

# Section 32 Evaluation Report

## Part 2: Light

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## Table of acronyms

| <b>Abbreviation</b> | <b>Full term</b>  |
|---------------------|---|
| <b>LIGHT</b>        | Light   |
| <b>PDP</b>          | Proposed District Plan  |
| <b>CPTED</b>        | National Guidelines for Crime Prevention Through Environmental Design |
| <b>RMA</b>          | Resource Management Act   |
| <b>NES</b>          | National Environmental Standards                                      |
| <b>NPS</b>          | National Policy Statements  |
| <b>GWRC</b>         | Greater Wellington Regional Council                                   |
| <b>RPS</b>          | Regional Policy Statement for the Wellington Region 2013              |
| <b>PNRP</b>         | Proposed Natural Resources Plan                                       |
| <b>ODP</b>          | Operative District Plan   |
| <b>MfE</b>          | Ministry for the Environment  |

## 1.0 Overview and Purpose

### 1.1 Introduction to the resource management issue/s

This section 32 evaluation report is focussed on the Light chapter. The purpose of the topic is to provide for adequate artificial lighting to support activities and enable safety and security for people and communities beyond normal daylight hours. However, unless used with care, artificial light can have adverse effects on people of neighbouring properties, the transport network, the night sky, and wildlife in the coastal area due to light glare, spill, and pollution.

The Operative District Plan (ODP) currently manages light effects throughout the various zone chapters. Since 2000, only fifteen resource consents have triggered the operative lighting standards, and all of these have occurred in the Open Space Zone. The rules in the ODP are currently hard to comply with, monitor, and enforce, and are rarely triggered.

The Light chapter has been created so that lighting provisions sit within their own chapter of the District Plan in a manner consistent with the National Planning Standards (2019). The objectives, policies and rules will also help can better manage the potential adverse effects of outdoor artificial light.

## 2.0 Strategic Direction

The following objectives in the Strategic Direction chapter of the Proposed District Plan that are relevant to this issue/topic are: Capital City, Natural Environment, Sustainability Resilience and Climate Change, Urban Form and Development.

|  |                                   |
|--|-----------------------------------|
| <b>CC-02</b>   | <b><i>Capital City</i></b>        |
| Wellington City is a well-functioning Capital City where:  |                                   |
| <ol style="list-style-type: none"> <li>1. A wide range of activities that have local, regional and national significance are able to establish.</li> <li>2. Current and future residents can meet their social, cultural, economic and environmental wellbeing.</li> <li>3. Mana whenua values and aspirations are visible, celebrated and an integral part of the City's identity.</li> <li>4. Urban intensification is delivered in appropriate locations and in a manner that supports future generations to meet their needs.</li> <li>5. Innovation and technology advances that support the social, cultural, economic and environmental wellbeing of existing and future residents are promoted.</li> <li>6. Values and characteristics that are an important part of the City's identity and sense of place are identified and protected.</li> </ol> |                                   |
| <b>NE-03</b>   | <b><i>Natural Environment</i></b> |
| The City retains an extensive open space network that:   |                                   |
| <ol style="list-style-type: none"> <li>1. Is easily accessible;</li> <li>2. Connects the urban and natural environment;</li> <li>3. Supports ecological, cultural, and landscape values; and</li> <li>4. Meets the needs of anticipated future growth.</li> </ol>  |                                   |
| <b>NE-04</b>   | <b><i>Natural Environment</i></b> |

Mana whenua are able to exercise their customary responsibilities as mana whenua and kaitiaki with their own mātauranga Māori in the protection and management of the natural environment.

|                |   |
|----------------|---|
| <b>SRCC-01</b> | <b><i>Sustainability, Resilience and Climate Change</i></b> |
|----------------|---|

The City's built environment supports:

1. A net reduction in the City's carbon emissions by 2050;
2. More energy efficient buildings;
3. An increase in the use of renewable energy sources; and
4. Healthy functioning of native ecosystems and natural processes.

|               |  |
|---------------|--|
| <b>UFD-07</b> | <b><i>Urban Form and Development</i></b> |
|---------------|--|

Development supports the creation of a liveable, well-functioning urban environment that enables all people and communities to provide for their social, economic, environmental, and cultural wellbeing, and:

1. Is accessible and well-designed;
2. Supports sustainable travel choices, including active and micromobility modes;
3. Is serviced by the necessary infrastructure appropriate to the intensity, scale and function of the development and urban environment;
4. Is socially inclusive;
5. Is ecologically sensitive;
6. Is respectful of the City's historic heritage;
7. Provides for community well-being; and
8. Is adaptable over time and responsive to its evolving, more intensive surrounding context.

An evaluation of these objectives is contained in the companion Section 32 Evaluation Overview Report.

### 3.0 Regulatory and policy direction

In carrying out a s32 analysis, an evaluation is required of how the proposal achieves the purpose and principles contained in Part 2 of the RMA.

Section 5 sets out the purpose of the RMA, which is to promote the sustainable management of natural and physical resources.

Sustainable management *'means managing the use, development, and protection of natural and physical resources to enable people and communities to provide for their social, economic and cultural wellbeing 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'.*

In achieving this purpose, all persons exercising functions and powers under the RMA also need to:

- Recognise and provide for the matters of national importance identified in s6
- Have particular regard to the range of other matters referred to in s7
- Take into account the principles of the Treaty of Waitangi/Te Tiriti o Waitangi in s8.

