

Lighting Frankston Plan 2021



Acknowledgement of Country

Frankston City Council acknowledges the Bunurong people of the Kulin Nation as the Traditional Custodians of the lands and waters in and around Frankston City, and value and recognise local Aboriginal and Torres Strait Islander cultures, heritage and connection to land as a proud part of a shared identity for Frankston City.

Council pays respect to Elders past and present and recognises their importance in maintaining knowledge, traditions and culture in our community.

Council also respectfully acknowledges the Bunurong Land Council as the Registered Aboriginal Party responsible for managing the Aboriginal cultural heritage of the land and waters where Frankston City Council is situated.

The Lighting Frankston Plan was prepared in collaboration with:

- Pollen Landscape Architecture
- HR Consulting Engineers
- Conversation Caravan

Contributions made by the Frankston City Council Urban Design Team are acknowledged and greatly appreciated.

The Lighting Frankston Plan was adopted by Council in September 2021.

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Why a plan for lighting?



Lighting is essential to our ability to navigate through our world as day turns to night. It helps us to understand where we are and allows us to orientate ourselves so that we can get to where we want to go.

Public lighting helps us to do many things at night that we would otherwise only be able to do during the day like playing sport, shopping or walking down the street. It can make public spaces feel safe for us to use after dark and gives us confidence that we know where we are going and what is around us.

In addition to helping us see better, we use lighting to create ambience and to add colour and vibrancy to our cities and public spaces. It is often used to showcase buildings, sculptures and even trees that speak to the history and character of a place.

This Plan provides a framework to help Council develop strategies for public lighting that seeks to

make Frankston City a vibrant evening and after-dark destination. It also celebrates the value of darkness, recognising the vital role it plays for the wellbeing of the community and the environment.

The Plan focuses on lighting within public spaces. It includes lighting of our City Centre and activity areas, the foreshore, public art, open spaces like parks and reserves, walking routes and local shopping strips. It doesn't include standard infrastructure lighting such as streetlights.

Good lighting is not always noticeable, but bad lighting can be overwhelming, harmful to plants and animals, and can stop people from using public spaces at night. Effective planning helps us to make sure that our public lighting is functional, sustainable, considerate of environmental impacts and achieves an appropriate balance of light and dark within the public realm.



Some of the key community benefits that good lighting provides are outlined below:



Business and Tourism

- Allows for social and economic activities to exist after dark.
- Provides favourable night-time experiences that encourage economic activity and contribute to the identity of the City as a desirable night-time destination.
- Increases the amount of time that people can spend on economic activities such as entertainment and meals away from home at night which contributes to a stronger economy.
- Supports the day to night experiences of Frankston City.



Safe Community

- Allows us to understand our surroundings and helps us to safely navigate through spaces without natural light.
- Improve the public's feelings of safety and security which can increase the use of public spaces. It also supports those commuting via bike or foot after dark.
- Can deter potential offenders by increasing the risk that they will be seen or recognised when committing crimes. It can also increase activity in public spaces at night which can further improve surveillance and deter crime.



Healthier Community

- Creates opportunities for outdoor activities such as fitness and sporting groups, outdoor dining and walking the dog after work.
- Supports access to arts and cultural activities that encourage participation, social interaction and connection.
- Encourages active lifestyles by supporting our ability to use public spaces for passive, active and recreational activities.



Liveability

- Extends the number of light hours in a day so that we can spend more time in public spaces and complete daily tasks.
- Supports the activation of public spaces so that we can engage in a variety of night-time activities like exercise, shopping and recreation.
- Contributes to a vibrant and cultural experience and an enhanced sense of place.
- Supports public spaces as accessible destinations for all ages and abilities.
- Celebrates our local heritage values and historical, cultural and environmental markers.



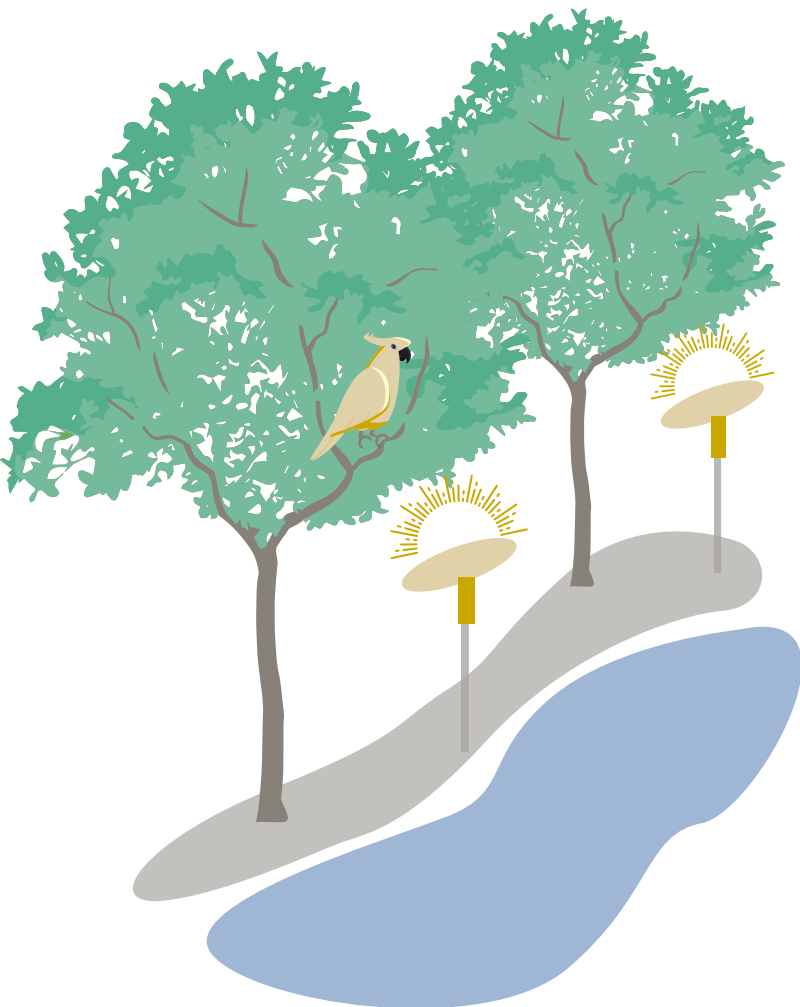
Environmental Stewardship

- Mitigates the adverse impacts of artificial lighting on plants and animals (terrestrial and aquatic), protecting important ecological processes and behaviours.
- Preserves the natural darkness of the night sky so that we can see and experience the beauty of the stars.
- Reduces light pollution by ensuring lighting is appropriately targeted and shielded, not unnecessarily bright, and only provided where and when needed.
- Helps to foster the community's appreciation and value of the environment by providing appropriate and considerate access to open spaces and natural areas.
- Reduces our contribution to greenhouse gas emissions through use of energy-efficient and sustainable lighting technologies that are long-lasting and robust.

Why is lighting important?

Light is fundamental to our ability to see. It helps us to understand and navigate the world around us so that we can move to where we want to go and avoid obstacles along the way.

The amount of light around us affects how well we can see. Too much light can be uncomfortable for us, even painful, and we will often squint or shield our eyes in response to bright or glary conditions. Not enough light however, and it can be difficult for us to make out details in our surroundings, like people's faces, words on signs, or things we might trip over. In both cases, the amount of light – too much or too little – makes it hard for us to see properly, and in both cases, it can be the difference between a good and bad experience when using public spaces after dark.



Current trends in lighting



Sustainability

Artificial lighting contributes significantly to global greenhouse gas emissions. Around 5% of carbon emissions produced worldwide comes from artificial lighting. In Australia, street lighting alone is the single largest source of carbon emissions from local government, typically accounting for 30 - 60% of their total emissions. Because of this, there is a strong push towards the use of more energy efficient lighting technologies (like LED lights) in public spaces which are long-lasting as well as cost effective, and which also achieve the right lighting outcomes.



Dark Sky Movement

The Dark Sky Movement is a campaign that seeks 'to protect the night from light pollution'. It recognises the environmental consequences that inappropriate or excessive use of artificial light can have for humans, wildlife, and our climate. The International Dark Sky Association provides leadership, tools, and resources for individuals, policymakers, and industries to help them reduce light pollution and promote responsible outdoor lighting.



Smart Lighting

Smart lighting uses digital technologies to perform multiple lighting and public service functions. Instead of lights that just switch on and off, they can be dimmed, change colour, and turn on only when someone is nearby. They can include security cameras, offer a spot to charge electric vehicles and can also help Councils collect important data about weather conditions, air quality, noise levels and pedestrian and vehicle movements.

Current state of lighting in public spaces

Council has a diverse range of lighting types and approaches. Most lighting within the municipality has been provided for functional purposes, allowing us to use and move through public spaces safely and confidently after dark.

Lighting around activity centres, such as the Frankston City area and Seaford Village, seeks to support night-time experiences and cultural activities such as shopping, outdoor dining, and even festivals. It has also been used to reinforce place-making projects like Station Street Mall, and to build on the identity of the City and local area by highlighting key landmarks such as Frankston Arts Centre and Frankston Pier. Public art has also been a consistent focus for lighting projects throughout Frankston City Council.

Also evident is the progressive change in lighting technologies and techniques used by Council over the years and their considerations of the broader impacts of lighting on the environment, energy consumption, life-cycle costs and the human experience.

Changing community expectations around lighting in public spaces

The ways in which we use our public spaces is changing. Higher density living combined with a rise in flexible and remote working means there are now more people moving through our cities and urban areas than ever before. We are no longer a strictly 9 to 5 society and there is a growing need and expectation for our public spaces to be accessible outside of daylight hours to support physical, recreational and economic uses.

The COVID-19 pandemic and resulting lockdown restrictions have further highlighted the need for accessible evening and night-time public spaces close to home for greater community health and wellbeing. The benefits of a well-connected, walkable neighbourhood are well known, and more people are choosing to walk and cycle for pleasure and as their main form of commuting. Providing users with a safe and comfortable experience is key to encouraging more people to use active forms of transport, and good lighting is one of the most important ways we can achieve this.



Artificial light and the Environment

It is widely acknowledged that artificial lighting can have harmful and damaging impacts on plants and animals (both terrestrial and aquatic), including humans. The role of Council is to ensure that decisions made consider the impacts of lighting on the environment in balance with the needs of our community.

Research has found that artificial light can alter our circadian rhythm - our internal 'body clock' - which regulates biological processes and behaviour. Plants and animals depend on the earth's daily cycle of night and day to regulate their circadian rhythm and govern life-sustaining behaviours like eating, sleeping and mating. In humans, night-time exposure to artificial light can disrupt our natural sleep-wake cycle, affecting our energy levels, mood and overall physical health and wellbeing.

Artificial light can be disorienting, particularly for nocturnal and crepuscular animals whose eyes, bodies and behaviours are best suited to low light conditions. For some species, it can make it harder to hide from predators or hunt prey, or even affect their ability to find a mate. It can cause migrating animals to veer off course, or prompt them to migrate too early or too late and miss the best conditions for nesting and feeding. Artificial light that changes an animal's foraging habits can even interfere with the pollination of plants, with long term implications for the sustainability of habitat and food sources.

The cumulative impacts of artificial lighting can ultimately interrupt the delicate balance of an ecosystem, causing population booms in some species, and a rapid decline in others. Careful consideration of the impacts of new public lighting on our environment is therefore crucial to the preservation of our natural assets for future generations.

Our Vision for lighting:

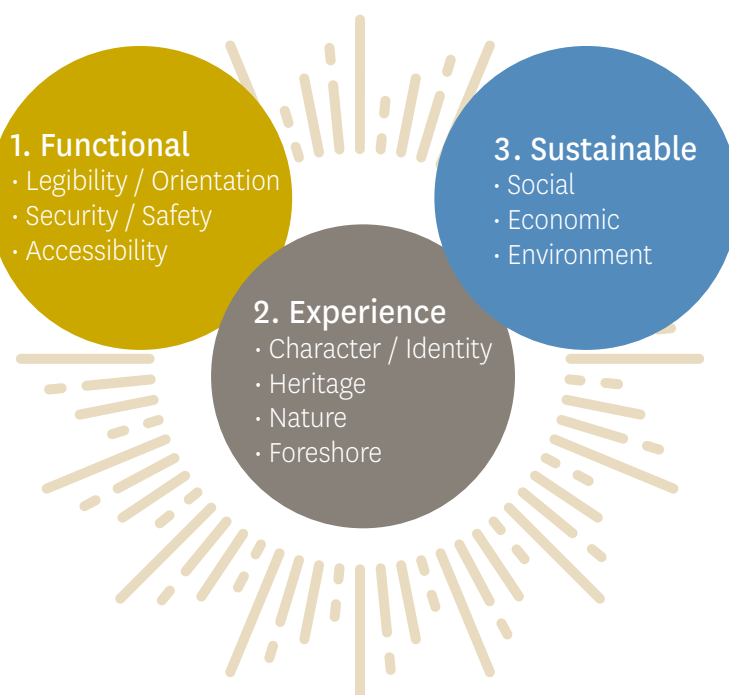
'Lighting in our public spaces will create safe, functional and vibrant places. Our public lighting is energy, sky glow and environmentally considerate.'

Guiding Lighting Principles

This Plan provides a vision for public lighting and lighting experiences to enhance our City. It determines what is required to achieve that vision and to meet the public lighting needs of our community over the next 10-15 years.

To achieve this, the future of lighting in our public spaces will need to align with the fundamental principles of lighting: that it is functional, sustainable and provides us with experience. Each of these three principles has a set of design guidelines to help guide and deliver appropriate and successful lighting projects.

The three overarching Lighting Principles and their Design Guidelines:



1. Functional

Functional lighting provides visibility and definition of objects and spaces when there is not enough natural light. This allows us to understand what we see, where we are going and provides us with confidence to move through to where we need to be after dark.

Design Guidelines

Legibility and Orientation

Lighting for Legibility and Orientation in public spaces should:

- Allow for clearer night-time visibility and access.
- Prioritise pedestrians.
- Contribute to our ability to understand and navigate public space and to orientate ourselves from day to night through recognisable elements, landmarks and signage.
- Provide a legible environment between spaces, connections and key destinations.
- Provide lighting that helps to visually define spaces, surfaces and boundaries.
- Propose light quality, quantity and consistency that contributes to lighting amenity.
- Provide accuracy of colour rendering - the accuracy of colours we see with artificial light sources - to allow people to depict and understand what they are looking at.
- Contribute to understanding the hierarchy of public space.

Security and Safety

Lighting for Safety and Security in public spaces should:

- Contribute to improved perceptions of safety and provide confidence in public space.
- Mitigate anti-social behaviour and unwanted activity.
- Provide clear expectations of lighting in car parks, roads and open space.
- Propose opportunities for dimming controls to match peak and off-peak lighting needs.

Accessibility

Lighting for Accessibility in public spaces should:

- Provide equitable access in the night for all ages and abilities.
- Contribute to improved legibility of the public realm with considerate use of reflective surfaces and contrast.
- Balance the contrast from day to night.
- Propose colour and outputs of light that are appropriate for those who may have sensory processing needs (ie. no strobe/dynamic lights on key pathways).
- Provide amenity lighting along accessible paths for night-time navigation.
- Propose an appropriate amount of light to mitigate glare impacts for those with visual impairment.
- Offer uniformity of lighting to provide visual consistency.

2. Experience

Lighting contributes substantially to our experience of public spaces before sunrise, in the evening and at night. It should allow us to participate, enjoy, observe and gain a sense of character and memorable value of what it reveals.

Design Guidelines

Character and Identity

Lighting for Character and Identity in public spaces should:

- Promote a sense of 'place', developed in consultation with relevant stakeholders and the broader community.
- Contribute to the representation and highlighting of a local area's character and identity.
- Contribute to a vibrant and creative City.

Heritage

Lighting for Heritage in public spaces should:

- Contribute to the local area's cultural heritage and historical significance.
- Develop complementary lighting responses that enhance and acknowledge cultural heritage values.
- Promote indigenous cultural values developed in meaningful consultation with local indigenous Traditional Owners.

Nature

Lighting for Nature in public spaces should:

- Contribute to appropriate access, understanding and value of natural environments, ecologies and biodiversity.
- Promote a sensitive ambient lighting approach that balances access and protection of natural values.
- Balance introduced lighting with natural moonlight.
- Retain the value of darkness in public space to protect local ecologies from artificial light in alignment with the 'Dark Sky' movement.

Foreshore

Lighting for the Foreshore's public spaces should:

- Contribute to access and enjoyment of the foreshore environment.
- Balance artificial lighting with natural moonlight and darkness.
- Retain the value of darkness in public spaces to protect the foreshore's ecology from artificial light in alignment with the 'Dark Sky' movement.

3. Sustainable

Lighting is part of a sustainable City and is used to build upon its social fabric, identity, financial viability (as a place to live, work and visit) and its commitment to protecting its environment.

Design Guidelines

Social

Lighting for Social purposes in public spaces should:

- Facilitate and encourage social interactions after dark that contribute to vibrant, active and connected communities.
- Facilitates social interactions that involve the appreciation of natural light and darkness.
- Provide lighting to activate spaces.
- Provide lighting to allow recreational activities in the community.
- Consider health and well-being effects of artificial lighting on circadian rhythms (for humans, wildlife and invertebrates).

Economic

Lighting for Economic purposes in public spaces should:

- Provide after dark ambience to support activity areas and the night-time economy
- Support retail and hospitality precincts and public open space which allow outdoor dining and footpath activity.
- Encourages activities that support the local economy to thrive.
- Be cost effective and achieve balance between quality, capital cost and ongoing maintenance.

