

Section 32 Evaluation

WAIRARAPA INTERNATIONAL DARK SKY RESERVE – OUTDOOR ARTIFICIAL LIGHTING PROPOSED PLAN CHANGE

Prepared for South Wairarapa District Council, Carterton District Council and Masterton District Council

28 September 2020



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1 Introduction

This report has been prepared by Perception Planning Ltd on behalf of South Wairarapa District Council, Carterton District Council and Masterton District Council.

The report provides a summary of the evaluation undertaken in accordance with Section 32 of the Resource Management Act 1991 in relation to this proposed plan change to the operative Wairarapa Combined District Plan. This report should be read in conjunction with the proposed amendments to the District Plan, which are included in Appendix A of this report.

1.1 List of Abbreviations

The Councils	South Wairarapa District Council, Carterton District Council and Masterton District Council
PPC or Plan Change	Proposed plan change
RMA or the Act	Resource Management Act 1991
WCDP or the Plan	Wairarapa Combined District Plan
IDA	International Dark Sky Association
WDSA	Wairarapa Dark Sky Association

The following abbreviations have been used in this report:

2 The Purpose of the Wairarapa Dark Sky Reserve Plan Change

South Wairarapa District Council, along with Carterton and Masterton District Councils, are supporting an application by the Wairarapa Dark Sky Association (WDSA) for the Wairarapa to be certified as an International Dark Sky Reserve by the International Dark Sky Association (IDA).

Dark Sky Reserve certification could bring a number of positive benefits to the Wairarapa region including tourism (in particular winter tourism), cultural, environmental and educational benefits.

Light pollution is the biggest threat to gaining certification. To qualify as a dark sky reserve, light pollution within the region must be managed.

The key criteria for achieving dark sky reserve status is that local authorities need to manage activities that need outdoor lighting. Outdoor lighting that isn't managed can cause light pollution that would undermine the dark sky qualities of the area.

This Plan change offers the opportunity to undertake a focused review of the WCDP lighting provisions and ensure that they:

- Enable international dark sky reserve certification to be obtained.
- Ensure that light pollution that effects the brightness and clarity of the night sky within the districts is minimised.

A review of the operative WCDP reveals that the provisions that control light emissions within the district do not specifically address light pollution that adversely effects the brightness and clarity of the night sky. The operative provisions also fail to meet the IDA requirements for dark sky reserve accreditation.

The priority, in terms of the international dark sky reserve certification process, is to ensure that light emissions/pollution from new development within the proposed dark sky reserve area can be controlled.

The purpose of the proposed plan change is therefore to review the Plan's issues, objectives, policies, rules, methods and assessment criteria to:

- 1. Manage new lighting within the districts to minimise adverse effects from light pollution to protect the brightness and clarity of the night sky.
- 2. Manage new lighting to ensure that the requirements for obtaining international dark sky reserve status can be met.
- 3. Clearly signal to the community that the clarity and brightness of the night sky are important features of the Wairarapa and should be protected.
- 4. Allow for outdoor artificial lighting when the type and characteristics of lighting used will not have adverse effects on the brightness and clarity of the night sky.
- 5. Ensure that Plan provisions are sufficiently clear and direct, to assist decisionmakers assessing and determining applications for lighting.
- 6. Ensure provisions clearly articulate Council's expectations in relation to lighting.

The proposed changes will:

- Provide more specificity in terms of standards for the installation of lighting.
- Ensure that lighting that meets the prescribed standards is provided for 'as of right'.
- Ensure that lighting that does not comply with the standards requires an assessment of effects, including effects on the on the brightness and clarity of the night sky.

• Provide clear objectives, polices and assessment criteria for assessment when lighting does not meet the permitted activity standards and would require resource consent.

The WDSA intends to apply for an international dark sky reserve over the South Wairarapa and Carterton districts. For this reason, we intended that the provisions proposed as part of this plan change will only apply to the South Wairarapa and Carterton districts. This area is to be identified within the Plan as the 'Dark Sky Management Area'.

The provisions proposed by this plan change will only apply to <u>new</u> lighting that is erected within the proposed Dark Sky Management Area¹ once this plan change becomes operative. These provisions will <u>not</u> apply retrospectively to existing and established lighting. If lighting is replaced however the new provisions proposed in this plan change will apply.

This plan change has not reviewed the effectiveness and efficiency of the current WCDP lighting provisions to provide adequate protection of residential amenity. The scope is limited to ensuring:

- International dark sky reserve certification can be gained
- Light pollution is minimised to protect the brightness and clarity of the night sky.

A full review of the operative WCDP, including the lighting provisions that relate to effects on amenity, is scheduled to be undertaken within the next three years.

This plan change has been prepared with input from suitably qualified lighting engineers from Stephenson and Turner Lighting (S&T Lighting), Wellington. S&T Lighting have prepared an expert report to accompany this plan change attached as Appendix C.

3 What is a Dark Sky Reserve?

3.1 International Dark Sky Reserves

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, and those qualities are specifically protected for cultural, natural, educational, scientific or public purposes².

The IDA set up the International Dark Sky Places Program in 2001 to encourage communities, parks and protected areas around the world to preserve and protect dark sites through responsible lighting polices and public education.

¹ It is proposed to identify the area where the provisions of the Plan change will apply as the 'Dark Sky Management Area'. This area reflects the area of the proposed Wairarapa International Dark Sky reserve. At this time the reserve is not officially accredited by the IDA, it therefore is not appropriate to call the area the (*cont.*) Wairarapa International Dark Sky reserve within the Plan change, until formal accreditation has been achieved.

² https://www.darksky.org

There are 16 Dark Sky Reserves across the world with three in the southern hemisphere. There is currently only one dark sky reserve in New Zealand, located within the Mackenzie Valley, Aoraki. There are also two dark sky Sanctuaries within New Zealand, being Stewart Island and Great Barrier Island³.

Dark sky reserves are not selected by the IDA but are nominated by a group and/or individuals from the community.

In order to be considered for a dark sky reserve the area of land must be at least 700km² and consist of:

- A "core" area which meets minimum requirements for quality of sky and darkness; and
- A "buffer" area which supports the core area's dark sky values and receives similar benefits⁴.
- The core and buffer areas collectively make up the "reserve".⁵

Requirements for the quality of sky and darkness within the reserve include:

- Ability to see the Milky Way galaxy with the naked eye
- No artificial light sources within the vicinity that create significant glare⁶.

3.2 Dark Sky Reserve Accreditation

The goals of dark sky certification areas include⁷:

- To identify and honour public or private lands and their surrounding communities for exceptional commitment to and success in implementing the ideals of dark sky preservation
- To promote eco and astro-tourism
- To promote protection of nocturnal habitats, public enjoyment of the night sky and its heritage, and/or areas ideal for professional and/or amateur astronomy

³ A sanctuary differs from a Dark Sky Reserve in that it is typically situated in a very remote location with few (if any) nearby threats to the quality of its dark night skies.

⁴ https://www.darksky.org/our-work/conservation/idsp/become-a-dark-sky-place/

 $^{^{\}rm 5}$ IDA – International Dark Sky Reserve Program Guidelines – June 2018 pg 3

⁶ DSA - International Dark Sky Reserve Program Guidelines - June 2018 pg 8

 $^{^7}$ DSA – International Dark Sky Reserve Program Guidelines – June 2018 pg 3

- To encourage land administrators, surrounding communities and private interests to identify dark skies as a valuable resource in need of proactive protection
- To provide international recognition for such sites
- To encourage other locations to become environmental leaders on dark sky issues by communicating the importance of dark skies and by providing an example of what is possible with proper stewardship.

The IDA has a set of guidelines⁸ (attached as Appendix D) that must be achieved before dark sky reserve certification can be granted. These guidelines include requirements for:

- A Lighting Management Plan (LMP) to ensure that a sufficient number of communities (80% of the population and 80% of the designated area of protection (core and buffer)) within the reserve area comply with the minimum lighting standards in the Lighting Management Plan Guidelines. The Lighting Management Plan Guidelines outline minimum light shielding, light levels and timing, and guidance for illuminated signs. The regulations in the LMP must apply to all private and public landowners within the area of protection. Some exceptions may apply but are individually subject to IDA approval.
- A program, either through education, economic incentives, permitting or regulation, to encourage all new outdoor lighting fixtures to conform to the relevant regulation or guidelines for night sky friendly lighting.
- Acknowledgement of the protected area by government or regulatory agencies.
 For example, the Councils demonstrating that dark skies are an important scientific, natural, cultural, and/or scenic resource, as shown by the inclusion of appropriate language in official documents for long term planning.

The minimum lighting management provisions that the IDA requires/recommends are based on 'Five Principles for Responsible Outdoor Lighting' (Figure 1).

⁸ International Dark Sky Reserve Program Guidelines June 2018 https://www.darksky.org



Figure 1- International Dark Sky Association - Five principles for responsible outdoor lighting.

The IDA principles in Figure 1 guide the selection, placement, installation and operation of all new and replacement/retrofitted lights in any dark sky reserve. The IDA preference is that outdoor light at night should only be used strictly where it is needed and in the appropriate amount for a specific task. The purpose of outdoor light should be specifically to ensure public safety.

The Councils therefore have an important role in assisting the WDSA to achieve dark sky reserve certification for the Wairarapa.

3.3 Wairarapa Dark Sky Reserve

The low light pollution levels in Wairarapa make it one of the best, most easily accessible places in the world to view the night sky. This quality has been recognised by the WDSA, which has applied to the IDA for a large portion of Wairarapa, (the South Wairarapa and Carterton Districts) to be formally recognised as an international dark sky reserve.

The International Dark Sky Reserve status would enable the Wairarapa to be actively marketed to domestic and international visitors looking to experience the night sky. The District Councils have recognised the significant potential benefits associated with the dark sky reserve (detailed in section 4).

The 'core' of the proposed Dark Sky Reserve is the Aorangi Forest Park and its surrounds. The WDSA intends to initially obtain certification for the 'core' with a 'buffer area' comprising the South Wairarapa District and the Carterton Districts. The area of the dark sky reserve would later be expanded to include the Masterton District.



