



LEADSUN

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EDUCATIONAL SERIES | PART 2

Candidate locations for public lighting

The Shine a Light educational series considers the evidence around the need for appropriate lighting at night in public spaces, focusing on areas for informal use that are not covered by street lighting and how this should be delivered.

Part 2 presents candidate locations for public lighting, how to identify them and assess their suitability.



Leadsun operations take place on the lands of First Nations people across Australia. We acknowledge them as Traditional Owners and Custodians of the lands and waters we depend on. We recognise their continuing connection to land, waters and culture and pay our respects to Elders past, present and emerging. In particular, the Leadsun team would like to acknowledge the Bunurong/Boon Wurrung and Wurundjeri Woi-wurrung people of the Kulin Nation on whose land we are based.

This research focuses on areas of informal use that are not covered by streetlights, which include paths through parks, along creeks, following train lines and within car parks (excluding sports grounds).

This is part 2 of the Shine a Light educational series. Part 1, Public Lighting for Social, Economic and Environmental Benefits introduced the need for appropriate public lighting to support positive social, environmental, and economic outcomes including safety, accessibility, and equity. Part 2 presents candidate locations for public lighting, how to identify them and assess their suitability. Simply put: part 1 is why we need good public lighting and part 2 is where we need good public lighting.

Have you read Part 1, Public lighting for social, economic and environmental benefits?



DOWNLOAD

Leadsun Solar Recreation Lighting
at Horseshoe Lake Park, USA

APPLICATIONS TO CONSIDER

Good lighting should be provided along walking routes used to access places at night to keep people safe and support the 5-minute neighborhood strategy. These include activity centres (town centres and retail areas), public transport stops, healthcare, employment, and education.

All lighting in a city's public realm contributes to how safe and pleasant it feels to walk there. This includes street lighting, other public lighting such as in parks, gardens and along shared paths, and private lighting from buildings or advertising.

Positive outcomes for residents and the community at large:

 Improve safety & security	 Encourage active transport & outdoor exercise	 Extend functioning hours of public assets	 Invigorate evening and night-time retail spend
 Reduce hazards, accidents, injuries & fatalities	 Increase inclusion, accessibility & equity	 Provide clear direction & wayfinding	 Foster social cohesion and sense of belonging

Case Study: Bass Coast Rail Trail

To enhance their community's safety and enjoyment of this public asset, a team of local residents successfully submitted their Rail Trail Illumination Project to the Victorian Government's Pick My Project grant program.

"During the dark time of the pandemic, it was good to have the lights brightening up the trail and provide a safe space for local people to get out in the fresh air and exercise. The lights helped us all feel more joyful and connected," Karen Thorp.

[Read more.](#)



Pathways

Pathways are a vital council asset that supports healthy, sustainable and low-cost commuting (active transport) while also enhancing community connectivity, cohesion and a sense of belonging. Illumination will extend these benefits in addition to creating a safe, accessible and inclusive open space.

Shared pathways facilitate safe active transport away from busy traffic. The University of Oxford's Transport Studies found that switching one car trip a week can drastically lower mobility-related lifecycle CO2, which currently stands in the way of reaching emission targets. Adequately lighting shared pathways encourages active transport and diverts cyclists from using dangerous roadways in the evenings.

Case Study: Wodonga Pathway

Each year has seen more parks and pathways illuminated by Leadsun, with the projects attracting significant media attention and support across the community as well as from local and state government.

"These lights will enable more people to get out and use our paths in the night time. I know, myself as a cyclist, now in winter it's getting pretty cold and dark that those extra lights along the pathway allow me ride to work and feel more comfortable"

Ryan - Sport & Recreation Team - Wodonga Council

[Read more](#)





*Leadsun dark-sky compliant
SMART solar lighting,
Narrandjeri Stadium, Thornbury*

Car Parks

Safety and security in car parks is a persistent issue for patrons. Lighting is known to both deter anti-social behaviour and increase perceived sense of safety. Additionally, as car parks are a shared pedestrian and vehicle area, illumination can help prevent personal injury and potentially fatal collisions.

Local sports facility car parks often fall victim to a lack of illumination even though they're commonly used in the evenings for children's sports. Besides being unsafe, this also discourages female participation in sports at the grassroots. This makes car parks a critical candidate location for public lighting.