Environment

Lighting for Environmental purposes in public spaces should:

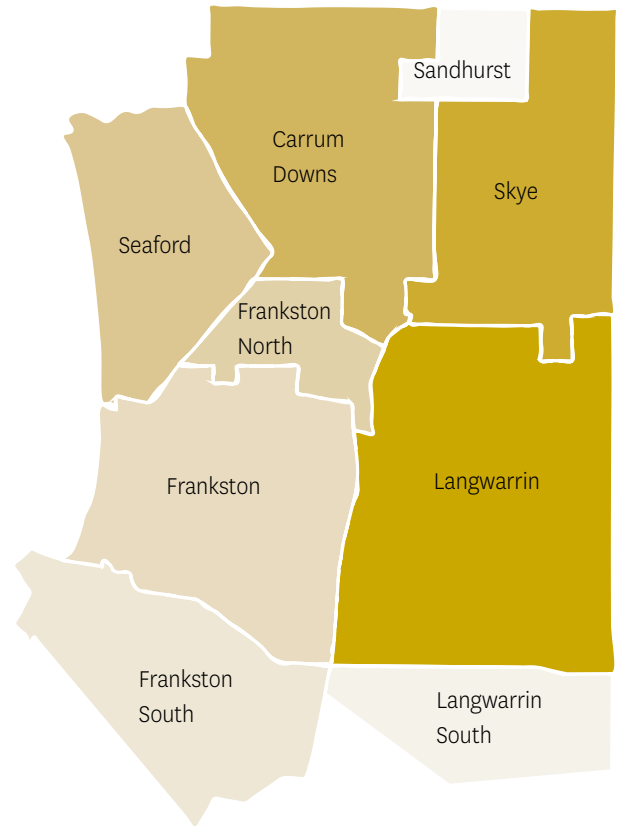
- Retain the value of darkness in public spaces to protect local ecologies from artificial light in alignment with the 'Dark Sky' movement.
- Propose sustainable lighting technologies for greater efficiency, longevity and low maintenance.
- Seek opportunities for reducing environmental impacts, such as carbon emissions and light pollution, by lowering light levels or switching off during off-peak times.
- Encourage use of high-quality luminaires that allow control of light levels and outputs, orientation (to surfaces, not up to the sky) to reduce negative light pollution impacts and obtrusive lighting.
- Provide incentives for private building owners to make the switch to more sustainable lighting technologies and to complement public spaces.
- Be vandalism-proof and robust.

Who is the plan for?

Community snapshot Frankston City is situated on the eastern shores of Port Phillip Bay, about 40 km south-east of Melbourne. Frankston City is one of nine designated Metropolitan Activity centres in metropolitan Melbourne, identified as a place that can perform a capital city role for the Mornington Peninsula and south-east bayside municipalities. The municipality covers an area of about 131 square kilometres and is bounded by the City of Kingston and Greater Dandenong in the north, the City of Casey in the east, and Mornington Peninsula Shire in the south. Port Phillip Bay which forms the City's west boundary provides nearly 11 kilometres of uninterrupted coastline.

The municipal context is predominantly suburban and peri-urban, with a larger commercial zone in Frankston central and industrial zones in Frankston, Seaford and Carrum Downs. The natural environment is coastal (bay foreshore) to the west with pockets of open space, bushland reserve and waterways throughout. A north-south rail and freeway corridor dissects the city.

The municipality is made up of 9 key suburb precincts: Seaford, Carrum Downs, Sandhurst, Frankston North, Skye, Frankston, Langwarrin, Frankston South and Langwarrin South. These are used for planning purposes in the Lighting Frankston Plan which focuses on lighting in our public open spaces and places.



Message from the Mayor



Cr Kris Bolam **Mayor, Frankston City**

Frankston City has many vibrant spaces, diverse urban areas, coastal scenes and bushland settings that help boost our liveability and visitor experiences.

The COVID-19 pandemic and resulting lockdowns highlight the need for more accessible evening and night-time public spaces that are safe and close to home for the benefit of community health and wellbeing.

The ways in which we use our public spaces is changing. Higher density living, combined with a rise in flexible and remote working means there are now more people moving through our cities and urban areas than ever before.

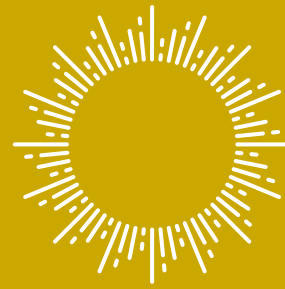
There is a growing need for our public spaces to be accessible outside of daylight hours to support physical, recreational and economic uses. More people are choosing to walk and cycle for pleasure and as their main form of commuting. Providing good lighting is one of the most important ways to encourage people to feel safe and comfortable and be connected within their neighbourhood.

We are Building for the Future by developing outdoor dining and urban spaces, investing in our natural assets and attractive design of the built form to help connect people. With this comes careful consideration of social, environmental and economic impacts.

The future of lighting within Frankston City will be adaptive, responsive and conscious of its effects on people, place and the environment. This is all part of our plan to build a better Frankston for the future for all locals and visitors to enjoy.

This Plan provides a vision for public lighting and lighting experiences to enhance our City. It determines what is required to achieve that vision and to meet the public lighting needs of our community over the next 10-15 years.

Strategic Context



Our Community Vision

‘Frankston City 2040 is the place on the bay to learn, live, work and play in a vibrant, safe and culturally inclusive community. Our City is clean, green and environmentally responsible.’

The Community Vision 2040 was developed by the Frankston City community in 2020-21 to articulate their long-term vision and aspirations for the future of our City. The Community Vision 2040 provides an aspirational description of what our community wants for the future of our municipality, in terms of its look, feel and liveability.

The Community Vision 2040 forms part of Council’s strategic planning and reporting framework, to ensure that the community’s vision for the future of Frankston City is considered in all of Council’s planning and decision-making, including this Lighting Frankston Plan.

A summary of Council’s role in delivering lighting improvements identified in the Community Vision 2040 is outlined below:

“Create a clear identity for Frankston City that gives people a reason to visit and spend locally, including building on outdoor dining, shopping precincts that connect people, investing in our natural assets and attractive design of the built form.”

“Council will also work in partnership to provide urban design solutions and place-making initiatives that enhance the accessibility and vitality of our public spaces, improving the overall liveability of the municipality.”

“Strengthen pedestrian connections between Frankston’s city centre, university precinct, beach and hospital.”

Outcomes Framework

The Lighting Frankston Plan strategically aligns with the following Policy Domains:



How we prepared the plan

The Lighting Frankston Plan has been developed across 4 key phases, involving Council, the community and external consultants. The process is outlined below:

Phase 1 -

Background Analysis and Precedent Study

Review and consideration of relevant Council plans, policies and strategies and data including the Community Vision 2040. This plan is part of Council's commitment to make Frankston a liveable city and responds to many of the recommendations identified in the following documents:

- Frankston Council Plan 2021
- Climate Change Impacts and Adaptation Plan 2011
 - Towards Zero Emissions Plan 2019-2023
- Frankston Coastal Management Plan 2016
 - FMAC Structure Plan 2015
- Draft Frankston Revitalisation Plan 2021
- Frankston Open Space Strategy 2016-2036
- Frankston Economic Strategy 2016-2022
- Greening Our Future Strategy 2014-2024
- Draft Biodiversity Action Plan 2021-2036

Phase 3 -

Draft Lighting Plan and Community Consultation

The draft Lighting Plan was prepared and publicly exhibited in February – April 2021 for the community to review and provide feedback. During this period Council received 18 responses. In July – August 2021 Council also conducted a public lighting survey online and face to face, receiving 191 responses from the community.

All feedback received during these consultation periods has been considered and used to inform the final Plan.

Phase 2 -

Lighting Site Assessments

An assessment of existing lighting from across the municipality was undertaken from daylight through to darkness. The approach was determined and conducted with a group of lighting professionals and Council officers to survey the extent, variety and quality of existing public lighting.

Phase 4 -

Final Lighting Plan

The final Plan will be presented to Council for adoption and implementation.

What we heard from our community

Community engagement focused on current public space users, allowing also for broad engagement by interested community members. An online survey was promoted through Council's engagement platform, social media and corporate website. Intercept surveys targeted a variety of stakeholders including residents, visitors and local workers.

The methodology was designed to speak with the wider community about their experience and needs of public lighting. Engagement activities reached a statistically representative section of the Frankston community by age with the exception of people aged under 17.

The results of the consultation indicate that the community largely supports lighting across Frankston City:

- For improved safety.
- To support walking and active lifestyles.
- To make our public spaces more attractive.

There is also a recognition within the community that lighting projects should consider the impact of artificial lighting on local ecosystems and its contribution to light pollution.

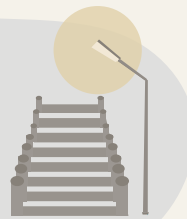
When prioritising new lighting projects, there is consistent community support for:

- Lighting the foreshore and boardwalk area.
- Creating safe pedestrian connections between night-time venues.
- Lighting walking areas through parks and spaces adjacent to sporting grounds.

Most respondents were aged between **35 - 49** years of age.



63% of respondents would visit the Frankston Waterfront and Foreshore area more in the evening if better lighting was provided.



Respondents were more likely to prioritise functional lighting (for safety, visibility and access needs) ahead of attractive and creative lighting.

"You need a safe, secure feeling and lighting gives you that."

"To the beach at night to watch stars and see the city lights."

"I wouldn't go down a shared walking path in the dark."

"Put lighting in one good sized park in every suburb."

"Don't interfere with wildlife."

"If it was safer more people would use it."

"Light up some of the murals - particularly ones that face streets that you see while walking at night."

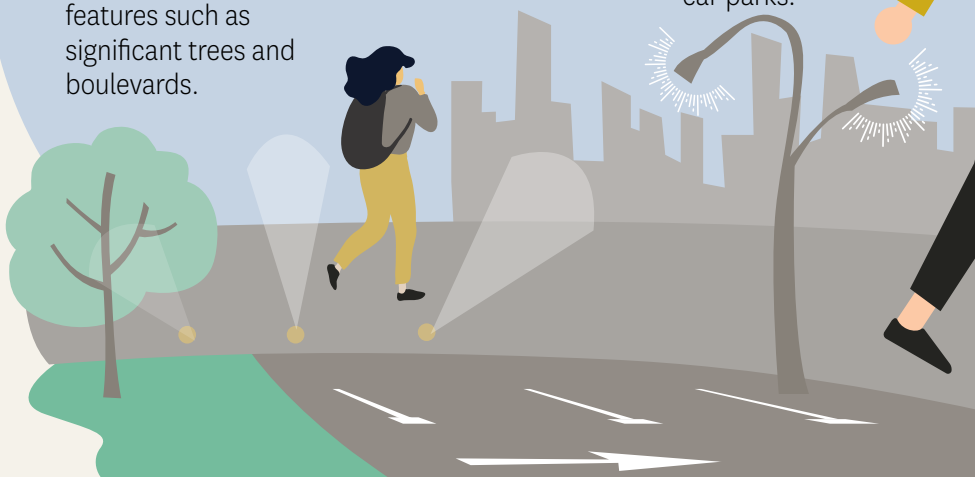
47%

of respondents would like to see creative feature lighting used for landscape features such as significant trees and boulevards.

Women were more likely to say they don't come out after dark for reasons of safety.

57% of respondents told us that key city streets and laneways would benefit from better lighting.

62% of respondents told us that more lighting would help them feel safer on footpaths that connect night-time venues and car parks.



What lighting we saw in our City

The following key observations were made during the site assessment phases of the project:

- The need to reinforce street connections within Frankston's City area with appropriate and considered lighting for navigation.
 - The need to replace old lighting technologies with more sustainable, energy efficient and cost-effective lighting.
 - The need for improved lighting within shopping strips to reduce glare, light spill and visual clutter caused by competing layers of lighting.
 - The need to better distinguish between environments for people and vehicles.
 - The need to provide lighting at appropriate heights so that they are not uncomfortable or disorienting to look at.
 - The need to provide lighting that celebrates the area's historical and cultural values and character.
 - The need to replace old, outdated and inappropriate lighting technologies with lighting that is more robust, suitable and fit-for-purpose for its context.
- The need for lighting that prioritises the pedestrian experience in spaces that are near, or adjacent to roads.
 - The need to provide lighting that is suitable for advanced levels of sport.
 - The need to reduce the reliance on streetlights for lighting of important aspects in public spaces and streetscapes.
 - The need for inclusive lighting that creates accessible public spaces for all ages and abilities.
 - The need to replace light poles and fixtures that direct light up towards the sky with new infrastructure that directs light toward the ground, reducing light pollution.
 - The need to ensure public spaces, like sports precincts, are not over or unnecessarily lit when not in use.
 - The need to consider lighting in adjacent spaces when planning new projects and how it will contribute to the user experience.



Lighting Standards

The quality, quantity and colour of light affects our visual perception and experiences. To meet the benchmark expectations and performance of lighting, it is important this plan considers the parameters and guidelines for minimal lighting to be achieved that are set by the governing standards and industry guidelines.

All lighting of Frankston's public open spaces and places should meet or exceed the following:

- AS/NZS 1158 series (all parts) – Lighting for Roads & Public Spaces
- AS/NZS 4282-1997 -Control of Obtrusive Effects of Outdoor Lighting
- AS/NZS 2560 series (all parts) – Sports Lighting
- National Light Pollution Guidelines for Wildlife
- International Commission on Illumination (CIE)
- International Dark-Sky Association (IDA) guidelines
- The Australasian Dark Sky Alliance (ADSA) guidelines
- VicRoads - TCG 006: Guidelines to Street Lighting Design
- Parks Victoria Guidelines

Lighting Technology

Lighting within Frankston's public open spaces and places must meet the following lighting technology criteria:

- Energy efficiency.
- Industry standard or better LED
- Price competitive or cost effective.
- Real whole-of-life cost: purchase price, installation cost, operation and maintenance cost implications.
- Robustness: to be suitable for purpose and context to mitigate issues such as, but not limited to, galvanic corrosion and substrate corrosion.
- Longevity and quality.
- Low maintenance and easy to replace and repair if needed.
- Products that are readily available.
- Products that are easy to upgrade as technology improves.



Our Approach for Future Planning

We have developed 7 lighting approaches to assist future planning for lighting in Frankston's public open spaces and places. These include a range of lighting types and development standards.

The application of lighting in the right context will contribute to ideas of place, liveability, resilience and community. Good lighting is not always noticeable, bad lighting is often overwhelming.

Having a palette of seven lighting approaches enables Council to provide our community with lighting that is responsive to site, context and the user experience. Each lighting type considers the balance of artificial light, moonlight and dark skies in relation to community need.

The following approaches provide a guideline for the planning, design and implementation of public realm lighting within Frankston City:

Active Spirit

Celebrates an active community, encouraging people of all ages and abilities to be outdoors within their community.

Foreshore Experience

Supports the protection, enhancement, and future-proofing of the foreshore environment to be a destination for the community and visitors to Frankston City.

Navigation & Local Identity

Celebrates first impressions of the City after dark, and the ability to appreciate and understand destinations and identifiable landmarks in the night-time public realm and streetscape network.

Luminous City

Supports lighting design to be a creative and innovative part of the public realm experience within Frankston's City Centre.

Creative Lighting

Embraces the celebration and delights of our City.

Night in Nature

Supports the natural environment after dark in a responsible and considerate way.

Safety on the Streets

Supports the functional principle of lighting for legibility, safety and access.



Lighting the way Forward



Priorities for Future Lighting

Looking forward and into the future towards creative, inclusive and resilient night-time experiences.

The future of lighting within Frankston City will be adaptive, responsive and conscious of its effects on people, place and the environment. The Lighting Frankston Plan provides guidance to deliver lighting outcomes that draw on experiences and presence within public spaces, with an appreciation of darkness in the night.

The Plan considers future thinking, human-centric experiences of the individual, the community, and the impact on natural and nocturnal environments. It seeks to be useful for Council officers, design consultants, place-makers, private developers and businesses to consider the approach, design and delivery of adaptive, thoughtful and sustainable lighting projects.

The following breakdown summarises the priorities for lighting projects into the future:

Positive, enhanced and creative public realm

Lighting responses should:

- Be creative, combining art and culture to build a sense of place and highlight the attractive city.
- Be integrated as part of various measures to enhance and enable life after dark.
- Continue to support local public art in the landscape and lighting to facilitate wayfinding and landmark creations.
- Illuminate vertical and horizontal planes for a distinct and visual environment.
- Use lighting for aesthetic effect.
- Celebrate the valuable assets and spaces of the City.
- Create vibrant spaces that enhance uniqueness and build place-making.
- Highlight the value of natural landscape and cultural heritage.
- Activate the city and promote a night-time economy.
- Illuminate laneways and public art for a visible and visual City.
- Support and highlight innovation in vertical greening and living walls.

Safe and inclusive design

Lighting responses should:

- Provide support for better design of public spaces that considers public safety, visual blocks and CPTED principles with the supplement of appropriate levels of lighting, to contribute to safety, comfort and confidence in the public domain.
- Enhance and define spaces after dark.
- Coordinate movement with legible edges, boundaries and surfaces that guide pedestrians, cyclists and vehicles.
- Provide lighting for active spaces after dark.
- Focus on pedestrian experience and scale.
- Reinforce wayfinding, legible streetscapes and destinations for better orientation.
- Encourage people to use a space, rather than be excluded.
- Use an appropriate level, colour and distribution of lighting to distinguish objects, appropriate colour rendering and contrast.

