



PUBLIC LIGHTING STRATEGY 2021-26

January 2021



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1 Executive Summary

Council adopted a Public Lighting Strategy in 2015 and has delivered on actions to achieve the objective of that Strategy.

The updated Public Lighting Strategy 2021-26 has been prepared to further contribute to the completion of objectives and achievement of goals outlined in Council's Strategic Plan 2009-2030.

Council provides around 3,500 lights to roads, car parks and open space which cost \$760,000 per year to operate and maintain. The key challenges faced are:

- "Living lightly", i.e. reducing our environmental footprint
- Managing the cost of public lighting
- Determining and providing the right level of service

The objectives of the Public Lighting Strategy 2021-26 are reflective of the challenges faced by Council when providing public lighting for the community.

- 1. Public lighting is environmentally sustainable**
- 2. Public lighting is financially sustainable**
- 3. Public lighting meets the needs of the community**

The Action Plan proposes the activities, timing and resources required to achieve the above objectives and defines the indicators of progress against the objectives.

2 Introduction:

The updated Public Lighting Strategy 2021-26 has been prepared to further contribute to the completion of objectives and achievement of goals outlined in Council's Strategic Plan 2009-2030.

Public lighting is a service provided by Council on road, paths, car parks and public open spaces. Council provides around 3,500 lights to roads, car parks and open space which cost \$760,000 to operate and maintain.

The scope of the Public Lighting Strategy 2021-26 includes lights to road, paths, car parks and public open spaces but excludes lighting of Council buildings, lighting to sports fields, temporary lighting for events and the proposed sound and light show in the Waterfront Park.

The Strategy examines the current status of public lighting in Devonport and the challenges likely to be faced in the next five years. Objectives are defined and an action plan is detailed to deliver those objectives.

3 Strategic and Legislative Context:

Council has adopted a vision for the future in the Devonport City Council Strategic Plan 2009-2030:

“Devonport will be a thriving and welcoming regional City, living lightly by river and sea.”

The Strategic Plan sets goals and outcomes to be achieved over the life of the plan. The goals set out where the organisation wants to be by 2030. The outcomes and underpinning strategies are the steps needed to get there. Goals and strategies relating to public lighting are shown in Table 1.

Goal No.	Goal	Strategy No.	Strategy	Public Lighting Strategy 2021-2026 Context
1	Living lightly on the environment	1.1.1	Lead and actively promote the adoption of practices that support the sustainable use of energy and other natural resources by Council, businesses and the community	Technology and other innovations offer opportunities to deliver this strategy
		1.1.2	Investigate innovative ways of accessing alternative power sources including renewable energy	Public lighting is a considerable part of Council's energy use.
		1.4.3	Lead and actively promote emissions minimisation	Public lighting is a considerable part of Council's energy use.
2	Building a Unique City	2.3.2	Provide and maintain roads, bridges, paths and car parks to appropriate standards	Lighting provided to transport areas should be appropriate for the intended use of that area
		2.3.5	Provide and maintain sustainable parks, gardens and open spaces to appropriate standards	Lighting provided to parks areas should be appropriate for the intended use of that area
3	Growing a vibrant economy	3.3.1	Improve the City's physical access and connectivity focusing on linkages to and from key access points	Lighting can assist in the delivery of this strategy
4	Building quality of life	4.1.3	Promote passive recreational usage including walking, bike paths, trails, parks and playspaces	Lighting these areas increases the opportunity for use
5	Practicing excellence in governance	5.4.1	Provide timely, efficient, consistent services which are aligned with and meet customer needs	Request for lighting should be assessed and actioned consistently and with acceptable timeframes

		5.5.2	Ensure comprehensive financial planning and reporting to guarantee sustainability and meet or exceed financial targets	Budgets should include adequate allocations for current and future provision of public lighting
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Table 1: Strategic & Legislative Context

There are other Council Strategies that the Public Lighting Strategy 2021-26 relates to:

- Asset Management Strategy
- Bike Riding Strategy 2015-2020
- Environment Strategy 2019-2024
- Open Space Strategy
- Pedestrian Strategy 2016-2021
- Road Network Strategy 2016

In alignment with the Strategic Plan and some of the above Strategies, Council joined the Cities Power Partnership in August 2020 (Min 20/62 refers). This partnership requires Council to make a number of pledges in areas including renewable energy and energy efficiency. It is likely that public lighting will be strongly represented in the pledges to be made.