Case Study: Narrandjeri Stadium

The Narrandjeri Stadium Sports Centre is a centrepiece of Melbourne's northern suburbs.

Research has shown that women feel unsafe in poorly lit spaces after dark and many are therefore discouraged from exercising at night. Leadsun's SMART solar lighting was installed to enhance safety around the premises and maintain Narrandjeri Stadium's standing as a safe, accessible, and inclusive facility. [Read more.](#)



Recreation

Recreational reserves/parks, skate parks, dog parks, exercise stations and playgrounds are valuable community hubs that will be better utilised and accessed with the addition of lighting. This promotes an energetic, safe, and inclusive community and is particularly beneficial in the dark, gloomy winter when the sun sets at 5pm.

This is particularly important for teenage girls, who are often designed out of play spaces, even during the daytime. As a result, their mental and physical health is negatively impacted at an important development stage of their life. Additionally, teenage girls are more likely to experience low moods and anxiety than teenage boys. Access to nature and community is proven to affect mental wellbeing and development positively, so designing outdoor public spaces where women and girls feel welcomed is paramount (Homes England, 2023).

Case Study: Hastings-Cunningham Reserve Dog Park

City of Mount Gambier, Leadsun and Stuckey Electrical worked together to install solar lights at the popular Hastings Cunningham Reserve dog park. Locals had expressed wanting to use the park at night but had found it too dark given its location well back from the main street.

Consistent lighting around the park means owners and their pets can see each other easily and now feel safe with surroundings lit in the early morning, evening and night-time – providing a fantastic result for, not only the residents and council, but the community's happy four-legged friends too.

[Read more.](#)



Leadsun All-in-One SMART Solar Lighting at Cecil Newton Park, Mingenew, installed by WA distributors BMH Electrics



LOCAL GOVERNMENT POLICIES

To understand where local governments are currently applying public lighting, particularly along paths away from road, we can consider their lighting policies.

City of Melbourne

City of Melbourne's Public Lighting Strategy (2013) identifies the following locations as requiring good lighting to assist people at night:

- Main entrances to large parks and gardens
- Important paths, nodes and markers
- Retail areas
- Features that match people's key reference points, such as Flinders St station, Federation Square and bridges across the Yarra River.
- Along with paths in parks and gardens, paths along waterways and paths that connect car parks with commercial areas or other major destinations such as train stations should be well-lit.

City of Port Phillip

High use walking routes and bike paths (assumed to refer to shared walking and cycling paths) may be lit all night.

City of Rydes

- Shared paths
 - Only along identified 'Regional Routes'.
 - Not in environmentally sensitive areas or along river corridors unless required, in which case preference for fauna friendly lighting options.
- Pedestrian paths
 - Areas of high activity or key connections such as public transport.
 - Not in remote locations, small parks without through pathways or playgrounds.

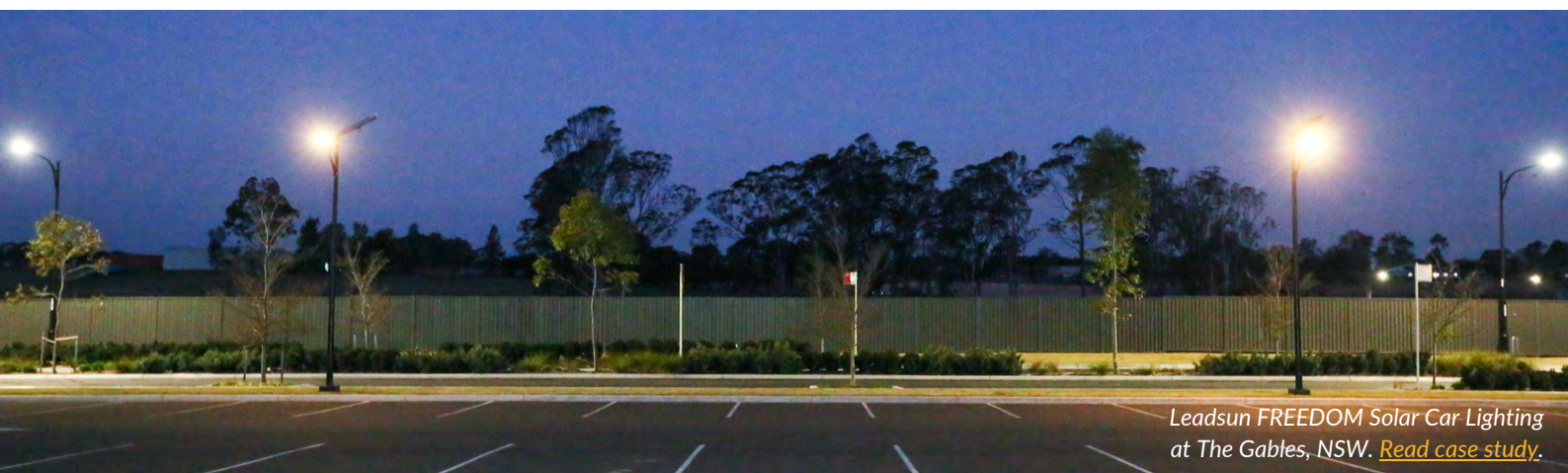
- Smart controls for shared and pedestrian paths:
 - Between dusk and 11:30pm (in winter) or 10:30pm (in summer).
 - In winter, between 5am and dawn. Use PE cells to recognise dawn and consider dimming as ambient levels increase.
 - Use motion sensors up to 5am.
- Passive recreational areas e.g. dog off-leash:
 - Adjacent paths or buildings can provide complementary lighting.
 - Not remote areas or small residential parks.

