

LIGHT - Tūramarama - Light

Introduction

Outdoor lighting can have both positive and negative effects on amenity values. Lighting can benefit people and communities, for example by improving pedestrian and transport safety, and can be required for [primary production](#),¹ night-time work, security and recreation. However, excessive light spill and glare can also adversely affect amenity values, the natural and cultural environment, health and safety and visibility of the night sky. For instance, glare can cause a safety hazard such as impacting on a driver's ability to see. Excessive ambient light levels can affect sleep quality.

This chapter provides for outdoor lighting while managing adverse effects from glare and light spill. Glare relates to discomfort or disability from the brightness of a light source. Factors that contribute to glare are the light intensity, its source, and orientation of the viewer. Light spill, however, is light that is discernible beyond a site boundary which may have obtrusive effects on other sites.

Glare and light spill can arise from artificial illumination from outdoor sources such as sports field lighting, security lighting, advertising signs, exterior building lighting, and outdoor lighting for parking areas and paths.

The effects from lighting on amenity values will depend on the type of light, its strength, colour, direction or orientation, whether it flashes, is shrouded or shielded in some way, its location, and the hours of operation.

The provisions in this chapter are consistent with the matters in Part 2 - District Wide Matters - Strategic Directions and give effect to matters in Part 2 - District Wide Matters - Urban Form and Development.

Other potentially relevant District Plan provisions

As well as the provisions in this chapter, other District Plan chapters that contain provisions that may also be relevant to Light include:

- Special Purpose Zone (Kāinga Nohoanga): how the Light provisions apply in the Special Purpose Zone (Kāinga Nohoanga) is set out in SPZ(KN)-APP1 to SPZ(KN)-APP5 of that chapter.
- Any other District wide matter that may affect or relate to the site.
- Zones: the zone chapters contain provisions about what activities are anticipated to occur in the zones.

Objectives	
LIGHT-O1	<p>Outdoor lighting</p> <p>Outdoor lighting enables a range of activities including work, ruralprimary² production, recreation activities, sport, entertainment, and transportation to occur beyond daylight hours while:</p>

¹ NZPork [169.24], HortNZ [295.104]. Light s42A.

² NZPork [169.25], HortNZ [295.105]. Light s42A.

	<ol style="list-style-type: none"> 1. minimising adverse effects on amenity values, health and safety, ecology, significant natural values, areas of historic or cultural significance; and 2. maintaining the safe operation of the transport system.
LIGHT-O2	Sky glow Dark sky visibility is maintained and enables ongoing use of the Oxford Observatory.
Policies	
LIGHT-P1	Outdoor lighting Enable outdoor lighting for night-time activities, safety and security while: <ol style="list-style-type: none"> 1. remedying or mitigating adverse effects from light spill or glare on the receiving environment by controlling the intensity, shielding, colour temperature and direction of light; 2. ensuring that outdoor lighting does not <u>adversely affect the operation of the transport system, including distractions to users-distract traffic or interfere with any traffic aids and signals on the road, air or sea</u>³; and 3. ensuring lighting is compatible with the zone or zones in which the light spill and glare is received by applying the light levels for the receiving zone.
LIGHT-P2	Outdoor lighting design - sky glow Reduce the potential for upward light spill that contributes to sky glow, by controlling the location, direction, design and operation of outdoor lighting to minimise adverse effects on: <ol style="list-style-type: none"> 1. amenity values including ability to view the night sky; 2. health and well-being of people and ecosystems; and 3. ongoing use of the Oxford Observatory.

Activity Rules

LIGHT-R1	Navigational lighting, traffic signals, illuminated official signs for traffic, and temporary lighting for emergency response	
All Zones	Activity status: PER	Activity status when compliance not achieved: N/A
LIGHT-R2	Use of outdoor lighting within the Oxford Observatory Protection Overlay	
Oxford Observatory Light Protection Area Overlay	Activity status: PER Where: <ol style="list-style-type: none"> 1. except for festive lighting displays during December and January, or for a maximum of 30 days in June or July of any year, and temporary activities between 7:00am and 10:00pm, and as provided by LIGHT-R1, the following apply: <ol style="list-style-type: none"> a. shielding: all outdoor lighting including 	Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: LIGHT-MD1 - Outdoor lighting

³ Waka Kotahi [275.45]. Light s42A/Reply Report.

	<p>illuminated signs shall be shielded from above in such a manner that the edge of the shield shall be below the whole of the light source; and</p> <p>b. the following outdoor lighting shall not be illuminated or displayed between 9:00pm and sunrise:</p> <ul style="list-style-type: none"> i. searchlights, except emergency searchlights; ii. outside illumination of any building or feature by floodlight. 	
LIGHT-R3	General use of outdoor lighting	
All Zones	<p>Activity status: PER Where:</p> <ul style="list-style-type: none"> 1. LIGHT-S1 and LIGHT-S2 are met. 	<p>Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: LIGHT-MD1 - Outdoor lighting</p>
	<p>Advisory Note</p> <ul style="list-style-type: none"> • See Figure LIGHT-1: Lighting Design Guidance for advice on reduction of light spill and glare. 	

