City of STONNINGTON

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Urban Lighting Guidelines

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CONTENTS

1. PURPOSE

The purpose of these guidelines is to ensure a consistent and coordinated approach to planning, designing and installing lighting in the City of Stonnington. The guidelines will help to ensure that lighting is best practice, fit-for-purpose, and supports a vibrant and safe city while meeting Council's sustainability objectives.

2. OBJECTIVES

The key objectives of the Urban Lighting Guidelines are to:

- guide Council decision-making for lighting projects
- ensure a consistent and coordinated approach to lighting in public open spaces
- ensure lighting in the city is appropriate and fit-for-purpose
- minimise the environmental impacts of lighting
- support community health and safety
- support a vibrant night time environment, and
- ensure lighting design and implementation is consistent with Council plans, policies and strategies.

3. CONTEXT

Lighting plays a significant role in a modern, vibrant city. Effective lighting provides people with the ability to find key points of interest, navigate during night time and it enhances use of public open space including for sporting activities. Lighting also highlights many of our city's buildings and landmarks, helping to define the character of Stonnington and playing an important role in the safety of our city.

Lighting a sustainable city

Bright lights are a key feature of any city. Lighting is necessary for providing amenity, supporting public health and safety and enhancing city life beyond daylight hours. While lighting provides a range of benefits, it can also negatively impact on local biodiversity, contribute to light pollution and consume energy, contributing to an increase in greenhouse gas emissions.

The City of Stonnington is committed to creating a sustainable and resilient city, with enhanced natural and urban environments for the community. Council's *Sustainable Environment Strategy 2018-2023* includes strategic objectives to reduce energy use and associated greenhouse gas emissions and protect, maintain and enhance areas of natural environment throughout the city.

Impact on local biodiversity

The cumulative impact of night time lighting in cities has had an impact on ecological processes and behaviours across urban environments. It can effect insects, birds, reptiles and amphibians and have impacts on navigation, orientation, migration, perception of season changes, foraging behaviours, sheltering and vulnerability to prey.

Despite being a heavily urbanised environment, there are many green spaces throughout Stonnington that provide habitat for wildlife. There are also key biodiversity hotspots which are actively managed and maintained to increase biodiversity outcomes including the Yarra River, Gardiners Creek, the Urban Forest reserve and the Malvern Valley Golf Course. While

some lighting is required around these areas for amenity and safety, a balance is required to ensure minimal impact on native wildlife.

Energy use and greenhouse gas emissions

Public lighting consumes significant amounts of energy. The electricity use from street lighting alone was responsible for approximately 24 per cent of Council's emissions in 2018-2019. This doesn't include lighting in parks and gardens, sports grounds, carparks, buildings or decorative lighting.

The City of Stonnington is committed to reducing energy consumption and associated greenhouse gas emissions. Council has set targets to reduce emissions by:

- 30 per cent below 2005 levels by 2020
- 35 per cent by 2022
- 60 per cent by 2030.

Since 2010, Council has been investing in energy efficient street lighting upgrades, resulting in energy and cost savings as well as reduced emissions. Council continues to explore options to develop a more energy-efficient public lighting network, seeking to future proof the city through smart lighting technology including options for monitoring and control.

Light pollution

Light pollution is caused by excessive and inappropriate artificial light and can have an impact on humans and the natural environment. Additionally, lighting in a city, and the electricity used to create it, can be wasted if it spills into the sky instead of on the objects and areas it is intended to illuminate.

Light pollution includes:

- Glare – excessive brightness that causes visual discomfort
- Skyglow – brightening of the night sky over inhabited areas
- Light trespass – light falling where it is not intended or needed
- Clutter – bright, confusing and excessive groupings of light sources

It is important that lighting design and implementation considers environmental implications to ensure minimal disturbance.

Finding a balance

Lighting is an essential element of the modern city. It provides many benefits for the community, including enhancing night time visual amenity, improving perceptions of public safety and activating public spaces however, there is such a thing as too much lighting. Over lighting can negatively impact humans and biodiversity and consume large amounts of energy, contributing to the creation of greenhouse gas emissions.