Sustainability & Resilience

Lighting responses should:

- Minimise light pollution.
- Use products that reduce energy consumption and greenhouse gas emissions.
- Consider asset management and ongoing maintenance.
- Make low energy consumption a high priority when choosing a product.
- Reduce lighting costs and maintenance through the use of LED luminaires.
- Consider lighting specifications concerning lighting colour temperature use of white light and typically 3000K (range of 2700K and 4000K).
- Consider the direction and distribution of lighting.
- Be resilient to vandalism and other sources of damage.
- Consider smart lighting technologies allowing for flexible functions and use including colour, dimming, timer settings, CCTV, weather monitoring and more.

Active Spirit

Active Spirit celebrates an active community, encouraging people of all ages and abilities to be outdoors within their community.

Lighting our Parks and Open Spaces

This lighting approach allows activation of public parks and open spaces for after-hour activities, supporting healthy and active lifestyles.

Members of the community use parks and open spaces for a variety of activities and leisure. Parks for all ages, sporting facilities and reserves all encourage outdoor exploration and exercise. The benefits include a stronger, healthy community and environment. The future of the park lies within its offering of access to open space from day to night for community wellbeing, connection and health.

In some of our parks and open spaces, habitats for a range of different species and ecosystems can

be found which need to be protected from adverse impacts of artificial lighting. The Active Spirit approach maps out areas suitable for additional lighting within parks and reserves that are not considered important flora and fauna habitat. Monitoring will be conducted before any lighting installation and will continue to assess the impacts beyond project completion. It is important to note 'bush' tracks and natural reserves are to remain unlit, and lighting of valuable biodiverse areas is to be avoided where possible to minimise any disturbances to local wildlife. Consultation with experts will allow Council to determine which sources of light are most applicable to the area and avoid over-lighting of spaces and minimising light pollution. A healthy balance between introduced light and natural moonlight will be implemented to improve visibility and accessibility and make outdoor areas more welcoming and safer.



What spaces would we consider lighting?

- Larger recreational and sporting parks and open spaces (Regional, District and Community levels) such as Beauty Park or Ballam Park.
- Shared walking and cycling paths.

Lighting of smaller public open spaces is generally discouraged as the amount of time spent in these spaces is shorter, passive surveillance is poorer and lighting is more likely to impact nearby residences. However, lighting may be considered in some circumstances where there is a need to address safety or security concerns or to facilitate specific community uses.

How can lighting improve these spaces?

- Provides effective sports and staged lighting for all playing levels.
- Using lighting levels that respond to peak and off-peak usage.
- Supports night-time activities, place-making and activation of spaces.
- Defines paths of travel and points of entry. Circuit path lighting offers a safer experience for existing users before sunrise and after sunset.
- Uses lighting technologies which minimise impacts and disturbance on the natural environment.
- Establishes consistent lighting types which differentiate between site uses and hierarchy.

What do we need to consider when lighting these types of spaces?

- Ensuring we do not over-light some spaces like sporting facilities when they are not in use.
- Light that trespasses into areas where it is not intended or needed, like residential areas or nearby nature reserves.
- Reducing skyglow cast by artificial lighting.
- Impacts on local flora and fauna.
- Lighting that is responsive to peak and off-peak use.
- Ensuring light levels are appropriate for the use and function of a space

Active Spirit Lighting Outcome

Lighting our Parks and Open Spaces will promote community interaction, safety and active lifestyles. New lighting in these areas will be energy efficient, consistent in design and seek to reduce light pollution.

Active Spirit Lighting Priorities

- Provide quality and quantity of light and measures for implementation appropriate to open space classification and responsive to context.
- Promote sustainable lighting initiatives which allow for peak and off-peak lighting.
- Considers existing street lighting.
- Provide selective lighting to primary circulation, access paths, entry spaces and temporary activation spaces only. Lighting is limited and at a level that provides visibility to the surrounds, light contrast and definition of elements in the vicinity of the path to increase perception of visibility.



Active Spirit Lighting Technology and Customisation

Major Open Spaces

- Timed operation, day-light sensing lighting controls and dimming controls to general pathway areas.
- After hours occupancy sensor control for security.
- Solar powered integration could be provided for low-level lighting and areas where little or no electrical infrastructure exists. Review integrated solar collectors or alternative central vertical arrays with sub-electrical reticulation.
- High usage area lighting installations to be 'grid' connected.
- "Smart Pole" installations to integrate lighting, power, communications & CCTV.
- Localised and orientation lighting to minimise visual impact.
- Adaptive 'Smart' lighting controls with dimming, occupancy sensing, timed operation / day light sensing



Active Spirit Light Fittings

Major Open Spaces

- Public park settings - lighting can be considered as a feature, visible visual element or receding element for amenity.
- The design of the lighting product finish and colour can assist to make this prominent or recede as desired.
- Maintain set distances between lighting that provides rhythm within the space, responds to circulation requirements and expressed desire lines. Minimalist design and high quality finish can assist to minimise their visual impact.
- Passive open spaces and play areas - lighting can be low-level with less visual impact.
- Pedestrian footpaths pole mounted fittings typically between 4 to 6m mounting heights.
- Minimum off-sets for pole lighting installations in accordance with standards recommendations – AS/NZS 1158, (nominal 1m from edge of pathways).



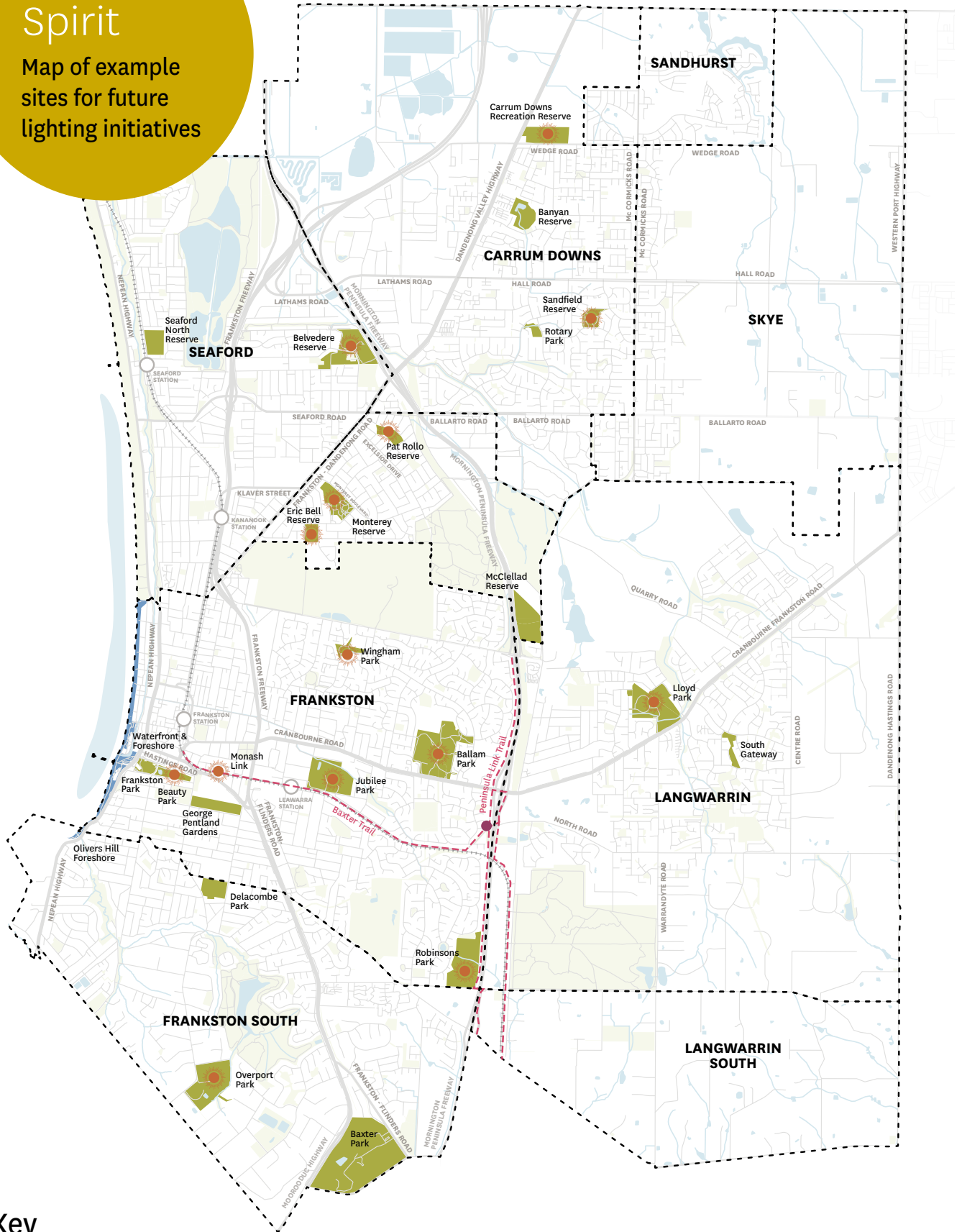
Active Spirit Light Quality and Level

Major Open Spaces

- Lighting in accordance with regulatory recommendations as a minimum standard – AS/NZS 1158 – Part 3.1 – Pedestrian Area (Category P).
- Consider Pedestrian/Cycle Activity and Fear of Crime to determine applicable lighting category PP1 (High) – PP5 (Low).
- Warm colour temperature of 3000K

Active Spirit

Map of example sites for future lighting initiatives



Key

Example sites for future Active Spirit lighting initiatives:

- Major open space
- Waterfront & Foreshore
- Shared Use Path
- 'Active Spirit' Lighting Projects



Foreshore Experience

The Foreshore Experience supports the protection, enhancement, and future-proofing of our coastal environment to be a destination for the community and visitors to Frankston City.

Lighting our waterfront and foreshore environment

This lighting approach considers our Waterfront promenade, foreshore walkways and boardwalks and our Piers.

The foreshore is a defining edge of Frankston City and supports the lifestyle of the community as well as contributing to its economic value as a tourism destination. It is home to a rich diversity of marine and

coastal flora and fauna, many of which are sensitive to the presence of humans and artificial lighting. The Foreshore Experience will balance the use of lighting for functional access and safe movement with lighting that contributes to place-making. It will deliver a legible, amplified experience of the coastline and foreshore for people to move through, explore and appreciate.

Lighting within this setting will consider and respect the natural coastal environment. It will recognise and celebrate the role that natural darkness and moonlight play in supporting coastal and marine life, and use materials and technologies suitable for coastal conditions.



What spaces would we consider lighting?

- The Waterfront Promenade area
- Oliver's Hill Lookout
- Boardwalks and walkways
- Frankston Yacht Club
- Frankston Pier Infrastructure

With the exception of public infrastructure like buildings, car parks, activity areas, walkways and piers, lighting of the beach, dunes and bay is generally discouraged. This is to limit the adverse impacts of artificial light on coastal and marine flora and fauna which require natural darkness and access to moonlight to support and regulate important ecological processes and behaviours. It is also recognised that surveillance of these areas is generally poor and lighting may inadvertently attract anti-social behaviour.

How can lighting help to improve these spaces?

- Creates an inclusive foreshore experience by providing accessible pathways and access points
- Contributes to access and enjoyment of the foreshore environment.
- Contributes to the active, colourful, and creative features of the City.
- Supports night-time experiences, place-making, and building on the identity of the City.
- Supports recreational uses of the foreshore like swimming, fishing and walking.

What do we need to consider when lighting these types of spaces?

- Adverse impacts of artificial lighting on coastal flora and fauna, both terrestrial and aquatic.
- Minimising skyglow cast by artificial lighting.
- Minimising visual clutter caused by lighting that is overly bright, confusing or excessive.
- Using robust lighting materials and technologies that can withstand the harsh coastal environment and weather conditions.

Foreshore Experience Lighting Outcome

Low-level lighting will improve safety and access to our foreshore's shared paths, boardwalks and areas of activation. New lighting in these spaces will be energy efficient, consistent in design and seek to reduce light pollution and environmental impacts.

Foreshore Experience Lighting Priorities

- Provide continuous and consistent lighting for continuity and legible pedestrian movement and to highlight linear foreshore character.
- Provide edge lighting to identify limits of pedestrian space and safe areas of movement and visibility to surrounds.
- Facilitate foreshore connections to local shops, residential areas and car parks that provide access, visual links and extension of experience.
- Facilitate inclusive foreshore experiences by providing lighting along accessible pathways and access points.
- Demonstrate a response that mitigates lighting impact on coastal and marine fauna and flora in consultation with ecologists, other relevant experts and stakeholders, and in line with recommendations from the catchment management authority.
- Provide continuous and consistent lighting to pier walkways, structures and pole top lighting that supports visibility for fishing, boats and scenic walking experiences whilst being considerate of the water environment.



Foreshore Experience Lighting Technologies and Customisation

Waterfront Promenade

- Integrated furniture lighting to consolidate elements within the public realm.
- Linear strip lighting for continuous light integrated within walkways or handrails.
- LED light sources/fittings – Coastal Environment – High IP Rating.
- Central vertical arrays or roof mounted collectors on amenities buildings could be utilised to power low-level lighting.
- Localised and orientation lighting for sensitive coastal environments and walking tracks.
- Customised LED fixtures could compliment visual appearance during daylight hours
- Adaptive ‘Smart’ lighting controls with dimming, occupancy sensing, timed operation / day-light sensing.
- ‘Smart Pole’ installations to integrate lighting, power, communications & CCTV.
- Secondary ‘feature’ lighting to accentuate landscape and other elements that have special public significance.

Foreshore Walkways and Boardwalks

- Linear strip lighting for continuous sensor light integrated within walkways or handrails. Limit to low-level boardwalk integrated lighting for areas within natural dune landscapes.
- Low-level - LED light sources/fittings – coastal environment – High IP Rating.
- Solar powered localised and orientation lighting could be considered along coastal walking tracks.
- Central vertical arrays or roof mounted collectors on amenities buildings could be utilised to power low-level lighting.
- Localised and orientation lighting for sensitive coastal environments and walking tracks.
- Adaptive ‘Smart’ lighting controls with dimming, occupancy sensing, timed operation / day-light sensing.

Frankston Pier Infrastructure

- Vertical lighting to frame space.
- Linear strip lighting for continuous light integrated within walkways or handrails.
- Technology suitable for extreme weather conditions and coastal environments, including full submersible fixtures, suitable for corrosive application. LED light sources/fittings – corrosive environment – highest IP rating.
- High quality fixtures required for coastal environments.
- General illuminance to pier boardwalks to enhance pier structures with feature lighting / colour.
- Customised LED fixtures could compliment visual appearance during daylight hours.
- Secondary ‘feature’ lighting to accentuate pier structure with opportunity for ‘colour’ mix.
- Adaptive ‘Smart’ lighting controls with dimming, occupancy sensing, timed operation / day-light sensing.



Foreshore Experience Light Fittings

Waterfront Promenade

- Integrate fixtures to conceal fittings within infrastructure and furniture.
- Pole top lighting to be part of the public open space furniture and contribute to the rhythm along the promenade.
- Nominal mounting at handrail height approximately 1m above ground level.
- Low-level boardwalk orientation lighting within upstand at approximately 150mm to 200mm above ground level.

Foreshore Walkways and Boardwalks

- Foreshore tracks and walkways to integrate fixtures to conceal fittings.
- Nominal mounting at handrail height approximately 1m above ground level.
- Pole top lighting to be part of the public open space furniture and contribute to the rhythm along boardwalks.
- Low-level boardwalk orientation lighting within upstand at approximately 150mm to 200mm above ground level.

Frankston Pier Infrastructure

- Pole top lighting to add to the rhythm of the foreshore and procession along the pier.
- Pier structure and bridges to integrate fixtures to conceal fittings.
- Nominal mounting at handrail height approximately 1m above ground level.
- Low-level boardwalk orientation lighting within upstand at approximately 150mm to 200mm above ground level.



Foreshore Experience Light Quality and Level

Waterfront Promenade

- Lighting in accordance with regulatory recommendations as a minimum standard AS/NZS 1158 – Part 3.1 – Pedestrian Area (Category P).
- Warm to Natural Colour Temperature – 3000 to 4000K.

