Public Open Space Lighting Policy

Final
September 2024

CITY OF YaRRA

Yarra City Council acknowledges the Wurundjeri Woi Wurrung people as the Traditional Owners and true sovereigns of the land now known as Yarra. We also acknowledge the significant contributions made by other Aboriginal and Torres Strait Islander people to life in Yarra. We pay our respects to Elders from all nations and to their Elders past, present and future.

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1. Introduction

The Public Open Space Lighting Policy has been developed to provide direction with respect to the design, implementation and management of lighting within the City of Yarra's network of parks, reserves and outdoor sporting facilities.

Purpose

The purpose of this Policy is to guide when and where lighting in public open space is needed and if so, how, when and what type of lighting should be designed and implemented.

Scope

The Policy addresses lighting in Council owned and managed open space reserves. This policy differentiates between formal and informal use within open space. This does not include other areas managed by Council such as roads and lanes, nor private open space.

This Policy supersedes the Yarra Public Lighting Policy 2014 in relation to open space reserves. This Policy is subject to a review after five (5) years from commencement.

2. Objectives

Outdoor lighting is required for the enjoyment and use of open space outside of daylight hours, which Council should encourage in appropriate locations and times to support diverse night-time and early morning activity in Yarra. Considered outdoor lighting solutions facilitate:

- Safe perceptions of space and night-time experiences for pedestrians
- Community character and vitality that builds a sense of place
- Legibility and appreciation of urban form and context
- Intuitive wayfinding in hours of darkness
- Engaging and vibrant 24-hour activity within the City of Yarra
- Equal and inclusive access to public spaces
- Sustainability, limiting light pollution and negative effects on the ecology
- Respecting the local community who surround the parks and reserves

Lighting should be fit for purpose and provide a level of illumination which is suited to the location, use of the site and provided at the times of activity. It is not possible or desirable to light large areas of landscape for general use. Lighting should be focussed and provided only where it serves the key objectives.

Table 1: Key principles and objectives

Key Principle	Expected Outcome
Use and Activation	Ensure lighting supports night-time and early morning social and recreational activity within Open Space. • Provide a friendly and welcoming atmosphere where residents and visitors can congregate and socialise with friends and spend long periods of time together outdoors. • Balance lighting with appropriate solutions that respond to frequency, type and duration of use for each space. • Facilitate the activation of spaces by creative lighting that promotes excitement, familiarity, comfort and wonder. • Allow and encourage both structured and unstructured sport and recreation use at night in appropriate locations and at appropriate times. • Light sports fields and courts in accordance with relevant sporting code requirements and Australian Standards.

Key Principle	Expected Outcome
Equal Access and Inclusivity	Ensure lighting supports and considers the diversity of users within Open Space. • Engage with the local community and ensure an inclusive response to how different people experience open spaces after dark. • Ensure that the needs of all members of the community are met, particularly addressing the unique concerns and needs of women, girls and gender diverse.
Access and Circulation	Ensure lighting supports night-time pedestrian and cycling circulation within Open Space. • Enable and encourage active walking, cycling and public transport usage by illuminating key connecting routes through open spaces. • Encourage equal access to open spaces and ensure that universal design practices are considered. • Ensure access and circulation suitably considers adjacent context.
Safety and Wayfinding	Ensure lighting promotes safety and aids early morning and night-time way-finding, transport and recreational activity. • Integrate a considered design approach to the way lighting is planned and implemented to appropriately address perceptions of safety. • Light only those public space areas and paths intended for use outside of daylight hours and do not light spaces of low usage or that lead to entrapment spaces. This should be considered holistically and align with adjacent strategies and policies. • Encourage passive surveillance at ground level to promote safe perceptions of space. • Engage with the local community to identify and respond to areas where the community feel unsafe. Take into consideration existing gendered safety data. • Ensure there is careful consideration to the perception of brightness in spaces, illuminance to people's faces and the surrounding environment to promote a visible field of view for pedestrians where they are able to quickly assess the scene in front of them.
Environmental	Minimise energy use. Protect environmentally sensitive areas and minimise light pollution. • Minimise impact on native flora and fauna in areas with high habitat values or environmental sensitivity. • Use low energy LED fittings only. Consider replacing existing fittings with LED technology where feasible. • Use smart sensors and controls where appropriate to ensure lighting is only activated when needed and only at required lighting levels. Eg; daylight and motion sensors, automatic dimming. • Use appropriate luminaire design and beam angles to minimise spill of lighting to unwanted areas and directions. Where required, use glare shields. • Remove existing lighting where not required.

