

**Aorere ki uta Aorere ki tai - Tasman Environment Plan
Issues and Options Report**

Light

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Important Note

March 2021

The Office of the Minister for the Environment released the Cabinet paper - *Reforming the resource management system* on 10 February 2021 (the Cabinet paper). As set out in that paper, Minister Parker proposes to repeal the RMA and replace it with:

- A Natural and Built Environments Act (NBA)
- a Strategic Planning Act (SPA), and
- a Managed Retreat and Climate Change Adaptation Act (CAA)

These Acts will influence the development of the TEP and how we are required to manage and plan for Tasman district's environment.

From the information we have we understand that the planning system will shift away from being effects-based, and instead focus on **outcomes**.

As of March 2021, this is what we know:

1. The purpose is likely to be to *"promote the quality of the environment to support the wellbeing of present and future generations and to recognise the concept of Te Mana o te Taiao"*
2. Biophysical limits will be set by the Minister
3. Twenty draft outcomes are identified (these are provided in Appendix 2)

Te Mana O Te Taiao is a concept that is likely to be central to the new legislation. It means "the mana of the natural world". People are a part of nature – and we can only thrive when nature thrives. This is described in more detail in this report.

In this report the author will, where necessary and appropriate, address the issues and options from the perspective of the new NBA purpose and outcomes.

Contents

1	Executive Summary	4
1.1	Introduction.....	4
1.2	Purpose and Scope	4
1.3	Issue(s).....	4
1.4	Outcome(s) Sought.....	5
1.5	Option(s).....	5
1.6	Summary of Analysis	6
1.7	Recommendations.....	6
2	Principles Underpinning the Development of the TEP	7
2.1	Guiding Principles.....	7
2.2	Te Mana O Te Taiao.....	7
3	Background Context	8
3.1	Issue(s) we are Seeking to Address	14
3.2	Why Change is Needed (or Not).....	14
3.3	Issue(s): Waahi-Specific or Whole of District?	15
3.4	How Issue(s) relate to other Topics.....	15
3.5	How Issues(s) relate to Iwi Interests and Values.....	16
3.6	Statutory, Policy Context and Scope	17
3.7	Methods Considered	19
3.8	Implementation Plans	19
4	Issues in Relation to Light	19
4.1	Outcome(s) Sought.....	20
4.2	Scale and Significance.....	20
4.3	Option(s) to address Issues	21
4.4	Draft Recommended Option	26
5	Summary.....	26
6	Appendix 1 - References	28
7	Appendix 2 – Draft Natural and Built Environment Act Outcomes	29
8	Appendix 3 – Dark Skies Information.....	33

1 Executive Summary

1.1 Introduction

Artificial exterior light is a matter which is not often front of mind for people but which when it affects someone can be very disruptive to their use and enjoyment of their property, to sleep and potentially health. Excessive or poorly managed lighting can also impact on traffic safety, natural character and ecological function.

The protection of the darkness of the night sky is also a matter which is relevant to the light topic.

Exterior lighting also has many benefits to the safe and efficient use of outdoor space. This should be recognised in any approach taken to the management of light.

1.2 Purpose and Scope

The purpose of this report is to outline specific issues around artificial exterior light, investigate potential options and define the recommended option(s) to address the issue.

Public lighting such as streetlights and lighting in parks are managed by the Nelson Tasman Land Development Manual 2019 (NTLDM) and the Tasman District Council (TDC) Reserves General Policies Sept 2015. The current intent is that this situation remains and any changes to these documents are managed as separate but related processes. Other anticipated key exclusions relevant to the scope of this topic are lights on moving vehicles, boats and aircraft, navigational lighting, reflected light from structures and temporary lighting for emergencies and public safety.

Any draft recommended option(s) defined in this report will be tested with iwi, Council, and community and may evolve during the course of the plan development process. The feedback and direction received on the recommended option(s) will inform development of the Draft Aorere ki uta Aorere ki tai - Tasman Environment Plan (TEP).

1.3 Issue(s)

Lighting is a common feature within any developed area as well as major roads and intersections and the Tasman District is no exception. With increasing density of development and tendency to use more external lights both for security and aesthetic purposes issues with lighting are anticipated to increase.

External lighting appears in relation to most developed areas and it appears in a variety of locations throughout the district. Therefore, issues that can arise with lighting can also be found in a variety of locations. Lighting in both remote and developed areas can have impacts in terms of the darkness of the night sky.

The following information sources have been used to understand the current lighting issues within the Tasman District:

- Initial TEP consultation Oct – Nov 2020
- Section 35 report: Chapter 5 'Site Amenity Effects' 1 Sept 2020'
- Nelson Tasman Land Development Manual 2019 (NTLDM 2019)

- TDC Monitoring and Enforcement Team feedback
- TDC Consenting team feedback
- Review of other Council provisions

Using the evidence sources above, the issues in relation to lighting within the Tasman District are considered to fall into two key areas:

- *Issue 1: Excessive or poorly managed lighting can have adverse effects on occupiers of neighbouring properties, traffic safety, natural character, human health, energy use and ecological function.*
- *Issue 2: Outdoor lighting can diminish the brightness and clarity of the night sky.*

A further issue related to light use was raised at the Council workshop on 14 April 2021. The issue was inefficient use of artificial lighting can result in increased electricity use and therefore increased carbon emissions depending on the source of the electricity. This 'energy use' issue has been added to Issue 1.

1.4 Outcome(s) Sought

The outcomes sought from the management of exterior lighting with the Tasman District are:

- Appropriate lighting is enabled to allow for the safe and efficient use of outdoor areas around buildings and other spaces.
- The actual and potential adverse effects of lighting on the occupiers of neighbouring properties, traffic safety, natural character, human health and ecological function are managed.
- The darkness of the night sky is maintained and enhanced.

These outcomes were derived from reviewing the existing provisions within the Tasman Resource Management Plan (TRMP), the draft NBA outcomes, and the policy direction set within the Resource Management Act 1991 (RMA) and the New Zealand Coastal Policy Statement 2010 (NZCPS). The public consultation also sought measures to protect the darkness of the night sky which supports the inclusion of the third outcome above.

1.5 Option(s)

The options considered for the management of lighting within the Tasman District are:

- 1 Status quo: Retain the current TRMP approach to light management – featuring simple policy and rule provisions effectively to limit lighting and rules to not direct lighting at adjacent residential properties, or to interfere with road users' vision. Dark sky matters are not included in the current provisions. Typically, non-compliance is a discretionary activity.
- 2 Nelson City Council proposed approach: Develop specific set of objectives, policies and rules managing artificial outdoor lighting with specific controls relating to glare and light spill tailored by zone. The Nelson City Council approach excludes streetlights and traffic signals, navigation lights, reflected light from structures, glare from vehicles and vessels and temporary lighting for emergencies or public safety.
- 3 Nelson City Council approach – plus dark sky management: Develop a specific set of provisions as for option 2 but also introduce controls to maintain and enhance the darkness

of the night sky (such as controlling upwards light spill, colour temperature and curfews/time limits on some lighting).

1.6 Summary of Analysis

The analysis actions undertaken in relation to lighting were:

- Section 35 reporting which included comment round the potential for excessive or unnecessary lighting to be intrusive. The report seeks continued management of lighting in conjunction with the NTLDM and for enhancing the darkness of the night sky.
- Review of the existing light related provisions in the TRMP and a comparison of these to provisions in other local authority’s planning documents.
- Review of the consultation responses received during the Oct – Nov 2020 issues and opportunities community engagement process.
- Assessment of the regional significance of issues in relation to light.
- Meetings with Council’s Team Leader – Monitoring and Enforcement, compliance staff and Senior Transportation Engineer around experience with TRMP lighting provisions.
- Review of applicable national legislation, and other Council documents.

1.7 Recommendations

To address the issues, the following options are recommended:

Table 1: Issues and Recommended Options

Planning Issue	Recommended Option
Issue 1: <i>Excessive or poorly managed lighting can have adverse effects on the occupiers of neighbouring properties, traffic safety, natural character, human health, energy use and ecological function</i>	The recommended option is Option 3 to develop a set of provisions for the management of light which is consistent with Nelson City Council’s approach, and which also incorporates provisions to maintain and enhance the darkness of the night sky.
Issue 2: <i>Outdoor lighting can diminish the brightness and clarity of the night sky</i>	

2 Principles Underpinning the Development of the TEP

2.1 Guiding Principles

The Council will use guiding principles in the development of the TEP. These principles are the philosophy and values that will underlie the approach and content of the TEP, but will not in themselves have specific objectives, policies or methods. The anticipated outcomes of the TEP should achieve these principles.