Figure 2 - Proposed International Dark Sky Reserve - Source: Jarvis McDonald Group

The 'core' of the proposed Wairarapa Dark Sky Reserve is located in the Aorangi Forest Park, which is managed by the Department of Conservation (DOC). The IDA guidelines have additional, more restrictive requirements that must be achieved for lighting in the 'core' area. The Council and WDSA intend to enter into a memorandum of understanding (MOU) with DOC to manage the IDA's 'core' lighting requirements, instead of requiring specific provisions within the WCDP which only apply to the Aorangi Forest Park area.

4 Benefits to the Wairarapa of being a Dark Sky Reserve

4.1 Economic Growth and Tourism

International dark sky reserve certification could substantially boost tourism in the Wairarapa region, particularly during the quieter winter months.

Wairarapa is a well-established summer tourist destination for wineries and cuisine. Tourist spending in Wairarapa during the 2018/19 summer averaged at 23 million dollars, while spending for the 2019 winter was 12 million. These statistics are almost identical to Aoraki before it became an internationally recognised dark sky reserve. Once Aoraki became an accredited and established dark sky reserve, winter tourism spending increased 41.8% (2010 vs 2019).⁹

Additionally, certification would benefit the existing dark sky tourism companies in Wairarapa (Starfield and Under the Stars) and provide an opportunity for other companies to establish. Stargazing must take place at night, which means that visitors also need accommodation and are likely to experience other tourist activities during the day.

In 2019 the WDSA commissioned Jarvis McDonald Group (JMG) to do an economic study to identify and assess the potential economic opportunities arising from a Dark Sky Reserve in the Wairarapa¹⁰.

Based on conservative assumptions, the JMG report found that with dark sky reserve certification the Wairarapa could expect:

- Up to 280,000 more guest nights over the 10 years
- An additional \$190 million tourist dollars spent over that period
- Over 115 extra jobs in direct tourism employment after 10 years.¹¹

The JMG report was prepared prior to the recent 2020 Covid-19 pandemic. At this time, it is not possible to accurately estimate the impact that the pandemic may have on international tourism to New Zealand and the Wairarapa in the coming years, or how it will influence the anticipated economic and employment benefits of dark sky reserve certification identified in the report.

4.2 Cultural

Māori ancestors highly valued the night sky and possessed great astronomical knowledge of their surrounding environment. Tātai Arorangi or astronomy was interwoven throughout

⁹ https://www.mbie.govt.nz/immigration-and-tourism/tourism-research-and-data/tourism-data-releases/monthly-regional-tourism-estimates/latest-update/monthly-tourism-spend-grouped-by-rto-and-product-category/

¹⁰ Jarvis McDonald Group - Wairarapa Dark Sky Reserve Internation Certification - Economic Study, 31 January 2020

¹¹ Jarvis McDonald Group - Wairarapa Dark Sky Reserve Internation Certification - Economic Study, 31 January 2020

Māori way of life and tohunga kōkorangi or master astronomers would observe the movements and positions of the stars, planets, comets and meteors. They passed this knowledge on through oral traditions like waiata, whakataukī, karakia and more.

Their knowledge of the night sky was localised - the stars and planets were indicators of seasonal change, spawning of migrational species and other environmental factors.

The ability to view the night sky is integral to Māori in:

- Whakatere waka (navigation)
- Matariki (pleiades)
- Māramataka (Māori Lunar calendar)
- Death

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

4.3 Heritage

For all of human history (until recently) our ancestors experienced a sky brimming with stars – a night sky that inspired science, religion, philosophy, art and literature. The natural night sky is our common and universal heritage, yet it's rapidly becoming unknown to the newest generations. Experiencing the night sky provides perspective, inspiration, and leads us to reflect on our humanity and place in the universe¹².

Carkeek Observatory in Featherston has recently been included within the New Zealand heritage List/Rārangi Kōrero as a Category 1 historic place. Built in about 1867 on a farm south of Featherston, the Carkeek Observatory possesses outstanding historical significance as Aotearoa/New Zealand's earliest surviving astronomical observatory¹³.

4.4 Environmental

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

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

¹² https://www.darksky.org/light-pollution/night-sky-heritage/

¹³ New Zealand Heritage List/Rārangi Kōrero - Report for a Historic Place - Carkeek Observatory, Featherston (List No. 9809, Category 1)

Scientific evidence suggests that artificial light at night has negative and deadly effects on many creatures including amphibians, birds, mammals, insects and plants¹⁴.

4.5 Social

4.5.1 Education

A dark sky reserve in Wairarapa will provide a rare opportunity to educate tourists and locals of all ages about astronomy. Currently, people in 80% of the world cannot see the stars and live below light polluted skies¹⁵, a number that is increasing as development and populations increase. The dark sky reserve is an opportunity to safeguard the night sky and educate people about historic uses for stars.

Local universities and schools will be able to use the proposed dark sky reserve to support astrological related courses and the science curriculum.

4.5.2 Health

Darkness at night-time is essential to human health. Humans have a sleep-wake pattern governed by the day-night cycle, and artificial light at night can disrupt that cycle. Our bodies produce the hormone melatonin in response to circadian rhythm (our 24-hour cycle), which helps to keep us healthy. Melatonin has antioxidant properties, induces sleep, boosts the immune system, lowers cholesterol, and helps the functioning of the thyroid, pancreas, ovaries, testes and adrenal glands. Night-time exposure to artificial light, particularly blue light, suppresses melatonin production¹⁶. Blue light is the main culprit, and therefore a move to warmer light (3000K and lower) will reduce the magnitude of effects on our bodies. For those who are aware and concerned about night-time blue light exposure, the positive effect of the plan change provisions is more important than just the dark sky.

Ensuring that light pollution is minimised and that the sky is as dark as possible will be good for human health.

¹⁴ https://www.darksky.org/light-pollution/wildlife/

¹⁵ Falchi. F., *et al* (2016) The new world atlas of artificial night sky brightness, Science Advances **2** (6)

¹⁶ https://www.darksky.org/light-pollution/human-health/

5 Light Pollution

Outdoor artificial lighting helps people find their way, identify/advertise specific locations, and give us a feeling of safety at night. Our increasing demand for light, however, can result in light pollution. This not only obscures our views of the night sky, it can also have consequences for our health and well-being, cause nuisance or annoyance, and adversely affect ecological systems.

A lot of outdoor lighting used at night is inefficient, overly bright, poorly targeted, improperly shielded, and in many cases unnecessary. This light, and the electricity used to create it, is being wasted by spilling it into the sky rather than focusing it on the actual objects and areas that people want illuminated¹⁷.

Light pollution is made up of a number of components:

- Light spill
- Glare
- Skyglow

5.1 Light Spill and Glare

Spill light is light that flows beyond property boundaries (Figure 3). Glare is light that hinders or bothers the human eye (Figure 4).

Figure 3 - Illustration of Light Spill - Source: Stephenson Turner



Illuminance on vertical plane.



Intensity towards the observer: this concerns the luminous intensity emitted by the luminaire in the direction of the observer. Figure 4 - Illustration of Glare - Source: Stephenson Turner

¹⁷ https://www.darksky.org/light-pollution/

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

Light spill and glare don't affect our ability to view the night sky very much. For this reason, we have not reviewed the provisions of the WCDP that manage light spill and glare, and the effects of this light on amenity. Those provisions will be reviewed when the Council undertakes its full Plan review in a few years. We note, however, that methods to manage skyglow (discussed below) will also provide a level of mitigation of light spill and glare effects on amenity.

5.2 Skyglow

Skyglow, or the brightening of the night sky, is the primary effect that must be minimised to provide optimum night sky viewing. Due to skyglow, the night sky over many of our urban environments can be brighter than a natural, starlit sky. This skyglow hides the stars from our sight and prevents us from experiencing a natural night, even in areas at a distance from urban development¹⁸.

Skyglow has two separate components:

- a) **Natural skyglow** is that part of the skyglow that is attributable to radiation from celestial sources and luminescent processes in Earth's upper atmosphere.
- b) Artificial skyglow is that part of skyglow attributed to man-made sources of radiation (e.g. outdoor lighting), including light radiation that is emitted above the horizontal plane and light radiation that is reflected from the surface of the earth.¹⁹



Figure 5 - Illustration of Skyglow Source: Stephenson Turner

Skyglow is caused both by reflected and direct light from installations, so restricting lighting to the minimum illumination necessary will mitigate the effects of skyglow.

¹⁸ https://www.darksky.org/light-pollution/measuring-light-pollution/

¹⁹ S&T lighting – Report on Wairarapa Combined District Plan Lighting Provsions for Wairarapa Dark Sky Reserve. 24 May 2020 Pg. 6

Lighting needs to be managed to minimise skyglow and reduce light pollution. The IDA sets requirements for the management of artificial skyglow from lighting for dark sky reserves.

6 Statutory and Policy Context

This section of the report provides an overview of the statutory and policy context relevant to this plan change.

6.1 Resource Management Act

6.1.1 The Purpose of the RMA

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

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

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

6.1.2 Sections 6, 7 and 8

Section 6 of the RMA identifies matters of national importance that are required to be recognised and provided for in achieving the purpose of the Act. Section 6 of the Act requires the preservation of the natural character of the coastal environment. In addition, s6 requires the Council to recognise and provide for relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga. The brightness and clarity of the night sky is an important taonga for Māori.

Section 7 of the Act specifies other matters that are required to be recognised and provided for in achieving the purpose of the Act. Of particular relevance to this plan change is:

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

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

6.1.3 Section 32 of the RMA

Under section 32 of the RMA, any proposed district plan change must be accompanied by a report that assesses:

- The extent to which each objective is the most appropriate way to achieve the purpose of the RMA; and
- Whether the proposed policies and methods are the most appropriate way in which to achieve the objectives in terms of their efficiency and effectiveness.