The following documents have also been referenced during development of the Public Lighting Strategy 2021-26:

- AS/NZS 1158 Australian Standard – Lighting for roads and public spaces
- IPWEA Practice Note 11 – Street Lighting – Towards more sustainable street lighting

4 Current Context:

4.1 Level of service

Council provides public lighting to a range of areas including

- Urban roads
- Some car parks
- Some rural road intersections
- Some public open spaces and paths within those open spaces
- Around some Council owned or operated buildings

Note that lighting to some sports fields and events is provided but is outside the scope of this strategy.

The provision of public lighting to these areas has developed over time on an as-needs basis. The considerations made by Council when assessing the need for lighting and the required level of lighting are shown in table 2 below.

Area	Considerations for provision of lighting
Urban roads	Traffic volume, availability of power poles
Car parks	Night-time usage,
Rural road intersection	Traffic volume, road safety record
Public open spaces	Night-time usage
Public open spaces - paths	Night-time usage
Buildings	Night-time usage, need for security

Table 2: Public lighting considerations

This approach has contributed to lighting levels that are in many cases less than what is required by AS/NZS 1158. This was confirmed by desktop study in 2013 found that around half of all urban roads are lit to a lower level than what is required by AS/NZS 1158. Little work has been done since that study to improve compliance levels other than reactive upgrades or additions.

Council's public lighting service has increased over time, mainly through the provision of lighting to new subdivisions and though provision of lighting to recreational areas such as the Victoria Parade foreshore and the East Devonport fitness equipment. This long term increase is likely to continue.

4.2 Asset inventory and procurement model

4.2.1 Unmetered supply

Most public lighting is provided through an agreement with Aurora Energy, who supply and maintain the light and supply energy to the light. The energy is not metered and so costs are incurred on a flat rate per year by light type. The agreement with Aurora Energy expires on June 30th, 2022.

Unmetered public lights are usually mounted to Aurora owned poles, which also support power lines. Aurora maintains these poles. However, where no Aurora owned poles are available, private poles are installed which are Council assets.

As of July 2020, Council lighting inventory consisted of 3,306 public lights on an unmetered supply. 510 are on private poles.



Figure 1 – Unmetered Lights on Aurora Energy Poles



Figure 2 – Unmetered Lights on DCC Poles

4.2.2 Metered supply

Other public lights are on a metered supply. In most cases, these are at facilities where a meter already exists. In other situations, it is when Council has chosen lights and pole types outside Aurora Energy's standard list. Examples of this are on the Victoria Parade foreshore, Stewart Street, Rooke Street Mall and the Mersey Bluff precinct.

Under this arrangement, Council is responsible for the inspection and maintenance of all lighting infrastructure including lights, poles and underground cables. Energy costs are determined from the meter reading and paid to the energy retailer. Currently Aurora is the energy retailer for all metered public lights, under various agreements and tariffs. Council has 210 lights on metered supply in the inventory.

4.2.3 Off grid

There are 15 lights that are not connected to the energy grid. Council has full responsibility for inspection and maintenance of the lights, poles and all related components of these assets.

4.3 Technology

4.3.1 Light types

For many years, public lighting was provided through mercury vapor and sodium vapor globes. Gradually technology has improved to more efficient and safer light types, with compact fluorescent lights being introduced and then superseded by LED lights.

Aurora Energy introduced LED lights as an option for unmetered lights in 2016 and have gradually expanded the range of LED products they install. Since around 2018 LED lights have been the standard for new and replacement lights. As of July 2020, 45% of Council's unmetered lights are LEDs. This is expected to continue to increase over the next 5 years.

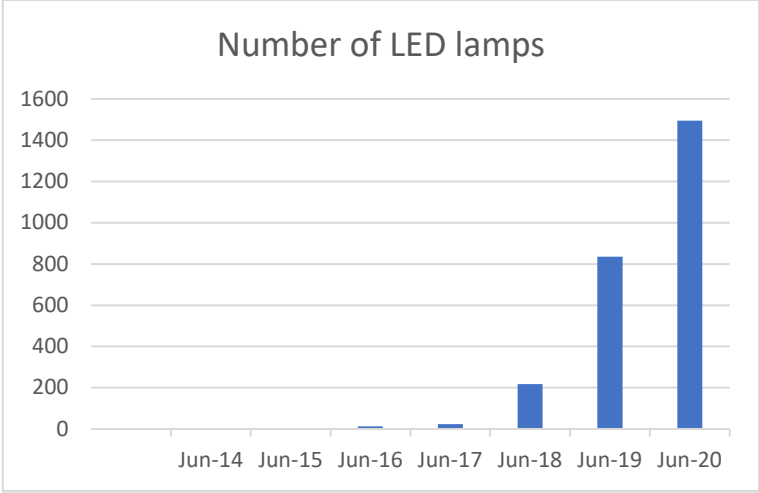


Figure 3: LED Lights on unmetered supply

4.3.2 Smart lighting

Smart lighting refers to lighting that has automated controls to allow variation in the light provided that can occur based on conditions such as natural lighting levels or occupancy of the area. It allows lighting to be provided as a service more aligned with needs of the public and reduces lighting that is not required. Smart lighting systems can also be effective data collectors for Council as asset utilisation patterns can be better understood from the data obtained.