A balance is sought to ensure that lighting in Stonnington is well-designed and fit-for-purpose, taking into account the surrounding environment.

These guidelines provide direction to ensure that lighting in Stonnington focuses on supporting a safe and vibrant city while avoiding unnecessary lighting and upholding Council's sustainability commitments.

4. LIGHTING IN STONNINGTON

Lighting in Stonnington seeks to achieve the following outcomes:

Enhance community use of open space

Stonnington's comprehensive network of sports grounds, parks and reserves support an active community and provide important links between destinations.

A growing population and increasing urban density results in greater demand of open space within the city, including at night time. Lighting these areas at night promotes health and wellbeing and supports community connections.

Create a safe environment at all hours

Lighting plays a key role in supporting a safe environment and improving perceptions of safety. It can also lead to antisocial behaviour and contribute to fear of crime.

Good lighting design enhances people's experiences of the city, helping provide visual comfort and improving the visibility of objects, people and places.

Define the city's character and highlight its many features

Architectural features, public art and landscape elements showcase a city and its form at night.

Understated light 'accents' reduce energy consumption, greenhouse gas emissions and issues associated with excessive lighting.

Ensure minimal environmental impact

Excessive lighting can negatively impact on local biodiversity, contribute to light pollution and consume energy, generating greenhouse gas emissions.

Designing and installing lighting that is holistic, appropriate and fit-for-purpose helps ensure minimal environmental impact.

The following principles provide guidance for the planning, design and implementation of open space lighting that is owned and managed by the City of Stonnington.

While lighting projects are to be considered on a case by case basis, these principles are to be used to guide decision-making on lighting. The principles are separated into overarching general principles for all lighting projects and more specific principles for the different lighting types and environments.

5. URBAN LIGHTING GUIDELINES

All public lighting in the City of Stonnington is to be designed, implemented and updated in line with the following guiding principles:

Best practice lighting	Where possible, all existing and new public lighting is to be equal to, or better than best practice. This includes lighting

	performance, lighting type, energy efficiency, time of use, life cycle costs, maintenance and replacement needs.
Crime Prevention Through Environmental Design	Council will apply the principles of Crime Prevention Through Environmental Design (CPTED) to improve perceptions of security and discourage antisocial behaviour.
Lighting infrastructure	In open areas, light poles are to be placed to avoid impacting on the use of an area and the surrounding environment.
Innovative lighting	Where appropriate, investigate opportunities for innovative and sustainable lighting design and implementation.
Australian Standards	All lighting is to meet relevant Australian Standards for design, traffic safety and pedestrian amenity, where appropriate.
Lighting design	All lighting is to be designed with a clear and specific purpose, used only where and when it is needed. Lighting is to take into consideration the surrounding environment including any other lighting in the area. Lighting levels are to reflect the use of an area and the desired outcome.
Excessive lighting	Lighting is to be carefully targeted to avoid excessive illumination, up lighting and stray light and align with Australian Standard *AS 4282-1997: Control of obtrusive effects of outdoor lighting*.
Over lighting	If over lighting is an issue, lighting is to be reviewed and either rationalised or the wattage reduced, ensuring relevant Australian Standards and lighting requirements are met.
Glare	Lighting is to be designed to avoid extreme contrasts between light and dark areas and surfaces as this can reduce visibility. Over lighting in one area makes another area look under lit.
Energy efficiency	Ensure that new lighting types are equal to or better than best practice in terms of energy efficiency and performance, e.g. LED luminaires.
Solar lighting	Solar lighting is to be installed where appropriate, and with consideration to surrounding tree branches and leaves.
Biodiversity impacts	Lighting in and around areas with biodiversity value is to be avoided, where possible, to minimise disturbance to local wildlife.
Monitoring and management	Where possible, remote monitoring and management systems are to be incorporated into public lighting including options for dimming, time setting and identifying maintenance requirements.
Lighting controls	Lighting should be timer controlled, where possible, and programmed to be on only for the time that lighting is required in the area.
Lighting attached to trees	Ensure that lighting attached to trees does not inflict any damage on the tree. Lighting is to be non-intrusive and moved at least annually to ensure tree trunks and branches are not restricted.
Lighting near trees	Avoid conflict between lighting and trees by placing lanterns below the canopies of mature trees or away from tree branches and leaves.
Lighting infrastructure	Lighting infrastructure is to align with a standard design palette to ensure consistency, where appropriate. Heritage lighting will be maintained.
Asset management	Council will collect and maintain information on the lighting assets it owns and manages. Council will also undertake a