Hume City Council

Hume City Council has a public lighting policy that states that public lighting for paths in parks and gardens will only be considered "where the space is used for passive night time recreation" (Hume City Council, 2019). It is explicit about minimising the impact of lighting on wildlife with no new public lighting to be installed in areas with conservation bushland, nature reserves or along rivers and creeks.

Colac Otway Shire

Colac Otway Shire do not have a specific lighting strategy – like many other regional councils – but lighting is discussed in the Public Open Space Strategy (Sykes Consulting / Urbis, 2011). Lighting may be provided in sports reserves and gardens, and along open space corridors such as along waterways or old rail corridors if they have regional significance.

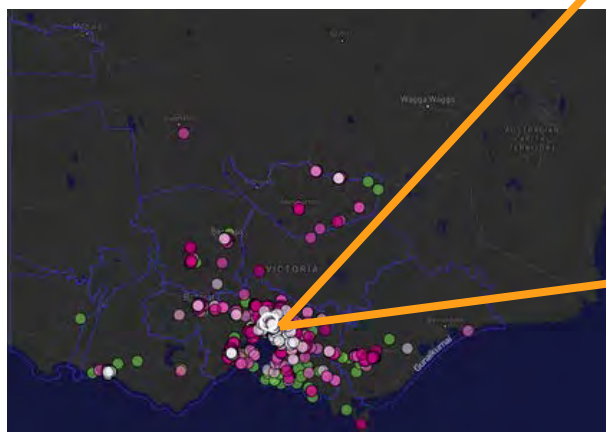


Leadsun FREEDOM Solar Car Lighting at The Gables, NSW. [Read case study.](#)

IDENTIFYING LOCATIONS IN NEED

Poor lighting typically means a lack of lighting infrastructure however, it also includes poor and inadequate maintenance of existing lights, inconvenient timings (i.e. based on organised sport times), and poorly designed lighting systems, with lights that are too bright or spaced too far apart.

Poor lighting was the most common reason selected by participants as to why a place might feel unsafe (YourGround and CrowdSpot 2021). Accompanying this report is a Stress Visualisation Map, where people rated a location base on how safe they felt and left comments as to why. This is a great resource to illustrate the need for public lighting but also to find specific locations that need improved lighting.

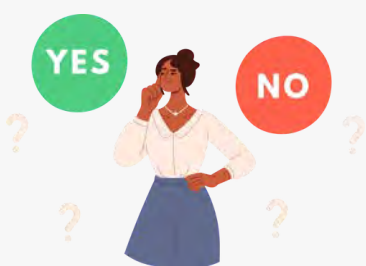


XYX Lab and CrowdSpot, 2021, YourGround Victoria Stress Map Visualisation, Melbourne, Monash University XYX Lab. Screenshot, Friday 8 December 2023, <<https://yourgroundarchive.org/>>

