
SUPPLEMENTARY PREFERRED OPTION REPORT TO DISTRICT PLAN COMMITTEE

DATE: 27 June DPC Meeting

TOPIC NAME: Lighting and Glare

SCOPE DESCRIPTION: Supplementary Preferred Option Report for Lighting and Glare - Night Glow (DW207NG)

TOPIC LEAD: Vicki Barker (Consultant Planner)

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EXECUTIVE SUMMARY

<i>Issue(s)</i>	<i>The Selwyn night sky is important and should be protected from the effects of night glow.</i>
<i>Preferred Option</i>	<i>Engage with the public during consultation on the proposed District Plan to establish whether there are particular areas of the District that should be protected and what level of control should be established through the proposed District Plan.</i>
<i>Recommendation to DPC</i>	<i>That the Preferred Option for Night Glow is endorsed for further development (Public engagement, followed by Section 32 and Drafting Phase).</i>
<i>DPC Decision</i>	<i>That the Committee endorses the Preferred Option Report for Night Glow for further development and engagement.</i>



1.0 Introduction

At the April 2018 District Plan Committee (DPC) meeting a preferred option report for Lighting and Glare (DW207) was presented and discussed with the Committee. Part of that report discussed the potential issue of ‘night glow’ where upwards waste light from outdoor lighting is diffused by particles in the atmosphere and obscures or reduces the view of the night sky. The Lighting and Glare Preferred Option report concluded that the issue was not significant in Selwyn District and that the presence of the Christchurch metropolitan area on the eastern boundary of the District would overwhelm any measures taken to reduce night glow from lighting in Selwyn District. The report recommended that night glow be noted as a potential issue when drafting the District Plan, but that specific policies not be included unless submissions were received raising the issue.

The Preferred Option report was informed by background work on lighting and glare issues, review of the current approach in the Operative Selwyn District Plan (the District Plan) and other neighbouring plans, and consultation with principal stakeholders. It does not necessarily reflect the view of the wider Selwyn community, and this view was expressed by Councillors at the DPC meeting who provided a further perspective on the importance of the night sky to the Selwyn community.

After considering the Lighting and Glare Preferred Option report the Committee endorsed the recommended Option 2 (that policies and rules relating to lighting and glare be amended to address current inconsistencies and provide a clearer framework), but requested that further work be undertaken on the preferred option for the protection of the Selwyn night sky across the District. That further work is the subject of this report.

2.0 Summary of approach

The following work has been undertaken to inform this Supplementary Preferred Option Report:

- The approaches of the two adjacent districts that include provisions relating to night glow in their District Plans (Ashburton and Waimakariri) have been reviewed again, and discussions have been held with District Plan review staff at Waimakariri District Council to assess what the future approach to managing night glow in Waimakariri District might be;
- A meeting has been held with Mahaanui Kurataio Ltd to discuss the issue and seek feedback from local rūnanga;
- Initiatives to protect night skies around New Zealand have been reviewed, particularly those in the Mackenzie Basin, South Wairarapa and Great Barrier Island;
- Other district plans have been reviewed to provide a range of practice options for addressing the issue – specifically the Mackenzie District Plan, the Auckland Unitary Plan, the Wairarapa Combined District Plan and the operative and draft proposed New Plymouth District Plans;
- The context of settlement patterns and land uses within Selwyn District has been reviewed in assessing the likely effectiveness of various options.

3.0 District Plan approaches to night glow

Six District Plans have been reviewed to investigate options for provisions for managing night glow – Ashburton District Plan, Waimakariri District Plan, Mackenzie District Plan, New Plymouth District Plan, the Auckland Unitary Plan and the Combined Wairarapa District Plan. Neither the New Plymouth District Plan nor the Combined Wairarapa District Plan contain specific provisions in relation to night glow.

Both the Ashburton District Plan and the Waimakariri District Plan contain standards on permitted lighting activities in rural areas, but the rules are supported by general lighting policies concerning effects on amenity, rather than specific policies about managing effects on the ability to view the night sky. The standards require that fixed exterior lighting is angled below the horizontal (Ashburton) or that it is directed away from the sky (Waimakariri). In Ashburton, Retail Sales and Commercial Activities in the Rural Zone require consent, and one of the assessment matters is the effect of night lighting on the visibility of the night sky for the surrounding areas. In Waimakariri, activities that cannot comply with the permitted activity rules for lighting require consent as a restricted discretionary activity, with matters of discretion including the effects of the light colour, and effects on the needs of astronomers. Discussions with Waimakariri District Council staff involved in the review of the Waimakariri District Plan indicate that technical work on lighting and glare provisions has not yet commenced, and so it is not clear whether the current approach to night glow will be retained in any new District Plan.