The principles are:

1. To recognise the interconnectedness of the environment and people, ki uta ki tai / mountains to the sea.
2. To enable healthy and resilient communities by achieving healthy and resilient environments (Te Mana O Te Taiao).
3. To work in partnership with Iwi.
4. To meet the present and future needs of our communities and iwi.
5. To enable community development within environmental limits.
6. To support and enable the restoration of at-risk environments.
7. To recognise and provide for the wellbeing of individuals, where this is not at the expense of the public good.
8. To take a precautionary or responsive management approach, dependent on the nature and extent of the risk, and where there is uncertainty or a lack of information.
9. To ensure the TEP provides strategic leadership for Council's key planning documents.

These principles will be implemented through the evaluation of options in this report and in future Section 32 assessment, drafting and decisions.

2.2 Te Mana O Te Taiao

Te Mana O Te Taiao is the mana¹ of the natural world. People are a part of nature and can only thrive when nature thrives.

The TEP process and document provides a key mechanism to achieve our desired outcomes for our relationship with Te Taiao (the natural world), including the community outcomes defined in the Long Term Plan², and the vision of the Te Tauihu Intergenerational Strategy (Wakatū, 2020):

"We are the people of Te Tauihu. Together, we care for the health and wellbeing of our people and our places. We will leave our taonga in a better state than when it was placed in our care, for our children and the generations to come."

The use of Te Mana O Te Taiao in this report utilises a similar approach and hierarchy to that defined for Te Mana O Te Wai in the National Policy Statement for Freshwater Management 2020

¹ Mana is defined in the online Maori dictionary as: prestige, authority, control, power, influence, status, spiritual power, charisma - mana is a supernatural force in a person, place or object. Mana goes hand in hand with tapu, one affecting the other. The more prestigious the event, person or object, the more it is surrounded by tapu and mana. source: <https://maoridictionary.co.nz>

² The outcomes are available in the Long Term Plan on the Council's website

(MfE,2020. NPS-FM), and extends this fundamental concept to other domains: Te Tai (sea), Te Āngi (air) and Te Whenua (land).

The objective of this approach is to ensure that natural and physical resources are managed in a way that prioritises:

- (a) First, the health and wellbeing of the natural environment and ecosystems
- (b) Second, the health needs of people
- (c) Third, the ability of people and communities to provide for their social, economic, and cultural wellbeing, now and in the future.

The relevance of Te Mana O Te Taiao to light is set out as follows.

People use exterior light around locations such as their homes, workplaces, education and recreation facilities, and for safety and wayfinding on roads and paths. This use helps people and communities to provide for their social, economic and cultural wellbeing and is a benefit of lighting. Excessive lighting can, however, result in adverse effects to people's health through lack of sleep or changes in the body's natural rhythms. It can also have adverse effects on the natural environment and ecosystems through changing the natural light / dark cycle and by reducing the darkness of the night sky.

3 Background Context

This portfolio relates to external lighting used by people for a variety of activities in the Tasman District. Lighting can be fixed on buildings or poles or mounted in any external areas of properties. Exterior lighting is typically focussed in an area where illumination is required. In industrial or rural areas this is typically to enable night-time activities to occur within a yard or a milking shed for example. In residential areas, lighting is typically for security purposes and for safety on paths for example.

Lighting is also used for safety such as for street lighting, and for other purposes such as navigational and operational lighting at sea, amenity/architectural lighting around properties and buildings and to illuminate signs.

Due to this wide range of uses, lighting is common in all developed areas where people may be at night-time. If the lighting is well managed through screening/direction, light colour selection and limitations on duration or frequency of use the effects can be contained on site. Poorly managed and directed lighting can result in a number of adverse effects created by light spill to neighbouring properties or generally into the environment.

The adverse effects of poorly managed lighting are:

- Impacts on the use of neighbouring properties and on people's health through excessive light spill
- Effects on traffic safety from poorly directed light
- Reduction in the character of natural areas through excessive or poorly positioned lighting

- Impacts on ecosystems through changes in the predictable day / night cycle, including birds being disorientated and disruption to insect life³
- Reduction in the darkness of the night sky and the ability to view the stars. This includes cultural impacts for Māori due to their spiritual connection to the night sky

As noted above poorly managed lighting can have an adverse effect on the darkness of the night sky. Increasing amounts of light which is not screened to prevent upwards light spill and lights which contain the blue light spectrum all increase the amount of 'skyglow'. An increasing number of Councils are including provisions in their plans to manage this effect of exterior lighting. See Appendix 3 for additional information about dark sky matters.

The level of awareness of this dark sky issue has grown over recent years and has resulted in planning provisions being added to some Council documents to protect the darkness of the night sky. This is often accompanied by recognition of areas as Dark Sky Reserves, Sanctuaries or Parks⁴. Wai-iti Recreation Reserve is an International Dark Sky Park. A general summary of information related to managing lighting effects on the darkness of the night sky is included in Appendix 3.

The DSL Environmental Handbook⁵ sets out definitions of the three common factors of lighting that can result in adverse effects. These are:

Glare: Glare is light emitted from a light source or luminaire and is generally greater if the light source is brighter. It can be divided roughly into two types: disability glare which severely affects vision; and, discomfort glare, which is a lesser effect that is more a physiological nuisance.

Glare can be caused by both direct and indirect light sources. Indirect glare is produced by light from a luminaire being reflected from a surface, direct glare is received directly from the source of the illumination.

Spill Light: Spill light is defined as light emitted by a lighting installation which falls outside of the boundaries of the property on which the installation is sited. It is generated by the use of an incorrect type of luminaire, poor control of the beam of light from a luminaire, poor aiming or a combination of all three. Spill lighting is measured in lux in either a vertical or horizontal plane, usually at the adjacent property boundary or some defined position within the adjacent property.

Sky glow: Artificial sky glow is generated by exterior lighting either aimed upwards or reflected upwards from a surface. Natural sky glow occurs through celestial sources and luminescence in the upper atmosphere.

Information sources and consultation used to understand the issues related to light are:

Section 35 report:

³ *Darksky.org*

⁴ *Stewart Island / Rakiura and Aotea / Great Barrier Island are International Dark Sky Sanctuaries. Aoraki Mackenzie is an International Dark Sky Reserve.*

⁵ *Thompson Reuters Westlaw NZ Environmental Handbook 'Lighting and its effect on the environment'*

The section 35 report⁶ considers the effectiveness and efficiency of the site amenity provisions within Chapter 5 of the Tasman Resource Management Plan (TRMP). Lighting is included in the policies within this chapter. The section 35 report identifies that excessive or unnecessary lighting can be intrusive in rural and rural-residential areas – assumed due to the general darkness of these areas. It also highlights that streetlights are managed by the Nelson Tasman Land Development Manual (NTLDM).

The report finds concerns over lighting of certain sites and subdivisions have been responded to within the NTLDM with standards prescribing fewer and more directional streetlights are used.

The report states that the TRMP policy should continue to support caution around the use of lighting and to provide policy support for the NTLDM and for enhancing dark night-sky amenity.

Nelson Tasman Land Development Manual 2019

The NTLDM includes requirements relating to the management of Council's public lighting, such as street and park lighting. This includes:

- Lighting complimenting neighbourhood character and minimising the impact on neighbouring properties and the environment.
- A statement that the Councils (Tasman and Nelson) support the dark sky concept.
- Restrictions to ensure light spill is minimised including specific reference to upwards light spill.
- Parks lighting to provide adequate illumination and to prevent adverse effects on adjacent landowners.

Section 9.12.6.4 of the NTLDM states that *'In the Tasman District, the Council supports the lighting of all reserves and all lighting designs shall be approved by the Reserves and Facilities Manager prior to their installation'*.