### 3.1 Section 6

The s6 matters relevant to this topic are:

| Section | Relevant Matter  |
|---------|--|
| s6(c)   | <p><i>the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna</i></p> <p>Artificial light can have adverse effects on wildlife by disorientating them and disrupting their natural cycles. Most of the coastal areas of Wellington are identified by Wellington Regional Council as being habitat for 'at risk or threatened' bird species who live in or visit coastal areas.</p> |

### 3.2 Section 7

The s7 matters that are relevant to this topic are:

| Section | Relevant Matter   |
|---------|---|
| s7(b)   | <p><i>The efficient use and development of natural and physical resources</i></p> <p>Some land use activities have a direct operational or functional need to emit or undertake activities that result in the emission of light to that allows the efficient use and development of natural and physical resources.</p> |
| s7(c)   | <p><i>the maintenance and enhancement of amenity values</i></p> <p>Artificial light spill, glare, and pollution can have significant adverse effects on the amenity values of a site or area</p>  |
| s7(f)   | <p><i>maintenance and enhancement of the quality of the environment.</i></p> <p>The quality of the environment can be affected by activities that generate artificial light, and in some cases can result in effects on the health and wellbeing of people and communities.</p>   |

### 3.3 Section 8

There are no section 8 principles relevant to this topic.

### 3.4 National Direction

#### 3.4.1 National Policy Statements

There are five National Policy Statements (NPS) currently in force:

- NPS for Electricity Transmission 2008
- New Zealand Coastal Policy Statement 2010
- NPS for Renewable Electricity Generation 2011
- NPS for Freshwater Management 2020
- NPS on Urban Development 2020

There are no NPSs of direct relevance to this topic.

### 3.4.2 Proposed National Policy Statements

In addition to the five NPSs currently in force there are also two proposed NPSs under development, noting that these are yet to be issued and have no legal effect:

- Proposed NPS for Highly Productive Land
- Proposed NPS for Indigenous Biodiversity

There are no proposed NPSs of direct relevance to light.

### 3.4.3 National Environmental Standards

In addition to the NPSs there are nine National Environmental Standards (NES) currently in force:

- NES for Air Quality 2004
- NES for Sources of Human Drinking Water 2007
- NES for Electricity Transmission Activities 2009
- NES for Assessing and Managing Contaminants in Soil to Protect Human Health 2011
- NES for Telecommunication Facilities 2016
- NES for Plantation Forestry 2017
- NES for Freshwater 2020
- NES for Marine Aquaculture 2020
- NES for Storing Tyres Outdoors 2021

There are no NESs of direct relevance to this topic.

### 3.4.4 National Planning Standards

The National Planning Standards require that where the following matters are addressed, they must be included in the Light (LIGHT) chapter in Part 2 – District-Wide Matters of the District Plan:

32. *If provisions for managing light are addressed, they must be located in the Light chapter. These provisions may include:*
- provisions for light spill and glare (including light spill limits) for different zones, receiving environments or other spatially defined area*
  - specific requirements for common significant light generating activities.*

### 3.5 National Guidance Documents

The following national guidance documents are considered relevant to this topic:

| Document   | Relevant provisions   |
|--|---|
| Australian/New Zealand Standard 4282:2019 Control of the obtrusive effects of outdoor lighting | Provides a common basis for assessment of effects of developments involving outdoor lighting. The standard includes effects of lighting of vertical planes including internally and externally illuminated signs, façades or objects.   |
| National Guidelines for Crime Prevention Through Environmental Design                          | The guidelines outline how urban planning, design, and place management strategies can reduce the likelihood of crime, and deliver numerous social and economic benefits. The guidelines address good lighting as a component of 'surveillance and sightlines', a quality of CPTED. |

|                                      |  |
|--------------------------------------|--|
| (CPTED) in New Zealand Parts 1 and 2 |  |
|--------------------------------------|--|

### 3.6 Regional Policy and Plans

#### Regional Policy Statement for the Wellington Region 2013 (RPS)

None of the provisions and resource management topics contained in the RPS are relevant to light.

#### Regional Plans

There are currently five operative regional plans and one proposed regional plan for the Wellington region:

- Regional Freshwater Plan for the Wellington Region, 1999
- Regional Coastal Plan for the Wellington Region, 2000
- Regional Air Quality Management Plan for the Wellington Region, 2000
- Regional Soil Plan for the Wellington Region, 2000
- Regional Plan for discharges to the land, 1999
- Proposed Natural Resources Plan, appeals version 2021

The proposed Natural Resources Plan (PNRP) replaces the five operative regional plans, with provisions in this plan now largely operative with the exception of those that are subject to appeal.

None of the above regional plans are relevant to the Light chapter.

### 3.7 Iwi Management Plan(s)

There are no Iwi Management Plans relevant to this topic.

### 3.8 Relevant plans or strategies

The following plans / strategies are relevant to this topic:

| Plan / Strategy  | Organisation            | Relevant Provisions  |
|--|-------------------------|--|
| <a href="#">Our Natural Capital: Wellington's biodiversity strategy and action plan 2015</a> | Wellington City Council | <ul style="list-style-type: none"> <li>• The purpose of Our Natural Capital: Wellington's Biodiversity Strategy and Action Plan 2015 is to set how our indigenous biodiversity can be protected and restored through connecting people with it and carrying out research so it can be managed better.</li> <li>• Our Natural Capital uses the District Plan alongside voluntary measures to strengthen protection of biodiversity. This includes looking at the impacts of light and sound on biodiversity. While this primarily relates to street lighting, it could also be applied to outdoor artificial lighting.</li> <li>• See <i>11.1.2(b) Habitat Loss and Fragmentation</i> which outlines that there is</li> </ul> |



|                         |                         |  |
|-------------------------|-------------------------|--|
|                         |                         | increasing international evidence that lighting can have negative impacts on plants, animals and their behaviour.  |
| Wellington Spatial Plan | Wellington City Council | <ul style="list-style-type: none"> <li>City goals: Vibrant and Prosperous and Inclusive and Connected are supported by enabling artificial light after dark and ensuring that publicly accessible spaces are safe and inviting.</li> </ul> |