Unlike the Ashburton and Waimakariri District Plans, the Auckland Unitary Plan contains a policy relevant to managing the effects of night glow (Policy E24.3(2)):

Control the intensity, location and direction of artificial lighting to...minimise the loss of night sky viewing

There is no permitted activity condition that gives effect to this, but where consents are required (as restricted discretionary activities) for activities that cannot comply with permitted activity lighting standards, effects on amenity values are considered and the following assessment criteria used:

Whether the number, placement, design, height, colour, orientation and screening of light fittings and light support structures minimises light spill, glare, and the loss of night time viewing

Auckland therefore represents a slightly more comprehensive approach to managing night glow than either Ashburton or Waimakariri, through its acknowledgement of the issue within the policy framework.

Perhaps unsurprisingly, because of the existence of the Aoraki Mackenzie International Dark Sky Reserve (AMIDSR)¹ within the District boundaries, the Mackenzie District Plan (the MDP) takes the most comprehensive approach to managing night glow. An Outdoor Lighting Restriction Area

¹ See **Appendix A** for background information on the International Dark Sky Association, and requirements for dark sky reserves.

is identified in the MDP (see **Appendix B**), which covers the majority, but not all of the AMIDSR (see **Appendix C**). Maintaining the ability to view the night sky is identified as a specific issue in the MDP and supported by a policy to avoid unnecessary light pollution of the night time sky in the Mackenzie Basin. District rules classify outdoor lighting in the Outdoor Lighting Restriction Area as a permitted activity provided that:

- Lighting is shielded so the edge of the shield is below the whole of the light source;
- Filters are installed to filter out blue or ultraviolet light (so that less than 10% of the light of any wavelength less than 440nm is emitted);
- A curfew is imposed for types of illumination such as floodlighting and the use of high pressure sodium, metal halide, mercury vapour or fluorescent lighting, unless the lighting was already in place before 1986.

Outdoor lighting elsewhere in the Mackenzie District is permitted provided that it is directed away from adjacent properties and roads, and night glow is therefore not considered as much of an issue away from the Outdoor Lighting Restriction Area.

4.0 Other initiatives

Management of the effects of night glow does not have to be through District Plan provisions. Three examples – the Martinborough 3K City initiative, the Great Barrier Island Dark Sky Sanctuary and the Dunedin Night Sky City initiative – provide non-regulatory means of addressing issues. The first two of these examples have principally been driven by local communities, with support from local government as required.

The Martinborough Dark Sky Society is currently investigating making an application to the International Dark Sky Association for an International Dark Sky Reserve in South Wairarapa, which while close to the major light source of Wellington still has sufficiently dark skies to be attractive for astronomy. As part of this work, South Wairarapa District Council supports the Society's initiatives and has undertaken a project to adopt street lighting plans that meet dark sky requirements of 3000 Kelvin (instead of 4000 Kelvin applied in other parts of the country), and has received commitment from the NZ Transport Agency to comply with the 3000 Kelvin limit for lighting as well. Lighting below 3000 Kelvin complies with the International Dark Sky Associations requirements and does not contain the same levels of blue light as higher Kelvin lights, so protects dark sky values to a greater extent. The agreement currently operates outside the Combined Wairarapa District Plan and is not reflected in plan rules or policies.

In 2017, Great Barrier Island was certified a Dark Sky Sanctuary by the International Dark Sky Association. With little development pressure, a significant proportion of the land on the island being Crown land, and the island not being on the national grid, Great Barrier Island has retained relatively natural nighttime darkness. Its declaration as a Dark Sky Sanctuary has been based on non-statutory agreements by the community and specific site owners to maintain that natural darkness. A Lighting Management Plan has been developed and is being implemented to proactively protect the natural darkness. While eventually the community and Community Board will seek to have statutory support (once the Hauraki Gulf Islands Section of the Auckland District

Plan is amalgamated into the Auckland Unitary Plan) at present the initiative functions voluntarily. Plan provisions likely to be sought in the future include the classification of all outdoor lighting on the island as a discretionary activity (noting that this is possible in this location because of the extremely low number of sites currently using outdoor lighting).

Dunedin City Council's Energy Plan includes an initiative for Dunedin to be a 'Night Sky City', based on the International Dark Sky Association's concept of 'light what you need, when you need it'. The Night Sky City action sets out measures of success, identifies key delivery partners and outlines a series of delivery activities, including the establishment of a Night Sky City advisory panel to advise on key city outdoor lighting projects, the upgrading of approximately 15,000 city street lights to LED over time, and developing a specific lighting accord to prevent light pollution and to drive creativity in the outdoor lighting space.