Initial TEP consultation Oct – Nov 2020

Feedback from the initial consultation on the TEP development raised the following matters relating to light:

- Light was noted as having a *'serious effect on biorhythms and endocrine systems of humans and other species, invertebrate and vertebrate'*⁷.
- Reducing light would enhance our living environments.
- The effect of lighting from marine farms on the night sky.
- Multiple responses relating to protection of the night sky, shielding upward light, reducing blue light, managing light pollution.
- Requests for reduced lighting in particular areas (eg Marahau) for the purpose of dark sky protection.

Feedback from Carl Cheeseman (TDC Team Leader Monitoring and Enforcement) and Ryno Botha (Compliance Officer)

The following matters relating to light were raised in a discussion with TDC compliance team:

⁶ Chapter 5: Site Amenity Effects' 1 Sept 2020 pg 31 Lighting

⁷ Friends of Golden Bay feedback to TEP consultation round 1

- There are a limited number of complaints about light but those that are received are difficult to resolve. The effects of light spill can be experienced even if the light is not directed at neighbouring properties (as per current rules).
- There is an expectation that complaints about lighting effects in the Residential Zone will increase with smaller sections and increased use of outdoor lighting.
- Strong support for lux levels to be added to the plan to increase certainty.
- Lighting of sports and recreation facilities has typically not been an issue, but care should be taken with how to manage these.
- The staff support updating lighting rules, introducing lux levels and providing protection for the darkness of the night sky.

Feedback from Mike Van Enter (TDC Senior Transport Engineer)

- Council has previously received requests to manage street lighting to achieve dark sky outcomes (most recently in Pohara).
- NZTA standard M30⁸ Specification and Guidelines for Road Lighting Design enable LED luminaires between 3000K and 4500K.
- Technology changes are expected to improve the management of lighting levels and the efficiency of 3000K lighting output.
- Any changes to the typical 4000K street lighting luminaires would need to be understood through seeking technical advice but is enabled by the relevant standards.

Feedback from TDC Resource Consents Team

A workshop was held on 1 March 2021 with Council's Resource Consents team and Compliance team members. This workshop explored the experience of both teams in applying the current rules both through consent applications and enforcement. The following key matters were raised:

- It is difficult to determine compliance when no lux levels are provided.
- Streetlights should remain under the management of the Nelson Tasman Land Development Manual 2019.
- Not generally a matter of complaint but those which are made are hard to resolve.
- Support at the concept level for dark skies management but concern around how to determine compliance with any possible light controls when checking building consents.
- Consents would like to know how other Councils manage this.
- Marine-based lighting could be of interest for new marine farms during the consenting process.

Approach of Other Councils

Most Councils manage light through specifying lux levels relating to light spill at property boundaries. A comparison of this has not been provided. The table below therefore focuses on the methods that some Councils apply to controls to manage lighting effects on the darkness of the night sky. The last row of the table outlines the methods for managing external lighting in the proposed Marlborough Environment Plan as has been identified as being a comparable region to Tasman.

⁸ M30 Specification and Guidelines for Road Lighting Design 2014 www.nzta.govt.nz

Table 2: Dark sky approaches from other Councils

Planning Document	Summary of Approach
Mackenzie District Plan	<p><u>Issue</u> Maintaining the ability to view the night sky.</p> <p><u>Objective:</u> To maintain the ability to undertake effective research at the Observatory and of the ability to view the night sky.</p> <p><u>Policy:</u> To avoid unnecessary light pollution of the night-time sky.</p> <p><u>Rules</u> (within a specified area) which require shielding of lighting, lighting specification setting limits of blue or ultraviolet light, curfew on specified lighting, also a specific set of assessment matters are included for resource consent applications with a lighting component. Lighting outside of the specified area is permitted provided it is directed away from adjacent properties and roads.</p>
South Wairarapa Combined District Plan (proposed)	<p><u>Issue:</u> Light emitted from outdoor lighting can cause adverse effects on the brightness and clarity of the night sky.</p> <p><u>Policy which sits under a general amenity value objective:</u> Within the Dark Sky Management Area, manage the light colour temperature, shielding and hours of operative of outdoor artificial lighting to mitigate skyglow to protect the clarity and brightness of the night sky.</p> <p><u>Rules:</u> Rules to limit lighting in the mapped Dark Sky Management Area to no more than 3000K; shielding of lighting; exceptions for motion activated lighting of less than 5min duration; specific rules for outdoor sports lighting.</p> <p><u>Non-regulatory method:</u> Liaising with road controlling authorities on the colour temperature of street lighting</p>
Southland District Council – Stewart Island / Rakiura	<p><u>Policy:</u> Requiring subdivision, land use, and development to be undertaken in a manner that maintains or enhances the Stewart Island / Rakiura night sky.</p> <p><u>Rules:</u> Rules regarding illuminated signs, limit spill onto other sites to 3lux max (depending on zone); shielding of lighting; lighting to be less than 3000K – maritime and aviation navigation lighting are excluded.</p>
Auckland Council District Plan – Hauraki Gulf Islands Section - Great barrier Island / Aotea	<p><u>Objectives and policies</u> to ensure lighting does not have adverse effects on the environment or amenity values and policies relating to avoiding the loss of night-time viewing and ‘avoiding, remedying or mitigating the adverse effects of lighting on the night sky.</p> <p><u>Rules:</u> Lighting up to 150lux on a site is a permitted activity, with assessment criteria relating to the darkness of the night sky.</p>

Planning Document	Summary of Approach
	<p><u>Assessment criteria:</u> For discretionary activities – includes the impact on adjacent sites, including loss of amenity, the extent to which glare from outdoor lighting impacts on the dark night-time sky environment.</p>
<p>Christchurch District Plan and New Plymouth District Plan</p>	<p>Both Christchurch City Council and New Plymouth District Council have policies that reference managing unnecessary light spill into the night sky, or adverse effects on the views of the night sky. However, they do not have rules which specifically address this issue.</p>
<p>Proposed Marlborough Environment Plan – This summary includes all light management, not just in relation to the darkness of the night sky.</p>	<p><u>Objectives and Policies:</u> Relies on general amenity objectives and policies with some specific reference to ‘restrictions on light spill’ at the policy level for some zones.</p> <p><u>Rules:</u> The zone rules generally require that lighting directed away from adjacent properties and roads for traffic safety and do not exceed a lux level at any adjoining residential site, or in some cases at points on any adjoining site. The Coastal Living Zone and Coastal Marine Zone also includes a requirement to not have any light spill above the horizontal plane. This is understood to respond to the NZCPS requirement to protect the darkness of the night sky. The Lake Grassmere Salt Works Zone has no lux limits but requires external lighting to be directed away from roads.</p>

Application of provisions: To understand the experience of Councils in applying the provisions, a conversation was had with Mackenzie District Council (MDC) as their provisions have been in place for the longest. Their area of control also includes the growing towns of Tekapo and Twizel.

At MDC when a building consent is assessed proof of compliance with the lighting provisions is not required unless the project is highly likely to involve substantial amounts of light spill. Instead, a note is included in the Project Information Memorandum check (PIM) that compliance with the provisions is required. To support this, an information sheet about the provisions is provided to the applicant. If potential non-compliance is brought to Council’s attention once the development is complete, then investigation / compliance can occur.

Summary: The provisions in the table above have a common theme of seeking to maintain and enhance the night sky and the ability to view it. This is generally intended to be achieved through the use of rules which limit the light temperature of external lighting, require shielding of lighting to prevent upwards light spill, place limitations on the timing of motion activated lighting, and a curfew on the use of some specified lighting.

The proposed Marlborough Environment Plan provisions provide limited policy direction in relation to lighting. The zone rules are simple with lux levels specified for the different zones and some provision for management of light spill on roads. The darkness of the night sky is addressed in a limited way in the coastal area only.

3.1 Issue(s) we are Seeking to Address

Issue 1: Excessive or poorly managed lighting can have adverse effects on the occupiers of neighbouring properties, traffic safety, natural character, human health, energy use and ecological function.

Outdoor lighting is generally essential for people's use of their buildings and properties. It can also help with public safety and way finding and provide improved levels of amenity. However, if this light is poorly managed or excessive it can impact on the occupiers of neighbouring properties through light spill travelling across property boundaries. Excessive lighting can also detract from the natural character of an area and can impact on ecological functions by disrupting natural behaviours of various invertebrate and vertebrate species (including humans).