Council's public lighting does not currently use smart lighting systems. Most lights operate use a photoelectric (PE) cell to measure ambient light and turn on when it gets too dark. However, there is no ability to adjust the threshold and the lights operate at a fixed level regardless of whether the area is being used.

4.4 Environmental

Due to the energy supply agreements, accurate information on energy consumption is unavailable, so indicative data is used. This data suggests that the transition to LED lights has reduced Council's energy use for public lighting. As most lights are on an unmetered supply, it is difficult to quantify energy saving but using average watts per lamp as an indicator suggests a 35% reduction from 2014 to 2020, as shown in Figure 4. It is expected this trend will continue with the ongoing transition to LED lights.

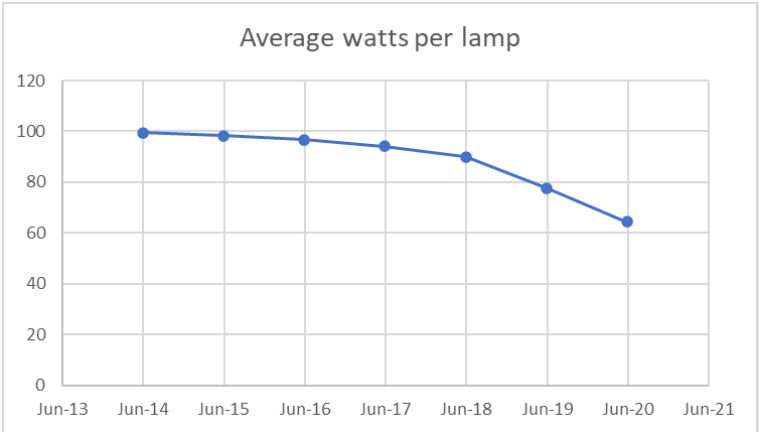


Figure 4: Average watts per lamp – unmetered supply

The transition away from mercury vapour lights has also reduced the environmental hazards associated with storage and disposal of products that contain mercury.

Like energy consumption data, there is no accurate data available of the source of the energy consumed. It is assumed that a significant portion of this energy is sourced from renewable sources, but no baseline data is available to measure long term improvement.

Council's recent membership of the Cities Power Partnership may drive a requirement to source a higher percentage of energy from renewable sources and higher percentage of LED lights.

4.5 Cost

The provision of public lighting is a considerable cost to Council and one that is essentially fixed from year to year, as large reductions in the number of lights, the hours of lighting per day or the cost of energy are not feasible. In 2019-20, Council's lighting budget was \$760,000 for lighting of roads, parks, car parks and other public areas. The annual cost is not projected to change significantly over the life of this Strategy as efficiency gains are offset by an increase in lights. However, fluctuations in the retail energy market may impact Council in future.

4.6 Safety

4.6.1 Public Safety

Public areas frequently used at night warrant the provision of lighting, providing a safe environment and promoting high utilisation of Council's assets.

AS1158 includes provision for a higher level of lighting to be provided in locations where it is deemed there is an increased risk of crime. White light from LED lights has been shown to enhance the capability of CCTV cameras, creating an additional deterrent as well as an enforcement tool. It should be noted however, that public lighting is not intended as a replacement for security lighting of private commercial and residential areas.

4.6.2 Road Safety

Lighting of roads provides a control measure against road crashes at night. In 2014, Council identified 21 road intersections and links with a history of night-time crashes and have progressively been implementing upgrades where practical.

Aligning with State and National road safety strategies requires Council to continue to make the road network safer. The targeted provision of new or upgraded lighting is one method to achieve this. LED's are likely to offer significant safety benefits for drivers, pedestrian, and other road users¹

4.7 Community expectation

Council has been receiving requests for well-lit public spaces in recent years. In response to a public campaign, the Coastal Pathway on Victoria Parade was lit, with lighting now extending to Mersey Bluff, aligning the service provided with community expectation. Market Square and the Waterfront Park are high profile public spaces with extensive lighting provided. Recognising the upfront and ongoing costs of lighting projects and the opportunity cost of those projects is important.