### 3.9 Other relevant legislation or regulations

The following additional legislative / regulatory requirements are also relevant to this topic:

| Legislation / Regulation   | Relevant Provisions   |
|--|---|
| National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia 2020 | <p>These guidelines outline the process to be followed where there is the potential for artificial lighting to affect wildlife. This is relevant because Wellington Harbour and most other coastal areas in Wellington are significant habitat for seabirds and migratory shorebirds. It is important to consider the impacts of artificial light on wildlife and how adverse effects can be minimised in line with current best practice.</p> <p>Relevant sections:</p> <ul style="list-style-type: none"> <li><i>How light affects wildlife (pg. 6)</i></li> <li><i>When to Consider the Impact of Artificial Light on Wildlife? (pg. 8)</i></li> <li><i>Best practice lighting design (pg. 9)</i></li> </ul> |

## Resource Management Issues Analysis

### 3.10 Background

### 3.11 Evidence Base - Research, Consultation, Information and Analysis undertaken

The Council has reviewed the operative District Plan, commissioned assistance from internal experts and utilised this, along with internal workshops and community feedback to assist with setting the plan framework. This work has been used to inform the identification and assessment of the environmental, economic, social and cultural effects that are anticipated from the implementation of the provisions. This advice includes the following:

- Review of resource consents
- Advice from Compliance, Resource Consents and PSR teams
- Lighting expert advice from Transport and Infrastructure team

#### 3.11.1 Analysis of Operative District Plan provisions relevant to this topic

The provisions relating to light are currently scattered throughout multiple zone chapters yet objectives and policies follow the same themes across all chapters (though some do not

explicitly mention light) and follow variations of the same rules. The key provisions in the Operative Wellington District Plan of relevance to this topic are summarised below.

| Topic   | Summary of relevant provisions   |
|---|--|
| <p>Light<br/>(found in<br/>Chapters 6 &amp; 7 –<br/>Centres,<br/>Chapters 8 &amp; 9 -<br/>Institutional<br/>Precincts, and<br/>Chapters 17 &amp;<br/>18 - Open Space<br/>Rules)</p> | <p>Across these zone chapters, there are no specific lighting objectives although they are implicit in other objectives that aim to facilitate a wide range of activities that contribute to vibrancy and economic and social needs of the community, while avoiding, remedying or mitigating adverse effects.</p> <p>Across these zone chapters there are also no policies specific to lighting although lighting is mentioned in general policies, for example policies that:</p> <ul style="list-style-type: none"> <li>• encourage developments and activities that create attractive, comfortable environments with elements such as lighting.</li> <li>• Ensure adverse effects such as lighting of activities are managed.</li> </ul> <p>Rules for lighting are included across these zone chapters in slight variations of the following:</p> <ul style="list-style-type: none"> <li>• Rule 17.1.1.4.1 Any activity which requires outdoor areas to be lit must ensure that direct or indirect illumination does not exceed 8 lux at the windows of residential buildings within any Residential Area.</li> <li>• Subject to Rule 17.1.1.4.1, pedestrian routes or carparks available for public use during the hours of darkness must be lit at a minimum of 10 lux measured in accordance with NZS CP22:1962 and amendments.</li> <li>• Any lighting must be installed so that there is no line of sight between the light source and a street or Residential Area.</li> </ul> <p>Key issues</p> <ul style="list-style-type: none"> <li>• Lighting levels do not align with recent Australian and New Zealand National Standards, or surrounding territorial authority district plan standards.</li> <li>• A minimum lux level requirement for public spaces does not achieve safety by itself, and can sometimes lead to less safe spaces.</li> <li>• Given the hilly nature of the city, the standard restricting a ‘direct line of sight between the light source and a street or Residential Area’ is difficult to enforce.</li> <li>• There are no standards around light pollution even though it is an identified issue and common best practice.</li> <li>• There were no recorded resource consents that needed a resource consent under the existing light rules.</li> </ul> |

### 3.11.2 Analysis of other District Plan provisions relevant to this topic

Current practice has been considered in respect of this topic, with a review undertaken of the following District Plans. It is noted that some of these plans have been prepared in accordance with the National Planning Standards.

| Plan  | Local Authority           | Description of approach   |
|---|---------------------------|---|
| Christchurch City Council Operative District Plan | Christchurch City Council | <ul style="list-style-type: none"> <li>• One objective and one supporting policy for light activities, which aims to provide for the</li> </ul> |

|  |                            |   |
|--|----------------------------|---|
| General Rules and Procedures Chapter   |                            | <p>outdoor artificial lighting while avoiding or mitigating adverse effects.</p> <ul style="list-style-type: none"> <li>• Rules and standards to control light spill, glare, and effects on transport.</li> <li>• Artificial light is a permitted activity where it complies with the standards</li> </ul>  |
| Hamilton Operative District Plan <a href="#">Lighting and Glare Chapter</a><br><br>(National Planning Standards) | Hamilton City Council      | <ul style="list-style-type: none"> <li>• One objective and one supporting policy for light activities which provides for outdoor artificial lighting while avoiding or mitigating adverse effects.</li> <li>• Rules and standards to control light spill, lighting illuminating public space and transport corridors.</li> <li>• Artificial light is a permitted activity where it complies with the standards</li> </ul> |
| Auckland Unitary Plan <a href="#">Lighting Chapter</a>   | Auckland Unitary Authority | <ul style="list-style-type: none"> <li>• Two objective and three supporting policies for light activities are aimed at providing for the positive uses of artificial outdoor lighting while managing the adverse effects.</li> <li>• Rules and standards to control light spill, glare, and traffic effects.</li> <li>• Artificial light is a permitted activity where it complies with the standards.</li> </ul>         |
| Porirua Proposed District Plan <a href="#">Light Chapter</a><br><br>(National Planning Standards)                | Porirua City Council       | <ul style="list-style-type: none"> <li>• Two objectives and three supporting policies for light activities which aim to provide for the positive uses of artificial outdoor lighting while avoiding or mitigating adverse effects.</li> <li>• Rules and Standards control light spill, glare, sky glow, and effects on transport corridors.</li> </ul>  |

These plans were selected because:

- They have been subject to the National Planning Standards or recent plan changes that have addressed similar issues relating to this topic; and
- In the case of Porirua, are in the same region as Wellington City and will benefit from a consistent approach.