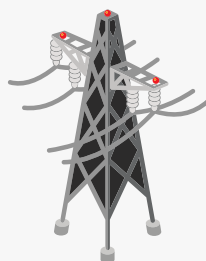


ASSESSING LIGHTING SUITABILITY

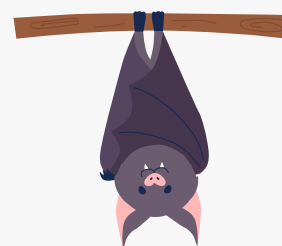
Good lighting is essential for people to use public space safely and comfortably at night. However, more light is not always ideal. Other considerations that must be balanced in deciding how to light an area include:



Whether the area should be lit at all



Electricity consumption, associated emissions and cost associated with lighting



The effects of light pollution on both other people and animals

Whether the area should be lit

It seems reasonable to believe that most public walking paths in urban areas should be lit at night to enable people to use them. However, some areas are not appropriate for use at night and lighting them can create a false sense of safety or encourage criminal behaviour.

Lighting guides from both the City of Melbourne and City of Port Phillip outline examples of areas that may not be appropriate for lighting, namely a path that:



Leads to a dead end



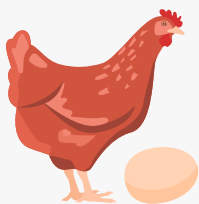
Has vegetation restricting visibility



Is in a remote or poorly survey area



Is nominated by police



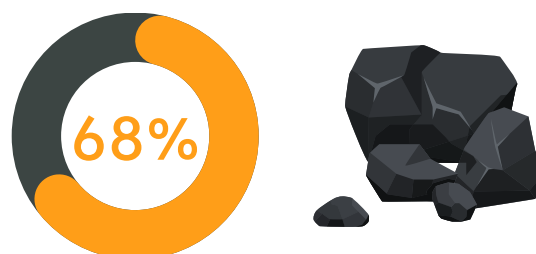
In trying to balance the pros and cons of public lighting, some councils require evidence that a path has or will have high usage at night before committing to installing new public lighting. The risk of this approach is a chicken and egg situation where a path does not have high usage because it is poorly lit, but the poor usage prevents investment in lighting. Victoria Walks believes that recreational paths and open spaces that are well utilised during daylight hours should be lit at night.

Emissions and Costs

The electricity used to power public lighting can be a significant contributor to carbon emissions, depending on how it is generated. In 2020, 27% of Victoria's electricity was produced by renewables with the majority (68%) generated by coal (Department of Industry, Science, Energy and Resources, 2021). The state government's Climate Change Strategy aims for 50% to be produced from renewable sources by 2030.

Installing and, particularly, operating lighting is also a major cost to councils. Over half of all electricity used by the City of Melbourne is related to public lighting (City of Melbourne, 2013).

The federal government also incentivises reductions in greenhouse gas emissions through the Clean Energy Regulator. Councils can receive carbon credits for improving the energy efficiency of public lighting, plus the added benefits of lowering their emissions and electricity bills. Generating energy at the source, such as through solar lighting, can also help reduce the ongoing electricity costs of public lighting.



Victoria's electricity generated by coal

Leadsun AE6 Solar Lighting Engine,
Alice Springs NT

Light Pollution

The purpose of public lighting is not to simulate daytime conditions but to provide sufficient light for the safe and comfortable use of public areas after dark. As such, too much light or light which is too bright can be uncomfortable for people using an area. This is a particular issue if neighbouring areas are not so well lit, as people's eyes may have difficulty adjusting to the differing levels of light.

Artificial lighting can disrupt circadian rhythm, health and sleep in humans (Blume, Garbaza, & Spitschan, 2019). It also limits the ability of people to see the night sky, affecting both astronomy and cultural heritage values (Australasian Dark Sky Alliance, retrieved June 2021).

Lighting at night can affect animal feeding, breeding and migrating, including for endangered species (Institute of Public Works Engineering Australasia, 2020a). Just like humans, animals use sight to orient themselves, find food, avoid predators and communicate with one another. However, they perceive light differently to people, as shown in Figure 1. The federal government's National Light Pollution Guidelines for Wildlife (2020) note that artificial lighting may impede the recovery of threatened species. They recommend any new or retrofitted lighting should follow best practice lighting design to help minimise the impact of artificial light on wildlife.