Foreshore Walkways and Boardwalks

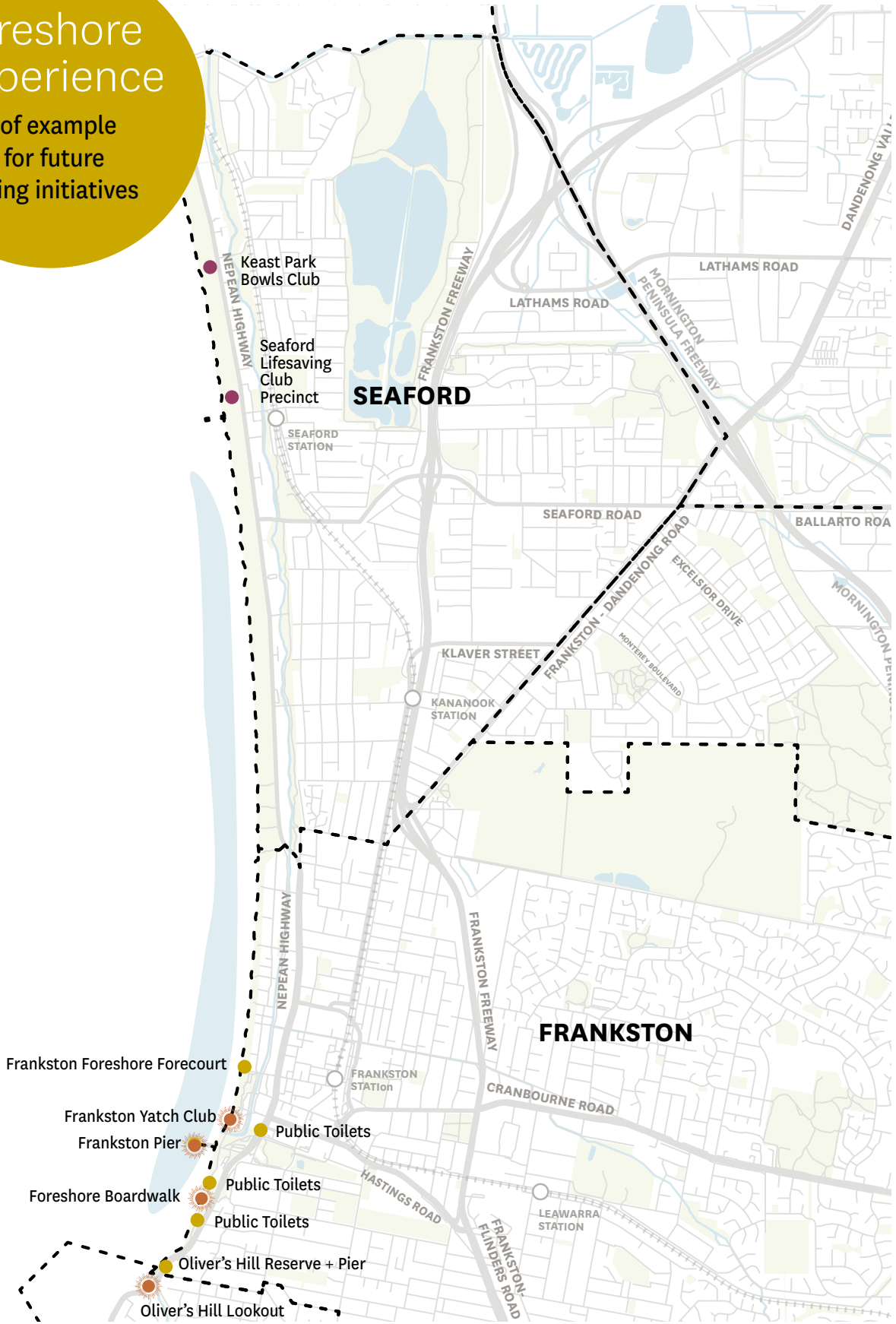
- Base orientation lighting in accordance with regulatory recommendations as a minimum standard AS/NZS 1158 – Part 3.1 – Pedestrian Area (Category P). PE2 Non- Subway & PE3 Low Use Pathways
- Compliance with National Light Pollution Guidelines.
- Warm colour temperature of 3000K

Frankston Pier Infrastructure

- Walkway Lighting in accordance with regulatory recommendations as a minimum standard AS/NZS 1158 – Part 3.1 – Pedestrian Area (Category P).
- Warm to Natural Colour Temperature – 3000 to 4000K.

Foreshore Experience

Map of example sites for future lighting initiatives



Key

Example sites for future Foreshore Experience lighting initiatives:

- Seaford Foreshore Sites
- Frankston Foreshore Sites
- 'Foreshore Experience' Lighting Projects



Navigation and Local Identity

Navigation and Local Identity celebrates first impressions of the City after dark, and the ability to appreciate and understand destinations and identifiable landmarks in the night-time public realm and streetscape network.

Lighting for Navigation and Local Identity

This lighting approach is central to the pedestrian, cyclist and vehicle experience of the broader municipality and in navigating local areas.

Lighting helps us to navigate the night-time landscape by illuminating landmarks and other elements within our surrounds which help us to understand where we are. Landmark identification and arrival and exit experiences provide us with a localised understanding of suburbs, neighbourhoods and key destinations, whilst reinforcing vistas and our ability to orientate ourselves after dark.

This lighting approach improves connectivity and wayfinding throughout the municipality and enhances the night-time prominence of landmarks and elements which speak to Frankston's historical, social and cultural character. Significant local architecture, shops, gateways, boulevards and distinctive topography are celebrated and revealed after dark, contributing to community spirit and place identity.



What spaces would we consider lighting?

- Gateway sites which define our municipal boundary and entry to the city area.
- Iconic landmarks, landscapes and built form.
- Local shopping strips.
- Boulevards.

How can lighting help to improve these spaces?

- Improves our ability to navigate the night-time landscape on foot, bicycle and by car.
- Elevates the night-time prominence of elements which speak to local history, character and identity.
- Amplifies the arrival experience.
- Helps to define and reinforce gateways and key paths of travel.
- Promotes a sense of 'place' for local neighbourhood areas and destinations.
- Reinforces the identity of the broader municipality.
- Encourages more people to enjoy our local shopping strips in the evening.
- Highlights and complements contemporary and historical built form.

What do we need to consider when lighting these types of spaces?

- Minimising skyglow cast by artificial lighting.
- Minimising visual clutter created by lighting that is overly bright, confusing or excessive.
- Lighting that is site and context responsive, considerate and sensitive.
- Ensuring information that assists in navigation, such as signs, is clear and legible.
- Lighting that is comfortable, suitably located and targeted and not distracting, glary or disorienting for pedestrians or drivers.
- Existing street lighting and functional lighting.
- Integrating lighting infrastructure with landscaping elements.

Navigation and Local Identity Lighting Outcome

Lighting for Navigation and Local Identity will enhance the night-time presence of key landmarks and gateway sites as recognisable and welcoming and contribute to resilience of the local night-time economy. New lighting in these spaces will reinforce our sense of place, be energy-efficient and seek to reduce light pollution and environmental impact.

Navigation and Local Identity Lighting Priorities

- Provide discrete lighting to iconic landmarks and signage that allows for distinction and legibility for navigation across our municipality after dark.
- New lighting treatments correspond to pedestrian scale lighting projects or road navigational lighting projects.
- Lighting that considers existing street lighting amenity.
- Architectural illumination to highlight and complement contemporary and historical built form and detail. Exterior lighting to add to observations, appreciation and visual experience.
- Illumination to define boundaries, crossings and edges.
- Landscape lighting to define social spaces (low planting, feature trees, seating, tables) and local shops. Adds to the human scale of lighting application add areas of interest and make it appear more welcoming.
- Lighting to provide attractive shop frontages.
- Provision of consistent lighting along the extent of local shopping centres that provides a consistent 'open' invitation as a local residential or neighbourhood amenity.
- Provide timer controlled lighting to extend the usability of space into the night and turned off after hours or kept on to allow for gathering after business hours



Navigation and Local Identity Lighting Technologies and Customisation

Gateway Sites and Signage

- Remote sites or those with no electrical infrastructure would be applicable for solar solutions. Solar uplights or backlight. All solar lighting to have bluetooth control to allow upgrades and system changes to suit the time of year.
- Simple lighting controls to base lighting – timed operation/day-light sensing.
- Secondary ‘feature’ lighting to accentuate and highlight gateway elements.
- Colour additive for navigation and approach should also be assessed with the design.
- Adaptive ‘Smart’ lighting controls to feature element - with dimming and colour mix.

Iconic Landmarks and Architecture

- Potential for uplight or accent lighting to architectural features.
- Integrated vertical or horizontal lighting to accentuate form.
- Wall mounted lighting.
- Adaptive ‘Smart’ lighting controls to feature element - with dimming and colour mix.

Local Shopping Strips

- Secondary lighting to accentuate local shops – under awning/verandas lighting
- Localised pedestrian lighting (low-level) bollards or selected (themed) post top fixtures/signage
- Potential for uplight or accent lighting.
- Consider light fittings particular for ‘local identity’.
- Colour additive for navigation and approach should also be assessed with the design.



Navigation and Local Identity Light Fittings

Gateway Sites and Signage

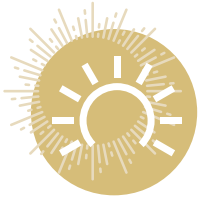
- Lighting concealed in garden beds and in close proximity to element to be illuminated.

Iconic Landmarks and Architecture

- Lighting to be integrated to complement heritage, contemporary context.
- Lighting to be sympathetic to heritage architecture. Custom housing for lighting that is discrete or hidden.
- Lighting concealed in garden beds and in close proximity to element to be illuminated.

Local Shopping Strips

- Lighting concealed in garden beds and in close proximity to element to be illuminated. Alternatively, lighting fittings could be prominent to provide navigation and visual identity of the area as part of the furniture.
- Unique ambient awning light fixtures that provide a creative solution as part of local shop upgrades.
- Low-level bollard lighting at around 900mm above ground level.



Navigation and Local Identity Light Quality and Level

Gateway Sites and Signage

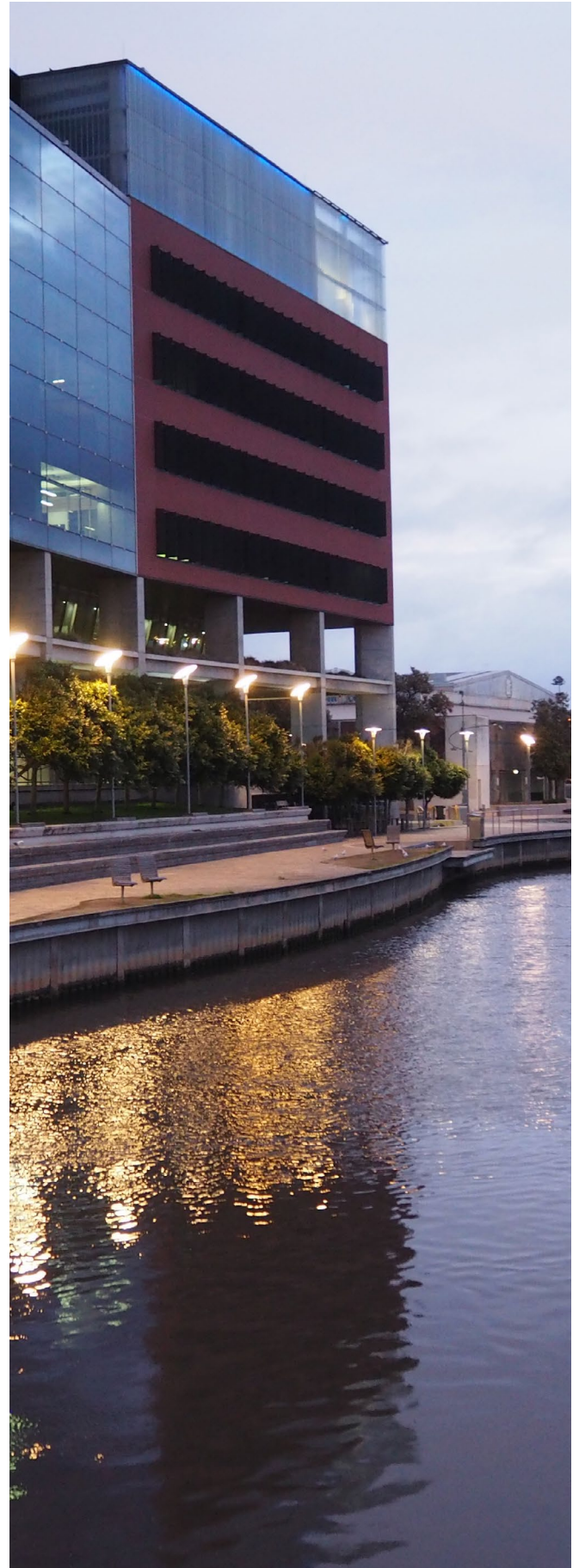
- Base Lighting in accordance with regulatory recommendations as a minimum standard to meet VicRoads and AS/NZS 1158 – Part 1 – Vehicular Traffic (Category V).
- Lighting in accordance with AS/NZS 1158 series, in particular AS/NZS 1158.3.1 - Pedestrian Area (Category P).
- Roadways - Natural Colour Temperature – 4000K.
- Pedestrian areas - Warm Colour Temperature – 3000K.

Iconic Landmarks and Architecture

- Base Lighting in accordance with regulatory recommendations as a minimum standard to meet VicRoads and AS/NZS 1158 – Part 1 – Vehicular Traffic (Category V).
- Lighting in accordance with AS/NZS 1158 series, in particular AS/NZS 1158.3.1 - Pedestrian Area (Category P).
- Roadways - Natural Colour Temperature – 4000K.
- Pedestrian areas - Warm Colour Temperature – 3000K.

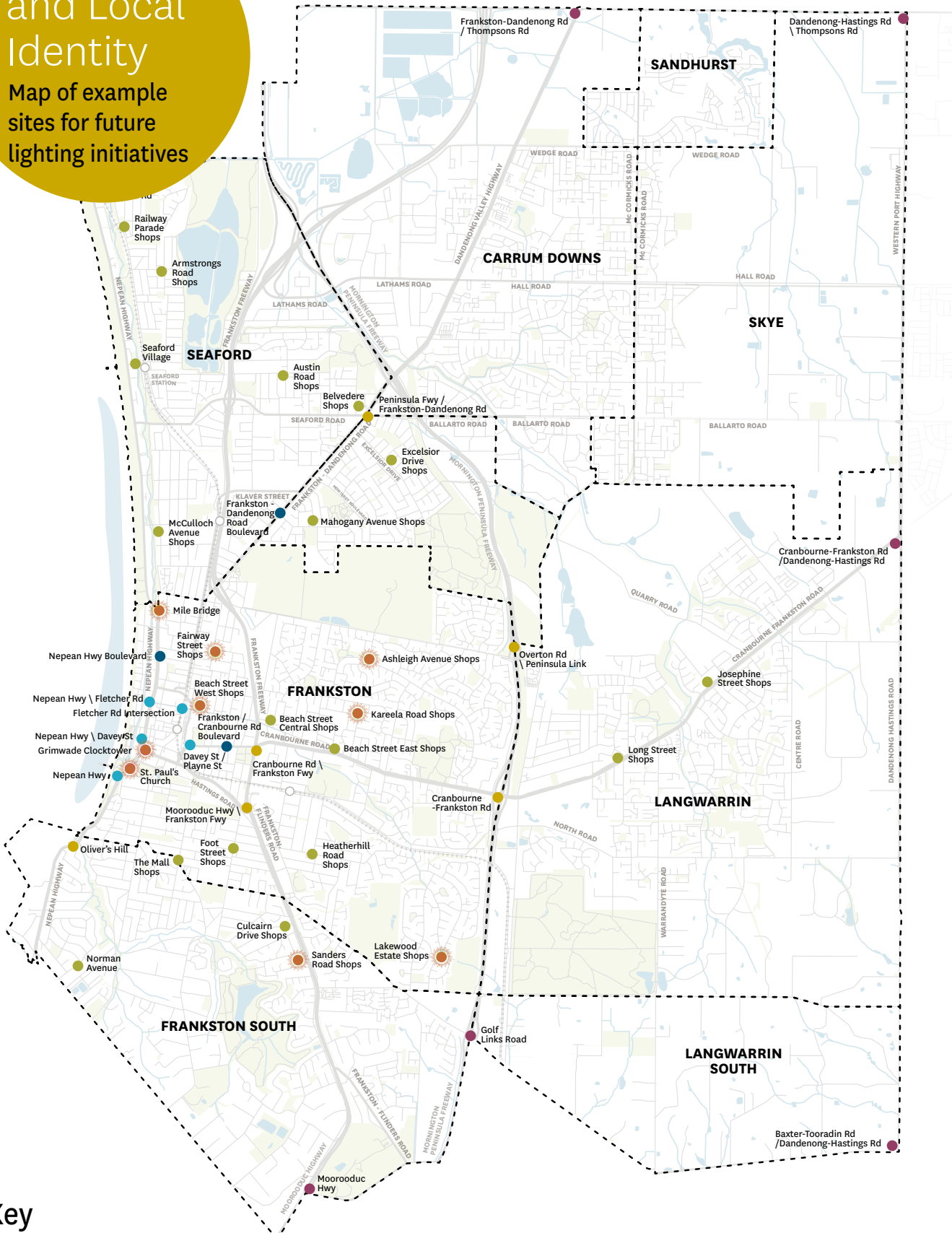
Local Shopping Strips

- Base lighting in accordance with regulatory recommendations as a minimum standard to meet VicRoads and AS/NZS 1158 – Part 1 – Vehicular Traffic (Category V).
- Secondary and localised lighting in accordance with AS/NZS 1158 series, in particular AS/NZS 1158.3.1 - Pedestrian Area (Category P).
- Roadways - Natural Colour Temperature – 4000K.
- Local Shops / Pedestrian areas - Warm Colour Temperature – 3000K.



Navigation and Local Identity

Map of example sites for future lighting initiatives



Key

Example sites for future Navigation and Local Identity lighting initiatives:

- Municipal Gateways
- Landmarks
- City Centre Gateways
- Boulevards
- Major Gateways
- 'Navigation and Local Identity' Lighting Projects
- Local Shopping Strips



Luminous City

Luminous City supports lighting design to be a creative and innovative part of the public realm experience within Frankston's City Centre.