5.0 Stakeholder engagement

Both the Lighting and Glare Baseline Report and the Preferred Option report were subject to consultation with stakeholders. Feedback was received from Mahaanui Kurataio Ltd, NZ Transport Agency, Fonterra, Synlait, Federated Farmers and the Canterbury Astronomical Society. While specific feedback on night glow was only received from Fonterra, Synlait and the Canterbury Astronomical Society, the decision was made to forward this Supplementary Preferred Option Report to all stakeholders to seek feedback, as well as to Tim Carter of Carter Group. A summary of the feedback received is outlined in the table below.

Stakeholder	Feedback
Mahaanui Kurataio	<p>Taumutu Rūnanga provided feedback through Mahaanui Kurataio Ltd that the issues identified in the Iwi Management Plan with respect to the effects of lighting on tuna at Te Roto o Wairewa, would also apply to Te Waihora and all the other lakes in Taumutu's takiwā.</p> <p>Taumutu Rūnanga recommended that appropriate lighting be used for those areas where light glare affects the ability of tangata whenua to catch tuna.</p>
Synlait	<p>The Preferred Option Report accurately reflects Synlait's previous feedback. As there are non-statutory approaches to the management of night glow, Synlait noted that it would be appropriate for Council to rigorously identify all approaches and conduct an appropriate level of community engagement, as well as undertaking an appropriate level of investigation in accordance with s32 of the RMA.</p> <p>If regulatory controls were to be imposed, Synlait would seek clear policy that the Dairy Processing Management Areas be excluded from these controls.</p>
Fonterra	Fonterra reviewed the report but, given the option recommended, provided no further feedback in addition to what has already been stated.
Environment Canterbury	Environment Canterbury noted that if, after public consultation, a decision was made to include policies and/or rules to manage night glow, this would be consistent with Objective 12.2.2 of the Canterbury Regional Policy Statement, concerning protection or maintenance of particular matters of amenity that are important or significant for the local community.

No feedback was received from the NZ Transport Agency, Federated Farmers, the Canterbury Astronomical Society, or Carter Group. Consultants for the Porters Ski Area Ltd (PSAL) became aware of the Supplementary Preferred Option Report and provided feedback to Council officers, noting that PSAL was keen to be consulted on any development of night glow or night sky policy, that the Operative District Plan provisions in relation to lighting in the Porters Ski Area overlay should be acknowledged,² and that no changes should be made to the operative provisions without engagement with PSAL.

6.0 Summary of Options to address issues

A number of options exist to address the management of night glow within Selwyn District. In evaluating all options an assessment needs to be made of their likely effectiveness, in light of the existing use rights that apply under section 10 of the Resource Management Act 1991. Essentially, in an area already subject to a significant number of land uses that involve outdoor lighting, rules can only apply to new activities and the effectiveness of measures to reduce effects on the night sky may become marginal. In already dark areas, lighting controls will be more effective in maintaining those darkness values. Selwyn District includes both areas that have significant numbers of land uses grouped together (such as Rolleston, and land on the boundary with Christchurch City where the significant light from the city has an effect) and areas of relative darkness (such as some of the mountain areas or out on the plains remote from settlements). In 2015 the New Zealand Herald listed Arthurs Pass as the 6th best place in New Zealand for stargazing³.

6.1 OPTION 1 – STATUS QUO, NO PROVISIONS TO MANAGE NIGHT GLOW

Under Option 1, the approach under the Operative District Plan, where night glow is not identified and managed as a specific issue, would be retained.

Effectiveness in Addressing Issue:

Option 1 will not address the need to protect the Selwyn night sky.

6.2 OPTION 2 – INCLUDE DISTRICT-WIDE PROVISIONS TO MANAGE NIGHT GLOW EFFECTS

Provisions could be included in the proposed District Plan, identifying the maintenance of the Selwyn night sky as an issue to be addressed, and providing either a policy to be considered when processing consent applications for all activities, or a policy and permitted activity standards, to ensure that all new activities involving outdoor lighting consider measures to reduce the effects of night glow caused by upward waste light.

² Note that the Lighting and Glare Baseline Report identifies the policies and rules applying to the Porters Ski Area with respect to lighting and glare.

³ https://www.nzherald.co.nz/travel/news/article.cfm?c_id=7&objectid=11383208

Effectiveness in Addressing Issue:

Option 2 will only apply to activities that do not have resource consent or existing use rights in the District. For new activities, inclusion of provisions in the proposed District Plan will manage a proportion of the District contribution to night glow. However, single sites are unlikely on their own to contribute significantly to night glow and provisions may therefore have limited actual effect in protecting the Selwyn night sky.