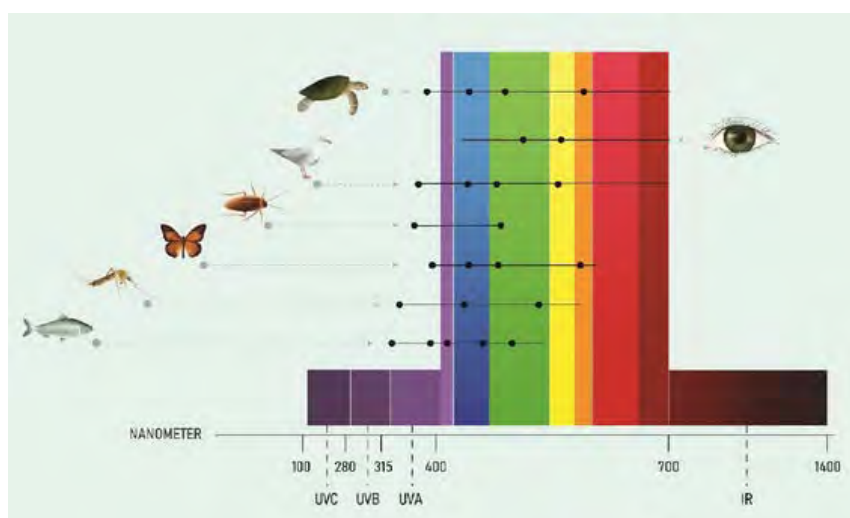
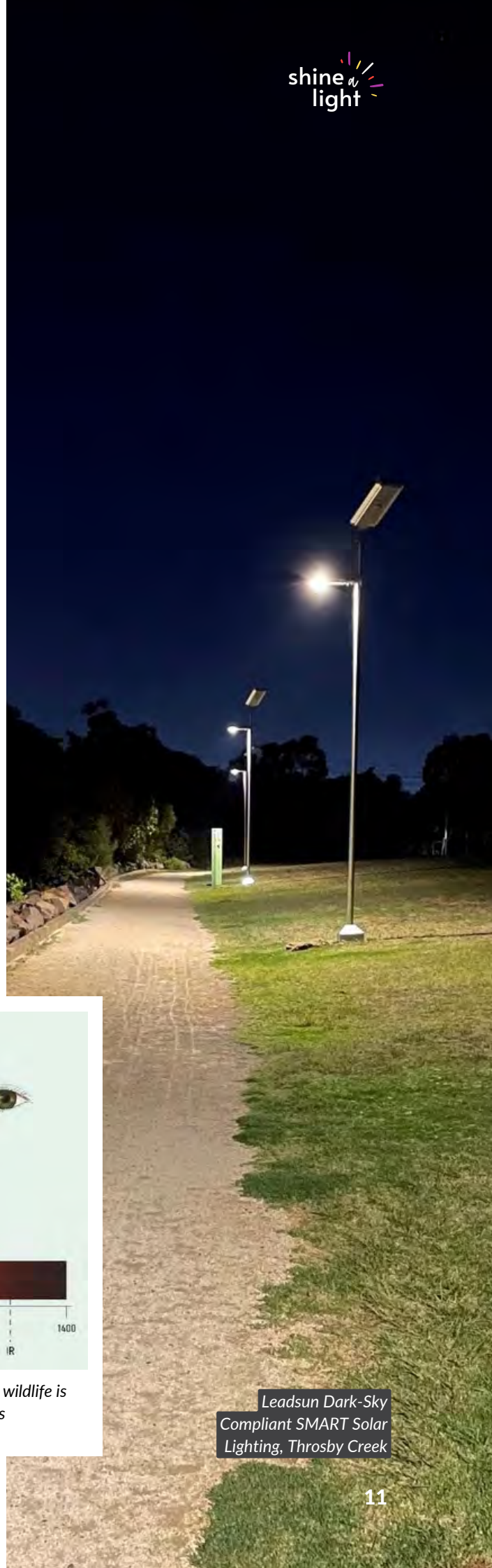


Figure 1: Ability to perceive different wavelengths of light in humans and wildlife is shown by horizontal lines. Black dots represent reported peak sensitivities (Department of the Environment and Energy, 2020)



Leadsun Dark-Sky
Compliant SMART Solar
Lighting, Throsby Creek

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Part 3 coming soon



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