A summary of the key findings follows:

- More recently, reviewed district plans usually cover light spill, glare, transport corridor effects, and sky glow.
- Recently reviewed plans align with the Australian/New Zealand Standard 4282:2019 Control of the obtrusive effects of outdoor lighting which was updated in 2019.

### ***3.11.3 Advice received from Taranaki Whānui and Ngāti Toa Rangatira***

Under Clause 4A of Schedule 1 of the RMA local authorities are required to:

- Provide a copy of any draft policy statement or plan to any iwi authority previously consulted under clause 3 of Schedule 1 prior to notification;
- Allow adequate time and opportunity for those iwi authorities to consider the draft and to supply advice; and
- Have particular regard to any advice received before notifying the plan.

As an extension of this s32(4A) requires evaluation reports prepared in relation to a proposed plan to include a summary of:

- All advice received from iwi authorities concerning the proposal; and
- The response to that advice, including any proposed provisions intended to give effect to the advice.

The District Plan Review has included significant engagement with our mana whenua partners - Taranaki Whānui ki te Upoko o te Ika and Ngāti Toa Rangatira. This has included over 100 hui and wānanga attended by Council officers over the last 12 months. This has provided a much greater understanding of mana whenua values and aspirations as they relate to the PDP.

The PDP elevates the consideration of mana whenua values in resource management processes, including:

- A new Tangata Whenua chapter which provides context and clarity about who mana whenua are and what environmental outcomes they are seeking.
- A new Sites and Areas of Significance to Māori chapter that provides greater protection for sites and areas of significance than the current District Plan.
- Integrating mana whenua values across the remainder of the plan where relevant.

This is consistent with both the City Goal of 'Partnership with mana whenua' in the Spatial Plan; and the recently signed Tākai Here (2022), which is the new partnership agreement between the Council and our mana whenua partners, Rūnanga o Toa Rangatira, Taranaki Whānui ki Te Upoko o Te Ika and Te Rūnanganui o Te Āti Awa.

A full copy of the advice received is attached as an addendum to the complete suite of Section 32 reports as Appendix 5 – Advice received from Taranaki Whānui and Ngāti Toa Rangatira.

No specific advice has been received from Taranaki Whānui or Ngāti Toa Rangatira regarding this topic and the proposed provisions evaluated within this report.

#### **3.11.4 Consultation undertaken to date**

The following is a summary of the primary consultation undertaken in respect of this topic:

| <b>Who</b>   | <b>What</b>  | <b>When</b>             | <b>Relevant Issues Raised</b>   |
|--|--|-------------------------|---|
| WCC Compliance and Enforcement Team, Resource Consents Team, Street Lighting | Key issues with current provisions when testing compliance and enforcement | October – December 2021 | <ul style="list-style-type: none"> <li>• Existing rule that restricts a line of sight between a light source and a street or Residential Area is impractical and cannot be achieved in many circumstances.</li> </ul> |

|                                 |  |               |   |
|---------------------------------|--|---------------|---|
| Team, Urban Design Team         |  |               | <ul style="list-style-type: none"> <li>• Lighting is not a common issue in resource consents, but sometimes require lighting plan for CPTED issues.</li> <li>• It is difficult to write provisions that lay people will understand.</li> <li>• Minimum lux levels for publicly accessible spaces will not in itself result in safer spaces. In fact, it may in some cases give places a false sense of security.</li> </ul> |
| Feedback on Draft District Plan | Feedback on Draft Plan, through submissions and targeted discussions | November 2021 | <ul style="list-style-type: none"> <li>• Safety for aircraft operations need to be considered</li> <li>• Concerns about light pollution, particularly in valleys and new urban areas.</li> <li>• Support for effects on wildlife consideration</li> </ul>   |

A summary of specific feedback on this topic received during consultation on the Draft District Plan is contained in Appendix 1, including how it has been responded to in the Proposed District Plan. Additional detail concerning the wider consultation undertaken in preparing the Proposed District Plan is contained in the companion Section 32 Evaluation Overview Report.

In summary, the key findings arising from the consultation undertaken on this topic are:

- Concerns about light pollution in the city
- Existing glare standards not serving their purpose
- Lighting not a common issue in resource consent process, and often arises out of compliance and enforcement action is undertaken.

### 3.12 Summary of Relevant Resource Management Issues

Based on the research, analysis and consultation outlined above, the following issues have been identified:

| Issue                                   | Comment  | Response  |
|---|--|---|
| Issue 1: Current provisions not aligned | <ul style="list-style-type: none"> <li>• A new Aus/NZ national technical standard came out in 2019 for controlling the obtrusive effects of outdoor lighting.</li> </ul> | <ul style="list-style-type: none"> <li>• Update provisions to reference the national standard and align standards with the</li> </ul> |

|   |  |  |
|---|--|--|
| with updated National Standard for outdoor lighting | <ul style="list-style-type: none"> <li>Updated District Plans around the country are referencing the new national standard.</li> </ul>   | recommended levels in the standard.  |
| Issue 2: Minimum lighting in public spaces          | <ul style="list-style-type: none"> <li>Existing provisions have a minimum lux level for publicly accessible spaces (e.g. car parks, walkways).</li> <li>Urban design team advised that lux levels are not the only factor contributing to safety and in some cases, lighting areas that are not safe can lead to false perceptions of safety and increase risk for users.</li> <li>A better approach is to use design guides to advise position, type of lighting, brightness, and placement.</li> </ul>   | <ul style="list-style-type: none"> <li>Remove standard for minimum lux level of publicly accessible spaces.</li> <li>Increase guidance in Design Guides for safe lighting.</li> </ul>  |
| Issue 3: Effects of lighting on wildlife            | <ul style="list-style-type: none"> <li>Growing evidence of the effects of artificial lights on life cycles of wildlife. Particularly affecting breeding, feeding and growth of young.</li> <li>This is particularly relevant for Wellington's coast where GWRC have identified the whole coastline as significant habitat for various bird species.</li> <li>Not enough research to conclude exact types of light on different species so it is not possible to include specific standards but there are practical guidelines to mitigate effects in the <i>National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia 2020</i>.</li> </ul> | <ul style="list-style-type: none"> <li>Include reference to the <i>National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia 2020</i> which contains practical steps to mitigate the effects of lighting.</li> </ul> |