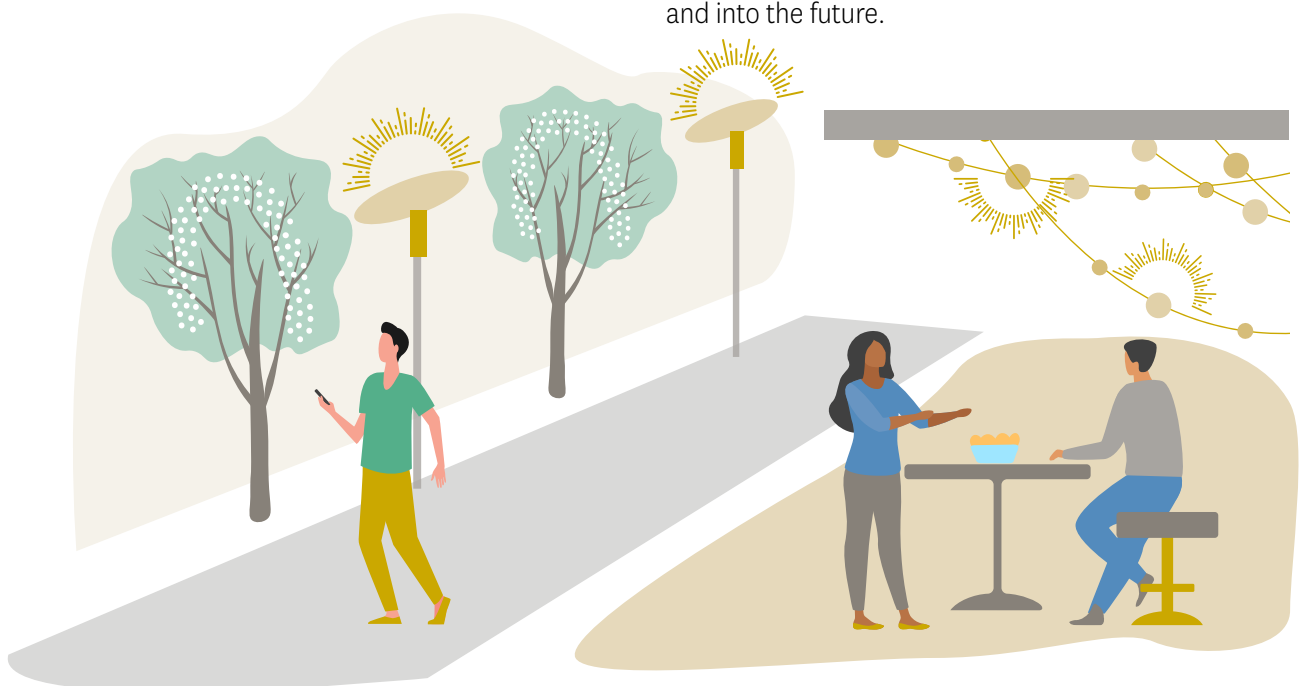
Lighting our City Centre

This lighting approach considers Frankston's City Centre, its boulevards, streets, laneways, public spaces and landmarks. The identity of the City Centre as a place for participation, exploring and as a walkable environment is a fundamental focus for the Luminous City experience. One of nine designated Metropolitan Activity centres in Melbourne, Frankston's City Centre has been identified as a place that can perform a capital city role for the Mornington Peninsula and south-east bayside municipalities. It is a hub for the area's social, cultural and economic activity and an extension of the prominent foreshore experience, offering a variety of activities and experiences as day turns to night.

Public lighting for people within the heart of the Frankston City Centre will expand on existing successful lighting projects and build connections, creativity and activation within the evolving urban fabric. It will imbue a sense of excitement, character and difference that is channelled in our night-time experience of the City Centre.

The anticipation of a taller, denser, more populous activity centre which operates on a 24 hour schedule will require a technologically advanced and entrenched city centre that is optimised to deliver on progressive technology, monitoring for environmental surveillance and security, and other people-focused activities.

Through integration of lighting with creative elements and smart technology, Luminous City will support the ability for the Frankston City Centre to be dynamic, sustainable and responsive to its changing needs, now and into the future.



What spaces would we consider lighting?

- Public Spaces like streets, laneways and civic squares.
- Gateway sites which denote points of entry into the City Centre.
- Iconic landmarks, architecture and built form.
- Boulevards.

How can lighting help to improve these spaces?

- Improves public perceptions of safety and security.
- Improves accessibility so that more people can enjoy the night-time offerings of the City Centre.
- Contributes to ambience for an enhanced experience.
- Facilitates evening and after dark activities and functions like shopping and entertainment.
- Elevates the night-time prominence of elements which speak to local history, character and identity.

What do we need to consider when lighting these types of spaces?

- Lighting that is responsive to peak and off-peak use.
- Minimising skyglow cast by artificial lighting.
- Minimising visual clutter caused by lighting that is overly bright, confusing or excessive.
- Lighting that is comfortable, suitably located and targeted and not distracting, glary or disorienting for pedestrians or drivers.
- Existing street lighting and functional lighting.

Luminous City Lighting Outcome

The Frankston City Centre is a night-time destination for people to enjoy and better experience our city. City Centre precincts, streets, lanes, public spaces and landmarks are safe, welcoming and recognisable for visitors.

Luminous City Lighting Priorities

- Landscape lighting of vertical walls, furniture, low planting, feature trees that adds to the experience, presence and ambience. Also to add to perception of brightness within spaces as a supplementary light source.
- Architectural lighting of key built form as interpretation of significance and cultural value, context and demonstrating the City vernacular.
- Lighting to highlight historical character of the City.
- Support the identity of cultural precincts and the night-time economy - entertainment, food, shopping, sports, taxi ranks, transport hubs and bus stops.
- Promote cultural tourism within the night experience. Including provision of light to important community buildings, cultural arts institutions, cinemas, tourist attractions (where deemed appropriate without conflicting with responsible lighting and safe access).
- Public lighting connections between accommodation places (hotels/motels) within the City to support the tourism sector.
- Balance public and private lighting and reduction of conflicting light sources and spill lighting.
- Promote flexible lighting technology approaches to consider future requirements and integration of additional features.
- Improve perceptions of safety, security and activation of streets and laneways.
- Smart light poles in high-use social spaces and areas that are designated for events, public gatherings and markets.
- Consider the integration of environmental monitoring as a tool for Council and the community to reflect on use and experience of space throughout day-night activities.
- Consider appropriate use of CCTV and areas that may benefit from its inclusion.



Luminous City Lighting Technologies and Customisation

Public Domain City Centre

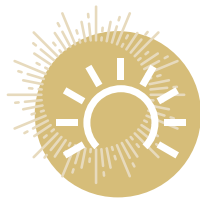
- Integrated furniture lighting to consolidate elements within the public realm.
- Catenary (ambience) lighting to provide a unique and welcoming atmosphere for spaces that propose outdoor socialising and activities.
- Strip lighting of steps as part of the City experience and public space to assist people with visual impairment.
- Robust weatherproof fixtures, flex-LED to suit furniture designs/forms, low profile lighting to enhance features.
- Integrated furniture lighting to consolidate elements within the public realm.
- Catenary (ambience) lighting to provide a unique and welcoming atmosphere for spaces that propose outdoor socialising and activities.
- Consider accent lighting and uplighting to enhance features and landmarks.
- Smart light poles that consider lighting control, environmental monitoring, public WIFI and bluetooth, usb, power outlets and CCTV surveillance, and emergency response.
- Provision for implementation of future wireless public lighting control systems.
- Solar may be considered as a secondary back-up to non-critical areas, however, luminous city environment would be maintained by grid connected power.
- Designed lighting profiles to integrate within streetscapes/architecture - colour wash/change to be considered.
- Adaptive 'Smart' lighting controls with dimming, occupancy sensing, timed operation / day-light sensing.



Luminous City Light Fittings

Public Domain City Centre

- Uniform lighting technology within precincts, streetscapes for visual consistency and limiting furniture clutter.
- Integrated lighting that is not visible.
- Together with Regulatory Authority recommendations, lighting provisions of the streetscapes, supplementary lighting and fittings would be additive to the conventional street lighting poles. Fixtures could be included on existing poles or mounted on building structures, verandas and facades.
- Multipurpose lighting and integrated with other features and technology.
- Regulatory roadway lighting is generally high visual impact to achieve effective coverage along large distances. However, customised streetscapes can be installed with feature street lighting. For example, highly customised light poles in Wells Street.
- General street lighting poles, approximately 12m above ground level.
- Local area roads approximately 6m above ground level, depending on footpath set-out.
- Minimum 1.5m set back from back of kerb.
- Where individual light poles are required, consider co-locating with other public realm furniture and away from desire lines.



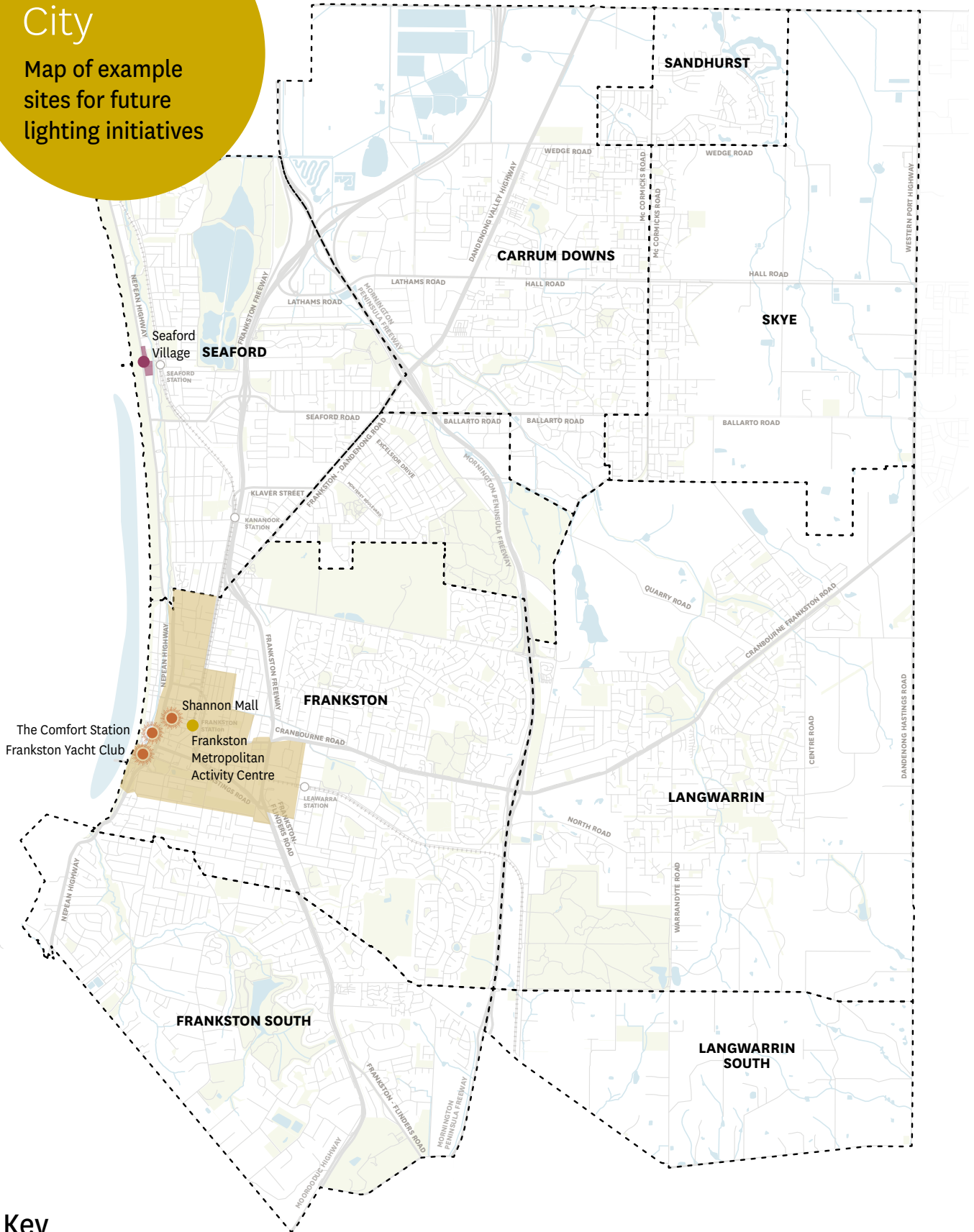
Luminous City Light Quality and Level

Public Domain City Centre

- In accordance with AS/NZS 1158 - "Lighting for Roads & Public Spaces" AS/NZS 4282 - Control of Obtrusive Outdoor Lighting.
- Lighting in accordance with AS/NZS 1158 series, in particular AS/NZS 1158.3.1 - Pedestrian Area (Category P)
- Colour Temperatures Warm - 3000K, Natural/Neutral - 4000K, Cool - 5000K

Luminous City

Map of example sites for future lighting initiatives



Key

Example sites for future Luminous City lighting initiatives:

- Seaford Village
- Frankston Metropolitan Activity Centre
- 'Luminous City' Lighting Projects



Creative City

Creative Lighting embraces the celebration and delights of our City.

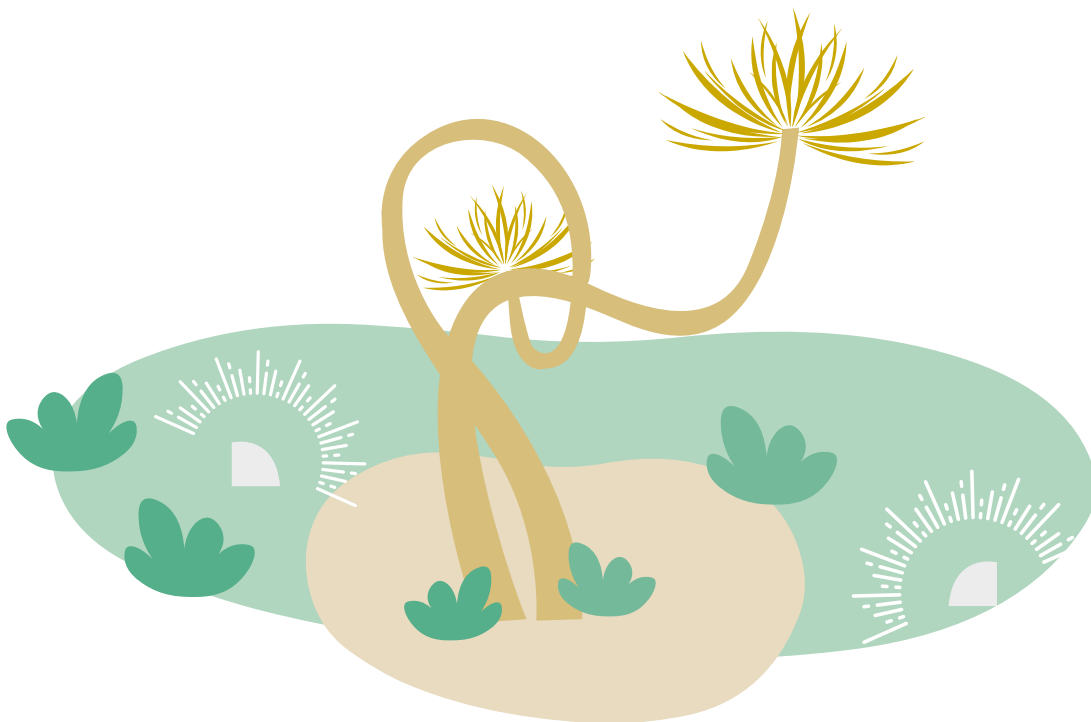
Lighting our creative assets

This lighting approach is focused on the human-oriented experiences facilitated by public lighting beyond functional amenity.

The Creative City is about expansive ideas that can key into the strength of community, sustainable economies, respect of the dark night and the delight of discovery. It introduces lighting to public spaces and elements of interest that is exciting, enticing, provides interest and stimulates our curiosity. It can be provocative or site-responsive, temporary, seasonal, event-driven or precinct-specific.

Frankston has a growing collection and connection to public art in prominent and high-use spaces including its foreshore, City Centre and at key road intersections. Several large-scale public sculptures have been adopted as part of the cultural identity of Frankston City. The provision of lighting has elevated their presence to include them in the night-time experience.

Lighting will focus on quality and distribution to enhance form and materials, accent details or decoration and emphasise the dimensional nature of elements and surfaces. A celebration of public art and culture with creative lighting in different forms and scales will contribute to a bright future and further opportunities for the community to take part in the development and expression of cultural values through a highly visible and visual medium.



What spaces would we consider lighting?

- Laneways
- Street art precincts
- Significant Trees
- Landmarks
- Local Shops

How can lighting help to improve these spaces?

- Contribute to highlighting and representing local identity and characteristics.
- Promote a sense of 'place'
- Enhance the natural environment by incorporating landscape lighting including trees

What do we need to consider when lighting these types of spaces?

- Lighting that is site and context responsive, considerate and sensitive.
- Impacts on fauna inhabiting significant trees.
- Minimising light that trespasses into areas where it is not intended or needed.
- Minimising skyglow cast by artificial lighting.
- Minimising visual clutter caused by lighting that is overly bright, confusing or excessive.
- Lighting that can support a variety of temporary uses like festivals and events

Creative City Lighting Outcome

Creative lighting is a source of delight which creates a sense of 'place' and encourage us to explore the community in the evening. Our iconic and creative attributes are celebrated in through lighting that is distinguishing, considerate and sustainable.

Creative City Lighting Priorities

- Identify suitable event spaces within the City to include flexible lighting infrastructure that can facilitate curated, temporary, coordinated lighting (ie. colour, projection, effect, amount, directional, dynamic, transitional) that can be activated for events that may occur at short notice (significant colours to show community solidarity), local / national / international events, seasonal / yearly calendar event, community gathering.
- Considers sensor-operated lighting that responds to human interactions and activity for dynamic interest.
- Illuminated objects for public interaction, pause and playfulness.
- Integrated lighting or direct lighting at public art to embed its importance within public space, as an identifiable element within the public realm or as part of a journey.
- Lighting to highlight significant public murals, to draw people into spaces and to look closer.
- Lighting to support further creation and development of public street laneway art.
- Promotes accent lighting of significant trees and vegetation that contribute to the visual landscape and character of a site.



Creative City Lighting Technologies and Customisation

Laneways, Street and Public Art

- Interactive, dynamic - lighting scenes, dimming and colour change.
- Catenary lighting for local Mall areas, laneway art and gathering spaces (ie. skate parks).
- The use of DMX controlled on RGBW lighting and framers/GOBO projectors to create highlight and areas of visual interest.
- Green wall with DMX(Digital Multiplex) controlled on RGBW lighting to achieve different effects and artificial light for plant growth.
- Solar power may be desirable in custom and artistic elements. Possible use of solar powered lighting if utilised within the actual art sculpture.
- Solar powered integration can be provisioned to supplement 'grid' connected power.
- Intense and dynamic lighting may not be suitable for solar power.