The s32 evaluation must take the following considerations into account:

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

Clause 4A of s32 requires that the evaluation report must summarise all advice concerning the proposal received from iwi authorities and the response to that advice, including any provisions of the proposal that are intended to give effect to the advice. This is discussed in more detail in Section 9 of this report.

6.1.4 Functions of District Councils

The Council has statutory functions under section 31 of the RMA. These include the establishment, implementation and review of objectives, polices and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district.

Section 31(1)(b) requires the Council to control any actual or potential effects of the use, development or protection of land.

6.1.5 The Purpose of District Plans

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

6.1.6 Preparation of District Plans

Section 73 states that there must be at all times one district plan for each district prepared by the Council in a manner set out in the First Schedule of the Act.

6.1.7 Matters to be Considered by Territorial Authorities

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

6.1.8 Contents of District Plans

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

(a) any national policy statement; and

(b) any New Zealand coastal policy statement; and

(ba) a national planning standard; and

(c) any regional policy statement.

Under s75(4) a district plan must not be inconsistent with:

(a) a water conservation order; or

(b) a regional plan for any matter specified in section 30(1).

6.2 National Policy Context

6.2.1 National Policy Statements

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

Part of the proposed dark sky reserve is located within the coastal environment, so the provisions of the NZCPS need to be considered in this plan change. The NZCPS outlines how the purpose of the Act will be achieved in respect of the coastal environment.

Objective 2 of the NZCPS seeks to preserve the natural character of the coastal environment through recognising the characteristics and qualities that contribute to natural character. Objective 3 requires recognition for the role of tangata whenua as kaitiaki and provision for tangata whenua involvement in the management of the coastal environment.

Policy 13 – Preservation of natural character, seeks to preserve the natural character of the coastal environment and to protect it from inappropriate use and development. Of particular relevance is Policy 13(2)(e) that recognises that natural character is not the same

as natural features and landscape or amenity values; and may include matters such as the natural darkness of the night sky.

6.2.2 National Environmental Standards

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

It is considered that there are no NES that are relevant to this plan change, and as such no further analysis is required as part of this report.

6.2.3 National Planning Standards

The National Planning Standards were introduced to the RMA as part of the 2017 amendments. The purpose of the National Planning Standards is to improve consistency in plan and policy statement structure, format and content²⁰.

The National Planning Standards contain a prescribed structure for district plans. Relevant to this plan change is that the National Planning Standards direct that a chapter for 'Light' is provided within the 'General District-Wide Matters' section of the standards.

Timeframes have been specified for councils to implement the National Planning Standards (s75(3)(c). Different timeframes apply to different planning standards and different local authorities. City/district councils, like the Wairarapa Council's generally have five years to adopt the planning standards, with seven years for the definition's standard. If a council undertakes a full plan review within these timeframes the new plan must meet the planning standards when it is notified for submissions.

The proposed Wairarapa dark sky plan change is not a full plan review. It makes modest amendments to a discrete and limited number of provisions to provide specific lighting controls to help achieve dark sky reserve accreditation.

It is also important to note that the operative WCDP is due to be fully reviewed, likely within the next 2-3 years. For this reason, it is considered appropriate that the format for district plans prescribed by the national planning standards is applied to the WCDP at the time of the full plan review.

6.2.4 Wellington Regional Policy Statement

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

The RPS contains objectives and policy to preserve and protect habitats and features, including the natural character of the coastal environment (Objective 3, Policy 35). The RPS also contains objectives and policies that recognise the need for Council's to work with local iwi authorities for the benefit of the region.

²⁰ https://www.mfe.govt.nz/rma/national-direction/national-planning-standards/about-national-planning-standards

6.2.5 Local Strategic Context

6.2.5.1 South Wairarapa District Council Annual Plan 2019/20

The South Wairarapa District Council Annual Plan for the 2019/20 year identifies in 'Projects/Issues' a plan change in partnership with the WDSA to amend outdoor lighting permitted standards/rules within the District Plan to facilitate the development of a proposed Dark Sky Reserve within the Wairarapa²¹.

6.2.5.2 Carterton District Council Annual Plan 2019/20

The Carterton District Council Annual Plan supports the implementation of the Wairarapa Economic Development Strategy (see below) and providing funding to contribute to projects.

6.2.5.3 Wairarapa Economic Development Strategy and Action Plan

The Wairarapa Economic Development Strategy and Action Plan identifies the 'Martinborough Dark Sky experience' as one of the four best 'multi-season, multi day regular returns' tourism opportunities in the district. The report identifies the opportunity for the dark sky astronomy experience as an extension to Wellington tourism offer.

6.2.5.4 Draft South Wairarapa spatial plan

The purpose of the South Wairarapa Spatial Plan is to prepare the region for ongoing growth and to create a 'blueprint' for what the district will look like in the future.

At this time, only a discussion document has been released for comments, and as such the document carries no statutory status. The discussion document does provide an indication of the Council's intentions and contains matters to consider when developing a spatial plan over the coming years.

Within the South Wairarapa Spatial Plan Discussion Document,²² Shaping Move 1 recognises that dark sky is internationally recognised and has the potential to become a large dark sky reserve. Proposed objectives seek to ensure the district's special qualities and character are 'nutured'¹¹ and to guide growth to create a tourism hub. The discussion document recognises the need to protect the dark sky reserve initiative from being compromised through inappropriate development.

The tourism hub is proposed to be a key focus and includes wine, best food, dark sky reserve, gliding, bush, heritage, cultural initiatives, lake, wild coastline, trails with integrated education and employment.²³

²¹ South Wairarapa District Council Annual Plan for the 2019/20 year pg 14

²² South Wairarapa Spatial Plan – Our Future Focus 2050 – Discussion Document – How do you want South Wairarapa to look into the future.

²³ South Wairarapa Spatial Plan Discussion Document. Retrieved from <u>http://www.swdc.govt.nz/sites/default/files/SouthWairarapaSpatialPlanDiscussonDocument.pdf</u>

One of the seven proposed 'special character' projects for the region involves having the largest dark sky reserve in the world. One of the nine 'better connection' projects is to promote joint educational initiatives, including cultural astronomy/dark sky centre.¹

7 The Current District Plan Framework

7.1 Structure of the District Plan

The Wairarapa Combined District Plan (WCDP) applies across the Masterton, Carterton and South Wairarapa districts. Lighting in all the districts is controlled by the provisions of the WCDP through the use of:

- Issues, objectives and policies within Chapter 19 General Amenity Values
- Rules within Chapter 21 District Wide Land Use Rules, and
- Assessment Criteria within Chapter 22 Assessment Criteria

These provisions apply to all outdoor lighting, regardless of location or the activity the lighting is associated with.

7.2 Operative provisions

The provisions in the operative WCDP that are particularly relevant to the proposed plan change are outlined in the table below. Other objectives and policies that are relevant but do not specifically relate to the control of lighting are summarised in Appendix D of this report.

Chapter	Provision	Detail
Chapter 19: General Amenity Values	19.3.1 Objective GAV1 - General Amenity Values	To maintain and enhance those general amenity values which make the Wairarapa a pleasant place in which to live and work, or visit.
	19.3.2 GAV1 Policies	(e) Manage the intensity, location and direction of artificial lighting to avoid light spill and glare onto adjoining sites and roads, and to protect the clarity and brightness of the night sky. Implemented through Method 19.3.4(a), 19.3.4(b) 19.3.4(c) and 19.3.4(g).
	19.3.4 Methods	 (a) Performance standards for permitted activities to maintain general amenity values throughout the Wairarapa. (b) Assessment of environmental effects through the resource consent process for

		activities that do not comply with performance standards.
		(c) Conditions on resource
		consent to control adverse
		effects of activities.
		• (g) Liaison with Road Controlling
		Authorities to promote the use
		of shields and other devices on
		streetlights to direct light
		downwards.
Chapter 21: District Wide Land Use Rules	apter 21: District 21.1.11 Glare and de Land Use Rules Artificial Light -	(a) The emission of light (including glare) meets the following standard:
	Permitted Activity	(i) A maximum artificial light level of 8 lux(lumens per square metre) measured at1.5m above ground level at the siteboundary.
Chapter 22: Assessment Criteria	22.1.17 Artificial Light	(i) The extent to which the light will adversely affect adjoining allotments.
		(ii) The impact of light direction on the safe and efficient operation of the road network.
		(iii) The extent to which the light(s) are necessary for reasons of security, public amenity, or safety.
		(iv) The hours during which the lighting will operate.
		(v) Proposed methods to avoid, remedy or mitigate potential adverse effects including the height, orientation, angle, and shielding of the light source.

Within each zone, an activity is a permitted activity if it complies with the permitted activity rules of that zone and the permitted activity rules contained within the District Wide Land Use Rules - Chapter 21.

Where proposed outdoor lighting would fail to meet the development standards for 'Glare and Artificial Light' in Rule 21.1.11, the activity will require resource consent as a **Restricted Discretionary Activity**, with discretion restricted to: • Avoiding, remedying or mitigating of any effects deriving from the noncompliance within the particular standards(s) that is not met.

Restricted Discretionary activities will be assessed against the relevant assessment criteria set out in Section 22 of the Plan²⁴.

Any resource consent required for lighting is assessed against the 'Assessment Criteria' in Chapter 22.1.17 which are specific to artificial light.

8 Summary of Proposed Plan Change Changes

A marked-up version of the detailed changes proposed by this plan change are attached to this report at Appendix A. This section of the report provides a summary of the proposed changes.

An analysis of the proposed provisions in accordance with s32 of the RMA is included in Sections 10 and 11 of this report.

8.1 Proposed Definitions

This plan change introduces the following definitions:

Lamp lumens	the initial total amount of light produced by a light source just after it has stabilised but before depreciation (loss of operational efficiency) has started.
Outdoor Sports Lighting	Artificial lighting required only for the purposes of illumination of an area where outdoor recreation activities will occur at night.
Skyglow	the lighting of the night sky caused by light directed near horizontally and into the sky either directly (from light sources that project light above the horizontal) or indirectly (reflected from a surface).