## 4.0 Evaluation of the Proposal

This section of the report evaluates the objectives of the proposal to determine whether they are the most appropriate means to achieve the purpose of the RMA, as well as the associated policies, rules and standards relative to these objectives. It also assesses the level of detail required for the purposes of this evaluation, including the nature and extent to which the benefits and costs of the proposal have been quantified.

## 4.1 Scale and Significance

Section 32(1)(c) of the RMA requires that this report contain a level of detail that corresponds with the scale and significance of the environmental, economic, social and cultural effects that are anticipated from the implementation of the proposal.

The level of detail undertaken for this evaluation has been determined by assessing the scale and significance of the environmental, economic, social and cultural effects anticipated through introducing and implementing the proposed provisions (i.e. objectives, policies and rules) relative to a series of key criteria.

Based on this the scale and significance of anticipated effects associated with this proposal are identified below:

| <b>Criteria</b>   | <b>Scale/Significance</b> |               |             | <b>Comment</b>  |
|---|---------------------------|---------------|-------------|---|
|   | <b>Low</b>                | <b>Medium</b> | <b>High</b> |   |
| Basis for change  | ✓                         |               |             | <ul style="list-style-type: none"> <li>10 year district plan review</li> <li>Required by the National Planning Standards.</li> <li>Out of date with national technical standards</li> </ul>                                   |
| Addresses a resource management issue                             | ✓                         |               |             | <ul style="list-style-type: none"> <li>There are no significant resource management issues.</li> </ul>  |
| Degree of shift from the status quo                               | ✓                         |               |             | <ul style="list-style-type: none"> <li>Lighting outcomes and requirements are not a large shift from the status quo. Proposed provisions provide more consistency and clarity.</li> </ul>                                     |
| Who and how many will be affected/ geographical scale of effect/s |                           | ✓             |             | <ul style="list-style-type: none"> <li>As a district-wide issue, the geographical area is large and lighting affects everyone and has impacts on the natural environment.</li> </ul>  |
| Degree of impact on or interest from iwi/ Māori                   | ✓                         |               |             | <ul style="list-style-type: none"> <li>No particular interest from iwi or Māori has been identified in relation to this topic.</li> </ul>   |
| Timing and duration of effect/s                                   | ✓                         |               |             | <ul style="list-style-type: none"> <li>Lighting is easy to change if causing damage or nuisance. It is reversible so there are no permanent effects.</li> </ul>   |
| Type of effect/s  | ✓                         |               |             | <ul style="list-style-type: none"> <li>The main effect from lighting is nuisance to people when location/brightness is not well thought-out.</li> <li>Adverse effects on animals and ecosystems have been recorded</li> </ul> |

| <b>Criteria</b>                | <b>Scale/Significance</b> |               |             | <b>Comment</b>   |
|--------------------------------|---------------------------|---------------|-------------|--|
|                                | <b>Low</b>                | <b>Medium</b> | <b>High</b> |  |
|                                |                           |               |             | <ul style="list-style-type: none"> <li>Positive effects of lighting provide safety and security and is an essential part of urban environments.</li> </ul> |
| Degree of risk and uncertainty | ✓                         |               |             | <ul style="list-style-type: none"> <li>Proposed provisions follow tested approach and do not result in long-term or irreversible effects.</li> </ul>       |

Overall, the scale and significance of the proposed provisions are considered to be low for the following reasons:

- The review of provisions is on the basis of the 10-year district plan review and requirement to give effect to the National Planning Standards
- There is not a significant change from the status quo despite more detail being proposed in the provisions.
- There is a low risk and uncertainty around the proposed provisions as they follow a tested approach within New Zealand and align with best practice national technical guidelines.

Consequently, a high-level evaluation of these provisions has been identified as appropriate for the purposes of this report.

#### 4.2 Quantification of Benefits and Costs

Section 32(2)(b) requires that, where practicable, the benefits and costs of a proposal are to be quantified.

Based on the assessment of the scale and significance of the proposed provisions in section 6.1, specific quantification of the benefits and costs in this report is considered neither necessary, beneficial nor practicable in relation to this topic for the following reasons:

- The change from the status quo is not significant
- There is no evidence to demonstrate that the status quo is resulting in significant adverse effects
- The proposed approach is tested in other areas of New Zealand
- There is low risk and uncertainty

Instead, this report identifies more generally where any additional costs or cost may lie.

#### 5.0 Overview of Proposal/s

The proposed provisions relevant to this topic are set out in detail in the ePlan and should be referenced to in conjunction with this evaluation report.