Key Principle	Expected Outcome
Urban Context and Identity	Ensure lighting contributes to local character and cultural values. • Use well-designed fixtures that complement the scale and character of the space being lit. • Consider appropriate forms of the lit effect to highlight the urban form, any culturally significant architectural elements, public art or natural assets. • Integrate lighting with signs, landscaping and other public space elements. • Limit decorative lighting to design features in strategic locations.
Planning and Maintenance	Ensure effective planning, management and maintenance of public space lighting. • Ensure a considered design approach is applied and compliance with all appropriate standards is achieved. • Avoid using inground lighting. • Establish design standards for lighting elements and implement consistently across the municipality. • Use light fittings that offer value for money and have adequate IP ratings for external use. Ensure life cycle, optic control and impact on the environment is considered.

3. Compliance & Strategic Guidance

Standards

Lighting for pathways and all sport and recreation grounds are required to adhere to specific standards – these are referenced in the tables below.

Ensure all new lighting conforms to all appropriate standards as the minimum level of intervention to open space. Ensure that lighting levels do not exceed the appropriate standards to prevent over lighting which can lead to inhospitable spaces for humans to be comfortable in outside of daylight hours and adversely impact wildlife.

In addition to achieving compliance with Australian standards of vertical and horizontal illuminance, a more considered approach recognises that other elements alter perceptions of brightness and safety in a space.

The following considerations should be reviewed in designing and specifying lighting within Yarra network of parks, gardens and reserves.

Key Questions to consider before designing the outdoor lighting scheme:

- What are the limitations and issues of the space at present?
- Has the community been consulted on issues in the area and what new ideas they might have for the space?
- Is there an urban design and user experience strategy that could be incorporated into the design?
- How does the experience of daytime differ from the experience after dark on the site?
- How can lighting be used to promote positive experiences of the night-time?
- Who uses the space after dark? Who else could benefit from the implementation of outdoor lighting in this space?
- What is the intended use for the space after dark?
- Is the space accessible to minority groups in the community across age, gender, sexuality, ethnic and cultural backgrounds, religion, people with disability and older people?
- Have the appropriate experts in lighting design, risk and public realm urban design been engaged?

Designing for the community

People have wide-ranging interests in their environment and its well-being. Engagement with a wider range of stakeholders will ensure a holistic approach to designing the night time outdoor environment that meets the diverse needs of the community.

Outdoor lighting designs ultimately benefit and affect the people who frequent the spaces the most. It is recommended that a diverse group of relevant community members are engaged at the beginning of the design process to determine the best design solution. This engagement is ideally carried throughout the design process to validate any decisions made during the design process.

In addition to consultation with local and state government bodies, the following non-governmental organisations are recommended for consultation:

- Business owners
- Women's and intersectional interest groups
- Disability advocate groups
- Historical and heritage groups
- Private and public property owners
- Environment action groups
- Local community wellbeing groups
- Sporting and recreation organisations
- Active transport groups

Spatial typology

Lighting can promote versatile uses of open space that may be different to its use during the daytime. Lighting solutions should be appropriate for the intended use and activity of the space**. In general, there needs to be a balance between lighting a park for general use, discouraging anti-social behaviour and public safety.**

Lighting should be considered for application within more frequently used open spaces and larger reserves including Regional, City-Wide and Neighbourhood open space. Ensure lighting layout is part of broader master plans for parks of this scale. (Refer to Appendix 1: Open Space Hierarchy Yarra Open Space Strategy DWG No. YOSS-03a)

Lighting to local and small local parks should consider the balance of lighting from the street and other businesses to ensure that visibility is adequate across the space. In these locations lighting is only applicable for specific use or facilities. (As noted within Tables 2&3).

4. Spatial & Contextual Considerations

Lighting Infrastructure & Quality

Positive experiences of the night time environment extend beyond vertical illuminance, horizontal illuminance and uniformity. In addition to levels of light, the perception of brightness can be modified by different surface finishes, transparency and the light levels in the surrounding environment. Where required, each lighting solution should be designed by an expert lighting designer and is dependent on the contextual requirements of the subject site.