6.3 OPTION 3 – INCLUDE PROVISIONS TO MANAGE NIGHT GLOW EFFECTS IN IDENTIFIED AREAS

The majority of effective examples of management of night glow in this Supplementary Preferred Option Report apply to defined areas – the Mackenzie Basin, Great Barrier Island, Martinborough. While some of these areas are quite large, they respond to specifically identified issues and needs, and are therefore more targeted approaches.

A similar approach could be taken in the proposed District Plan. Specific areas could be identified where existing dark sky values should be preserved, and provisions included in the District Plan that apply only to those areas.

Effectiveness in Addressing Issue:

Depending on the areas selected, Option 3 may be more effective than Option 2. If currently naturally dark areas of sufficient size to have a meaningful impact are selected, provisions that apply to outdoor lighting will apply to a greater proportion of land uses over time as they apply to each proposed new land use and relatively few existing land uses can take advantage of existing use rights.

Option 3 also offers the advantage over Options 1 and 2 that it would address a specifically identified issue, and can therefore more easily be justified through the necessary Resource Management Act 1991 s32 evaluation process.

Identification of specific areas would need to be undertaken in consultation with the Selwyn community, through wider public and possibly targeted engagement on the Lighting and Glare topic than has been undertaken to date.

6.4 OPTION 4 – NON-STATUTORY TOOLS

Option 4 reflects the type of non-statutory initiatives currently being adopted in Martinborough and Great Barrier Island to address the issue of night glow in the absence of plan provisions. There are a variety of services that the Council delivers that could consider ways to mitigate the effects of lighting, for example street and reserve lighting, that could make an appreciable difference to the occurrence of night glow. Working with local communities keen to reduce light pollution and encouraging voluntary initiatives could also achieve results if significant buy-in from the relevant community is able to be achieved.

Option 4 could either be a stand-alone option, or delivered as part of a package with associated plan provisions either district-wide or in selected areas.

Effectiveness in Addressing Issue:

On its own, with sufficient community support, a non-statutory approach could be effective, as demonstrated in Martinborough and Great Barrier Island, although it depends entirely on a keen local community to implement measures and self-manage. In combination with appropriate plan provisions, and in targeted areas, the effectiveness of Option 4 would increase.

Implementation of non-statutory tools can be a resource intensive process and demand considerable time and commitment from local communities.

6.5 OPTION 5 – PUBLIC CONSULTATION ON NIGHT GLOW AND POTENTIAL PROVISIONS

One of the difficulties in recommending an approach for addressing the effects of activities on the visibility of the night sky is the current lack of knowledge of how important this matter is to the wider Selwyn community and which particular areas might be candidates for lighting policies or controls to protect the night sky. Option 5 is therefore to engage with the public during consultation on the drafting of the proposed District Plan to establish whether there are particular areas of the District that should be protected and what level of control should be established through the proposed District Plan.

Effectiveness in Addressing Issue:

Option 5 represents an intermediate step in the process, in order to gain further information to be able to assess Options 2 – 4.

7.0 Preferred Option for further engagement

The Project Team recommends that Option 5 be proceeded with as an intermediate step and a preferred option selected following consultation.