Light standards

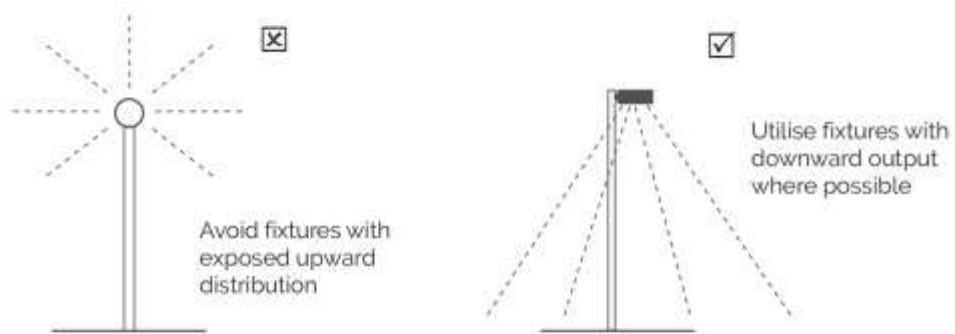
LIGHT-S1 General standards for light	
<p>1. Activities shall comply with the standards specified in Table LIGHT-1, where:</p> <ul style="list-style-type: none"> a. the added horizontal or vertical illuminance from the use of outdoor lighting must not exceed the limits for the receiving zone specified in Table LIGHT-1 when measured or calculated 2m within the boundary of any adjacent site or road corridor; and b. the illuminance shall be measured facing the applicable vertical plane that is directly facing the light source site boundary; and c. where a site is divided by a zone boundary, each part of the site shall be treated as a separate site. 	<p>Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: LIGHT-MD1 - Outdoor lighting</p>

Table LIGHT-1: Light spill limits by zone

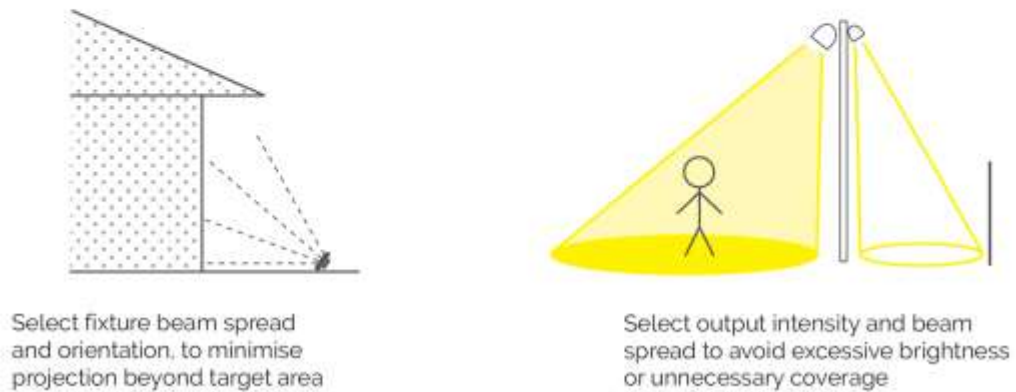
Zone	Illuminance (Ev) Lux (6:00am - 10:00pm)	Illuminance (Ev) Lux (10:00pm - 6:00am)
Natural Open Space Zone	2	1
Rural Zones	5	2
Residential Zones, Special Purpose Zone (Kāinga Nohoanga), Open Space Zone, Sport and Active Recreation Zone, Special Purpose Zone (Kaiapoi Regeneration), Special Purpose Zone (Pines Beach and Kairaki Regeneration).	10	4
Commercial and Mixed Use Zones, Industrial Zones, Special Purpose Zone (Hospital), Special Purpose Zone (Museum and Conference Centre), Special Purpose Zone (Pegasus Resort).	20	10
LIGHT-S2 Control of glare		
<p>1. Any fixed outdoor lighting shall be:</p> <p>a. orientated such that the peak output intensity is directed at least 20° below horizontal, and be aimed away from adjacent sites, roads, footpaths and cycle paths, and from navigation sight lines for sea or air navigation.</p>	<p>Activity status when compliance not achieved: RDIS</p> <p>Matters of discretion are restricted to:</p> <p>LIGHT-MD1 - Outdoor lighting</p>	
<p>Advisory note</p> <ul style="list-style-type: none"> • See Figure LIGHT-1 for guidance on lighting design to reduce light spill and glare. • The requirements to aim light away from roads, footpaths and cycle paths shall not apply to lighting provided within, and specifically to illuminate, these facilities. 		

Figure LIGHT-1: Lighting design to reduce light spill and glare

FIXTURE TYPE AND AIM



FIXTURE OUTPUT



Advice Note

LIGHT-AN1	Any illuminated sign or digital sign must also meet the applicable rules in the Signs Chapter.
LIGHT-AN2	Australian/New Zealand Standard AS/NZS4282:2019 (Control of the obtrusive effects of outdoor lighting) may apply to light level limitation, determination of the degree of glare or discomfort and mitigation measures.

Matters of Discretion

LIGHT- MD1	Outdoor lighting <ol style="list-style-type: none">1. Effects on the amenity values of the site and adjoining sites, or surrounding area.2. Effects on the characteristics, form, or function of the zone consistent with the zone chapters.3. Effects of light colour, flashes, strength, siting, shielding, angle, and hours of operation.4. Effects on any activities sensitive to light including the following:<ol style="list-style-type: none">a. effects on the efficient and effective functioning of any road, and the safety of road users;b. effects on aviation or navigation including effects on flights to and from Christchurch International Airport; andc. the effects of the lighting on cultural or amenity values of the night sky, and on astronomical observation.5. The extent that the proposal controls the adverse effects of outdoor lighting on health, safety and security, considering CPTED.6. Effects of lighting on ecology and natural values.7. Any relevant standards including those which address the amenity and safety effects of outdoor lighting.
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