	periodic proactive maintenance program review lighting assets and upgrade or rationalise where appropriate.
Asset disposal	As lighting is upgraded or replaced, existing lighting must be appropriately disposed of with consideration of best-practice recycling and waste disposal standards. Council will require evidence of appropriate recycling or disposal of waste materials.
Private development	Lighting for private development must be paid for by the developer, align with the principles outlined in these guidelines and meet relevant Australian Standards.
Lighting on private land	Public lighting infrastructure may need to be installed on private land or buildings, with agreement from the property owner, where there is insufficient space on public land to accommodate such infrastructure.

5.1 Lighting in streets and laneways

Entry and exit points to the city	Appropriate lighting is to be used to highlight primary traffic routes and significant landscape features along key entry and exit points in and out of the city.
Pedestrian comfort and safety	Sufficient lighting is to be located within key destinations and precincts to support pedestrian comfort and safety. This includes ensuring the edges of streets and public spaces are well lit and way finding is clear.
Pedestrian amenity	Where lighting in streets and laneways exists, it is to be designed to support pedestrian amenity. High use walkways between key destinations are to be well lit and lighting infrastructure positioned to provide good light.
Street lights	Council will work with energy distributors to ensure street lights are positioned to avoid light spill into nearby dwellings. Lighting will be designed to ensure safe passage for pedestrians and cyclists and ensure light output meets the relevant Australian Standards.
Laneway lighting	In some areas, lighting in laneways is appropriate however, it is only to be provided where practical to do so and if: • infrastructure is available • the laneway is owned or managed by Council • the laneway provides direct access to key destinations • the laneway is well used by pedestrians during night time.

5.2 Lighting in parks and gardens

Park lighting	Lighting requirements in parks will vary depending on local uses and location. Lighting is to be minimised and only considered where there is: • high usage (e.g. dog exercise) • a justifiable need (e.g. high use walkways between key destinations) • existing night time activities (e.g. sports training)

Timers	Park lighting is to include timers which are set to reflect usage, support extended activity and limit antisocial behaviour.
Feature lighting	Feature lighting is to be used to punctuate dark areas within parks including select buildings and landmark features that can be seen from viewpoints such as entrances and pathways.
'Dark' spaces	Maintaining dark spaces within Council's biodiversity hotspots can reduce lighting nuisance, offer respite from the lit city and provide relief for local wildlife.
Informal recreation areas	Lighting of recreation areas in high use precincts, including skate parks, basketball courts, BBQs and playgrounds, are to be PE cell and timer controlled to turn on only during approved use outside of daylight hours.
Public toilets	Lighting of public toilets in parks is to be determined on a site by site basis according to level of use. In general, non-automated toilet public lights are to be controlled to align with operating hours.

5.3 Lighting sports grounds

Sports lighting levels	All sports lighting is to meet the relevant Australian Standards and is to be used only where and when it is required to provide a safe venue for users. Lux levels are to be appropriate based on need and level of use e.g. training and competition. Best practice planning and design is required to minimise light spill.
Lighting timers	For all new and existing sports lighting installations the following is required: • Automatic timers to be installed, with timers aligned with approved hours of use. • Multiple switching is required to allow for the choice of some or all of the venue to be lit.
Non-sport lighting	Extending lighting hours at sports grounds for non-sport use will be considered on a case by case basis.

5.4 Lighting for transport

Shared paths	Lights with timers and controls are to be installed on key commuter shared paths and high use pathways between key destinations. Timers are to be installed so that lights are turned off outside reasonable commuting hours.
Pathways through parks	Lighting is to be provided along high use walkways in parks that connect to other pathways and key destinations. Timers and dimmers are to be used along less used pathways to reduce light levels during early morning hours.
Car parks	Public and private parking areas as well as pedestrian routes that connect large carparks with destination areas are to be well lit.
Public transport hubs	Lighting is to be provided along key access routes from public transport areas such as train stations to local neighbourhoods.