8.2 **Proposed Issues**

The operative WCDP contains one issue relevant to lighting which states:

Section 19 - General Amenity Values

3. Glare from, for example, outdoor lighting and reflective surfaces, can annoy people and distract motorists.

²⁴ Rural Zone Rule 4.5.5(e), Residetnail Zone 5.5.4(a), Commercial Zone Rule 6.5.5(b) and Industrail Zone Rule 7.5.7(a)

This existing issue highlights the importance of managing glare from outdoor lighting, but the issue relates only to effects on amenity and traffic safety. The issues contained within the operative WCDP fail to recognise the effects that some outdoor lighting can have on the brightness and clarity of the night sky.

This plan change therefore proposes that a new issue is inserted into Section 19 – General Amenity Values, to read:

4. Light emitted from outdoor lighting within the identified Dark Sky Management Area can cause adverse effects on the brightness and clarity of the night sky.

To resolve this issue, the Wairarapa Councils need to ensure that buildings and outdoor areas in the Dark Sky Management Area can be illuminated to provide legible, safe and functional facilities and spaces but in ways that minimise light pollution to levels that protect the darkness of the night sky.

The proposed new issue meets the good practice guidance for resource management issues²⁵ as it:

- Identifies the environmental opportunity for improvement
- Can be addressed by the Council under its functions and responsibilities as set out in the RMA
- Is specific to the areas of the districts (the Dark Sky Management Area, which is South Wairarapa and Carterton districts) where additional controls are required
- Is succinct, and
- Sets out what is being affected, how and where.

As outlined in the Introduction to Section 19 of the WCDP, 'amenity values' refers to 'those environmental characteristics of an area that contribute to the pleasantness and attractiveness of that area as a place to live work or visit'.

This report outlines the importance of the darkness of the night sky within the Wairarapa and the benefits that would arise from the establishment of an international dark sky reserve. The darkness of the night sky is an environment factor that contributes to the amenity of the Wairarapa.

There is also a clear direction from both higher-order planning documents and from local strategic development documents that maintaining and enhancing the darkness of the night sky is important from a resource management and regional economic development perspective. The night sky is identified in the NZCPS²⁶, the Councils' strategic documents, and in the District Plan as an important feature for the district. Controls are therefore required in order to manage effects of activities on that feature.

²⁵ www.qualityplanning.co.nz

²⁶ Policy 13 – Preservation of Natural Charcter. Policy 13(2)(e) recogisines the 'the natural darkness of the night sky' as a vaule of natural charcter.

8.3 Proposed Objectives

There are no changes proposed to the operative objectives of the WCDP. It is considered that the existing objectives provide an appropriate framework for managing this issue.

8.4 **Proposed Policies**

The proposed plan change will amend one policy within the operative Plan and add a new policy that specifically manages lighting to protect the brightness and clarity of the night sky.

Section 19 - General Amenity Values 19.3.2 GAV1 Policies will be amended to read:

(e) Manage the intensity, location and direction of artificial lighting to avoid light spill and glare onto adjoining sites and roads. and to protect the clarity and brightness of the night sky.

(f) Within the Dark Sky Lighting Management Area, manage the light colour temperature, shielding and hours of operation of outdoor artificial lighting to mitigate skyglow, to protect the clarity and brightness of the night sky.

The proposed changes ensure that the effects of lighting on amenity are distinguished from the effects of lighting on the night sky. The proposed policies also highlight the importance of the night sky as an amenity value within the Dark Sky Management Area.

8.4.1 Proposed methods and anticipated environmental results

This plan change proposes one amendment to Chapter 19 .3.4 – Methods to Implement General Amenity Values, to read:

(g) Liaison with Road Controlling Authorities to promote the use of <u>streetlighting with a</u> <u>colour temperature of 3000K (Kelvin) or lower</u>, shields and other devices on <u>streetlights</u> to direct light downwards.

The purpose of this amendment is to reflect the agreement between the Wairarapa Councils and NZTA to provide streetlighting within the Wairarapa that meets a 3000K (Kelvin) limit²⁷.

This plan change also proposes one amendment to Chapter 19.4 – Anticipated Environmental Outcomes to include a new outcome, namely:

(c) Preservation of the brightness and clarity of the night sky within the Dark Sky Management Area.

This reflects the outcome sought by the inclusion of Policy 19.3.2(f) within the Plan.

²⁷ Per comms with South Wairarapa District Council

8.5 **Proposed Rules and Assessment Criteria**

8.5.1 Proposed Rules

8.5.1.1 Outdoor Artificial light

The plan change proposes new performance standards for outdoor artificial lighting within Section 21 – District Wide Land Use Rules, in particular Rule 21.1.11 – Glare and Artificial Light. The introduction of new performance standards is required to ensure the management of the aspects of lighting that can cause skyglow and result in adverse effects on the brightness and clarity of the night sky.

The proposed plan change introduces the following performance standards within Rule 21.1.11, to apply within the Dark Sky Management Area. The performance standards manage:

- The light colour temperature of lights;
- Shielding and tilting of lights; and
- Provide an exemption to the light colour temperature and shielding and tilting performance standards, where lighting is controlled by motion sensors with limited duration.

The plan change also seeks to rename the title of Chapter 21.1.11 from Glare and Artificial Light to Outdoor Artificial Light. This is to help plan users interpret the Plan, ensuring that plan users are aware the provisions only apply to outdoor artificial lighting, and that these provisions seek to manage more aspects of lighting than just the control of glare.

The marked-up version of the proposed amendments to Rule 21.1.11 - Outdoor Artificial Light is contained within Appendix A. A full s32 analysis of the proposed provisions is contained within Section 11 of this report.

8.5.1.2 Outdoor Sports Lighting

The proposed plan change also proposes new permitted activity performance standards to Section 21.1.11 – Outdoor Artificial Light of the Plan, to manage outdoor sports lighting at recreational facilities within the Dark Sky Management Area. The performance standards propose to manage:

- The light colour temperature of lights;
- The design of lighting in accordance with Australian Standard AS 2560 Guide to sports lighting;
- The luminous intensity from light fittings;
- Hours of operation of outdoor sports lighting; and
- Provide controls for outdoor sports lighting, including automatic curfew controls, local control and training/competition lighting.

The purpose of the amendments to the rules of Chapter 21.1.11 is to ensure that outdoor sports lighting, normally a large contributor to skyglow, is managed to reduce effects on the brightness and clarity of the night sky within the Dark Sky Management Area.

The marked-up version of the proposed amendments to Rule 21.1.11 - Outdoor Artificial Light is contained within Appendix A. A full s32 analysis of the proposed provisions is contained within Section 11 of this report.

The plan change also seeks to include new permitted activity performance standards within the Rural, Commercial and Industrial zones to provide a maximum building height of 18m for outdoor sports lighting poles at recreational facilities within the Dark Sky Management Area.

The marked-up version of the proposed amendments to Chapter 4 - Rural zone Rule 5.5.2(a), Chapter 6 - Commercial zone, Rule 6.5.2(a) and Chapter 7 - Industrial zone, Rule 7.5.2(a) - are contained within Appendix A. A full s32 analysis of the proposed provisions is contained within Section 11 of this report.

8.5.2 Assessment Criteria

The plan change proposes amendments to the assessment criteria contained within Chapter 22.1.17 – Artificial Light and Chapter 22.2.10 – Signs. The marked-up version of the proposed amendments to Chapter 22 – Assessment Criteria is contained in Appendix A.

The proposed amendments seek to ensure that when lighting or illuminated signs fail to comply with the performance standards for lighting contained within the District Wide Land Use Rules, or rules within the relevant environmental zone, an assessment as part of a resource consent application will include an assessment of:

- The extent to which the lighting or illuminated sign will contribute to skyglow
- The proposed lighting methods used to avoid, remedy or mitigate effects, including light colour temperature of the light source; and
- In regard to outdoor sports lighting, the extent to which the lighting is consistent with the Australian Standard *AS 2560 Guide to sports lighting*.

8.5.3 Planning Maps

It is proposed that the amended performance standards will only apply to the South Wairarapa and Carterton Districts and as such a 'Dark Sky Management Area' has been identified that extends over the South Wairarapa and Carterton Districts.

The Dark Sky Management Area' will identified in the 'Dark Sky Management Area' Map included in the Plan as Appendix 15 and attached to this report as Appendix B. A full s32 analysis of the proposed provisions is contained in Section 11 of this report.

9 Consultation

9.1 Legislative Requirements

Clause 3 of the First Schedule of the RMA specifies the people who must be consulted in the preparation of a plan, including plan changes. The provisions relevant to this plan change are:

3. Consultation

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

(a) the Minister for the Environment; and

(b) those other Ministers of the Crown who may be affected by the policy statement or plan; and

(c) local authorities who may be so affected; and

(d) the tangata whenua of the area who may be so affected, through iwi authorities; and

(e) any customary marine title group in the area.

(2) A local authority may consult anyone else during the preparation of a proposed policy statement or plan.

(3) Without limiting subclauses (1) and (2), a regional council which is preparing a regional coastal plan shall consult—

(a) the Minister of Conservation generally as to the content of the plan, and with particular respect to those activities to be described as restricted coastal activities in the proposed plan; and

(b) the Minister of Transport in relation to matters to do with navigation and the Minister's functions under Parts 18 to 27 of the Maritime Transport Act 1994; and

(c) the Minister of Fisheries in relation to fisheries management, and the management of aquaculture activities.

(4) In consulting persons for the purposes of subclause (2), a local authority must undertake the consultation in accordance with section 82 of the Local Government Act 2002.

4B Further pre-notification requirements concerning iwi authorities

Before notifying a proposed policy statement or plan, a local authority must-

(a) provide a copy of the relevant draft proposed policy statement or plan to the iwi authorities consulted under clause 3(1)(d); and

(b) have particular regard to any advice received on a draft proposed policy statement or plan from those iwi authorities.

(2) When a local authority provides a copy of the relevant draft proposed policy statement or plan in accordance with subclause (1), it must allow adequate time and opportunity for the iwi authorities to consider the draft and provide advice on it.