Issue 2: Outdoor lighting can diminish the brightness and clarity of the night sky

Light spill and unnecessary or poorly managed/selected outdoor lighting can impact on the darkness of the night sky. This reduces the ability to view the stars and can impact on the natural rhythms of day and night. The night sky is important to Maori and is valued by many people as evidenced through the responses to public consultation.

A further issue related to light use was raised at the Council workshop on 14 April 2021. The issue was inefficient use of artificial lighting can result in increased electricity use and therefore increased carbon emissions depending on the source of the electricity. This 'energy use' issue has been added to Issue 1.

3.2 Why Change is Needed (or Not)

Tasman District Council has limited existing provisions relating to the management of light within the District. In all zones aside from the Mixed Business Zone, this is limited to a rule stating, '*Exterior lighting is directed away from adjacent residential properties and public places.*'

The only specific lighting policy is focussed on the rural and residential zones and seeks to limit light to that necessary for safety and security, including that of the public. Light is also picked up in general amenity policies.

These provisions are limited in the ability to manage lighting effects due to the lack of enforceable light spill levels and the lack of policy direction. There is no reference to the maintenance of the darkness of the night sky in the TRMP.

Tasman is also a growing region which, without some control, is likely to result in increasing levels of lighting, and associated light spill, as development occurs. Current levels of light pollution are generally confined to the existing urban centres where measurements show this does not meet dark sky requirements. The cumulative effect of excessive lighting is hard to manage retrospectively and a proactive approach to control lighting through the TEP review process will assist with preventing worse outcomes over time.

Change is therefore necessary to ensure the Tasman Environment Plan includes light provisions which provide measurable limits for light spill and potentially address maintenance of the darkness of the night sky. This should be supported with a specific objective and policy set related to these matters. This suggestion to change the lighting provisions will enable Issues 1 and 2 to be addressed.

3.3 Issue(s): Waahi-Specific or Whole of District?

Council must implement integrated management of natural resources. This will be supported by the ki uta ki tai guiding principle, where everything is connected – from the mountains to the sea. To achieve this, the TEP process will consider natural resource use, protection and enhancement spatially across Tasman in seven waahi (places). The waahi are based on groupings of catchments where there are communities with shared values and interests that are likely to affect natural resources in those catchments. Consideration of issues and options across all the resource management functions within each waahi will allow for identification of conflicts or overlaps between different issues, as well as synergistic options that provide for multiple outcomes sought within the waahi.

Waahi planning at its core is a means to:

- Coordinate management of interconnected elements/resources (natural, cultural, social, economic, physical).
- Take into account the impacts of management of one element/resource on the values of another, or the environment.
- Ensure resource management approaches across administrative boundaries are consistent and complementary.
- Ensure strategic outcomes are identified for each waahi, promoting healthy ecosystems and ecosystem services, and associated objectives, policies and methods that negate the risk of exceeding environmental bottom limits.
- Ensure principles of Te Tiriti O Waitangi are taken into account.

Table 3 below identifies if the issue occurs in a specific waahi or across the whole of the district.

Table 3: Planning Issues and Where they Occur

Planning Issue	Waahi 1 Waimea	Waahi 2 Moutere	Waahi 3 Motueka- Riwaka	Waahi 4 Abel Tasman- Kaiteretere	Waahi 5 Tākaka	Waahi 6 Aorere-West Coast	Waahi 7 Upper Buller
Issue 1 – Adverse effects of lighting on neighbouring properties, traffic safety, natural character, human health, energy use and ecological function.	Applies to all – with a focus in developed areas.						
Issue 2 – Effects on the night sky	Applies to all areas – with a focus on the protection of the darkness of the night sky.						

3.4 How Issue(s) relate to other Topics

Lighting is used in relation to many activities, both on land and water. It also appears in a wide variety of areas and for a variety of purposes. For these reasons, lighting has relevance to a number of other topics such as:

- Transport
- Natural Character
- Biodiversity
- Coastal Environment
- Settlements
- Urban
- Rural
- Reserves
- Landscapes
- Historic Heritage
- Temporary Activities

The light topic will consider the methodology for managing the adverse effects of lighting. The impact of lighting on the values relevant to the above topics will be considered in collaboration with the development of those topics.

3.5 How Issues(s) relate to Iwi Interests and Values

The TEP plays an important a role to support the expression of kaitiakitanga and rāngatiratanga. Iwi resource management priorities and leadership may be realised through provisions of the TEP. An innovative plan will support aspirations for managing ancestral whenua and taonga in the Tasman District and across Te Tau Ihu. To achieve Te Mana O Te Taiao, Te Mana O Te Wai and Te Mana O Te Tangata, this report has considered the following strategic outcomes:

- Respectful partnerships and governance structures supporting council and iwi collaboration, in the Tasman District and across Te Tau Ihu are established and strengthened.
- Te Tiriti O Waitangi principles and customary rights inform a resource management framework to support iwi resource management values and priorities within the TEP.
- Iwi connections and access to cultural landscapes, sites of significance and heritage are protected and restored.
- Economic and cultural development is enabled through access to and the use of cultural redress resources, Te Tiriti O Waitangi settlement land and taonga, including the coastal environment, in accordance with Settlement Acts and Statutory Acknowledgments.
- Environmental limits and targets are set to achieve meaningful cultural, environmental and economic outcomes, enhancing the mauri of Te Taiao.
- Integrated management is supported by a ki uta ki tai philosophy enabling the application of tikanga and Mātauranga Māori to TEP provisions.

As identified in section 2.2, lighting has some relationship with Te Mana O Te Taiao. This can also flow through to Te Mana O Te Wai and Te Mana O Te Tangata. While these relationships are not fundamental to the mana of the environment, water and people, poor control of lighting can still have a detrimental effect. This includes effects on the darkness of the night sky and on ecological functions. Both these matters are part of the environment and relevant to the concept of Te Mana O Te Taiao. Management of lighting therefore supports the achievement of the strategic outcomes above.

3.6 Statutory, Policy Context and Scope

Lighting is a matter that appears in a variety of regulations, guidelines and legislation. The items of particular relevance are set out in the table below.

Table 4: Key Statutory Requirements

Statutory Document / Section	Relevant matter / comment
Resource Management Act 1991	
RMA Sec 6 Matters of National Importance	<p>6 a) The values of the coastal environment, wetlands and lakes and rivers and their margins can be protected by the management of lighting.</p> <p>6 b) The values of outstanding natural features and landscapes can be protected by the management of lighting.</p> <p>6 e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga can be recognised through the management of lighting – in particular on the darkness of the night sky.</p> <p>6 f) The management of lighting in relation to historic sites and places can help protect these from inappropriate development.</p>
RMA Sec 7 Other matters	<p>7 c) The maintenance and enhancement of amenity values can be directly affected by lighting.</p> <p>7 d) The intrinsic values of ecosystems can be impacted by excessive artificial lighting.</p> <p>7 f) The maintenance and enhancement of the quality of the environment can also be relevant to light management.</p>
NZ Coastal Policy Statement 2010	
Objective 4	Preserving the natural character of the coastal environment and protect natural features and landscape values. This is relevant to lighting as inappropriate light management can impact on the values of natural areas.
Objective 6	Providing for and managing light can help people and communities to provide for their social, economic and cultural wellbeing and their health and safety in the coastal environment. Management of light in this context also recognises the various values of the coastal environment that require protection.

Statutory Document / Section	Relevant matter / comment
Policy 13	This policy seeks to preserve the natural character of the coastal environment and specifically recognises that the natural darkness of the night sky forms part of this natural character.
Policy 15	This policy relates to the protection of natural features and landscapes. The naturalness of these features and landscapes can be impacted by lighting at night-time.
Non-Statutory Standards and Guidelines	
AS/NZS 1158:2010 series Lighting for Roads and Public Spaces	This standard covers lighting schemes for roads and public spaces.
AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting	This standard is the key document which sets out guidance on the requirements for outdoor lighting other than outdoor public lighting which is addressed through the standard above. It specifically excludes lighting for aviation safety.
National Guidelines for Crime Prevention through Environmental Design	<p>Crime Prevention through Environmental Design (CPTED) is urban design with a focus on reducing the incidence and fear of crime as well as improving quality of life. The prime objectives are to:</p> <ul style="list-style-type: none"> • Reduce opportunities for crime, and • Increase perceptions of personal and community safety <p>Lighting has a role in achieving this by improving public safety through clear sightlines and good lighting.</p>
Tasman District Council Bylaws, Reserves Policy Documents and Land Development Manual	
TDC Reserves General Policies, Sept 2015	Policy document applying across all reserves and developed under the Reserves Act 1977. Section 6.6 Lighting states Council does not generally encourage the use of reserve after dark outside of organised events and that lighting on reserves will only be considered where there is a clear public benefit.
Nelson Tasman Land Development Manual 2019	The NTLDM 2019 includes requirements for street and public space lighting and includes the statement that the Councils' support the dark night sky concept.