5.5 Decorative and feature lighting

Architectural features	Avoid excessive lighting on buildings and highlight building entrances and colonnades, alcoves and other recesses. Lighting is to focus on quality and distribution, enhance forms and materials, accent details or decoration and emphasise the dimensional nature of objects and surfaces. Up lighting is to be avoided to prevent glare and light spill. Highlighted buildings and landmarks are to be assessed on a case by case basis.
Feature lighting	Permanent feature lighting is to be limited to buildings, landscapes and other elements that have special public significance to reduce unnecessary lighting and associated energy use. Feature lighting is to be on timer controls and adjusted seasonally.
Lighting from different angles	Lighting is to be designed to balance location and intensity of light sources and reveal three dimensional forms, which can help to reduce the impression that an area is not safe. Lighting from only one direction can create silhouettes and distort form and colour.
Illuminated signs	Illuminated signs are to be fit-for-purpose and avoid being overly large or bright.
Building lights	Recessed entrances, alcoves and colonnades are to be lit to avoid dark recesses which can be perceived as a threat to pedestrian safety.
Decorative lighting	Permanent decorative lighting is to be limited to seasonal decorations, temporary installations and lighting that is an integral component of art.
Bud lighting	Bud lighting in trees is to be avoided as it can damage leaves and branches and limit effective maintenance of the trees.
Tree up lighting	Tree up lighting is to be limited to a few key locations, avoiding biodiversity areas and focusing on selected specimen trees on the edges of large parks and gardens and along major boulevards. Where up lighting exists, it is to include timer controls.
Lighting infrastructure near trees	Where lighting is to be placed on or near trees, it is to be installed in a manner than avoids damage to the tree, particularly trenching and excavations around tree roots.
Lighting for events	Event lighting is to be temporary and include timers so that lights are turned off outside event hours.
Lasers	The use of lasers should be avoided and only used for major public events.

6. SCOPE

The guidelines apply to all open space lighting that is owned and managed by Council.

The City of Stonnington owns and manages an extensive range of night time lighting for a variety of purposes. The table below provides a summary of lighting types in Stonnington.

Streets and laneways

Lighting in streets and laneways is used to provide vehicle and pedestrian safety.

Note: most street lighting in Stonnington is managed by energy distributors (CitiPower and United Energy).

Parks and gardens

Lighting in parks and gardens provides safety and security, connecting neighbourhoods and public transport centres. Lighting also enables dog exercising and other recreation outside daylight hours.

Sports grounds

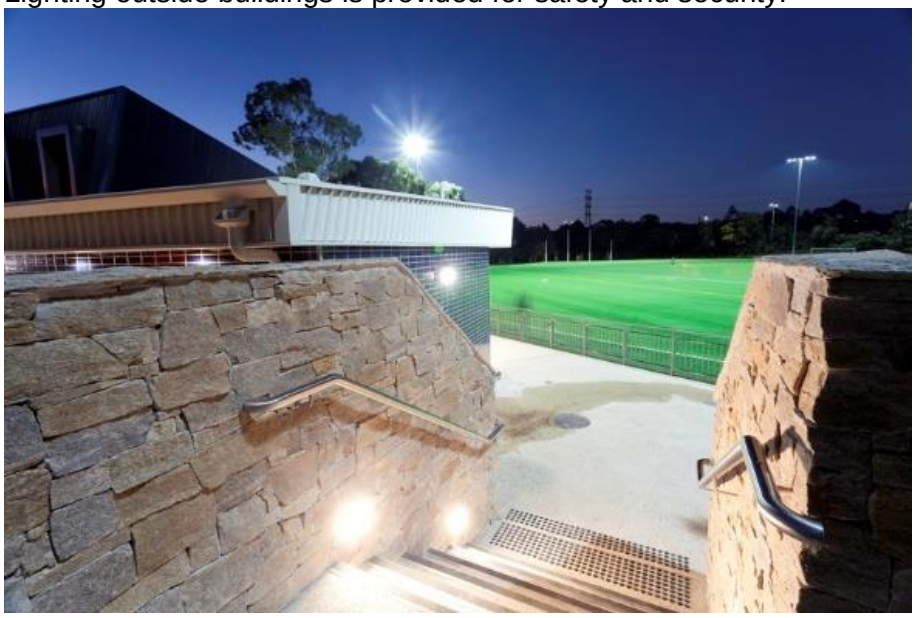
Lighting of sports grounds enables night time training while also enhancing use of open space beyond daylight hours.