This following spatial and contextual factors should be considered:

- The degree of reflection/absorption of surrounding surfaces
- Any obstructions to the beam of light emitting from the light source (such as vegetation).
- Clear illumination of sightlines in the immediate and surrounding spaces.
- Balance out levels of illumination within the site and surrounding environment. Ensure the lighting does not create glare.
- Take into consideration the absence or presence of passive surveillance from shop fronts, or private residential properties.
- In some cases, lighting can enhance the urban and architectural form, through creating illuminated focal points and layering of lit effect.

5. Technical Considerations

Low energy smart lighting

- All new lighting designs should employ lowest energy and long-lasting technology, for example LED. Technology should allow for customisation of technical lighting parameters to be able to achieve lighting solutions that encourage safe perceptions of spaces.
- Interactive smart lighting technology should be assessed and implemented to respond to specific needs and provided only where it aligns with the key objectives.

Colour temperature

- Warmer colour temperatures are found to correlate with a safe perception of space and have been found to be less detrimental to human and wildlife cycles.
- To encourage comfortable use of spaces for humans outside of daylight hours utilise/adopt a white light of 3000K or less colour temperature. The consistent use of colour temperature within and adjacent to a space is strongly encouraged.
- In wildlife-sensitive areas it is recommended that a lighting design and biology expert is engaged. Refer Department of Environment and Energy “National Light Pollution Guidelines for Wildlife, V2 May 2023”.

Colour rendering

- High colour rendering facilitates perceptions of safety and comfort in a space. High rendering of colour (CRI 80+) allows the human eye to make out shapes, people and greenery and allows pedestrians to accurately assess safety and intent of people approaching ahead.
- A colour rendering index of 80 or above should be used in all sites to facilitate safe perceptions of space.

Contrast ratios and ambient luminance

- Moving through smooth transitions of brightness is important for visibility and perceived safety. Unbalanced lighting installations where there is an exceedingly bright luminaire can cause high levels of glare and cause temporary inability to see into dimmer lit areas.
- Provide gradual transitions between bright-lit and dimmer-lit areas and consider any spill light from street lighting or building lights.
- Provide consistent luminous surfaces and continuous visibility along paths.
  Where pedestrian and shared paths pass through public open space, light the paths to the same level as surrounding streets. This can be achieved through techniques of creating lit focal points, layers of light and having more light sources than just pole lighting.

Ecology and sustainability

- Consider the ecological needs of the surroundings and employ appropriate use of technology such as lower light levels, colour temperature, beam angles and shields. Refer to Department of Environment and Energy “National Light Pollution Guidelines for Wildlife” (V2 May 2023) for further guidance on reducing the impact on ecology.

6. Operational requirements & considerations

General approach

Ensure lighting is used only when and where it is needed to provide a safe venue or passage for users. Lighting at structured sport and recreation grounds is prearranged with Yarra City Council.

Lighting controls & timing

All new lighting design projects should be using dimming and controls so that light is only used in the appropriate amount and time it is required. Consider motion detection and timeclock operation.

Multiple switching is required to allow for the choice of some or all of the venue to be lit.

Utilise control systems and smart lighting technology where remote monitoring and switching is required. As a general requirement, park lighting should be controlled using both a PE cell and a timer located in the electrical meter box or, if possible, co-located with irrigation control.

7. Implementation

Two separate categories of lighting are found within Yarra's Public Open Spaces. Based on use, these categories are:

Informal open space uses: General lighting within parks, gardens and reserves.

Structured sport and recreation ground uses: Specific lighting for regulated sporting codes (such as Australian Rules Football, Football (Soccer), Athletics, Lawn Bowls and court sports).

Informal open space uses (park lighting)

People need adequately lit paths to move through open space outside of daylight hours – these spaces are typically located in larger reserves including Regional, City-wide and Neighbourhood open space. Reasons for accessing Open Space at these times include;

Park destinations

Designated areas within Parks and Gardens that have specific uses outside of daylight hours. This may include structured sport and recreation uses, for example Edinburgh Gardens Tennis Club. The extent of general lighting in these parks needs to be determined based on a balance between lighting a park for general use, discouraging anti-social behaviour and public safety.