3.7 Methods Considered

Consideration of options to address identified issues and achieve desired outcomes fall into six main categories that are within the functions of Council:

- Regulation (through the Tasman Environment Plan)
- Investigation and Monitoring
- Education, Advice and Advocacy
- Works and Services provided by Council
- Financial Assistance
- Community Partnerships

Other methods may also be undertaken by iwi, industry or community groups, which play an important role in achieving the outcomes sought in the Tasman District, however these aspects fall outside the scope of the options considered in this report, except indirectly where they may be supported by a Council function or service (for example financial subsidy or technical assistance for a community group project).

In the case of controls for light, this is mostly achieved through regulation but also includes the ability for non-regulatory education, advice and advocacy. In terms of infrastructure Council provides or requires street or park lighting through the NTLDM. Changes in this document can also assist with improving the management of light in the district.

3.8 Implementation Plans

Any regulation options identified will be implemented through the development of the TEP. Any other non-regulatory methods identified will be actioned through a separate Implementation Plan that is released for community feedback alongside the Draft TEP.

The intent of the Implementation Plan will be to outline and cost the non-regulatory methods for inclusion in other council processes including funding through the Long Term Plan process and implementation through the Activity Management Plans.

4 Issues in Relation to Light

Issue 1: Excessive or poorly managed lighting can have adverse effects on the occupiers of neighbouring properties, traffic safety, natural character, human health, energy use and ecological function

Issue 2: Outdoor lighting can diminish the brightness and clarity of the night sky

A further issue related to light use was raised at the Council workshop on 14 April 2021. The issue was inefficient use of artificial lighting can result in increased electricity use and therefore increased carbon emissions depending on the source of the electricity. This 'energy use' issue has been added to Issue 1.

4.1 Outcome(s) Sought

Outcome 1: Appropriate lighting is enabled to allow for the safe and efficient use of outdoor areas around buildings and other spaces.

Lighting is important for the safe and efficient use of many spaces at night-time. This needs to be recognised in any provisions so that required lighting is not unduly compromised. This outcome can help achieve the draft NBA provisions⁹ around the quality of the built environment.

Outcome 2: The actual and potential adverse effects of lighting on the occupiers of neighbouring properties, traffic safety, natural character, human health, energy use and ecological function are managed.

Excessive and poorly controlled lighting can create a number of adverse effects. This outcome is to indicate that these will be managed to appropriate and measurable levels. This outcome in particular can help achieve some of the draft NBA outcomes¹⁰. Of relevance are those around the quality of the natural and rural environments and including ecological function. The adverse effect of unnecessary electricity use can potentially be addressed through greater management of lighting.

Outcome 3: The darkness of the night sky is maintained and enhanced.

The darkness of the night sky is a concept that is being increasingly managed in Council planning documents. This is specifically identified as being part of the natural character of the coastal environment. This outcome seeks that this matter is recognised and provided for in Council planning document. This outcome can also help achieve some of the draft NBA outcomes as they relate to the quality of the natural environment and Tikanga Maori¹¹.

4.2 Scale and Significance

Table 5: Scale and significance table:

	Comments	Assessment
Degree of change from the Status Quo	The outcomes sought are a change in the status quo due to the limited current TRMP provisions, however the intent of managing the adverse effects of lighting remain consistent. The specific management of the darkness of the night sky would be an additional component.	Moderate
Effects on matters of national importance (s6 RMA)	There is a connection to recognising and providing for the identified matters of national significance however this is limited.	Low
Scale of effects – geographically (local, district wide, regional, national)	Light management by TDC and the effects of this are district wide matters in a geographical sense. However, artificial light is generally restricted to developed areas.	Low - Moderate

⁹ Draft NBA Section 9 ‘Implementation’ is relevant to measures to manage the built environment and also to include matters relevant to the enhancing the quality of both the natural and built environments

¹⁰ Draft NBA Section 8 ‘Outcomes’ are relevant to the natural and rural environment

¹¹ Draft NBA Section 8 ‘Outcomes’ are relevant to Tikanga Maori

	Comments	Assessment
Scale of effects on people (how many will be affected – single landowners, multiple landowners, neighbourhoods, the public generally, future generations)	The general public is affected by lighting management due to the usage of lighting in most developed areas. Individuals who wish to utilise outdoor lighting are also affected. The scale of effect is however limited as lighting (with some restrictions) would still be enabled.	Low - Moderate
Scale of effects on those with particular interests, e.g. Tangata Whenua	A variety of groups are expected to have an interest in lighting management. These are expected to include, iwi, residents' groups, industry, road controlling authorities, marine industry and users, and the dark sky committee. The scale of effect is however low assuming some management of lighting remains in place.	Low
Degree of policy risk – does it involve effects that have been considered implicitly or explicitly by higher order documents? Does it involve effects addressed by other standards/commonly accepted best practice?	Lighting is relevant to the aspects of the RMA and NZCPS set out in section 3.4. No substantial change has been identified in this space which would challenge those legislative and policy documents.	Low
Likelihood of increased costs or restrictions on individuals, businesses or communities	Any proposed change would not impact on existing lighting and therefore no cost in retrospective change. Lighting would still be enabled in new development just with potential controls on this. Therefore, there is expected to be little or no change in cost, but some change in possible restrictions.	Low - moderate

4.3 Option(s) to address Issues

The main option(s) to manage the 3 identified issues are summarised in Table 6:

Table 6: Options Identified

Option number	Option Name	Description of Option
Option 1	Status quo	Retain the current TRMP approach to light management – featuring simple policy and rule provisions effectively to limit lighting and rules to not direct lighting at adjacent residential properties, or to interfere with road users vision. Typically, non-compliance is a discretionary activity.
Option 2	Nelson City Council based approach ¹²	Develop specific set of objectives, policies and rules managing artificial outdoor lighting with specific controls relating to glare and light spill tailored by zone. Excludes streetlights and traffic signals, navigation lights, reflected light from structures, glare from vehicles and vessels and temporary lighting for emergencies or public safety.

¹² An approach consistent with the draft Nelson City Council Whakamahere Whakatu Nelson Plan has been provided due to the potential to increase consistency between the two local authority areas for portfolios that have a reasonable degree of consistency between the regions. This approach is based on the National Planning Standards 2019.

Option 3	Nelson City Council based approach – plus dark sky management	Develop a specific set of provisions as for option 2 but also introduce controls to maintain and enhance the darkness of the night sky (such as controlling upwards light spill, colour temperature and curfews/time limits on some lighting).
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Note that non-regulatory methods of education around the management of lighting can be used in addition to any of the options above. In particular this should be a feature to support any provisions added to maintain or enhance the darkness of the night sky.

In addition, the NTLDM is the current method Council uses to manage street and parks lighting. This is through Council’s own installation and upgrades and as a requirement for developers to adhere to when installing infrastructure. Provisions in the NTLDM relate to screening of lights to direct lighting downwards and other measures to limit light spill. It also states there is support for ‘the dark sky concept’ however it includes no provisions about the colour temperature of lighting¹³. Future reviews of the NTLDM could consider the inclusion of additional provisions around colour temperature to further support the dark sky concept. See Appendix 3 for explanation of colour temperature.

The options set out in Table 6 are assessed below.