Significant Trees

- Locations with extended period of solar access should consider solar power.
- Bud lighting is not recommended for a permanent lighting solution to highlight or feature local gateways/areas of interest/ art work etc., due to poor longevity of light source and wiring harness, damage caused on trees due to fixings and nylon cable ties being fixed to branches and trunks. Bud lighting wiring harness are generally not very robust in commercial installations and can be damaged easily due to vandalism and severe weather conditions, this type of installation has ongoing maintenance issues.
- Seasonal use of bud lighting could be considered to suit carnival or festival events or change of seasons to highlight trees during these periods, but only for 3 to 4 months duration. Similar events to foreshore Carnivals at Mordialloc & Rosebud during the summer months or changes of seasons, similar to City of Melbourne – St Kilda Road adjacent the National Gallery and Arts Centre – Moomba Festival are examples where the addition of bud lighting enhances the spirit of festival.



Creative City Light Fittings

Laneways, Street and Public Art

- Flexibility in lighting (can be removed and reinstalled).
- Minimal lighting technology, integrated where possible or within close proximity.
- Light fittings to be inconspicuous to enhance the dramatic effect of creative lighting. Lighting to be concealed and not detract from the visual art identity.
- Dependent on the effect, if only highlighting required or colour wash, fittings would be proportionally spaced to achieve the desired effect.
- Minimum setbacks may be required from Art Sculptures etc, to maintain uniform wash of light, otherwise 'hot spots' occur.
- Catenary lighting set above ground level with clearance for maintenance access.

Significant Trees

- To be determined with a qualified arborist.
- Minimal lighting technology, integrated where possible or within close proximity.



Creative City Light Quality and Level

Laneways, Street and Public Art

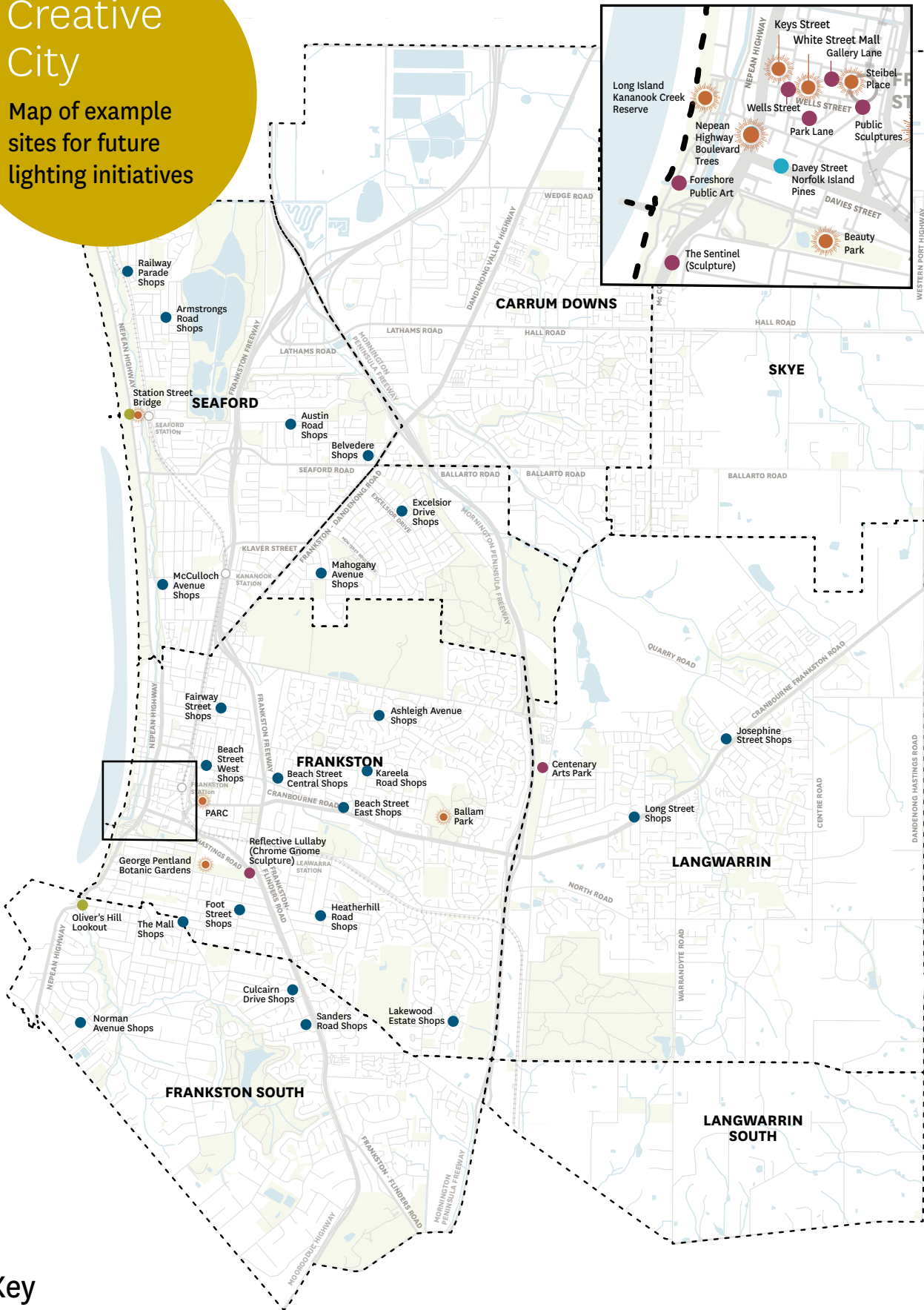
- Lighting in accordance with AS/NZS 1158 series, in particular AS/NZS 1158.3.1 - Pedestrian Area (Category P)
- Colour Temperature - 3000K - "Warm" to "Natural" - 4000K.

Significant Trees

- In accordance with "National Light Pollution Guidelines for Wildlife.
- Colour Temperature - 3000K - "Warm" to "Natural" - 4000K.

Creative City

Map of example sites for future lighting initiatives



Key

Example sites for future Creative City lighting initiatives:

- Local Shopping Strips
- Public Art
- Significant Trees
- Landmarks
- 'Creative City' Lighting Projects



Safety on the Streets

Safety on the Streets supports the functional principle of lighting for legibility, safety and access.

Lighting our Streets

This approach focuses on lighting's ability to improve perceptions of safety, security and accessibility of public spaces and walking routes after dark.

Safety is a primary consideration when accessing public spaces in the evening, at night and early in the morning before sunrise. Currently, highway lookouts, gateway sites along roads, streets and underpass environments have lighting focusing on vehicle navigation rather than pedestrian movement. This current approach does not recognise the importance these spaces have on pedestrian movement and connectivity.

Improved visibility of our surrounds with legible wayfinding navigation and people-focused lighting

helps to improve perceptions of safety and contributes to confidence that our public realm is walkable and connected. Safe pedestrian movement will be encouraged by illuminating pedestrian tunnels, underpasses and sheltered spaces to provide a visual flow of structure, surroundings, and consistency between spaces and to address concerns of safety and accessibility. In addition, this approach proposes to light pathways and connections between spaces where there is a lack of lighting to establish better connections for pedestrians to avoid the need to search for an alternative route.

Safety on the Streets will assist in activating the city and promoting a night-time economy with additional lighting that can contribute to a safer public realm with added visibility throughout the day and night.



What spaces would we consider lighting?

- Bridges
- Underpasses
- Pathways
- Car parks

How can lighting help to improve these spaces?

- Improves public perceptions of safety and security
- Contributes to wayfinding.
- Helps to define spaces and paths of travel.
- Improves opportunities for surveillance.
- Encourages active modes of transport by providing safe, accessible, legible paths of travel.

What do we need to consider when lighting these types of spaces?

- Lighting that is comfortable, suitably located and targeted and not distracting, glary or disorienting for pedestrians or drivers.
- Existing street lighting and functional lighting.
- Minimising light that trespasses into areas where it is not intended or needed.
- Minimising skyglow cast by artificial lighting.
- Minimising visual clutter caused by lighting that is overly bright, confusing or excessive.
- Whether public lighting is likely to attract or deter anti-social behaviour.
- Lighting that helps us to distinguish peoples faces

Safety on the Streets Lighting Outcome

Our streets and walking routes are safe, welcoming spaces that support active modes of transport for commuting, leisure and exercise.

Safety on the Streets Lighting Priorities

- Human-scale pedestrian / cyclist wall or pole mounted lighting.
- Linear lighting along paths and walkways for continuity and identified visual passageway.
- Landscape lighting (vertical walls, surfaces) for definition of spatial characteristics and boundaries.
- Lighting of pathways and connections between spaces with insufficient or lack of lighting to reinforce connections and encourage safe pedestrian movement.
- Vertical illumination of pedestrian tunnels, underpasses and sheltered spaces to provide visual clarity of structure, enclosure, surrounds and continuity between spaces.
- Illumination that contributes to improved navigation and wayfinding.



Safety on the Streets Lighting Technologies and Customisation

Activity Centre Streets and Laneways

- Supplementary lighting – secondary system, additive to base functional installation to enhance/feature theme or architecture of the space
- LED light sources/fittings can be customised for ‘Themed’ area/space
- “Smart Pole” Installations – Integrate Lighting, Power, Communications & CCTV.
- Solar powered integration could be provided for secondary lighting/features – base lighting installations ‘grid’ connected
- Strip lighting of steps as part of the City experience and public space to assist people with visual impairment.
- Strip lighting integrated into path edges and handrails where pole top lighting is not feasible.
- Wall mounted lighting, pedestrian focused, linear walkway, lighting control (timer/ dimmer).
- Adaptive ‘Smart’ lighting controls with dimming, occupancy sensing, timed operation / day light sensing
- Review the use of custom stainless steel poles in other areas.
- Colour in the laneways, with coloured light, as a visual indicator of where they are. Consider whether the connection or short-cut is desired from a community perspective and assess safety.

Shared Paths

- Increased lighting at Pedestrian Crossings.
- “Smart Pole” Installations – Integrate Lighting, Power, Communications & CCTV.
- Adaptive ‘Smart’ lighting controls with dimming, occupancy sensing, timed operation / day-light sensing
- Strip lighting integrated into path edges and handrails where pole top lighting is not feasible.
- Simple lighting controls to base lighting – timed operation/day-light sensing.

Underpasses and Sheltered Spaces

- LED light sources/fittings – Supply Authority connected Public Lighting Scheme.
- Grid connected power installation – not suitable for solar.
- Green wall lighting as part of pedestrian experience and to provide supplementary lighting.
- Simple lighting controls to base lighting – timed operation/day-light sensing.



Safety on the Streets Light Fittings

Activity Centre Streets and Laneways

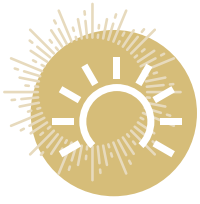
- Uniform lighting technology within precincts, streetscapes for visual consistency.
- Minimal lighting technology, integrated where possible or within close proximity
- Custom designed light fittings should be considered to blend with external architecture and landscape vistas.
- Minimum off-sets in accordance with standards recommendations – VicRoads & AS/NZS 1158, (nominal 1m-1.5m from back of kerb).
- Poles should not be more than 4-6 metres in height in open spaces, to limit the visual impact.
- Car park - minimum 6 to 8m mounting height above ground level.

Shared Paths

- Minimum off-sets in accordance with standards recommendations – VicRoads & AS/NZS 1158, (nominal 1m-1.5m from back of kerb).
- Uniform lighting technology along pathways for visual consistency.
- Poles should not be more than 4-6 metres in height in open spaces, to limit the visual impact.

Underpasses and Sheltered Spaces

- Integrated to be discrete as possible and out of reach.
- Poles should not be more than 4-6 metres in height in open spaces, to limit the visual impact.



Safety on the Streets Light Quality and Level

Activity Centre Streets and Laneways

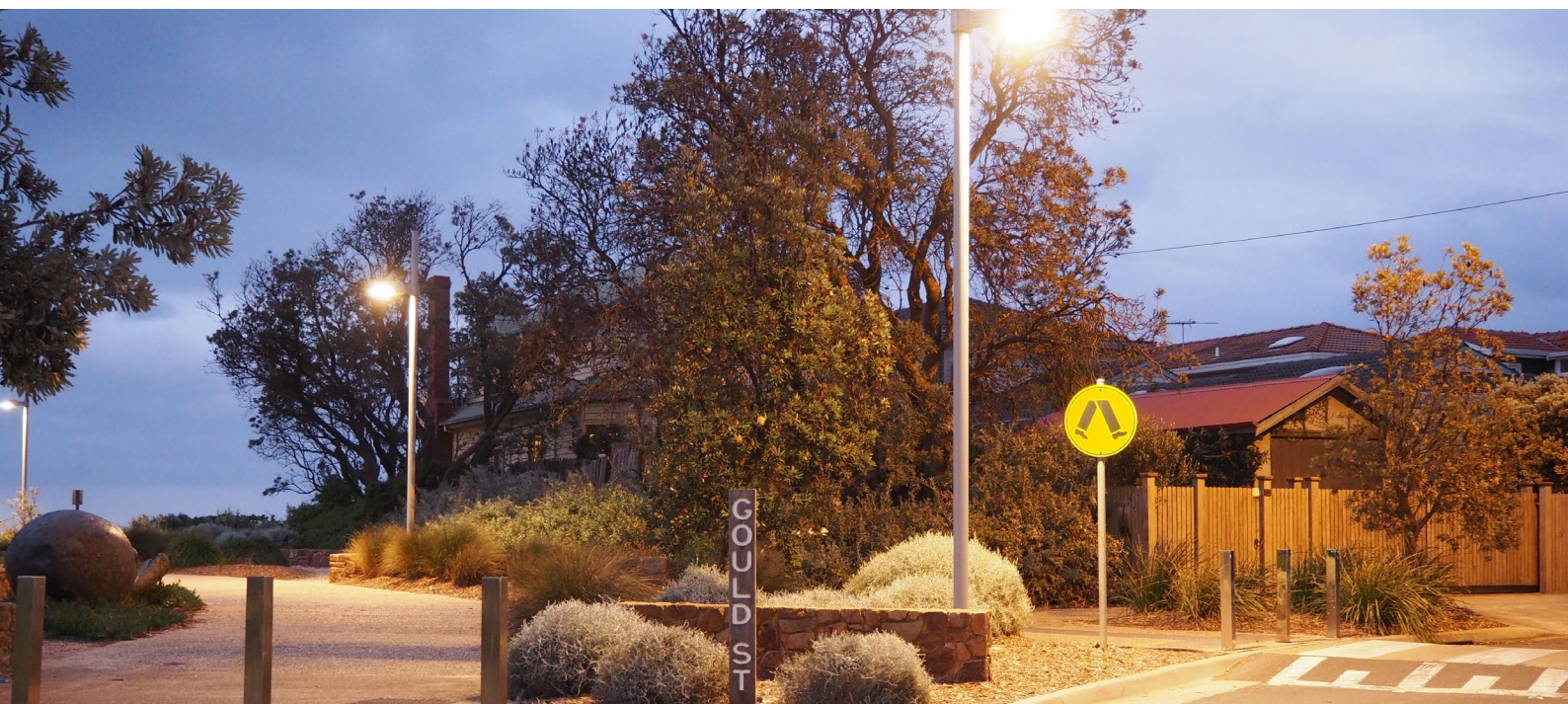
- Lighting in accordance with AS/NZS 1158 series, in particular AS/NZS 1158.3.1 - Pedestrian Area (Category P)
- Car parks - Compliance with AS/NZS 1158.3.1 – Category P – PC1, PC2, PC3, PCD & PCX
- Natural Colour Temperature – 4000K.

Shared Paths

- Lighting in accordance with regulatory recommendations as a minimum standard – AS/NZS 1158 – Part 3.1 – Pedestrian Area (Category P).
- Consider Pedestrian/Cycle Activity and Fear of Crime to determine applicable lighting category PP1 (High) – PP5 (Low).
- Natural Colour Temperature – 4000K.