In summary, the proposed provisions include:

- Two objectives that address:
  - Purpose of artificial lighting
  - Adverse effects of outdoor artificial lighting



- Three policies that:
  - Allow outdoor artificial lighting that maintains health and safety, and enables appropriate night-time activities.
  - Manage design and location of outdoor artificial lighting
  - Ensure safety and security of public and private shared space
  
- A rule framework that manages land use and building and structure activities as follows:
  - Land Use activities
    - LIGHT-R1 Outdoor artificial lighting
      - Permitted where the activity complies with Light Standards 1-6
      - Restricted Discretionary where compliance with the requirements of Light R-1.1 cannot be achieved
    - LIGHT-R2 Outdoor artificial lighting in the Coastal Margin
      - Restricted Discretionary
  
- A complementary set of effects standards that address:
  - LIGHT-S1 Measurement methods
    - Provides limits that outdoor lighting must be measured against.
  - LIGHT-S2 Light Spill
    - Control vertical illuminance levels that outdoor artificial lighting in all Zones must not exceed.
  - LIGHT-S3 Glare
    - Directs that outdoor artificial lighting must be selected, located, aimed, adjusted and/or screened so that the luminous intensity does not exceed certain levels for any given zone.
  - LIGHT-S4 Effects on road users
    - Provides threshold increments that must not be exceeded when calculated in the direction of travel within each traffic lane of any public road to ensure safety of the transport network.
  - LIGHT-S5 Sky Glow
    - Provides upward light ratios that must not be exceeded in any given zone to reduce adverse effects of sky glow.
  - LIGHT-S6 Externally illuminated surfaces
    - Provides limits for average surface luminance for any intentionally artificially lit building façade to ensure safety of transport networks and reduce conflict with existing sensitive activities, and effects on indoor amenity values and sleep quality of nearby residential units.
  
- Supporting Design Guides that:
  - Provide guidance on where lighting should be included for wayfinding, security and safety
  - Guidance on lux, colour, location, direction, and positioning of lights to achieve safe lighting without adverse effects on amenity.

## **6.0 Evaluation of Proposed Objective/s**

### **6.1 Introduction**

Section 32(1)(a) of the RMA requires that the evaluation report examine the extent to which the objectives of the proposal are the most appropriate way to promote the sustainable management of natural and physical resources.

An examination of the proposed objectives along with reasonable alternatives is included below, with the relative extent of their appropriateness based on an assessment against the following criteria:

1. Relevance (i.e. Is the objective related to addressing resource management issues and will it achieve one or more aspects of the purpose and principles of the RMA?)
2. Usefulness (i.e. Will the objective guide decision-making? Does it meet sound principles for writing objectives (i.e. does it clearly state the anticipated outcome?)
3. Reasonableness (i.e. What is the extent of the regulatory impact imposed on individuals, businesses or the wider community? Is it consistent with identified tangata whenua and community outcomes?)
4. Achievability (i.e. Can the objective be achieved with tools and resources available, or likely to be available, to the Council?)

### **6.2 Evaluation of Objectives LIGHT-O1 and LIGHT-O2**

While not specifically required under s32, it is appropriate to also consider alternative objectives to those currently included in the Proposed District Plan, so as to ensure that the proposed objective(s) are the most appropriate to achieve the purpose of the RMA.

For the purposes of this evaluation, the Council has considered three potential options:

1. The proposed objective
2. Status quo
3. A reasonable alternative objective

|  |   |   |  |
|--|---|---|--|
| <b>Proposed objectives:</b>  |   |   |  |
| <b>LIGHT-O1 Purpose</b>  |   |   |  |
| <i>Artificial lighting provides for outdoor activities, safety, and security after dark.</i>   |   |   |  |
| <b>LIGHT-O2 Adverse effects of outdoor artificial lighting</b>   |   |   |  |
| <i>The adverse effects of outdoor artificial lighting on sensitive activities, traffic safety, coastal wildlife and the night sky are limited.</i> |   |   |  |
| <b>General intent:</b>   |   |   |  |
| To provide for lighting for security and safety while managing adverse effects on wildlife, night sky light pollution, and nuisance for people.    |   |   |  |
| <b>Other potential objectives</b>  |   |   |  |
| Status quo: No specific lighting objective   |   |   |  |
| Alternative: Provide for outdoor artificial lighting where adverse effects are avoided, mitigated or remedied.                                     |   |   |  |
|  | <b>Preferred objective</b>  | <b>Status quo</b>   | <b>Alternative</b>   |
| <b>Relevance:</b>  |   |   |  |
| Addresses a relevant resource management issue   | Seeks to protect people, wildlife and the night sky from artificial light as well as providing security and safety                      | Does not address any issues   | Objective is not specific in what outcomes are to be achieved or what adverse effects should be managed.   |
| Assists the Council to undertake its functions under s31 RMA   | Objectives provide clear direction for how the Council should manage light.   | Does not provide guidance or direction.   | The objective fits into the functions under s31 of the RMA.  |
| Gives effect to higher level documents   | Gives effects to RPS by providing for the social and economic wellbeing of people and protecting them and wildlife from adverse effects | Keeping the light rules and standards (the status quo), would not give effect to the National Planning Standards as the rules and standards would be located in a separate Light chapter with separate objective/s and policy/ies | The objective gives effect to the RPS.   |
| <b>Usefulness:</b>   |   |   |  |
| Guides decision-making   | Establishes a clear intent for the management of light activities   | Does not provide guidance for decision making   | Does not provide clear outcomes to guide decision-making.  |
| Meets best practice for objectives   | The objectives are specific and state what is to be achieved.   | Would be helpful to have an objective to provide direction for implementing policies, rules and standards   | The objective does not provide detail on how light should be provided for or how its effects should be managed and is therefore not best practice. |

| <i>Reasonableness:</i>  |  |  |  |
|---|--|--|--|
| Will not impose unjustifiably high costs on the community/parts of the community.   | Does not create extraneous costs.  | Does not create extraneous costs.  | Does not create extraneous costs.  |
| Acceptable level of uncertainty and risk.   | Minimal uncertainty and risk, similar objectives tested in other districts.  | There is a risk that maintaining status quo rules and standards with no objective would not give effect to the National Planning Standards and would not provide clear direction for implementation. | Greater uncertainty with this option as effects and outcomes are not specific.   |
| <i>Achievability:</i>   |  |  |  |
| Consistent with identified tangata whenua and community outcomes.   | The objectives achieve community outcomes.   | Does not provide clear direction to achieve community and tangata whenua outcomes  | The objective does not contradict tangata whenua or community values.  |
| Realistically able to be achieved within the Council's powers, expertise, and resources.  | The objectives can be achieved through ongoing management of consent processes, non-regulatory methods and monitoring and enforcement. | The status quo is functioning within Council's power, skills and resources though has some issues.   | The objectives can be achieved through ongoing management of consent processes, non-regulatory methods and monitoring and enforcement. |
| <b>Summary</b>  |  |  |  |
| The above analysis suggests that the preferred objective is the most appropriate to implement the RPS and in turn, the purpose of the Act. By contrast, the status quo does not provide a practical option as at least one objective for light is required for the new light chapter under the new National Planning Standards where light provisions are incorporated into the District Plan. The alternative option is not as effective in guiding decision-making or achieving positive outcomes due to its lack of specificity. |  |  |  |