9.2 Statutory Consultation

Clause 3 of Schedule 1 of the RMA requires local authorities to consult with a number of parties during the preparation of a proposed plan. The following organisations and authorities have been consulted²⁸ on this plan change:

Neighbouring District Councils	Masterton District Council
	Tararua District Council
lwi	Rangitāne o Wairarapa
	Ngāti Kahungunu
Government Ministries	Minister for the Environment
	Minister of Conservation

9.3 Consultation on the Wairarapa Dark Sky Reserve

9.3.1 Neighbouring Councils

Masterton District Council has advised that they will not be making a formal response at this time.

Tararua District Council have advised by email that they consider that the proposed Plan change will only have minor effect, if any on the Tararua District. In principle Tararua District Council support the proposed plan change where public safety is not affected (minor or less than minor) and the plan change supports scientific, environmental, aesthetic or economic outcomes.

9.3.2 Iwi

No written response has been received from Rangitāne o Wairarapa or Ngāti Kahungunu.

Information regarding the plan change was also sent to Hurunui-O-Rangi Marae and Kohunui Marae. No written response has been received from Hurunui-O-Rangi Marae.

Kohunui Marae advised by email that they had an opportunity to discuss the proposed plan change, and that they did not feel that there was anything in particular about the proposed plan change that affected them as hapū of southern Wairarapa.

²⁸ Consultation was undertaken in June 2020. A copy of an ealier version of this s32 report and draft Disitrict Plan provsions were provided to each consutee.

Kohunui Marae did however express that their interest focused on where any Dark Sky projects may be situated, in case they are on Māori land, and if information shared impinges on their local hapū intellectual property rights.

In response to concerns about where Dark Sky activities will occur, it is anticipated that that as a result of the Dark Sky Reserve accreditation, there could be a demand for new activities within the Wairarapa associated with the Dark Sky Reserve status, i.e. sky gazing businesses, accommodation and tourism activities. Any new activity of this nature located within the Rural zone would trigger the need for a resource consent from the Council. As part of the resource consenting process engagement with iwi (which should include local marae and hapū) is required to be undertaken. This will allow iwi to consider the potential location and effects of any proposed activities. The Council and applicants should be encouraged to actively engage with iwi early in this process.

In terms of effects on iwi/local hapū intellectual property rights, this is much more difficult to manage, and falls outside the Councils' functions under the RMA and outside the scope of this plan change. However, this is a very important matter for Council, the WDSA and other parties involved in Dark Sky Reserve activities to be acutely aware of. They should recognise the scale and importance of mātauranga Māori associated with the Dark Sky, and activity engage with iwi, hapū and whanau in the area, when considering what information is shared, how, and by whom.

9.3.3 South Wairarapa District Council Maori Standing Committee

Debbie Donaldson (planning consultant) presented at the Māori Standing Committee Meeting on the 4th August 2020. The presentation was in the Public Participation section of the meeting, so only a limited time was available for questions from members. The presentation outlined the plan change and the progress to date and next steps.

The MSC requested that Ms Donaldson present at the next meeting in September to provide information on what engagement has been done with Majori and the impacts of their proposal on any future Majori economic plans.

Information regarding the proposed plan change has been sent to Rangitāne o Wairarapa and Ngāti Kahungunu, Hurunui-O-Rangi Marae and Kohunui Marae.

Responding to the MSC's question regarding impacts on future Maori economic plans, it is considered there will be very limited impact. The only financial implications to iwi, is the cost associated with erecting or replacing lighting on land in order to comply with the proposed new rules within the District Plan, which is considered minimal (and is discussed further in Section 13 of this report).

The proposed plan change will assist Dark Sky Reserve accreditation being obtained in the Wairarapa. There is real opportunity that the International Dark Sky Reserve status could provide local development/economic opportunities for iwi within the Wairarapa, given the anticipated benefits this will bring the Wairarapa in terms of tourism and associated economic development.

9.3.4 Government Ministries

9.3.4.1 Department of Conservation

A written response was received from the Department of Conservation on the 20th July 2020 (attached in Appendix I). The letter expressed that the Minister of Conservation and the Department of Conservation were overall supportive of the proposed Wairarapa Dark Sky Reserve centred around Aorangi Forest Park in South Wairarapa.

DOC noted in the letter that they 'consider the proposed permitted lighting standards within the proposed Dark Sky Management Area will be sufficient to provide for preservation of natural character of the coastal environment, and that there is also sufficient policy direction in the district plan currently to ensure development activities requiring resource consent have regard to protecting natural character of the coastal environment. The proposed standards will also ensure that lighting effects adjacent to public conservation lands are limited and maintain the inherent conservation values they possess'.

9.3.4.2 Minister for the Environment

Acknowledgement of receipt of the details of the proposed Plan change was received from the Minister for the Environment, however no formal response on the plan change has been received as yet.

9.3.4.3 New Zealand Transport Agency (NZTA)

Meeting were held with NZTA on the 3rd and 23rd July 2020. A formal letter of response was received from NZTA on the 31st July 2020 (attached in Appendix I). NZTA indicated general support of the dark sky initiative and stated they will work cooperatively with all parties to support the resource management outcomes for the proposed dark sky reserve.

It is the intention of NZTA to enter into a memorandum of understating (MOU) with the three Wairarapa District Councils to outline how NZTA state highway lighting can be changed to achieve as far as practical the limits of light output and sky glow as proposed in the plan change document.

9.3.4.4 Maritime New Zealand

The Wairarapa Dark Sky Association have been engaging with Maritime New Zealand to discuss methods to reduce light pollution on land from the lighthouses within the Dark Sky Management Area. Maritime New Zealand have indicated commitment to shielding the lighthouse lights, to reduce light pollution levels, directing the light only out to sea where it is required²⁹.

 $^{^{\}rm 29}$ Per Comms with Ray Liley and Viv Napier - Wairarapa Dark Skay Association

9.4 Other Engagement and Consultation

9.4.1 International Dark Sky Association (IDA)

The draft plan change was provided to the IDA to review and provide comments. An email response was received from the IDA in July 2020. The IDA were in general very supportive of the proposed provisions and s32 report. The IDA suggested minor amendments to the provisions to better reflect their guidelines. This has been reviewed and subsequent amendments have been made that are reflected in provisions proposed in this Plan change.

9.4.2 Engagement by the Wairarapa Dark Sky Association

On the 21st July 2020 the Wairarapa Dark Sky Association hosted a Dark Sky information evening at Stonehenge in Carterton. This event was attended by local Mayors (Masterton, Carterton and South Wairarapa), District and Regional Councillors, Members of the Maori Standing Committee, local MP candidates, and local business representatives. At the event Debbie Donaldson from Perception Planning spoke about the details of the proposed plan change and the process that would be followed. The response was positive with questions primarily focused on the process and lighting for sports facilities.

The Wairarapa Dark Sky Association also hosted an event on the 30th July 2020 in Martinborough called 'Sleep and Health' looking at the impact of light on sleep and health. An overview of the proposed plan change and process was provided to attendees at this event.

9.4.3 Engagement with local community / businesses / stakeholders

There are events planned with both the Martinborough Business Association and Go Carterton within the months of August and September to discuss the details of the plan change and provide Unfortunately these meeting are yet to have taken place, given changes to meeting dates and agenda items as a result of the Covid-19 pandemic, however these will occur prior to / during public notification of the plan change.

10 Evaluation of the Proposed Plan Change

10.1 How appropriate are the objectives of the Plan to achieve the purpose of the RMA?

10.1.1 Summary Assessment of the Appropriateness of the Objectives

This plan change is an 'amending proposal' as it amends an existing Plan. In this situation, the RMA requires the proposed provisions of the plan change to be evaluated against both the objectives of the plan change (if there are any) and the relevant objectives in the existing Plan. This is so a plan change cannot be justified based solely on its own objectives, without being consistent with the broader plan objectives. The evaluation must assess whether the new provisions will help achieve the objectives already in the Plan and will not undermine them.

The purpose of the proposed Wairarapa dark sky reserve plan change is outlined within section 2 of this report.

The operative objectives within the WCDP that are relevant to this plan change are outlined within Appendix E. The objectives particularly relevant to this plan change are discussed below.

- The operative WCDP objectives of three of the four zones of the district (the rural, residential and commercial zones) require that amenity values of these zones are maintained and enhanced³⁰. In the industrial zone the emphasis is on providing for industrial activity within acceptable amenity levels.³¹
- Objective TW1, In Chapter 8 of the Plan Tangata Whenua, requires the Council's to recognise and provide for the cultural values and relationships of tangata whenua in managing the natural and physical resources and effects of activities.
- Objective CE1 in Chapter 13 Coastal Environment requires the protection of the natural character of the coastal environment by ensuring use, subdivision and development maintains the comparatively undeveloped nature of the Wairarapa Coast. (It is important to note that the NZCPS recognises that 'natural darkness of the night sky' is a feature of natural character).
- Objective SLD1, in Chapter 18 Subdivision, Land Development and Urban Growth seeks to ensure subdivision and land development maintains and enhances the character, amenity, natural and visual qualities of the Wairarapa, and protects the efficient and effective operation of land uses and physical resources.
- Objective GAV1, in Chapter 19 General Amenity Values, requires the Council to maintain and enhance those general amenity values which make the Wairarapa a pleasant place in which to live and work, or visit.

The ability to view the night sky and enjoy its brightness and clarity are a natural quality of the Wairarapa and a characteristic of the amenity value of the area. There is a focus within the operative objectives of the Plan on the maintenance and enhancement of amenity values and natural and visual qualities of the Wairarapa. Other objectives recognise and provide for cultural values within the Wairarapa.

The objectives of the proposed plan change are consistent with the objectives of the operative WCPD, and as such achieving the purpose of the Act.

³¹ Ind1

³⁰ Rur1, Res1, Com1.

For this reason, it is considered that the operative WCDP objectives achieve the objectives of the proposed plan change, and as such there is no need to add a new objective/s to the Plan or amend existing objectives through this process.

