone: standards</p> <ol style="list-style-type: none"> 2. A sign shall: <ol style="list-style-type: none"> b. Not be illuminated; and
Section 25: Reserves	<p>B. Business signs within a reserve: standards</p> <ol style="list-style-type: none"> 2. A sign shall: <ol style="list-style-type: none"> b. Not be illuminated; and
Section 26: Kaikōura peninsula tourism zone	<ol style="list-style-type: none"> 1. Kaikōura peninsula tourism zone: standards 2. All illumination shall be hooded and directed solely at the sign. No illumination of the sign may occur between 23:00 and sunrise. 6. No sign shall be internally lit.

Reference List

DarkSky International. (n.d.). *International Dark Sky Sanctuaries*. Retrieved April 11, 2023, from <https://www.darksky.org/our-work/conservation/idsp/sanctuaries/>

DarkSky International. (2018). International Dark Sky Sanctuary Program Guidelines. www.darksky.org

Disclaimer

We have used various sources of information to write this report. Where possible, we tried to make sure that all third-party information was accurate. However, it's not possible to audit all external reports, websites, people, or organisations. If the information we used turns out to be wrong, we can't accept any responsibility or liability for that. If we find there was information available when we wrote our report that would have altered its conclusions, we may update our report. However, we are not required to do so.

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VERSION	DATE	AUTHOR	REVIEWER	COMMENTS
1	29.08.2023	P. Huddleston	D. Donaldson	Draft for client review
2	01.09.2023	P. Huddleston	D. Donaldson M. Hoggard C. Doughty	
3	09.01.2024	P.Huddleston	D. Donaldson M. Hoggard C. Doughty	Final for review