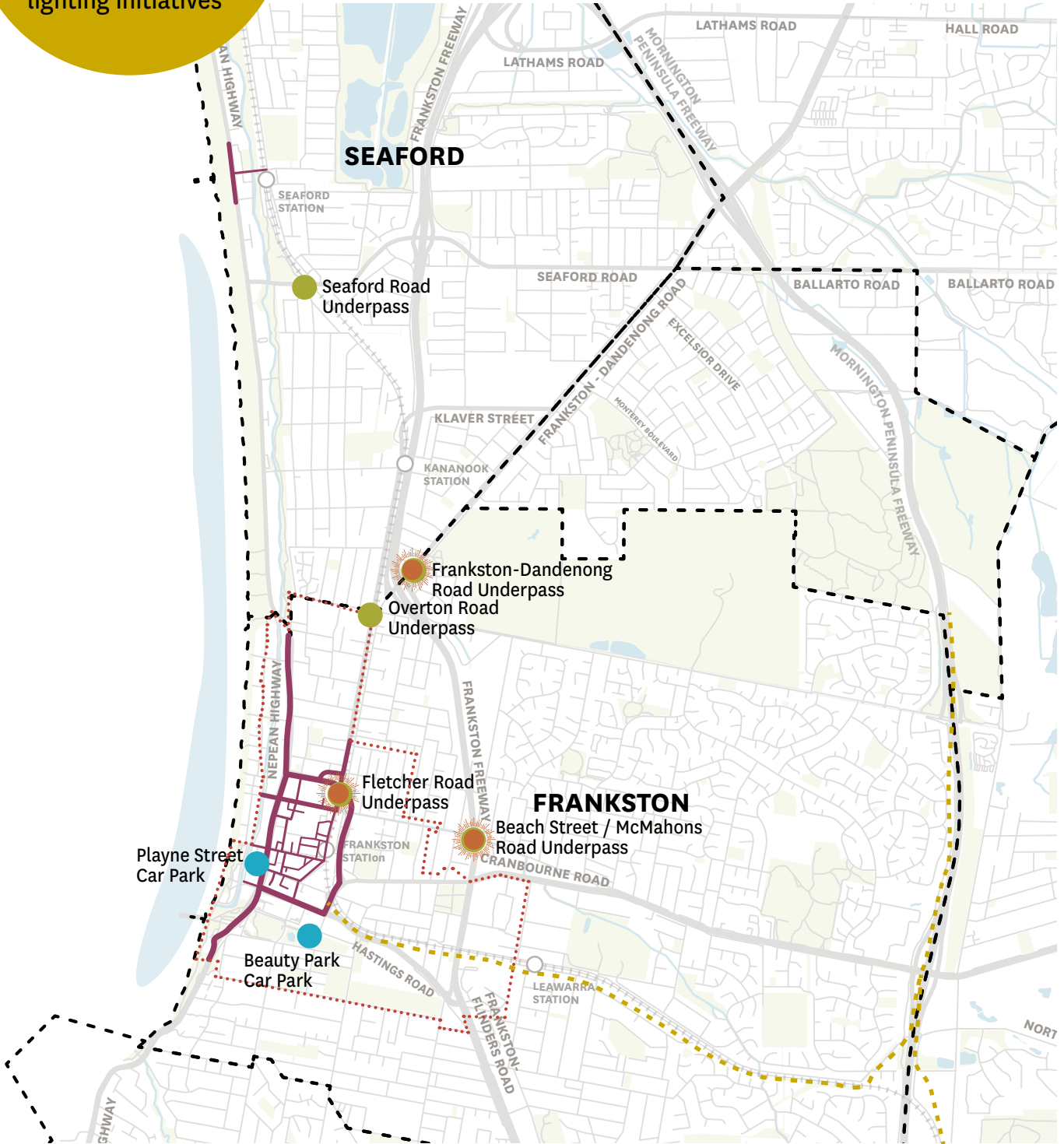
Underpasses / Sheltered Spaces

- Lighting in accordance with regulatory recommendations as a minimum standard – VicRoads & AS/NZS 1158 – Part 5 – Tunnels & Underpasses.
- Warm Colour Temperature – 3000K.



Safety on the Streets

Map of example sites for future lighting initiatives



Key

Example sites for future Safety on the Streets lighting initiatives:

- Car Parks
- Underpasses
- Activity Centre Streets and Laneways
- Shared Paths
- ☀ 'Safety on the Streets' Lighting Projects



Night in Nature

Night in Nature supports the natural environment after dark in a responsible and considerate way.

Lighting in natural environments

This approach focuses on lighting in our natural areas and considers how we can mitigate the adverse impacts of artificial lighting on flora and fauna.

The value and benefits of a healthy ecosystem are well known. The Night in Nature approach seeks to strike an appropriate balance of natural moonlight and darkness - to conserve and protect local flora and fauna - with artificial light - to facilitate legible access for humans after dark where it is necessary.

Lighting in areas with known biodiversity and habitat value is to be avoided, where possible, to minimise disturbances. In these circumstances, lighting will generally only be considered for areas that already experience spill lighting, have a strong connection to key destinations or are already used after dark and require lighting to facilitate safe movement. Natural reserves with high conservation values and 'bush' tracks will continue to remain unlit.

Night in Nature supports sustainable night lighting and strategies focused on increasing and promoting safe access, reduction in light pollution impacts and contribution to a dark night sky that celebrates naturally dark and moonlit environments.



What spaces would we consider lighting?

- Reserves with 'natural' areas or edges which may suit low-level lighting for safe movement
- Key pedestrian crossings and connections

Conservation reserves are to remain unlit.

How can lighting help to improve these spaces?

- Minimum lighting retains the value of moonlight and darkness to protect flora and fauna from the adverse impacts of artificial lighting.
- Facilitates night-time access, fostering community value and appreciation for the natural environment.
- Helps to define safe paths of travel.

What do we need to consider when lighting these types of spaces?

- Adverse impacts of artificial lighting on local flora and fauna, both terrestrial and aquatic.
- Minimum light levels to facilitate pedestrian use and access only where needed.
- Minimum skyglow cast by artificial lighting.
- Ensuring light does not trespass into areas where it is not intended or needed.

Night in Nature Lighting Outcome

Our natural areas and their important ecological processes and behaviours will be prioritised and protected. Lighting in these areas will be provided only where necessary and will be energy efficient, and seek to reduce light pollution and adverse environmental impacts.

Night in Nature Lighting Priorities

- Low level lighting that is discrete to facilitate the experience and increase the perception of visibility after dark.
- Minimise impact and disturbance with the use of existing infrastructure to connect into and allow effective minimal lighting.
- Consider available moonlight within a lighting design to identify areas that have sufficient visibility in the night.
- Provide pedestrian-focused experiences for pedestrian crossings of Kananook Creek.



Night in Nature Lighting Technologies and Customisation

Reserves with Natural Edges or Areas

- LED light sources/fittings – low-level and shielded to provide targeted orientation lighting and limit light pollution
- Amber (XP-E2) chips. These chips sit within a narrow distribution of wavelength and therefore emit limited light within the spectral distribution and meet wildlife friendly requirements (exceeds the ADSA requirements).
- Solar powered lighting is appropriate for wildlife environments, generally remote and only requires a low-level lighting which can be adequately supplied with solar connected power.
- No lighting to natural and 'bush' walking tracks, conservation areas and wildlife habitats.
- Bollard lighting with lighting control (timer / dimmer) for better environmental control. All bollard lighting to be IDA Approved.
- Adaptive 'Smart' lighting controls with dimming, occupancy sensing, timed operation / day-light sensing

Pedestrian Crossings (Kananook Creek)

- LED light sources/fittings – low-level and shielded to provide targeted orientation lighting and limit light pollution
- Adaptive 'Smart' lighting controls with dimming, occupancy sensing, timed operation / day-light sensing.



Night in Nature Light Fittings

Reserves with Natural Edges or Areas

- Low visual impact to fit within the natural and wildlife environment.
- Low level orientation lighting preferred, nominal bollard height of 900mm above ground level. Consider alternative lower bollards at 300-600mm height above ground.

Pedestrian Crossings (Kananook Creek)

- Low visual impact to fit within the natural and wildlife environment.
- Low level boardwalk/ bridge orientation lighting within upstand at approximately 150mm to 200mm above ground level.



Night in Nature Light Quality and Level

Reserves with Natural Edges or Areas

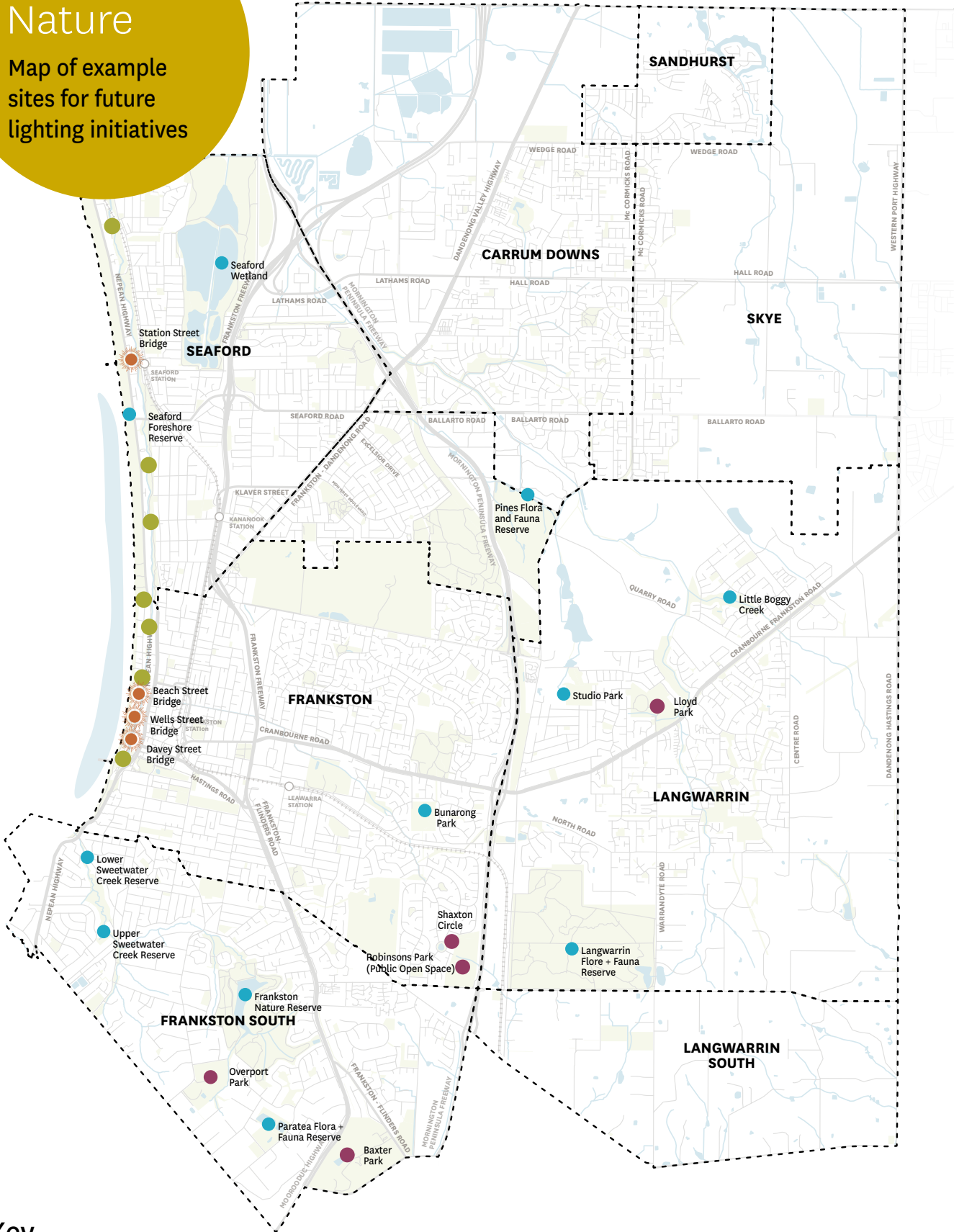
- In accordance with "National Light Pollution Guidelines for Wildlife.
- Warm Colour Temperature – 1900K to 3000K (Maximum).

Pedestrian Crossings (Kananook Creek)

- In accordance with "National Light Pollution Guidelines for Wildlife.
- Pedestrian bridges - Warm Colour Temperature – 3000K.

Night in Nature

Map of example sites for future lighting initiatives



Key

Example sites for future Night in Nature lighting initiatives:

- Reserves with Natural Edges or Areas
- Sites To Remain Unlit
- Kananook Creek Bridges
- 'Night in Nature' Lighting Projects



General Lighting Requirements

Compliance

All lighting designs shall meet the requirements of the relevant Australian Standards and associated regulatory authorities to achieve traffic safety, public amenity, comfort and safety. The Lighting Frankston Plan 2020 should be read in conjunction with related FCC policies, strategies and procedures including the relevant Australian Standards and Authority requirements, in particular:

Meet the requirements of Council policies

- AS/NZS 1158 series (all parts) – Lighting for Roads & Public Spaces
- AS/NZS 4282-1997 -Control of Obtrusive Effects of Outdoor Lighting
- AS/NZS 2560 series (all parts) – Sports Lighting
- National Light Pollution Guidelines for Wildlife
- VicRoads - TCG 006: Guidelines to Street Lighting Design
- Parks Victoria Guidelines

P Rating

Part 3.1 of AS/NZS 1158 is specifically relevant to public area lighting designs and has particular lighting subcategories that are applicable.

Lighting Subcategory PP – Relates to Pedestrian Pathways & Cyclists Paths.

- There are 5 nominated categories PP1 to PP5, the individual categories recommend lighting levels for different levels of activity/fear of crime, where PP1 is the highest category.

Lighting Subcategory PR – Relates to Roads in Local Areas.

- There are 6 nominated categories PR1 to PR6, the individual categories nominate the varying road criteria and the recommend average, horizontal, vertical and uniformity of the lighting levels for the particular road, where PR1 is the highest category.

Lighting Subcategory PA – Relates to Public Activity Areas.

- There are 3 nominated categories PA1 to PA3, the individual categories recommend average, horizontal, vertical and uniformity of the lighting levels within external public spaces – precincts, malls, town squares, service areas, transport terminals and interchanges PA is the highest category.

Lighting Subcategory PE – Relates to Connecting Elements – Subways, Steps, Stairways, Ramps and Footbridges.

- There are 3 nominated categories PE1 – Subways, PE2 – Non Subways and PE3 – Low Use Pathways, the individual categories recommend average, horizontal, vertical and uniformity of the lighting levels within these connecting elements.

Lighting Subcategory PC – Relates to Car Parks.

- There are 3 nominated categories PC1 to PC3, the individual categories nominate the recommend average, horizontal, vertical and uniformity of the lighting levels for a car park area, particular to the level of activity/fear of crime, where PC1 is the highest category.
- Category PCX nominates the recommend average, horizontal, vertical and uniformity of the lighting levels at car park crossings.
- Category PCD nominates the recommend average, horizontal, vertical and uniformity of the lighting levels at Disabled Parking Spaces.

Colour Control

Where required colour controls for 'feature' and enhancement of external lighting installations, including additive, mix and colour change, these would be managed via a digital control system. The robust industry standard lighting protocol is Digital Multiplex (DMX), which is suitable for all applications for colour mix control of (RGBW) – red, green, blue, white lighting products.

Impact Protection (IK) Ratings

External luminaires must meet the minimum industry regulatory standards for impact protection. This is nominated as a numerical IK rating 'to indicate the degrees of protection provided by enclosures for electrical equipment against external mechanical impacts. It provides a means of specifying the capacity of an enclosure to protect its contents from external impacts in accordance with IEC 62262:2002 and IEC 60068-2-75:1997'. (Source: Lumascape website)

Ingress Protection (IP) Ratings

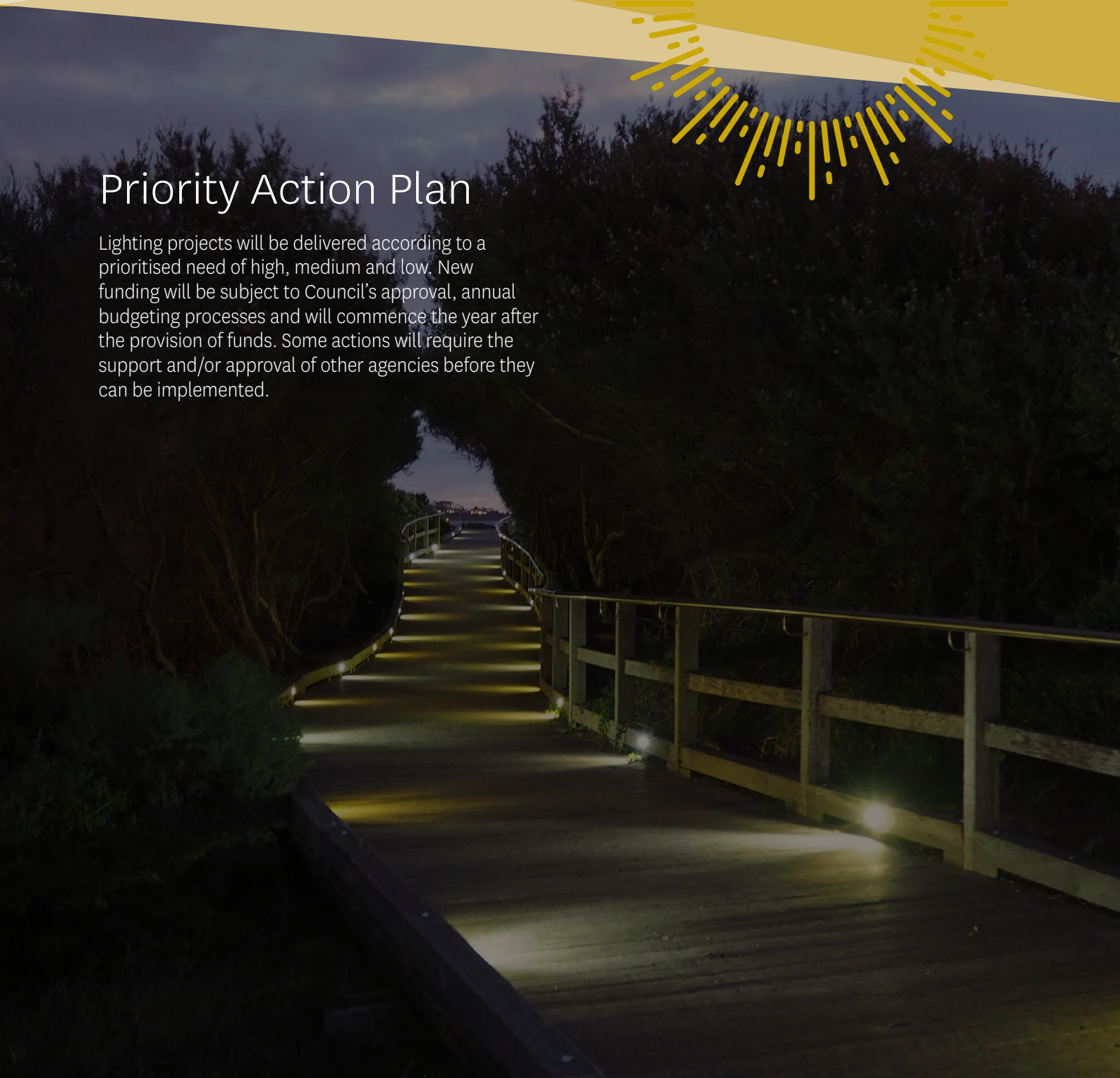
External luminaires must meet the minimum specification for protection against solids and liquids. The minimum is IP65, to meet standards to be dust tight and protected against jets of water. The IP rating is increased to IP67 for coastal and water environment applications, to meet standards to be dust tight and sealed for immersion in water.