4.3.1 Option Analysis

4.3.1.1 Current approach

Table 7: Current approach within the TRMP

<p>Policy Direction: The TRMP includes general objectives of maintaining and enhancing amenity values (including special visual and aesthetic character of localities).</p> <p>One policy specific to this topic seeks to limit lighting of rural and residential subdivisions and development, including on rural signs, to that necessary for safety and security, including public safety and security. Two other general amenity policies seek the management of the effects of lighting or glare.</p>
<p>Permitted Criteria - Lighting is permitted if it is not directed at adjacent property and the effect of reflective glare from surfaces is managed. Only one zone (Mixed Business) provides specified limits on the amount of light spill allowable over a boundary.</p>
<p>Activity Status: Varies between restricted discretionary and discretionary depending on the zone.</p>

This current approach is limited in its ability to manage lighting as no specific and measurable standards are provided (aside from the Mixed Business Zone). The policy direction is also not clearly achieved by the current rule suite.

¹³ Tasman District Council’s street lighting is generally 4000K.

4.3.1.2 Assessment of Strengths and Weaknesses of Options

Table 8: Strengths and Weakness of Options

	Strengths	Weakness
Option 1 - Status Quo	<ul style="list-style-type: none"> • Provides for limited management of lighting across the district. • Provides for lighting that meets requirements as a permitted activity. 	<ul style="list-style-type: none"> • No management of lighting in the Rural Zone despite the policy direction seeking this. • Does not clearly provide exemptions for some activities, such as street lighting. • Difficulty with compliance monitoring and enforcement due to lack of specified standards for light spill. • Provisions are not consistent with the NTLDM in relation to upwards light shielding and support for the dark sky concept. • Does not set a clear policy direction in relation to the management of lighting. • Requires updating for consistency with light management standards. • Does not clearly support the policy direction of the NZCPS and RMA.
Option 2 - Nelson City Council based approach	<ul style="list-style-type: none"> • Clear policy direction. • Permits lighting subject to controls. • Would create consistency between Councils. • Improves enforcement ability with clearer policy support. • Groups lighting rules in a common location with improved consistency across the district. • Enables updated standards for light spill to be introduced to the Plan. • Consistent with the National Planning Standards 2019. • More efficient use of lighting can reduce electricity use. 	<ul style="list-style-type: none"> • Setting out specific controls may attract additional interest from stakeholders. • Likely change in current lighting provisions to achieve consistency with NCC. • New area of regulatory actions and compliance monitoring for Council. • Does not address dark sky matters. • Does not support the policy direction of the NZCPS.
Option 3 - Nelson City Council based approach	<ul style="list-style-type: none"> • Provides specific controls to maintain and enhance the darkness of the night sky. 	<ul style="list-style-type: none"> • Higher level of control is likely to result in more compliance action and

	Strengths	Weakness
– plus dark sky management	<ul style="list-style-type: none"> • Supports management of dark sky matters as sought during public engagement. • Builds on Option 2 strengths above. • Can achieve improved outcomes with non-regulatory support. • Supports the policy direction of the NZCPS and RMA. • Avoids future more stringent actions if the quality of the night sky diminishes further without management. • More efficient use of lighting can reduce electricity use. 	<p>resource consent applications.</p> <ul style="list-style-type: none"> • Increased requirements in building consent checks to advise on outdoor lighting requirements. • Includes option 2 weaknesses above (excluding final 2 items).

4.3.2 Evaluation Summary per Option

Table 9 summarises the extent to which each option meets or achieves a number of key considerations.

Table 9: Evaluation of Options

Options possible listed below	RMA purpose	National Direction	TEP Principles	Efficiency at addressing issue(s)	Effectiveness at addressing issue(s)	Strengths	Weaknesses
Option 1	Moderate	Low	Low	Low	Low	Low	High
Option 2	High	Low	Moderate	Moderate	High	Moderate	Moderate
Option 3	High	High	Moderate	Moderate	High	High	Low

4.3.2.1 Relevance and Applicability

Lighting occurs throughout the district and within all Waahi with a focus in developed areas. While lighting is not a regionally significant issue in terms of the Regional Policy Statement, it is an issue of interest to a wide variety of people. Lighting can impact on the amenity and character of adjacent properties and any area it is located in. Light can have adverse effects on ecological function and the darkness of the night sky. Glare from lighting can also impact on traffic safety when it is near roads and paths. For these reasons, it is important that Council does manage lighting and it is within their ability to do this through resource management documents.

Due to the importance of achieving the desired outcomes Option 3 is recommended. This enables Council to develop provisions for managing the effects of artificial outdoor lighting using modern guidelines and also incorporate provisions which seek to maintain and enhance the darkness of the night sky. Importantly it also ensures consistency with Nelson City Council. This will allow Council to carry out its resource management functions in relation to managing lighting in an improved manner to the status quo.

4.3.3 Scenario Examples and Comparison

4.3.3.1 Existing Regime

Application of existing provisions (status quo) does not provide satisfactory outcomes in terms of lighting management. The rules are overly simple and do not allow enforcement to be effectively undertaken. The examples below set out some outcomes that could eventuate under the three key options assessed.

4.3.3.2 Option 1 – Status Quo

Continued reliance on the current provisions will result in no change. Lighting will continue to be installed in positions which may impact on neighbouring properties and which may produce unnecessary and unwanted sky glow. The darkness of the night sky may be taken for granted and gradually reduce resulting in a greater problem in the future.

It should be noted that there are a limited number of light complaints, however, those that are received are sometimes hard to resolve. It is anticipated that the use of lighting will increase as further greenfield areas are developed, development becomes denser, and outdoor lighting becomes more common place for security and aesthetics.

4.3.3.3 Option 2 Nelson City Council based approach

This approach provides specific light spill levels that apply at property boundaries. These levels vary depending on the zone concerned. This option would typically be implemented through adherence to Plan standards, consent conditions, and through compliance monitoring when situations are brought to Council's attention. A light meter can then be utilised to determine the lux level over the boundary and whether this meets the permitted standards. The measurement of light is guided by the standard AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting.

In cases where a proposal appears to involve a more significant light source than expected compliance with the standards may be sought as part of the resource consent, or PIM check process. An example may be a petrol station forecourt that operates 24 / 7.

The scenario for applying these provisions is similar to how noise is currently managed.

4.3.3.4 Option 3 - Nelson City Council based approach – plus dark sky management

This option includes the same approach as outlined for Option 2 above but would also include provisions to manage lighting effects on the darkness of the night sky. Other Councils which have provisions for this purpose typically restrict the colour temperature, upwards light spill screening and curfews / duration of some lighting.

An approach to applying these provisions similar to that of MacKenzie District Council is suggested. This involves a non-regulatory approach of educating people on the requirements to meet the lighting standards. Typically, an information sheet is sent to applicants as part of the PIM check during the building consent process. A note is also placed on the PIM check documentation. This removes the need for an applicant to demonstrate 'upfront' that all their exterior lighting meets the requirements. This is a presumption of compliance with information provided on what the requirements are. If a proposal appears to have, or require, a significant amount of lighting then compliance may need to be demonstrated as part of the resource consent or building consent process.

Again, this is similar to noise where compliance is generally assumed unless the activity is inherently noisy. If non-compliance is questioned or brought to Council's attention once constructed, then compliance monitoring can occur.

4.4 Draft Recommended Option

4.4.1 Draft Recommended Option

The option of developing provisions consistent with Nelson City Council is recommended but to also include provisions that manage the light effects on the darkness of the night sky (Option 3). This would involve the following key actions:

- Improving the objective and policy position in relation to artificial exterior lighting, including specific reference to management of the darkness of the night sky.
- Providing a rule suite that includes specific lux limits at property boundaries which vary between zones depending on the level of amenity sought.
- Providing a specific rule suite that manages lighting effects on the darkness of the night sky.
- Developing non-regulatory supporting information so people understand the requirements and what types of lighting is suitable.

4.4.2 Assessment and Reasons

Option 3 is recommended for the management of artificial exterior lighting within the Tasman District. This approach updates Tasman’s approach to lighting management through the addition of specified lux levels for light spill at a property boundary. This is efficient and effective as it provides a measurable standard that removes any subjective assessment of whether there is an effect. This approach is also consistent with the proposed Nelson City Council provisions.

The addition of provisions relating to maintaining and enhancing the darkness of the night sky (managing sky glow) fills a gap in the current planning documents and is consistent with an increasing number of Councils around New Zealand which are also taking this approach.