Appendix A – International Dark Sky Association

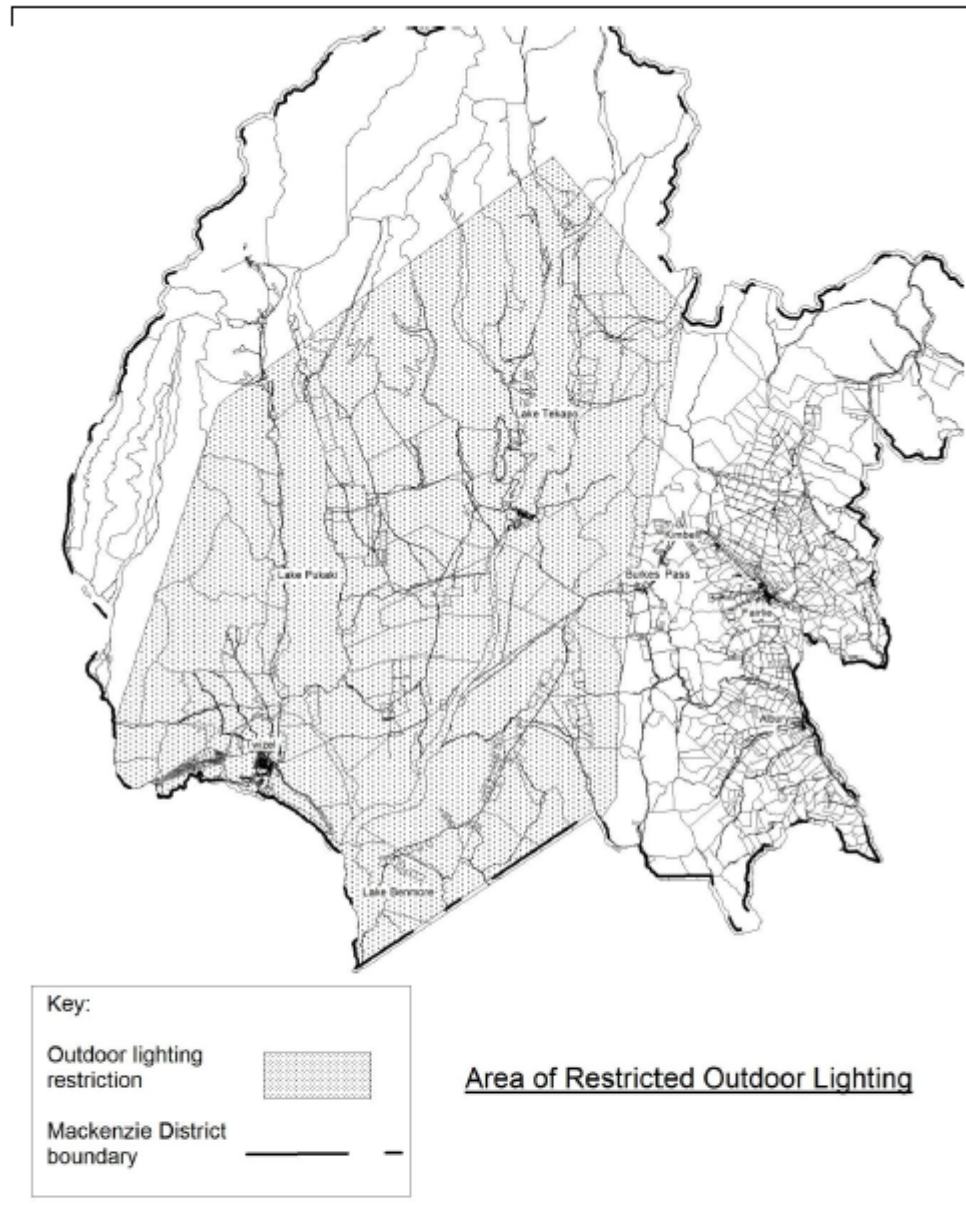
The International Dark Sky Association (the IDSA) is a United States based non-profit organisation founded in 1988. Its mission is *‘To preserve and protect the night time environment and our heritage of dark skies through quality outdoor lighting’*. The IDSA works principally by raising awareness of the value of dark, star-filled night skies, and encouraging their protection and restoration through education and the implementation of the International Dark Sky Places programme. The programme recognises five types of dark sky places:

- International Dark Sky Communities – cities and towns that adopt quality outdoor lighting rules and undertake efforts to educate residents about the importance of dark skies
- International Dark Sky Parks – publicly or privately owned spaces protected for conservation purposes, that implement good outdoor lighting and provide dark sky programmes for visitors
- International Dark Sky Reserves – consisting of a dark ‘core’ zone surrounded by a populated periphery where policy controls are enacted to protect the darkness of the core
- International Dark Sky Sanctuaries – generally the most remote (and often darkest) places in the world, which are most vulnerable to the effects of light pollution
- Dark Sky Developments of Distinction – recognised subdivisions, master planned communities and neighbourhoods and townships whose planning actively promotes a more natural night sky, but does not qualify them for the International Dark Sky Community designation.

New Zealand has two Dark Sky Places – the Aoraki Mackenzie International Dark Sky Reserve (the AMIDSR) in the Mackenzie Basin and the Aotea/Great Barrier Island Dark Sky Sanctuary. The AMIDSR has two ‘cores’, a primary core at Mt John around the University of Canterbury’s Observatory, and a secondary core at Mt Cook airport. The peripheral region is shown on the map contained in Appendix C below.

Application requirements to become an International Dark Sky Place are stringent and ongoing management is needed to retain the status. As an example, the following pages outline the application requirements for International Dark Sky Reserves.

Appendix B - Mackenzie District Outdoor Lighting Restriction Area



Appendix C – Aoraki Mackenzie International Dark Sky Reserve