10.2 Options for achieving the Objectives

10.2.1 Summary of Options

The options to achieve the proposed objectives of the plan change that have been considered are outlined below:

Option 1: Status Quo (no change from the Operative Plan)

This option retains the existing provisions in the Plan to manage outdoor lighting within the Wairarapa.

Option 2: Bylaw

This option involves controlling lighting within the districts by the Council's developing a Bylaw/s under the Local Government Act 2002.

Option 3: Plan Change to amend provisions of the WCDP applying across the Wairarapa

This option would retain the existing provisions which manage lighting within the WCDP but refine the provisions to better respond to the identified issue. This option would apply over the whole of the Wairarapa District, regardless of location or zone.

Option 4: Plan Change to amend provisions of the WCDP applying to an identified Wairarapa Dark Sky reserve area.

This option retains the provisions which manage lighting within the WCDP but refine the provisions to better respond to the identified issue. The provisions would be applied only to the area covered by the dark sky reserve.

Option 5: Non-regulatory methods

Option 5 involves the use of non-regulatory methods to control lighting within the district. This could involve the use of methods such as:

- education
- publishing Lighting Design Guides (which would be voluntary guidance, and not incorporated by reference into the Plan).

10.2.2 Recommended Option

It is considered that the best approach is a combination of Options 4 and 5.

Option 4 involves retaining the current statutory control of lighting using the District Plan, with a review of the District Plan objectives, policies and rules to reflect the identified resource management issue. Option 4 also limits the application of provisions to the area proposed to be included within the Wairarapa Dark Sky Reserve.

Option 5 supplements Option 4, in that the Council can use non-regulatory methods, for example education, and lighting design guidance to help highlight the importance of the dark sky reserve. Such guidance can provide additional detail about the need to manage lighting and how people can do this by installing specific types of lighting.

Overall, it is considered that a combination of Options 4 and 5 are the most efficient and effective way of achieving the objectives.

The 'Wairarapa Dark Sky Reserve – Issues and Options'³² report provides an evaluation of the options considered to achieve the proposed objective. This report is attached at Appendix H.

11 Summary Assessment of the Appropriateness of the Preferred Provisions to Achieve the Objectives

Section 32(1)(b) states that in addition to examining the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act, an evaluation report must:

examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—

(i) identifying other reasonably practicable options for achieving the objectives; and

(ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and

(iii) summarising the reasons for deciding on the provisions [...]

(2) An assessment under subsection (1)(b)(ii) must-

(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—

(i) economic growth that are anticipated to be provided or reduced; and

(ii) employment that are anticipated to be provided or reduced; and

(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and

(c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

³² Wairarapa Dark Sky Reserve - Issues and Options Report, Prepared by Perception Planning, dated 15th January 2020

The costs and benefits of each option are identified in the analysis below, followed by an assessment which meets the requirements of $s_{32(1)(b)ii}$ and $a_{32(2)(a)}$, $a_{32(2)(a)(i)}$ and (ii), and $s_{32(2)(c)}$ as set out above.

This evaluation report must contain a level of detail that "corresponds to the scale and significance of the … effects that are anticipated from the implementation of the proposal" (s32(1)(c)). Scale refers to the size or magnitude of the effects, including how many people or species or other natural resources are affected, by how much, and over how wide an area. Guidance on this component of s32 evaluations states: "where the impacts of a proposal are likely to be low, little detail will be required in the evaluation report".³³

12 Policies

The plan change will amend Policy 19.3.2(e) and include a new Policy 19.3.2(f). These proposed changes are described in Section 8.4.

The inclusion of Policy 19.3.2(f) provides clear direction that the clarity and brightness of the dark sky is an amenity value that needs to be protected, and that the aspects of lighting that cause skyglow must be managed to achieve this.

The current provisions of the Plan identify the brightness and clarity of the night sky need to be protected³⁴. However, the operative policy fails to reference skyglow, which is the primary cause of adverse effects on the brightness and clarity of the night sky.

For this reason, it is considered that the operative policy is inefficient and ineffective to achieve the objectives of the Plan change. A new policy is proposed that provides a focus on the adverse effects of skyglow to the brightness and clarity of the night sky, and how skyglow is to be managed.

13 Rules, Methods and Planning Maps

The proposed plan change proposes a number of amendments to the rules and methods within the WDCP. These amendments are outlined in detail in Appendix 1 of this report

This section provides an assessment of the proposed changes, as required by s32 of the RMA.

13.1 Chapter 22 - District Wide Land Rules - Outdoor Artificial Lighting

Lighting that meets the development standards in the operative WCDP is a permitted activity. A permitted activity means that resource consent is not required for the activity if it complies with any requirements, conditions, standards and permissions specified for the permitted activity. It is therefore important that councils are confident that compliance

³³ A Guide to Section 32 of the Resource Management Act 1991, p.21.

³⁴ Operative Policy 19.3.2 GAV 1 (e)

with any requirements, conditions, and permissions will adequately manage the effects expected (including cumulative effects) 35 .

Outdoor artificial lighting is currently controlled by performance standards, that if complied with, mean that the installation of lighting is a permitted activity within all environmental zones.

Lighting is an activity that is usually ancillary to another activity (i.e. lighting up a building so you can enter it safely or lighting up a sports field so that you can play on the field). It is therefore considered onerous to require resource consent for the installation of all lighting. In addition, the effects of different lighting types and design are known and measurable, and for these reasons it is an activity that the Council can effectively manage using permitted activity standards.

For these reasons, it is not proposed to change this general approach to managing artificial lighting through the use of permitted activity standards.

However, the specific performance standards for outdoor artificial lighting are proposed to change. As outlined in Section 8.5.1 of this report, it is proposed that three new performances standards are included within Chapter 21 – District Wide Land Use Rules, specifically in Chapter 21.1.11 – Outdoor Artificial Lighting. These performance standards will apply to sites located in the identified 'Dark Sky Management Area'. This area reflects the proposed geographical boundaries of the dark sky reserve.

The proposed changes to the district wide land rules for artificial lighting have been primarily driven by the need to reflect the IDA lighting guidelines in order to gain accreditation, and to control skyglow, which will have adverse effects on the brightness and clarity of the night sky.

As outlined within Section 7.2 of this report, the operative WCDP has one performance standard to manage glare and artificial light, limiting light levels to 8 lux at the site boundary.

The technical report prepared by S&T Lighting³⁶ (attached as Appendix C) has identified that this standard does not control skyglow, which is the main cause of light pollution that effects the ability to view the night sky.

The IDA identifies requirements to manage skyglow which must be put in place to achieve dark sky reserve accreditation. The technical report prepared by S&T Lighting proposes to include standards that address those factors, including:

- Limits on the colour temperature of lighting (proposed standard 21.1.11(a)(ii)); and
- Shielding and titling of light fittings above 500 light lumens (proposed standard 21.1.11(a)(iii))

³⁵ www.qualityplanning.org.nz

³⁶ S&T lighting - Report on Wairarapa Combined District Plan Lighting Provsions for Wairarapa Dark Sky Reserve. 24 May 2020 Pg. 13

13.1.1 Light colour temperature

The lighting industry uses correlated colour temperature (CCT), measured in Kelvin (K) to describe the perceived colour of the light produced by a light source³⁷. The warmer light colours are on the lower end of the scale, with light colour temperatures in the 2700K to 3000K range. Pure white light is around 4000K, while cooler temperatures that simulate daylight are 5000K or higher.



Figure 6 - Kelvin Temperature Chart Source: Bulbs.com

Blue spectrum light is more strongly scattered by the night sky, increasing the levels of skyglow at night. If the amount of blue light emitted by a light fitting is reduced, its effect on skyglow is significantly reduced. For this reason, controlling the colour temperature of lighting is important to minimising skyglow and ultimately the effects on the brightness and clarity of the night sky.

The IDA guidelines for a dark sky reserve require that lighting must be chosen to minimise the amount of short wavelength light (blue light) emitted into the night-time environment. Lighting policy within any dark sky reserve area must restrict lighting so that the correlated light colour temperature (CCT) of light does not exceed 3000 Kelvin³⁸.The proposed performance standard is therefore a reflection of the measures required by the IDA guidelines.

As with lamp lumens, plan users should easily be able to ascertain the light colour temperature (Kelvin) of any proposed light fitting, by referring to the packaging or manufacturers details (if purchasing online. A review of lighting available at lighting retailers indicates that a number of light fittings are readily available at under 3000 Kelvin, (3000K), with equivalent price points to other lighting available. This information is attached at Appendix F of this report.

³⁷ S&T lighting – Report on Wairarapa Combined District Plan Lighting Provsions for Wairarapa Dark Sky Reserve. 24 May 2020 Pg. 9

³⁸ IDA – Internation Dark Sky Reserve Programe Guidelaines, June 2018 – Lighting Managment Plan Requirement 4

13.1.2 Light lumens

Light lumens are a measure of light brightness. More lumens mean a brighter light; fewer lumens mean a dimmer light (lumens differ from watts, which is a measure the energy used, not the light output).

Outdoor lights which emit a low level of brightness (i.e. those under 500 lamp lumens) will have very limited contribution to skyglow and do not need to be controlled as stringently as outdoor lighting that is brighter. This is the reason why the proposed performance standard 21.1.11(a)(iii) requiring shielding/tilting is only triggered when a light emits a brightness over 500 lamp lumens. This approach is consistent within the IDA requirements for lighting within a dark sky reserve³⁹.

To improve interpretation of the Plan the plan change proposes to include a definition for light lumens as outlined in Section 8.1.

Plan users should easily be able to ascertain the lamp lumen output of any proposed lighting by referring to the packaging the lighting comes in, or to manufacturers details (if purchasing on-line), in order to comply with this standard. A review of lighting available at lighting retailers indicates a number of light fittings are readily available at under 500 lamp lumens, with equivalent price points to other lighting available. For example, the light lumen level is easily obtainable from the Mitre 10 website. This information is attached at Appendix F of this report.