This approach does effectively add another set of provisions to Tasman’s planning documents which will require consideration and potentially enforcement. This is considered an acceptable consequence of providing a more effective resource management approach to an environmental effect that is not currently well managed in the district. This approach will also require the use of specific exterior lighting styles and products which will reduce the selection available. However, there is still a wide variety of available and suitable lighting which is little or no different in price to what has been considered standard lighting.

5 Summary

Table 10: Summary of Issues and Options

Issue	Recommended Option	Outcome Sought	Assumptions, Uncertainties, Further work, Information Gaps
Issue 1 – General adverse effects from some lighting	Option 3 - Nelson City Council based approach – plus dark sky management	Lighting is enabled where appropriate for the efficient and safe use of outdoor areas.	Assumption: Support for the dark sky actions remains in line with that already received.
Issue 2 – Lighting effects on the darkness of the night sky		Adverse effects on neighbouring properties, traffic safety, natural	Further work is required to develop appropriate lux levels, including with the intent of being

		<p>character and ecological function are managed.</p> <p>The darkness of the night sky is maintained and enhanced.</p>	<p>consistent with the Nelson Plan.</p> <p>Further work is required to develop night sky related provisions and understand the current state of the night sky.</p> <p>To date feedback from the commercial sector on lighting has not been sought or received.</p>
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Outdoor lighting and the effects of this is of interest to many people and for a variety of reasons. Outdoor lighting is necessary for the safe and efficient use of outdoor areas. This may be in public spaces, commercial yards or around housing. Due to the positive effects of lighting its use needs to be enabled. There are however several potential adverse effects which result from too much light spilling into areas where it is not required. This could be a neighbouring property, or simply into the night sky.

The Tasman District Council planning documents currently include limited provisions for the accurate and enforceable management of light.

In acknowledging the matters above, it is desirable to provide for exterior lighting but in a managed way. This will require the addition of lighting specific provisions to the Tasman Environment Plan as these are generally lacking from the TRMP. This paper therefore suggests that lighting remains a matter that Council actively manages through its resource management planning documents and other regulations, strategies and bylaws as appropriate. The opportunity to achieve consistency with Nelson City Council is also able to be achieved through this option.

6 Appendix 1 - References

Reference	Detail
MfE 2020	Ministry for the Environment. 2020. National Policy Statement for Freshwater Management. Source: https://www.mfe.govt.nz/publications/fresh-water/national-policy-statement-freshwater-management-2020
MfE 2019	Ministry for the Environment. Nov 2019. National Planning Standards. Source: https://www.mfe.govt.nz/sites/default/files/media/RMA/national-planning-standards-november-2019.pdf
MfE 2021	Ministry for the Environment. Feb 2021 Cabinet paper – Reforming the resource management system. Source https://www.mfe.govt.nz/more/briefings-cabinet-papers-and-related-material-search/cabinet-papers/reforming
NZ Government 1991	New Zealand Government 1991, Resource Management Act, Wellington NZ.
NZ Government 2010	New Zealand Government / Department of Conservation 2010. New Zealand Coastal Policy Statement 2010, Wellington NZ.
Nelson City Council 2020	Nelson City Council 2020 draft Nelson Plan Documents. Source: https://shape.nelson.govt.nz/nelson-plan/draft-nelson-plan-documents
TDC 2020	Tasman District Council. Sept 2020. Tasman Resource Management Plan Efficiency and Effectiveness Evaluation, Chapter 5: Site Amenity Effects. Source https://tasman.govt.nz/my-council/projects/tasman-environment-plan/
TDC / NCC 2019	Tasman District Council and Nelson City Council 2019. Land Development Manual. https://www.tasman.govt.nz/my-council/key-documents/more/growth/land-development-manual/
Thompson Reuters	Thompson Reuters Westlaw NZ Environmental Handbook 'Lighting and its effect on the environment' Source: Council subscription service

7 Appendix 2 – Draft Natural and Built Environment Act Outcomes

Outcomes

1. To assist in achieving the purpose of this Act, those exercising functions and powers under it must provide for the following outcomes:

Natural environment

- a. enhancement of features and characteristics that contribute to the quality of the natural environment;
- b. protection and enhancement of:
 - i. nationally or regionally significant features of the natural character of the coastal environment (including the coastal marine area), wetlands, lakes, rivers and their margins;
 - ii. outstanding natural features and outstanding natural landscapes;
 - iii. areas of significant indigenous vegetation and significant habitats of indigenous fauna;
- c. enhancement and restoration of ecosystems to a healthy functioning state;
- d. maintenance of indigenous biological diversity and restoration of viable populations of indigenous species;
- e. maintenance and enhancement of public access to and along the coastal marine area, wetlands, lakes, rivers and their margins;

Built environment

- f. sufficient development capacity for housing and business to respond to demand and provide for urban growth and change;
- g. housing supply and choice to meet diverse and changing needs of people and communities;
- h. strategic integration of infrastructure with land use;

Tikanga Māori

- i. protection and restoration of the relationship of iwi, hapū and whanau and their tikanga and traditions with their ancestral lands, cultural landscapes, water and sites;
- j. protection of wāhi tapu and protection and restoration of other taonga;
- k. recognition of protected customary rights;

Rural

- l. sustainable use and development of the natural and built environment in rural areas;
- m. protection of highly productive soils;
- n. capacity to accommodate land use change in response to social, economic and environmental conditions;

Historic heritage

- o. protection of significant historic heritage;

Natural hazards and climate change

- p. reduction of risks from natural hazards;
- q. improved resilience to the effects of climate change including through adaptation;
- r. reduction of greenhouse gas emissions;
- s. promotion of activities that mitigate emissions or sequester carbon; and
- t. increased use of renewable energy.

2. When providing for the outcomes in (1) local authorities must provide for the applicable regional spatial strategies prepared under the Strategic Planning Act **202X**

Biophysical limits

1. Biophysical limits are the minimum standards prescribed through the National Planning Framework by the responsible Minister to achieve the purpose of this Act
2. Biophysical limits –
 - a. must provide a margin of safety above the conditions in which significant and irreversible damage may occur to the natural environment;
 - b. must be prescribed for, but are not limited to:
 - i. the quality, level and flow of fresh water:
 - ii. the quality of coastal water:
 - iii. the quality of air:
 - iv. the quality of soil:
 - v. the quality and extent of terrestrial and aquatic habitats for indigenous species:
 - c. may be quantitative or qualitative.
3. Local authorities are not precluded from setting standards that are more stringent than those prescribed by the Minister.

8 Appendix 3 – Dark Skies Information

Introduction

The Top of the South Dark Sky Committee has recently established the Wai-iti Recreation Reserve as an International Dark Sky Park. This has followed the establishment of international dark sky reserve 'Aoraki Mackenzie', and two international Dark Sky Sanctuaries at Stewart Island / Rakiura and Aotea / Great Barrier Island. The Councils in these areas have all included provisions in their plans for dark sky protection. More recently South Wairarapa District Council has notified a plan change to introduce plan provisions to protect the darkness of the night skies.

This is a matter that is increasingly being recognised as a resource management issue which requires response by individual Councils. This is supported at a general level in Section 6 and 7 of the RMA, and directly through Policy 13 of the NZCPS.

International Dark Sky Reserves

The Top of the South Dark Sky Committee has presented to Council previously on their vision of creating a dark sky reserve across the Tasman District. The establishment of a reserve is not a responsibility of Council and the suggested exploration of dark sky provisions in the TEP process is driven by the need to protect this resource, rather than to enable the creation of a reserve. However, the provisions, and Council support, are a fundamental part of enabling a dark sky reserve to be created in the future.

As set out on the website www.darksky.org, an international dark sky reserve is an area of public or private land possessing an exceptional or distinguished quality of starry nights and nocturnal environment that is specifically protected for scientific, natural, educational, cultural, heritage, and/or public enjoyment. Reserves consist of a core area meeting minimum criteria for sky quality and natural darkness, and a peripheral area that supports dark sky preservation in the core. Reserves are formed through a partnership of multiple land managers who have recognised the value of the natural night time environment through regulations and long-term planning.

An important part of creating and certifying a Dark Sky Reserve is that there is support from a 'government or regulatory agency' *'with the perspective that dark skies are an important scientific, natural, cultural, and/or scenic resource value as shown by the inclusion of appropriate language in official documents for long term planning.'* Resource Management Plans are given as an example of a document that might include these requirements.