Key linkages and connections

Important access connections to public transport, shops or community hubs where no safe and accessible street network exists for walking/cycling. People need adequately lit paths to move through open space outside of daylight hours. Lighting along key routes can encourage sustainable transport modes of walking, cycling and public transport. These key routes make include paths through parks which lead to public transport stops or stations, and shared paths which link into the main movement network or transport paths of many pedestrians and bike riders. For example, Mayors Park- linkage between Clifton Hill Station and Queens Parade (Image 1).

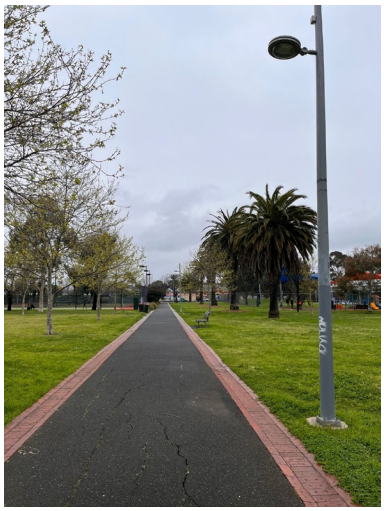

Image 1: Mayors Park linkage

Standards

Path lighting is to be in accordance with the requirements of AS 1158.3.1 Lighting for roads and public spaces - Part 3.1: Pedestrian area (Category P) lighting - Performance and design requirements.

Informal recreational facilities should consider the requirements of AS 2560:2021 Sports Lighting and any relevant State Sporting Organisation guidelines such as Community Sporting Facility Lighting Guide – Australian Rules Football, Soccer and Netball (Department of Planning and Community development).

These documents should be used to determine the appropriate performance requirements for park lighting. Refer Tables 2 and 3 for more detailed requirements.

Table 2: Lighting Applications - Informal open space uses

Use	Design directive	Specific lighting application
Shared paths Key shared paths which are transport paths for pedestrians and bike riders which link into the main movement network. For example, Inner Circle Linear Park shared path.	• The lighting of shared paths will consider strategic routes, the Yarra Transport Strategy, New Deal for Cycling and the need to protect environmental corridors from the impacts of lighting. • Light key linkages between transport stops/stations through to main connector roads (i.e. Linear Park and Koonda Lat). • Do not light paths in environmentally sensitive areas or along waterways (such as Main Yarra Trail and Merri Creek Trail). Alternative low impact wayfinding lighting may be deemed appropriate along key routes.	**Light type:** Open Space pole top luminaire. **Illuminance Level:** Min PP4 - Max PP2 **Timing:** Morning: from 5am until light Night: from dusk until 11:30pm summer, 10:30pm winter. **Wayfinding lighting:** May not be addressed in Australian Standards.
Pedestrian paths	• Light in areas of high use or key connections between destinations. Do not light remote locations. • Do not light in small residential parks unless no footpath on adjacent streets is provided. • Some parks may require lighting all night. For example, Edinburgh Gardens.	**Light type:** Open Space pole top luminaire. Integrated street furniture or wall lighting where appropriate. **Illuminance Level:** Min PP4 - Max PP2 **Timing:** Morning: from 5am until light Night: from dusk until 11:30pm summer, 10:30pm winter.
Passive recreational uses such as dog off-leash areas Suitable Ovals & Soccer Pitches are: • Alan Bain Reserve • Alphington Park Oval • Burnley Oval • Citizens Park Oval* • Yambla Reserve • Victoria Park	• Lighting in designated areas only. • Do not light remote locations not accessible after dark. • Do not light small residential parks. • Only one “site” within a larger park to be lit under this category.	**Light type:** Pole top luminaire, or use of sportsground floodlights depending on site. **Illuminance Level:** PP4 (or maximum of one pole with sports floodlights. *Note Citizens Parks can utilise 2 sports light poles as amended by Council resolution on 3 September 2013). **Timing:** Morning: N/A Night: Mon-Fri from dusk until