When are we going to do it?



Priority Action Plan

Lighting projects will be delivered according to a prioritised need of high, medium and low. New funding will be subject to Council's approval, annual budgeting processes and will commence the year after the provision of funds. Some actions will require the support and/or approval of other agencies before they can be implemented.



Action	Priority	Funding Source	Estimated Cost Implications
Strategic Actions			
Prepare a 10 year capital works program for upgrade of lighting in accordance with the Lighting Frankston Plan.	High ✔	Existing resource	-
Review the Action Plan annually as part of Councils annual budget planning process.	Ongoing ○	Existing resource	-
Advocacy and Investment - Proactively apply for annualised grant programs through state and federal governing bodies in accordance with the Lighting Frankston Plan priorities.	Ongoing ○	Existing resource	-
Lighting Frankston Working Group (LFWG) - Establish a Lighting Frankston Working Group (LFWG) to help guide and coordinate the delivery of actions.	Ongoing ○	Existing resource	-
Engagement and Communications - inform community of Lighting Frankston Plan implementation progress through the Council website.	Ongoing ○	Existing resource	-
Include the Lighting Frankston Plan as a reference document to the Municipal Strategic Statement.	High ✔	Existing resource	-
Promote and apply lighting technology which reduces light pollution (glare, skyglow, light trespass and clutter) and adverse impacts on flora and fauna in collaboration with the Dark Sky Association of Victoria and other relevant authorities and experts. Ensure that all new illumination projects outlined in this plan test and implement these practices.	Ongoing ○	Existing resource	-
Promote and apply clever, creative, robust and sustainable lighting technology across a range of projects. Ensure that all new illumination trial programs outlined in this plan test and implement these practices.	Ongoing ○	Existing resource	-
Support Council's commitment to deliver reduced energy usage and achieve zero net emissions target by 2025.	Ongoing ○	Existing resource	-
Establish and maintain a Public Domain Design Code for Lighting that provides an outline of expected lighting standard details with recommended product specifications to assist in future lighting project implementation.	High ✔	New Funding source required	\$30K
Lighting in the Community - Research and investigation of human-centric experience and response to public lighting within the municipality. Investigate, consult and document public perception and experiences of public lighting within the municipality. Determine objectives and strategies for public lighting projects to better respond to the community.	Medium □	Existing resource	-

Action	Priority	Funding Source	Estimated Cost Implications
1. Active Spirit - Parks and Open Space			
Establish and maintain a palette of standard parks and open space lights for use throughout the municipality. Incorporate as part of a greater Public Domain Design Code for lighting.	High 	Existing resource	-
Design and develop a network of illuminated paths and trails within major open spaces. Establish a series of trial solar lighting projects in select major open spaces to inform a rolling program that considers the following priority major opens spaces: <ul style="list-style-type: none"> - Monterey Community Park, Frankston North - Eric Bell Reserve, Frankston North - Pat Rollo Reserve, Frankston North - Carrum Downs Recreation Reserve, Carrum Downs - Ballam Park, Frankston - Beauty Park, Frankston - Lloyd Park, Langwarrin - Wingham Park, Karingal - Belvedere Reserve, Seaford 	Ongoing 	New Funding source required	Scoping and design: \$25k Delivery: TBD
Implement the recommendations from the following major open space master plans to improve lighting on paths and trails within major parks and open spaces: <ul style="list-style-type: none"> - Jubilee Park Master Plan - Sandfield Reserve Master Plan - Witternberg / Robinsons Reserve Master Plan - Overport Park Master Plan 	High 	New Funding source required	Costs in accordance with Master Plan Recommendation and further scoping. Sandfield Reserve path lighting estimate \$250-300k
Advocacy and Investment - Advocate for lighting outcomes along shared paths as part of all transport infrastructure projects.	Ongoing 	Existing resource	-
Frankston Revitalisation - Continue to deliver improved pedestrian lighting along the shared path between Frankston Station and Monash University to facilitate a safer pedestrian and cyclist experience in partnership with the State Government through the Suburban Revitalisation Program. Test and evaluate lighting technology, creative lighting solutions for perceived unsafe environments.	High 	Existing budget	Funded - \$1.17M includes lighting and path works
Update the Frankston City Council Bike and Trail Plan with consideration given to locations for path and trail lighting along major shared user paths including: <ul style="list-style-type: none"> - Baxter Trail - Peninsula Link Trail 	High 	Existing resource	TBD subject to further scoping

Action	Priority	Funding Source	Estimated Cost Implications
2. Foreshore Experience			
Establish and maintain a palette of standard lights for use across our coastal environment and spaces.	High ✓	Existing resource	-
Support the review of the Coastal Management Plan to provide improved lighting approaches and experiences and to minimise impacts on local flora and fauna.	High ✓	Existing resource	-
Frankston Revitalisation - Continue to deliver new lighting to improve the pier function and experience. New pier lighting opportunities to complement existing public art and lighting installation. Includes consideration of navigational, safety and environmental requirements in collaboration with Parks Victoria, Frankston Revitalisation Board and Victorian Fisheries Authority.	High ✓	Existing budget	Funded - \$220k
Frankston Foreshore Boardwalk – Deliver lighting along the boardwalk from the pier promenade to Oliver’s Hill lookout to provide a continuous experience for community and visitors before sunrise and after sunset. Lighting design will consider and minimise impact on the natural environment and local fauna.	High ✓	New Funding source required	\$300k subject to further scoping
Frankston Yacht Club – Deliver improved pedestrian lighting along the connections to the Frankston Yacht Club to provide a continuous experience for community and visitors before sunrise and after sunset. Lighting design will consider and minimise impact on the natural environment and local fauna.	High ✓	New Funding source required	-
Advocacy and Investment - Develop a creative lighting concept for the Oliver’s Hill Lookout area (including consideration of retaining walls) to provide a pedestrian-focused night time destination experience.	High ✓	Existing budget	TBD
Advocacy and Investment - Investigate and develop creative lighting concepts (such as catenary lighting) to support events and activation of the pier forecourt.	High ✓	New Funding source required	\$30k
Support safe night time activation and outdoor dining experiences through temporary creative lighting interventions.	High ✓	Existing resource	-

Action	Priority	Funding Source	Estimated Cost Implications
3. Navigation and Local Identity			
Establish and maintain a suite of standard lights for use within our local shopping centres in accordance with the Local Shopping Strip Action Plan	High ✔	Existing resource	-
Implement the recommendations from the Local Shopping Strips Action Plan to improve and upgrade lighting at the following priority shopping strips: - Railway Parade, Seaford - Fairway Street, Frankston - Kareela Road, Frankston - Lakewood Estate, Frankston - Ashleigh Avenue, Frankston - Beach Street West, Frankston - Sanders Road, Frankston South	High ✔	Existing budget	Funded through the Local Shopping Strip upgrade program
Frankston Revitalisation - Grimwade Clocktower Nepean Highway - Continue to deliver illumination to the Grimawade Clocktower in partnership with the State Government through the Suburban Revitalisation Program to support night-time activation on Nepean Highway.	High ✔	Existing budget	-
Design and develop a network of illuminated landmark and architectural features across the municipality to create a night time presence, point of interest and destination. Establish a series of trial lighting projects that includes consideration of the following: - St. Paul's Church, Frankston - Architectural illumination - Mile Bridge, Frankston (Nepean Highway) - Landmark illumination	High ✔	New Funding source required	TBD
Investigate illuminated signs at significant municipal gateway locations as part of the Frankston Wayfinding Strategy.	High ✔	New Funding source required	TBD
Advocacy and Investment - Advocate for lighting outcomes through wayfinding and urban design treatments as part of all transport infrastructure projects.	High ✔	Existing resource	-

Action	Priority	Funding Source	Estimated Cost Implications
4. Luminous City			
Establish and maintain a palette of standard City Centre lighting. Incorporate as part of a greater Public Domain Design Code for lighting.	High ✓	Existing resource	-
Support the development of the Frankston Revitalisation Action Plan and a new City Centre Public Realm Master Plan to guide specific future lighting upgrades and assist with advocacy and investment opportunities.	High ✓	Existing resource	-
Shannon Mall Lighting upgrade - Scope and design an extension of pedestrian-focused lighting to connect Wells Street through to Bayside Shopping Centre and the Station Street Mall.	Medium □	New Funding source required	\$350k
Frankston Revitalisation - Design and develop illumination of key landmark and architectural features across the City Centre to support night time activation and economy. Establish a series of trial lighting projects that includes consideration of the following: - The Comfort Station, Playne Street - Frankston Yacht Club, Frankston Foreshore	Medium □	New Funding source required	Scoping and design \$25k
Establish trial 'Smart Lighting' program within Frankston City Centre. Integrated smart lighting technologies should consider CCTV, air quality and weather monitoring, timer control and dimming functions.	Medium □	New Funding source required	TBD
Establish trial lighting program to improve shop-front illumination treatments in strategic locations to support local businesses.	Medium □	New Funding source required	TBD



Photo credit: Mandylights

Action	Priority	Funding Source	Estimated Cost Implications
5. Creative City			
Establish and maintain design standards for public artwork and sculptures that provides an outline of expected lighting standard details with recommended product specifications to assist in future lighting project implementation.	High ✔	Existing resource	-
Install required infrastructure in major open spaces for temporary activation and events illumination that includes consideration of the following: - George Pentland Botanic Gardens, Frankston - Beauty Park, Frankston - McCombs Reserve, Frankston - Long Island Kananook Creek Reserve, Frankston	High ✔	New Funding source required	Scoping \$25k Implementation TBD
Frankston Revitalisation - Continue to deliver creative illumination to the Nepean Highway median trees in partnership with the State Government through the Suburban Revitalisation Program to support night time activation on Nepean Highway.	High ✔	Existing budget	Funded \$550k
Frankston Revitalisation - Continue to deliver creative illumination to Steibel Place laneway in partnership with the State Government through the Suburban Revitalisation Program to support safety and night time activation.	High ✔	Existing budget	Funded \$350k
Frankston Revitalisation - Continue to deliver place activation outcomes for White Street Mall including temporary creative illumination in partnership with the State Government through the Suburban Revitalisation Program to support safety and night time activation.	High ✔	Existing budget	Funded \$200k
Advocacy and Investment - Develop a creative lighting concept for Keys Street Frankston (including projection) to provide a pedestrian-focused night time destination experience.	High ✔	New Funding source required	\$100k
Develop a program for creative lighting opportunities to support a distinctive and vibrant City. Initial trial to include supporting street art in laneways: ie. Gallery Lane, Frankston	High Ongoing ✔ ☉	New Funding source required	TBD
Creative Tree Illumination Pilot Program - Establish a series of trial creative tree illumination projects across the municipality including consideration of the following priority sites: - Playne Street, Frankston - Beach Street, Frankston - Davey Street, Frankston - PARC, Frankston - Pines Forest Pool, Frankston North - Ballam Park, Frankston - Beauty Park, Frankston	Medium ☐	New Funding source required	TBD based on trial project
Advocacy and Investment - Consider integrated lighting as part of future public sculpture commissions and installations.	Medium ☐	Existing resource	-

Action	Priority	Funding Source	Estimated Cost Implications
6. Safety on the Streets			
Frankston Revitalisation - Fletcher Road underpass - Continue to deliver improved pedestrian lighting to facilitate safer experience, navigation and access needs in partnership with the State Government through the Suburban Revitalisation Program. Test and evaluate lighting technology, creative lighting solutions for perceived unsafe environments.	High ✔	Existing budget	Funded \$200k
Advocacy and Investment - Advocate for lighting outcomes for improved pedestrian lighting to underpasses and hidden spaces to facilitate safer experience, navigation and access needs. To assist with advocacy further scope and determine feasibility and lighting treatments at the following priority sites: - Frankston Dandenong Road, Frankston North - McMahons Road/Beach Street, Frankston	High ✔	New Funding source required	TBD based on furtherscoping
Investigate opportunities to provide pedestrian lighting for stairways leading from Cliff Road to the Nepean Highway to facilitate safer experience, navigation and access needs in the early evening and morning. Consider the following stairway locations: - Nepean Lane - Grand View Laneway - Cliff Lane - Esplanade Reserve - Somme Laneway - Warringa Road	Medium □	New Funding source required	-



Action	Priority	Funding Source	Estimated Cost Implications
7. Night in Nature			
Lighting in Nature - Collaborate with institutions and experts (e.g. Deakin University, Dark Sky Association) on investigating impacts of artificial lighting on fauna in a range of settings and developing strategies that minimise impact on wildlife.	High ✔	Existing resource	-
Bridge Illumination Program - Establish a Kananook Creek bridge crossing illumination program. Design and deliver site specific pedestrian focused lighting for safer movement and access including consideration of the following priority sites: - Station Street, Seaford - Bridge Crossing - Beach Street, Frankston - Bridge Crossing - Davey Street, Frankston - Bridge Crossing - Wells Street, Frankston - Bridge Crossing	High Ongoing ✔ ○	New Funding source required	\$150k per site
Impacts of Sports Lighting - Research of the ecological and environmental impacts of sports lighting on flora and fauna in abutting natural habitat and conservation areas. Identify recreational open spaces (e.g. Baxter Park, Lloyd Park, Overport Park, Robinsons Park) that abut natural reserves and conservation areas. Investigate new lighting technologies that will help to reduce and minimise light spill from sporting and other facilities.	Medium □	Existing resource	-



How will we implement?

Criteria for capital planning of lighting projects

Lighting improvements will be delivered according to a prioritised need of high, medium and low. This has been determined using the following criteria:

- Improving safety
- The number of people using a space or route
- Improving energy efficiency and sustainability
- Reducing light pollution
- Ability to contribute to tourism and identity
- Ability to support night-time economy and activation
- Equitable distribution across the municipality

Consultation process

Lighting projects will be undertaken in consultation with lighting experts, professional stakeholders, and the community. Relevant Authorities and stakeholders include but are not limited to the following:

- United Energy / Zinfra
- Parks Victoria
- Department of Land Water Environment and Planning
- Department of Transport / VicRoads
- VicTrack
- Victoria Police
- Australian Communications Authority (ACMA)
- Catchment management authorities

Advocacy for funding and grants

The Lighting Frankston Plan will be a valuable tool in advocating for additional external funding, where suitable, to further support the priority program. This may include state government funding programs and partnerships with organisations in the private sector.



How will we know that it's been successful?

Measures

Measures of success for the action plan will be based around the following:

- Annual Council review
- Number of people using public spaces in the evening and after dark
- The amount of time people spend in public spaces in the evening and after dark

Action Plan review

Council will form a cross-council working group that will meet annually and in advance of budget allocations to discuss the progress of the Action Plan and to fine-tune the priority program as required. Council will also undertake reviews of lighting projects that have been implemented to evaluate their success and identify opportunities for improvement

Where can I find out more?

To find out more about the Lighting Frankston Plan visit:

www.frankston.vic.gov.au

If you have any questions about the plan or want to request more information you can also contact us at:

info@frankston.vic.gov.au
or phone 1300 322 322

General Definitions for Lighting

Light - Light is a form of energy; electromagnetic radiation. Visible light is a segment of the electromagnetic spectrum that is visible to the human eye.

Brightness - Brightness is a visual perception of a source appearing to reflect light.

Luminous Flux - Luminous flux is a measure of the total quantity of light radiated by a light source.

Luminous Intensity - Luminous intensity represents the luminous flux of light emitted in a certain direction.

Illuminance - Illuminance represents the luminous flux on an area of surface in units.

Luminance - Luminance represents the light emitted from a unit area in a certain direction.

Colour Temperature - Colour temperature is a measure of the colour of light in Kelvins (K). This is represented in the diagram below. To expand, white light is a mixture of colours, not all whites are the same since they depend on their constituent colours. A white with a higher proportion of red will appear 'warmer' whereas a white with a higher proportion of blue will appear cooler.

Colour Rendering Index (CRI) - CRI represents a rating for the ability of a light source to produce an accurate representation, a render, of actual colour to the human eye for objects that it illuminates.

Light Pollution - Light pollution refers to the 'excessive or inappropriate use of outdoor artificial light can affect human health, wildlife behaviour and our ability to observe stars and other celestial objects.' (Source: National Geographic Society website)

Obtrusive Light - 'Direct or reflected light that, because of quantitative, directional or spectral attributes in a given context, causes annoyance, discomfort, distraction or a reduction in the ability to see.' {Source: Illuminating Engineering Society website)

Glare - Glare is considered excessive brightness that causes visual discomfort and inability to see properly.

Skyglow - Skyglow refers to the 'brightening of the night sky over inhabited areas', which has become increasingly apparent across the globe with the advent of electricity and lighting technology. (Source: International Dark-sky Association website)

Background Exposure - Numerous studies and investigations have been carried out regarding Wi-Fi, EMR, 5G & Electro Sensitivity, but there appears to be no real scientific evidence to suggest any health concerns. In Australia – ACMA – Australian Communications Authority is the regulatory body for these matters.