13.1.3 Shielding or tilting of lights

Proposed standard 21.1.11(a)(iii) requires that any lighting above 500 lamp lumens is shielded or tilted to prevent light being directed above the horizontal level of the light fitting. Shielding or tilting of light fittings above 500 lamp lumens is a requirement of the lighting IDA guidelines for dark sky reserve accreditation⁴⁰.

Shielding or tilting is important to ensure that light is directed downwards, focusing on the area to be lit. Shielding or tilting ensures that a light source is screened and, when mounted, its light directed in such a way that none is emitted at or above the horizontal plane.

A light fitting that emits light that is less than 500 lamp lumens does not require shielding, as the light output is of a low level that will not cause adverse effects on skyglow. This lowbrightness level lighting (under 500 lamp lumens) can face upwards, without shielding. This type of lighting is often used for garden lighting and decorative lighting, and plan users can continue to use this type of lighting without triggering the need for resource consent.

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

³⁹ IDA - Internation Dark Sky Reserve Programe Guidelaines, June 2018 - Lighting Managment Plan Requirement 3 and 4

⁴⁰ IDA – Internation Dark Sky Reserve Programe Guidelaines, June 2018 - Lighting Managment Plan Requirement 5

13.1.4 Exemption – Lighting controlled by motion activated sensors

The proposed plan change provides an exemption to proposed performance standards 21.1.11(a)(ii) and (iii) where the emission of outdoor artificial light is controlled by motion activated switches which limit the duration of illumination to less than 5 minutes.

This exemption is provided for within the IDA dark sky reserve guidelines⁴¹, and provides an exemption to the requirement for light colour temperature and shield/till light where illumination is limited in duration. This will ensure that lighting that is primarily designed for security and access purposes, is not unduly limited.

The effects to the brightness and clarity of the night sky as a result of this exemption are considered negligible.

13.1.5 Summary

The proposed plan change seeks to include three new performance standards and one exemption, for outdoor official lighting within Chapter 21 – District Wide Land Use rules. These standards will only apply to new lighting within the proposed 'Dark Sky Management Area.' The standards are reflective of the IDA requirements, which must be implemented in order to gain international dark sky reserve accreditation.

The current operative WCDP provisions do not manage skyglow, and as such the IDA requirements for a dark sky reserve are unable to be met. The only option to ensure that dark sky reserve certification can be obtained, is to amend the Plan to ensure that the provisions reflect the requirements of the IDA.

It is considered that the proposed performance standards are drafted in such a way that they can be interpreted by plan users, despite the inclusion of a level of 'technical lighting' terminology. In addition, lighting which complies with the requirements of the performance standards should be readily available to plan users, through common lighting manufactures and suppliers. To support this, it is the intention of the WDSA to work with local lighting retailers to ensure that lighting that is compliant with the proposed provisions is available at local stores, and that merchants are aware of the proposed provisions, to ensure they are able to inform customers. It may be possible for suitable light fittings to be identified as 'dark sky' compliant.

It is expected that there will be minimal additional cost to plan users associated with obtaining lighting that meets the proposed performance standards (depending on the light fitting chosen). The wider benefits of obtaining dark sky reserve certification and minimising light pollution to ensure the brightness and clarity of the night sky is protected, outweigh the minor inconvenience and monetary cost to plan users.

The proposed provisions are easy to monitor to ensure that compliance is achieved, and monitoring can be undertaken by the Councils compliance officers.

⁴¹ IDA - Internation Dark Sky Reserve Programe Guidelaines, June 2018 - Lighting Managment Plan Requirement 3

It is considered that the proposed performance standards for outdoor artificial flighting are both effective in achieving the objectives of the plan change and the objectives of the operative Plan and are the most efficient way of achieving these objectives.

13.2 Outdoor Sports lighting

13.2.1 Outdoor sports lighting performance standards

The proposed plan change seeks to include a new suite of performance standards within Chapter 21.1.11 – Outdoor Artificial Lighting, specifically to manage outdoor sports lighting at recreational facilities within the proposed Dark Sky Management Area.

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

For this reason, outdoor sports lighting is an activity that is considered to warrant the need for its own set of performance standards. It has been acknowledged that sports lighting would generally be unable to meet the light colour temperature performance standard (and possibly other standards) proposed above for general. If only the general lighting provisions were proposed, any new sports lighting would be unlikely to comply with the performance standards and would require resource consent.

Concern has been raised by local councillors⁴², that lighting provisions that are restrictive on outdoor sports lighting and which trigger resource consent would be onerous for sports clubs, which are usually community run organisations with limited resources.

As outlined within the report by S&T Lighting⁴³, outdoor sports lighting can be controlled by specific performance standards that ensure that skyglow is minimised, by requiring:

- Limits on the colour temperature of lighting (proposed standard 21.1.11(b)(i))
- Requiring lighting levels to be designed in accordance with the Australian Standards *AS 2560 Guide to sports lighting* (proposed standard 21.1.11(b)(ii))
- Restricting luminous intensity of lighting (proposed standard 21.1.11(b)(iii))
- Limiting hours of operation of outdoor sports lighting to between 7am and 10pm (proposed standard 21.1.11(b)(iv))
- Requiring controls on sports lighting, including automatic curfew controls, local control and competition and training levels. (proposed standard 21.1.11(b)(v))

⁴² South Wairarapa District Council Meeting 5th February 2020.

⁴³ S&T lighting – Report on Wairarapa Combined District Plan Lighting Provisions for Wairarapa Dark Sky Reserve. 24 May 2020 Pg. 23-25

These proposed performance standards are more restrictive (in some respects, but less in others) than the general lighting performance standards but are tailored to the specific requirements of outdoor sports lighting.

These sporting provisions are IDA certification requirements, which look to ensure that good lighting design and controls are applied to sports lighting to mitigate unnecessary skyglow.

The proposed performance standards have been drafted to reflect the guidance of the IDA, namely 'Criteria for Community-Friendly Outdoor Sports Lighting'⁴⁴. The exception to this is the inclusion of performance standard 21.1.11(b)(ii) that requires design of lighting in accordance within Australian Standards *AS 2560 Guide to sports lighting*. In New Zealand it is standard practice to refer to the Australian Standard *AS 2560 Guide to Sports Lighting* series of standards, which are equivalent to the Illuminating Engineering Society IESNA RP-6-15 Sports and Recreation Area Lighting standards referred to in the IDA guidelines⁴⁵.

AS 2560 "Level 2" typically referred to as "Training Standard Lighting" and "Level 3" typically referred to as "Competition Standard Lighting" are the predominant required illumination levels. To limit over-lighting, the proposed performance standard 21.1.11(b)(ii) requires the design that may vary by no more than 10% above the average target illuminance level contained within the standard. Appendix G of this report provides extracts of the luminance levels contained within this standard that apply to different types of sporting facilitates.

The Australian Standards *AS 2560 Guide to Sports Lighting* are standards available from <u>www.techstreet.com</u> for purchase. Due to copywrite restrictions the standards are unable to be attached to this report as an Appendix. The Council will however purchase a copy of the standards, that will be available to be viewed at the time of notification of the proposed plan change.

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

'Recreational Facility' is defined within Chapter 27 – Definitions of the Operative Plan⁴⁶. To assist Plan interpretation, it is proposed to include a new definition for 'outdoor sports lighting' (see Section 8.1 of this report). This will ensure that the application of these performance standards is clear and limited.

⁴⁴ IDA- Criteria for Community Friendly Outdoor Sports Lighting, Version 1 March 2018

⁴⁵ S&T lighting - Report on Wairarapa Combined District Plan Lighting Provisions for Wairarapa Dark Sky Reserve. 24 May 2020 Pg. 11-13

⁴⁶ Recreational Facility is defined as "Any reserves, buildings or structures (temporary or permanent), required to enable active or passive recreation; and includes gymnasiums, grandstands, stadiums, clubrooms, viewing platforms, night lighting, and sealed courts."

13.2.2 Outdoor Sport Lighting - Pole Height

The plan change proposes amendments to the permitted activity performance standards within the Rural, Industrial and Commercial zones that apply a 'maximum building height' within the Proposed Dark Sky Management Area.

The proposed amendments seek to provide for a maximum building height for 'Outdoor Sports Lighting Poles at Recreational Facilities' to 18 metres. The operative Plan currently has a 15m height restriction within these zones for buildings, other than dwellings⁴⁷.

The report of S&T Lighting has identified that an 18m light pole height is imperative for mitigating spill, glare and skyglow when lighting a full-size football field⁴⁸. Without an increase in the permitted activity height for lighting poles, sports lighting is usually designed with lower pole heights to avoid the need for a resource consent for the pole. Using shorter poles may avoid the need for resource consent but does not assist to manage the glare, light spill and skyglow effects that may result. With a higher pole height it is easier to direct light downward to target the required area. A shorter pole results in light being projected outwards (and upwards) to achieve lighting of the same area and this results in increased spill light, glare and skyglow. The effects of permitting poles with a taller height is therefore offset by the reduction in adverse light effects.

In assessing the appropriateness of an 18m pole height for outdoor sports lighting, it is appropriate to consider the permitted activity standards for similar type structures within these zones. Rule 21.1.24 – Network Utilities, provides the performance standards for network utilities within the districts. Rule 21.1.24(3)(a) allows for the construction of mast, poles and towers for network utilities and energy generating activities to a maximum height of 20m within the Rural, Commercial and Industrial Zones, 12m within the Rural zone as a permitted activity.

For this reason, it is considered that an increase in the permitted activity performance standard for buildings, limited to only outdoor lighting poles at recreational facilities, is appropriate within the Rural, Commercial and Industrial zones. It is not considered appropriate to extend this to the Residential zone, given that the maximum building height limit of 10m and utility height of 12m within this zone is considerably less than the 18m proposed. It is considered that if a new lighting pole is proposed within the Residential zone, then a resource consent, and assessment of the appropriateness of the pole height within the residential context, is appropriate.