Subject to new or additional infrastructure being installed the following sites may be utilised for this use: • Fairfield Park Oval • Gahan Reserve • Curtain Square (Dog off leash area) • Edinburgh Gardens Square (Dog off leash area) • Darling Gardens (Dog off leash area) • Mayors Park		10:00pm (outside those hours where sporting activities have sole access to playing fields). **Duration:** To operate at the conclusion of daylight savings until daylight savings resumes.
Plaza	Light only gathering spaces in close proximity to night time activity centres or high use paths appropriate to the function of the space.	**Light type:** Open Space pole top luminaire, custom pole top and integrated street furniture lighting appropriate to site. **Illuminance Level:** Max PA3 **Timing:** Morning: N/A Night: from dusk until 11:30pm summer, 10:30pm winter
Public Art, Signage, Other Features	Light urban/landscape features only in high visibility locations or in high use plaza spaces, such as gateways or activity centres.	**Light type:** Feature lighting **Illuminance Level:** Varies- decorative only, no min. luminance to be met. **Timing:** Morning: N/A Night: from dusk until 11:30pm summer, 10:30pm winter.
Decorative / Feature lighting	Creative lighting solutions for targeted specialised lighting applications. This can take the form of creating focal points, layered lighting or creating ambient glow.	**Light type:** Feature lighting **Illuminance Level:** Varies, decorative only, no min luminance to be met. **Timing:** Morning: N/A Night: from dusk until 11:30pm summer, 10:30pm winter.
BBQ and picnic areas	Do not light. Night-time activity not encouraged.	

Multi-use public access courts Open (non-enclosed) courts catering for informal or non-organised use. May cater for Basketball (half/ full court), Netball etc.	Light only in regional parks where near high use paths. Consider light spill into adjacent residential properties Do not light in local and small local open parks.	**Light type:** Sports pole top floodlight to meet lux **Illuminance Level:** For recreational basketball and netball: 100 lux **Timing:** Morning: N/A Night: From dusk until 10.00pm **Controls:** Use Sensor, Timer, Motion Detection, or User Activated lighting controls.
Structured sports lighting Lighting of sportsgrounds, multi-use fenced courts, lawn bowls greens for structured sports programs/competitions and bookings	Lighting to meet the required standards for the specific activity. Lighting control should be implemented to minimise energy consumption for each site.	**Light type:** Sports pole top floodlight to meet required lux luminance level for each sport. To be determined based on needs at each facility and required lighting standards for sporting codes. **Timing:** Morning: From 6:30am until dawn* (fenced courts) Night: From dusk until 11:00pm **Controls:** Timer or User Activated lighting controls or remotely controlled systems.
Skate Parks	Light only in City Wide parks where near high use paths. Consider proximity to adjacent residential properties.	**Light type:** Floodlighting or post top luminaire. **Illuminance Level:** AS 1158.3.1 (2020) Table 3.5 Sub Cat PA3 Optimal 100 lux (not always achievable due to environmental constraints) **Timing:** Morning: N/A Night: From dusk until 10.00pm **Controls:** Use PE Cell and Timer combination.
Playgrounds	Do not light. Night-time activity is not encouraged	

Wildlife / River corridors	Do not light paths in environmentally sensitive areas or along waterways (such as Main Yarra Trail and Merri Creek Trail). Alternative low impact wayfinding lighting may be deemed appropriate along key routes.	**Wayfinding lighting:** May not be addressed in Australian Standards.

Note: Lighting times may be extended subject to approval of an events permit.

Structured sport and recreation grounds

The provision of compliant sports lighting systems enables extended use on formal sporting grounds and facilities. This contributes to the continued health, wellbeing and safety of the Yarra community by increasing participation in physical activity.

The use of lighting at sports fields needs to be carefully balanced with the needs of the wider community, wear and tear on the facilities, and attention to energy use and costs.

Standards

Lighting is to be in accordance with the requirements of:

- AS 2560:2021 Sports Lighting, Part 2: Specific applications
- AS2560:2007 Part 2.8: Specific applications - Outdoor bowling greens
- Tennis, Athletics and Netball to community competition standards

These documents should be used to determine the appropriate performance requirements for sports lighting.

Design considerations

Sporting Use - Ensure lighting aligns with intended use or activity type.

Access - Ensure safe access to sports field destinations is duly considered. Refer to path lighting.

Control & timing - Timers will be used to turn off sports lights at the conclusion of the activity and no later than 11.00pm, except with approval of an events permit.

Light spill - Careful consideration of spill lighting will be critical due to the strength of sports lighting. Light spill should be considered with regards to the recommendations of AS 4282:2019 Control of the obtrusive effects of outdoor lighting.

Geotechnical - For large ovals and multicourt netball/basketball facilities, a geotechnical assessment and investigation will need to be done to determine the size of the footing for light poles.