Potential Provisions Relating to Dark Sky Protection

The International Dark-Sky Association has a website setting out preferred approaches to exterior lighting. The basic premise is light should:

- Only be on when needed,
- Only light the area that needs it,
- Be no brighter than necessary,
- Minimise blue light emissions, and
- Be fully shielded (pointing downwards).

In response to this philosophy some Councils have developed common provisions which manage the effect of lighting on the darkness of the night sky. These are explained further below:

- 1) Restrictions on the colour temperature of light: Light colour temperature is measured in Kelvin. Cooler white light has a higher kelvin value and contains more light in the blue spectrum. Light in this spectrum scatters more readily and has a greater adverse effect on the darkness of the night sky than light in the warmer spectrum¹⁴. Figure 1 is a diagram visually demonstrating the difference. Lighting of 3000K is preferred for it has less impact on the darkness of the night sky.

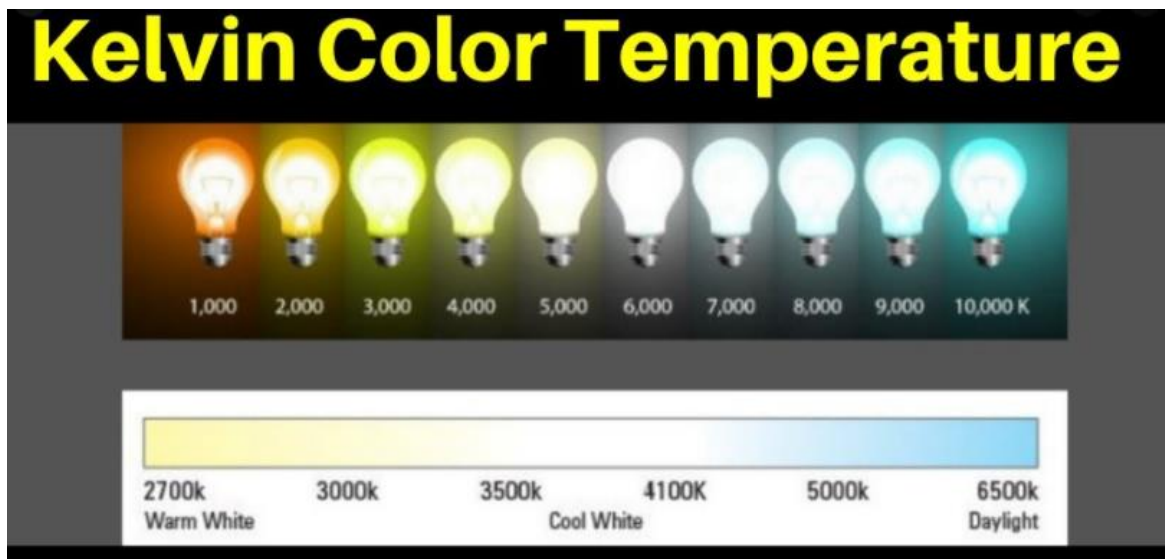


Figure 1: Differences in lighting as shown on the Kelvin scale. Source: youtube

- 2) Shielding of light sources: Public lighting such as streetlights already have a requirement to be directed downwards and to have no upwards light spill through the NTLDM. A similar approach is taken by other authorities in relation to new exterior lighting on private properties. Exemptions can be made for lights with low intensity.
- 3) Duration of illumination: Lighting can generally be exempt from the requirements above if they are controlled by motion-activated switches limiting the duration of illumination to less than 5mins.

The South Wairarapa Plan Change for Dark Skies provisions included supporting documentation exploring the availability of light fittings which met these general criteria. This found a number of suitable light fittings available from mainstream retailers which would meet the criteria above.

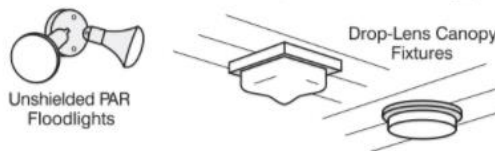
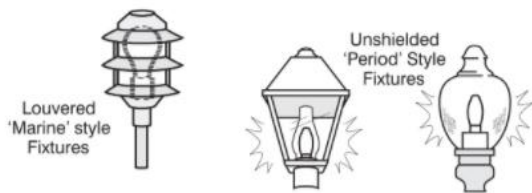
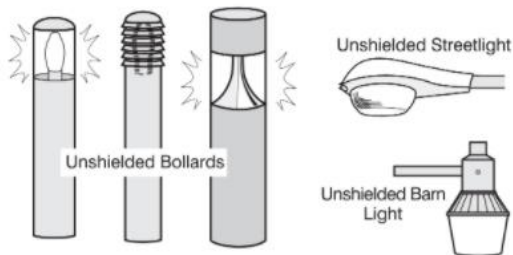
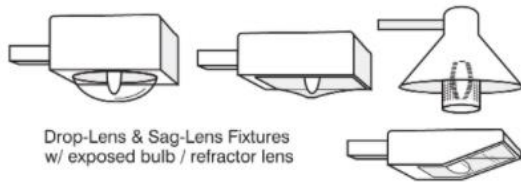
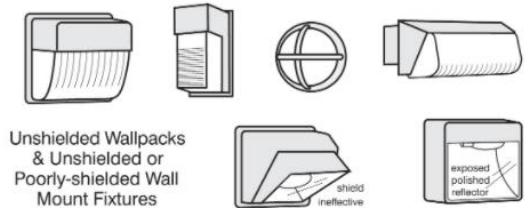
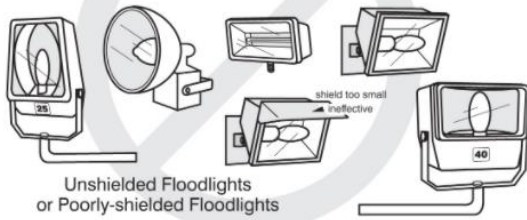
The image below is from darksky.org and demonstrates fittings that meet the shielding requirements and those that do not.

¹⁴ Darksky.org – lighting basics

Examples of Acceptable / Unacceptable Lighting Fixtures

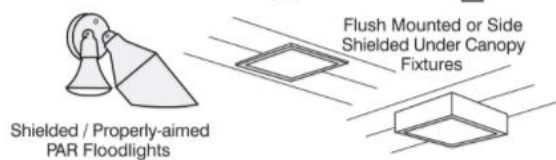
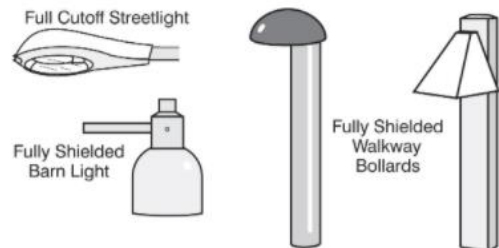
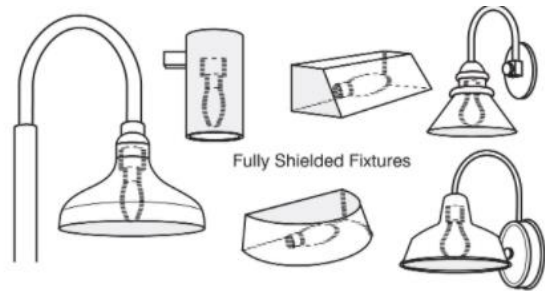
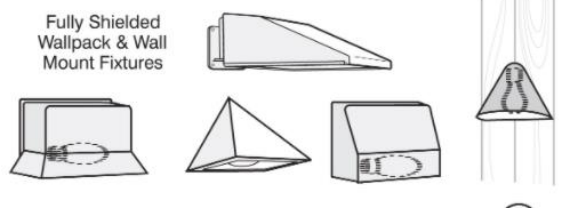
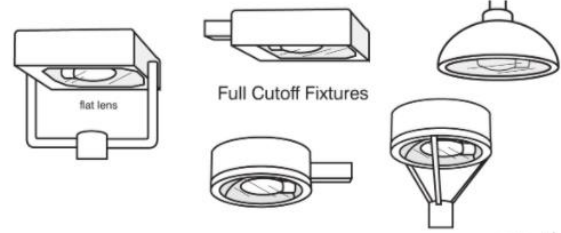
Unacceptable / Discouraged

Fixtures that produce glare and light trespass



Acceptable

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



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