Shared paths

Lighting along shared paths facilitates walking and cycling during commuting hours.

Buildings

Lighting outside buildings is provided for safety and security.



Carparks

Lighting in carparks helps to provide amenity and safe access to carparks at night.

Decorative and feature

Decorative and feature lighting is used to highlight the character of the city and includes architectural features, seating and signs as well as lights showcasing trees.

Additionally, there is extensive night time lighting throughout Stonnington provided by VicRoads (arterial roads), VicTrack and Metro Trains (railway stations), institutions and property owners (buildings, facilities and dwellings) and non-Council organisations with sporting facilities. Council is not responsible for managing or maintaining lighting that is owned by other authorities however, it will work with lighting providers and managers to ensure appropriate lighting throughout the city.

7. DEFINITIONS

The following terms are used in these guidelines.

Term	Definition
Council land	Means all land: (a) owned, leased, managed or occupied by Council; or (b) vested in Council or under the control of Council and which it has a duty to maintain.
Bud lighting	Bud lighting refers to strings of small lamps that are attached to the branches of trees to create decorative effects.
Feature lighting	Feature lighting is a form of decorative or promotional lighting. Feature lighting may include 'accent' lighting of small details as well as extensive installations that light up entire structures.
Glare	Glare refers to the contrast between light and dark and often results when bright spots are viewed against a dark background. Background surfaces often appear darker if they are viewed alongside areas of much brighter illumination.
Illumination	Illumination refers to the amount of light falling on a given surface. Where street lighting is concerned, illumination is usually measured on the ground. However, it is also important to know how much light reaches vertical

	surfaces. The correct technical term for illumination is 'illuminance'. It is measured in units called 'lux'.
Sky glow	Sky glow refers to the unnaturally bright night sky that occurs over large cities and is caused by artificial light radiating upwards. It can hinder the work of astronomers and disturb wildlife.
Spill	Light spill refers to light that misses its target, wasting light and energy. Light spill contributes to sky glow and may cause a nuisance to observers.
Up lighting	Up lighting refers to feature lighting that is directed up onto buildings or landscape elements from low level sources. Unless it is carefully targeted, up lighting can contribute to sky glow and disturb local wildlife, particularly when attached to trees.

8. RELATED POLICIES & STRATEGIES

The City of Stonnington Urban Lighting Guidelines should be read in conjunction with related Council policies, strategies and procedures as well as relevant Australian Standards.

Reference
City of Stonnington - Council Plan 2017-2021
City of Stonnington – Sustainable Environment Strategy 2018-2023
City of Stonnington – Municipal Health and Wellbeing Plan 2017-2021
City of Stonnington - Urban Forest Strategy 2017
City of Stonnington – Strategies for Creating Open Space
City of Stonnington - *General Local Law 2018 (No.1)*
City of Stonnington - Recreation Strategy 2014-2024
City of Stonnington - Road Safety Policy
City of Stonnington - Stonnington Road Management Plan
City of Stonnington - Public Realm Strategy
City of Stonnington - Chapel Street Masterplan
AS/NZS 1158 Set: 2010 Lighting for roads and public spaces
AS 4282-1997: Control of obtrusive effects of outdoor lighting
AS 2560.2.3-2007: Sports lighting - Specific applications - Lighting for football (all codes)
AS 2560.2.4-1986: Guide to sports lighting – Specific recommendations - Lighting for outdoor netball and basketball