## **7.0 Evaluation of Reasonably Practicable Options and Associated Provisions**

### **7.1 Introduction**

Under s32(1)(b) of the RMA, reasonably practicable options to achieve the objectives associated with this proposal need to be identified and examined. This section of the report evaluates the proposed policies and rules, as they relate to the associated objectives.

The technical and consultation input used to inform this process is outlined in section 5 of this report.

### **7.2 Evaluation method**

For each potential approach an evaluation has been undertaken relating to the costs, benefits and the certainty and sufficiency of information (as informed by section 5 of this report) in order to determine the effectiveness and efficiency of the approach, and whether it is the most appropriate way to achieve the relevant objective(s).

This evaluation is contained in the following sections.

### **7.3 Provisions to achieve Objectives**

For the purpose of this evaluation, the Council has considered the following potential options:

1. The proposed provisions
2. The status quo

| <b>Objectives:</b><br><b>LIGHT-O1 Purpose</b><br><i>Artificial lighting provides for outdoor activities, safety, and security after dark.</i><br><b>LIGHT-O2 Adverse effects of outdoor artificial lighting</b><br><i>The adverse effects of outdoor artificial lighting on sensitive activities, traffic safety, coastal wildlife and the night sky are limited.</i>  |  |  |  |
|--|--|--|--|
| Option 1: Proposed approach (recommended)  | Costs  | Benefits   | Risk of Acting / Not Acting if there is uncertain or insufficient information about the subject matter of the provisions   |
| <p><b>Policies:</b></p> <p><b>LIGHT-P1 Allow outdoor artificial lighting</b><br/> Allow outdoor artificial lighting that maintains health and safety, and enables appropriate night-time activities.</p> <p><b>LIGHT-P2 Design and location of outdoor artificial lighting</b><br/> Require outdoor artificial lighting to be designed, located and oriented to maintain amenity values, traffic safety, aviation safety and to minimise effects on wildlife in coastal margins.</p> <p><b>LIGHT-P3 Ensure safety and security of public and private shared space</b><br/> Ensure the safety and security of shared or publicly accessible spaces by providing appropriate outdoor artificial lighting.</p> <p><b>Rules:</b></p> <p>LIGHT-R1 Outdoor Artificial Lighting</p> <p>LIGHT-R2 Outdoor Artificial Lighting in the coastal margin</p> <p><b>Other Methods:</b></p> <p>Design Guides</p> | <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>Potential direct costs on biodiversity from artificial lighting that is not captured under the proposed provisions.</li> </ul> <p><b>Economic</b></p> <ul style="list-style-type: none"> <li>Direct costs for applicants and consenting authority where lighting plans are needed to assess compliance with the standards.</li> </ul> <p><b>Social</b></p> <ul style="list-style-type: none"> <li>No direct or indirect costs have been identified.</li> </ul> <p><b>Cultural</b></p> <ul style="list-style-type: none"> <li>No direct or indirect costs have been identified.</li> </ul> | <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>Direct benefits for biodiversity from provisions protecting the night sky and coastal habitats against light pollution.</li> </ul> <p><b>Economic</b></p> <ul style="list-style-type: none"> <li>Direct benefits for businesses to carry out activities that require outdoor artificial lighting.</li> <li>Direct benefits for consenting authority by having clear standards with which to test compliance and assess effects.</li> </ul> <p><b>Social</b></p> <ul style="list-style-type: none"> <li>Direct benefits for the community by being able to make use of artificial outdoor lighting for activities, safety and security, as well as being protected from adverse effects of lighting.</li> </ul> <p><b>Cultural</b></p> <ul style="list-style-type: none"> <li>Direct benefits as a result of reduced light pollution on the night sky, which enables connection to astrological features which often have important cultural meaning.</li> </ul> | <p>It is considered that there is certain and sufficient information on which to base the proposed policies and methods as:</p> <ul style="list-style-type: none"> <li>The approach has been tested in other districts with success.</li> <li>The approach is not a significant departure from the status quo.</li> <li>The approach aligns with best practice and national standards and guidance.</li> </ul> |