Planning/Building Permit Approval - Poles for lights over eight (8) metres in height will require a building permit. This is in accordance with the Building Regulations 2018 (Victoria). AS 2560.2:2021

Table 3: Lighting Applications - Structured sport and recreation ground

Sport/ Level	Maintained Average Lux	Maximum Glare Rating
Soccer		
Training	50	-
Club competition	100	50
Semi Professional	200	50
Professional Competition	500	50
Basketball/Netball		
Training	100	65
Club competition	200	65

Sport/ Level	Maintained Average Lux	Maximum Glare Rating
Tennis		
Recreational	250	50
Club competition	350	50
National / International	1000	50
Australian Rules Football		
Training ground only	50	-
Club competition & match practice training (enhanced)	150	50
Semi Professional	200	50
Professional	500	50
Bowling Green		
Training and Competition	100	50
Cricket	Square	Outfield Lux
Training	100	100
Match Practice	200	200
Level 3	300	200
Level 2	500	300
Level 1	700	500

8. Planning for new lighting

Council officers considering new lighting in open spaces will follow the steps below:

1. Determine the users, purpose and aim of lighting and assess against the key principles (refer Table 1).
2. Assess the type, level and hours of usage fit for purpose for the location and activity (refer Tables 2&3).
3. Identify design and lighting fixture options according to specific site and performance and context requirements.
4. Design new lighting scheme to meet the needs of the site and the community that will be using it.
5. Identify the level of illuminance to be met and achieved with lighting solution (refer Table 2&3).
6. Assess current illuminance and luminance levels (light level simulation on Dialux - lighting design software or equivalent can be done).
7. Convey data on new light assets to asset management team.

9. Appendices

Glossary

General terms used in this document:	
Colour temperature	Correlated colour temperature describes the colour of a light source and is measured in degrees Kelvin (K). White lamps have a high colour temperature (e.g. 4000K). Yellow lamps have a low colour temperature, (e.g. 2000K). Colour temperature also has ecological consequences on the nocturnal patterns of wildlife.

Colour rendering	Colour rendering describes the degree to which natural colours can be perceived under different kinds of artificial light. It is measured on a colour rendering index (CRI) of 0 to 100 percent. A CRI of 100 indicates that colours are depicted accurately. A CRI of less than 30 indicates colours are distorted and difficult to recognise. A CRI of 80 or above provides an acceptable standard for outdoor lighting.
Glare rating	Indicates the glare evaluation for outdoor sports and area lighting based on how it is perceived by the human eye. It is measured as the observer looks at each point on a horizontal illuminance grid.
LED lighting	Light emitting diode, a semiconductor device that converts electricity into light.
Light spill	Light that falls outside the area intended to be lit, contributes to sky glow and may be a nuisance. Known to affect the natural behaviour and navigation of some wildlife.
LUX levels	Internationally recognised measure of the intensity of illuminance (brightness), as perceived by the human eye.
Uniformity	Rate of change of illuminance over a defined area.
Sportsground	Natural turf ovals and pitches designated for the purpose of sport and recreation.
Summer	Refers to Australian Eastern Daylight Time (AEDT).
Winter	Refers to Australian Eastern Standard Time (AEST).

Key Relevant Documents

Council Strategies and Policies

Yarra Climate Emergency Plan 2024-2030

Yarra Open Space Strategy 2020

Yarra Transport Strategy 2022-32

Australian Standards

AS 11.58.1.1.2022 Lighting for roads and public spaces

AS 2560.1:2018 Sports Lighting, Part 1: General principles

AS 2560.2:2021 Sports Lighting, Part 2: Specific applications

AS 4282:2019 Control of the obtrusive effects of outdoor lighting

Other Reference Documents

Burndap Birraung burndap umarkoo (Yarra Strategic Plan) 2022-32, Victoria State Government, 2022

Community Sporting Facility Lighting Guide, Sport and Recreation Victoria, 2012

Football Lighting – Effective Lighting Guide, Football Victoria, 2019

Lighting for Hockey Fields, Hockey Australia, June 2022

National Light Pollution Guidelines for Wildlife (V2), Department of Environment and Energy, May 2023

Urban Design Guidelines for Victoria, Department of Planning, 2017

Your Ground Victoria Report, XYX Lab and CrowdSpot, 2021