At this time, it is proposed that the provisions for outdoor sports lighting will only apply within the Dark Sky Management Area. This is because this area has been identified as an area where tighter controls on light pollution are required to protect the brightness and clarity of the night sky, of which sports lighting can be a significant contributor. The proposed provisions are in line within recommenced guidance for sports lighting from the

⁴⁷ WCDP Chapter 4 - Rural zone Rule 5.5.2(a), Chapter 6 - Commercial zone, Rule 6.5.2(a) and Chapter 7 - Industrial zone, Rule 7.5.2(a)

⁴⁸ S&T lighting – Report on Wairarapa Combined District Plan Lighting Provisions for Wairarapa Dark Sky Reserve. 24 May 2020 Pg. 25

IDA. There is an opportunity for these provisions to be extended to include Masterton District under the WCDP full plan review, if considered appropriate at the time.

13.3 Illuminated signs

The IDA guidelines for dark sky reserves require that illuminated signs are regulated, including requirements for hours of operation, and limitations on the illuminated surface area of signs.⁴⁹

Consideration was given to including the IDA requirements for illuminated signs within the WCDP as performance standards. Signage is managed in the WCDP primarily as a permitted activity, where signage is able to meet the performance standards outlined within the various environmental zones.

Under the operative WCDP, illuminated signs are not a permitted activity within the Rural and Residential zones⁵⁰. Illuminated signs are also not a permitted activity within the commercial and industrial areas of Greytown, Featherston and Martinborough town centres, where these areas are located within the Historic Heritage Precincts, and the Carterton Character area⁵¹.

Considering these restrictions and that the proposed Dark Sky Management Area encompasses the South Wairarapa and Carterton districts, there are only very small pockets of commercial and industrial areas in the South Wairarapa and Carterton where illuminated signs could be erected as a permitted activity. It is noted that the IDA requirements require the guidelines to apply to 80% of the area of the reserve and 80% of the population. It is noted that the area where illuminated signs would be a permitted activity, would be significantly less than 80% of both the population and the area of the proposed dark sky reserve area.

The use of illuminated signage and most importantly it's contribution to skyglow within the South Wairarapa and Carterton districts has therefore not been highlighted as a significant resource management for the area at this time.

For these reasons, this plan change does not propose amendments to the rules controlling illuminated signs within the proposed Dark Sky Management Area. In all but limited cases resource consent would be required under the operative WCDP to erect an illuminated sign. It is considered that the provisions of the operative plan provide appropriate control of illuminated signs at this time. It is however recommend that the assessment criteria for signs (when being assessed as part of a resource consent application) are amended to include consideration, for illuminated signs, of the extent to which the illuminated sign will contribute to skyglow and adversely affect the quality of viewing the night sky.

It is noted that the WCDP is due to be fully reviewed in the coming three years. At this time a full review of the signage provisions within the plan will be undertaken. At this time, if a resource management issue is evidenced in relation to illuminated signage within the

⁴⁹ IDA – Internation Dark Sky Reserve Programe Guidelaines, June 2018 - Lighting Managment Plan Requirement 3

⁵⁰ WDCP Rule 4.5.2(h)(i)(8) Rural Zone and WDCP Rule 5.5.2(h)(i)(6). Commercial Zone 6.5.4(a)(i)(12)

⁵¹ WDCP Rule 21.1.1(b)(ii) - No sign is illuminated by an means other than directional lighting.

Dark Sky Management Area, the provisions can be reviewed and additional controls in line with the IDA requirements can be introduced if necessary. These provisions would also need to be reviewed if/when Masterton District Council is included within the proposed Dark Sky Reserve Area, as there are a number of illuminated signs within Masterton's commercial and industrial zones.

13.4 Street Lighting

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

Within the South Wairarapa and Carterton districts all Council owned street lighting has been replaced with street lighting with a colour temperature of 3000 Kelvin and is shielded so that lighting is directed directly downwards and not above the horizontal line of the light fitting. In addition, the Councils are in the process of developing a memorandum of understanding with the New Zealand Transport Agency (NZTA) that will detail an agreement with NZTA to achieve 3000K LED lighting along NZTA controlled highways within the Wairarapa⁵².

For this reason, it is not necessary to provide an exception to the lighting provisions within the Plan for street lighting. The plan change proposes to make the following amendments to Method (f) in Chapter 19.3.4 'Methods to implement General amenity values' to read:

(f) Liaison with Road Controlling Authorities to promote the use of <u>streetlighting</u> with a colour temperature of 3000 Kelvin or lower, shields and other devices on <u>streetlights</u> to direct light downwards.

13.5 Planning Maps

The plan change will identify a 'Dark Sky Management Area' within Part D – Appendices Appendix 15 of the Plan. The proposed Dark Sky Management Area is the geographical area within which the proposed outdoor artificial lighting performance standards will apply and will form an overlay to the underlying Zones. The proposed Appendix 15 to the WCDP is included at Appendix B of this report.

The Dark Sky Management Area comprises the South Wairarapa and Carterton districts, and is also the proposed Wairarapa Dark Sky Reserve area. The WDSA want to include the Masterton District in the dark sky reserve area at a later date. There is still work to do in terms of assessing existing lighting and doing a lighting inventory in Masterton before it can be included in the reserve area. When sufficient information has been collected to support the extension of the dark sky reserve to the Masterton district, a plan change can be initiated to apply these lighting provisions across the entire plan area and remove the Dark Sky Management Area. Alternatively, this could be undertaken as part of the full WCDP review anticipated to occur within the next three years.

⁵² Per comms wth South Wairarapa Disict Council

14 Costs and Benefits associated with the implementation of the Provisions

14.1 Costs

The most obvious cost of the implementation of the proposed provisions is a potential increase in the cost of light installations that comply with the proposed permitted activity standards within the Dark Sky Management Area. In addition, the implementation of the provisions require plan users to investigate and install an alternative lighting design, for example a lighting design with more light fittings, but would result in a lower brightness of light spread. A review of information from light suppliers has shown that the proposed performance standards are unlikely to result in a significant increase in the cost of light fittings, however the range of options will be more limited, and a higher number of fittings may be required. Therefore, there may be a small cost to those installing lights in terms of time, availability and cost of obtaining lights to meet the proposed performance standards.

The proposed provisions will also result in a cost to the Councils, in time and resources, to ensure that staff and plan users are aware, and able to interpret and apply the new provisions. There may also be an increase in monitoring cost to the Council. This cost is not anticipated to be onerous and is likely to be limited to a short period following the plan change becoming operative. There is also a financial cost to developers and the community, and other interested parties who wish to engage in the plan change process.

14.2 Benefits

It is beneficial to specifically separate within the policy framework of the plan, how and why the Plan seeks to control lighting to manage skyglow. While the measures put in place to manage skyglow will also contribute to an improved level of control on the effects of lighting on amenity there are existing provisions within the plan that highlight the need to manage lighting to protect amenity.

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

The primary benefit that will occur form the implementation of the provisions, is that new lighting will be managed to meet the requirements of the IDA and will assist in ensuring that an international dark sky reserve can be established and accredited within the South Wairarapa and Carterton Districts. Section 4 of this report, outlines in detail the economic, social, cultural and environmental benefits that an international dark sky reserve would bring, which are intrinsically linked, and dependent on the inclusion and implementation of these proposed provisions.

The provisions focus on reducing light output and only lighting areas that are necessary. There will be benefits to the environment though the minimisation of skyglow. Those using lighting are also likely to experience benefits of reduced energy use and cost, as a result of only lighting areas as and when required.

An additional benefit of these proposed provisions is that safety will be maintained, by continuing to provide for lighting for safety purposes, but unnecessary light pollution will be minimised. The proposed provisions are not expected to have any adverse impact on public or road user safety. The elimination of glare and over-lighting will assist in providing safer visual conditions. It is expected that less lighting will be continuously operating at night, with motion detection being more widely implemented.

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

15 Economic Growth and Employment Opportunities

The certification of an international dark sky reserve in the Wairarapa is anticipated to result in substantial economic growth and employment opportunities for the districts, through boosting the districts tourism offer, as outlined within Section 4 of this report. The proposed policy amendments will contribute to enabling the economic growth and employment opportunities associated with the dark sky reserve.

16 Risks associated with the Preferred Option

The provisions of the operative district plan are inadequate to implement the requirements of the IDA. Without these provisions, the Council's will have ineffective policy and planning methods to managing lighting and there is a risk that dark sky reserve certification will not be achieved.

The Council has sufficient information to act. The proposed management area has been recognised by the WDSA as an appropriate location for an international dark sky reserve and the dark sky is widely recognised as an important amenity value for the district. In addition, the Council's strategic documents recognise the importance of the dark sky reserve accreditation. The implementation of the proposed provisions is intended to provide clear direction within the district plan that the dark sky is an important amenity feature of the district that requires protection and consideration when assessing development proposals. The costs associated with implementing the provisions as the preferred option, are outweighed by the benefits.

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

17 Conclusion

This report provides a summary assessment of the plan change consistent with s32 of the RMA. The report describes the purpose of the plan change and summarises an evaluation of:

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

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

Disclaimer

We used a lot of different sources of information to write this report. Where we could we tried to make sure that third party information was accurate, but we couldn't audit all those external reports, websites, people or organisations. If the information we used turns out to be wrong, we can't accept any responsibility or liability if that affects our report or its conclusions. We might (but aren't required to) update our report if we find any additional information that was available when we wrote the report that affects its conclusions.

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18 Appendix A: Marked up version of the WCDP

19 Appendix B: Proposed Appendix 15: Dark Sky Management Area Map

20 Appendix C: Stephenson and Turner Lighting (S&T Lighting) Report

21 Appendix D: International Dark Sky Association - 2018 International Dark Sky Reserve Guidelines

22 Appendix E: Objectives and Policies of WCDP

23 Appendix F: Lighting available at lighting retailers

24 Appendix G: Summary of Australian Standard AS 2560 Guide to Sports Lighting

25 Appendix H: Wairarapa Dark Sky Reserve – Issues and Options Report

26 Appendix I: Schedule 1 Clause 3 Consultation Responses