|  |  |  |   |
|--|--|--|---|
| <b>Effectiveness and efficiency</b>  | <b>Effectiveness</b><br>The proposed provisions enable artificial outdoor lighting, thereby achieving Objective 1. Artificial light is a permitted activity where it is below well understood thresholds. This allows for economic and social benefits through the use of artificial outdoor light. Beyond these thresholds, the rules, standards and design guides establish clear direction for how to avoid and mitigate adverse effects from outdoor lighting, thereby achieving Objective 2.  |  | <b>Efficiency</b><br>The proposed provisions are achievable and the benefits clearly outweigh the costs. They have a low associated risk as they will not result in irreversible or long term effects and the economic, social, cultural and environmental costs are low. |
| <b>Overall evaluation</b>  | The proposed provisions are the most appropriate to achieve the objectives because they result in a range of economic, social, environmental and cultural benefits with low associated cost or risk.   |  |   |
| <b>Option 2: Status Quo</b>  | <b>Costs</b>   | <b>Benefits</b>  | <b>Risk of Acting / Not Acting if there is uncertain or insufficient information about the subject matter of the provisions</b>   |
| <p><b>Policies:</b></p> <p>Policy 6.2.2.8<br/>Ensure that activities creating effects of lighting, dust and the discharge of any contaminants are managed to avoid, remedy or mitigate adverse effects on other activities within Centres or in nearby Residential or Open Space Areas.</p> <p>Policy 6.2.3.2<br/>Encourage developments to create an attractive, comfortable and legible street environment including aspects such as shelter/ verandas, lighting, street furniture and landscaping.</p> <p><b>Rules:</b></p> <p>Two types of rules are included across Chapter 7 Centres, Chapter 9 Institutional Precincts, Chapter 11 Airport, Chapter 14 Central Area, Chapter 17 Open Space, Chapter 34 Business Areas:</p> <p>Rules follow two formats:</p> <ol style="list-style-type: none"> <li>Outdoor areas that are required to be lit must not exceed 8/10 lux at</li> </ol> | <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>The status quo does not manage effects from artificial lighting on the night sky or sensitive ecological areas. There is increasing evidence that light pollution negatively impacts wildlife (particularly birds) navigation, breeding, feeding and growth.</li> </ul> <p><b>Economic</b></p> <ul style="list-style-type: none"> <li>Cost of compliance and enforcement. There are currently some difficulties in enforcing or checking compliance with the status quo, in particular Rule 17.1.1.4.3 which is impractical.</li> </ul> <p><b>Social</b></p> <ul style="list-style-type: none"> <li>The standards requiring minimum lux requirements for publicly accessible spaces do not take into consideration the other elements that result in safely lit space and may not result in safe, secure, inviting spaces.</li> </ul> <p><b>Cultural</b></p> <ul style="list-style-type: none"> <li>There are no limits on sky glow light pollution which could cause negative effects on cultural relationships with the night sky.</li> </ul> | <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>No direct or indirect benefits have been identified.</li> </ul> <p><b>Economic</b></p> <ul style="list-style-type: none"> <li>Light provisions enable businesses to use artificial outdoor lighting which enables economic activities.</li> </ul> <p><b>Social</b></p> <ul style="list-style-type: none"> <li>Minimum lux levels are proposed to allow for publicly accessible spaces to be lit.</li> <li>Light provisions enable social activities after dark through the use of artificial lighting.</li> </ul> <p><b>Cultural</b></p> <ul style="list-style-type: none"> <li>No direct or indirect benefits have been identified.</li> </ul> | <p>There is sufficient information with respect to the evidence base to conclude that maintaining the status quo would result in continued problems with effectiveness and efficiency, and would not address relevant resource management issues.</p>                     |

|  |   |  |  |
|--|---|--|--|
| <p>residential buildings in residential area.</p> <p>2. Any development that includes roads, outdoor public spaces/pedestrian routes and carparks must be lit at a minimum of 10 lux, measured in accordance with AS/NZS 1158.3.1 : 2005 OR NZS CP22:1962</p> <p>In Chapter 17 Open Space there is an additional rule: 17.1.1.4.3<br/>Any lighting must be installed so that there is no line of sight between the light source and a street or Residential Area.</p> <p><b>Other Methods:</b></p> <p>Limited guidelines in the Design Guides.</p> |   |  |  |
| <p><b><u>Effectiveness and efficiency</u></b></p>  | <p><b><i>Effectiveness</i></b></p> <p>The status quo is not an effective way of managing light. It does not provide clear direction or desired outcomes and there have been a number of compliance and enforcement issues over the years which have tried to resolve issues arising from the wording of provisions. The rules and standards are not consistent with the latest national standards for managing outdoor artificial lighting, nor do the provisions provide guidance on how to effectively implement lighting to achieve good outcomes.</p> |  | <p><b><i>Efficiency</i></b></p> <p>There are no objectives under the status quo directly related to lighting so it is hard to assess the efficiency of the objectives. Given the time spent by compliance officers working out resolutions to glare, the provisions do not seem to be very efficient at avoiding or providing guidance to manage effects from artificial lighting.</p> |
| <p><b><u>Overall evaluation</u></b></p>  | <p>The status quo is not appropriate as it does not provide clear direction, meet national guidance and standards, and has known issues in compliance and enforcement.</p>  |  |  |



## 8.0 Conclusion

This evaluation has been undertaken in accordance with section 32 of the RMA in order to identify the need, benefits and costs and the appropriateness of the proposal having regard to its effectiveness and efficiency relative to other means in achieving the purpose of the RMA. The evaluation demonstrates that this proposal is the most appropriate option as it:

- Includes two objectives that clearly set out desired, achievable outcomes which provide for economic, social, cultural and environmental wellbeing.
- Is enabling of outdoor artificial light to provide for economic, social, and cultural activities.
- Provides clear thresholds where lighting cause a nuisance for neighbours, safety issues on roads, or adverse environmental effects (such as effects on coastal wildlife and the night sky).
- Design guides provide helpful guidance for when and in what circumstances to consider lighting design, and where it is necessary for safety of the public.
- Provides clarity for compliance and enforcement issues.

## Appendix 1: Feedback on Draft District Plan 2021

| Who   | Feedback Received   | Response  |
|---|---|---|
| <p>Waka Kotahi NZ Transport Agency, BARNZ, Community Association, Living Streets Aotearoa</p> | <ul style="list-style-type: none"> <li>• NZTA and Living Streets Aotearoa support the lighting provisions and their intent.</li> <li>• BARNZ support the exemption for aviation lighting.</li> <li>• Glenside Progressive Association are particularly concerned about the lack of light provisions in the Residential Design Guide to mitigate light pollution from new developments.</li> </ul> | <p><b>No changes made for the following reason:</b></p> <p>Light pollution is managed through the sky glow standards which are restrictive for any upward directed light.</p> |