During the COVID-19 restrictions, the use of recreational paths surged, prompting requests for extensions to path lighting. However, the willingness of the community to pay for expected services is tested. As the long-term economic impacts on Council become clearer, ongoing communication and consultation with the community on local priorities and the cost of services is important.

It is understood that the community expects lighting to be provided to the urban road network, although there is likely to be low level of understanding of the details of lighting levels and standards. The requests received for road lighting are generally for a new single

¹ IPWEA Practice Note 11, 2014

light or changes to one light and if legitimate, can usually be accommodated within available budgets.

5 Strategy Development:

The Public Lighting Strategy 2021-26 builds on the platform created by the previous Public Lighting Strategy, adopted by Council in 2015 and responds to the changes that have occurred in the area since then.

Through understanding the current context, three main challenges for Council can be identified:

5.1 Environment

Climate change is a global focus and public lighting is a significant and visible component of Council's energy consumption.

Council's membership of the Cities Power Partnership increases the focus on reducing energy consumption and accessing renewable energy sources.

5.2 Cost

The cost of providing public lighting to the community is significant and subject to both operational decisions and external factors.

The need to manage the cost of public lighting has increased in the economic conditions created by the COVID-19 pandemic.

5.3 Level of Service

Providing a public lighting service that contributes to the community expectation of road safety, public safety, and access to recreational facilities at night is a challenge. Balancing the demand for these services with cost and environmental sustainability measures

6 Purpose and Objectives:

The purpose of the Public Lighting Strategy 2021-26 is to inform Council's direction and priorities for public lighting during the period.

The objectives of the Strategy are reflective of the challenges faced by Council when providing public lighting for the community.

- 1. Public lighting is environmentally sustainable**
- 2. Public lighting is financially sustainable**
- 3. Public lighting meets the needs of the community**

7 Implementation:

Implementation of the Strategy will ensure that the objectives are met through the allocation of resources for identified target and recurring activities and expenses

7.1 Objective 1: Public lighting is environmentally sustainable

This objective strongly aligns with Council's Strategic Plan and requires Council to embrace new and emerging technology to reduce energy consumption, utilise renewable energy and to identify and eliminate any over servicing.

7.2 Objective 2: Public lighting is financially sustainable

This objective ensures that public lighting can be effectively delivered within the constraints of Council's Long Term Financial Plan. It is related to Objective 1 as there is a strong link between energy consumption and cost. However, to achieve this objective Council also needs to ensure it is receiving value for money for energy and public lighting services as well as managing the assets and services efficiently.

7.3 Objective 3: Public lighting meets the needs of the community

This objective ensures that the community has the required input into the level of service that Council provides and are aware and accepting of the cost of public lighting.

There is potential for this objective to conflict with objectives 1 and 2, so new or upgraded lighting will need to be carefully planned and occur within the constraints of future capital and operating budgets. These budgets are fundamentally linked to the willingness of the community to pay for the services, so the process to understand the community needs has the potential to be complex, iterative, and influenced by significant external factors.

Details of the process to implement the Strategy are shown in the Action Plan and the end of this document.

8 Monitoring, Evaluation and Review:

A report will be tabled to Council annually to demonstrate progress against the action plan activities.

9 Appendices:

nil

Action Plan Public Lighting Strategy 2021-26

No	Action:	Year Planned					Priority: H,M,L	Resources: A-OPEX F-OPEX F-CAPEX	Targets	Responsible Department
		2021-22	2022-23	2023-24	2024-25	2025-26				
Objective 1: Public lighting is environmentally sustainable										
1.1	Improve energy efficiency of public lighting						H	A-OPEX	Achieve year on year improvement for energy efficiency of public lighting (measured by average W/lamp)	Infrastructure and Works
1.2	Seek opportunities to source energy for public lighting from renewable sources						M	A-OPEX	Achieve year on year increase in % energy for public lighting from renewable sources	Infrastructure and Works
Objective 2: Public lighting is financially sustainable										
2.1	Public lighting costs are sustainable						H	A-OPEX	Public lighting costs increases are at or below CPI increase each year	Infrastructure and Works
2.2	Public lighting services are cost competitive						H	A-OPEX	Participate in regional or state-wide procurement processes	Infrastructure and Works
2.3	External funding opportunities are pursued						H	External	Grant opportunities are explored and submissions are made	City Growth
Objective 3: Public lighting meets the needs of the community										
3.1	Engage with the community to understand the expectations for public lighting						M	A-OPEX	Consultation undertaken and analysed for preparation of service levels	Infrastructure and Works, Communications
3.2	Implement provision of lighting, including lighting levels into documented service levels						M	A-OPEX	Asset hierarchies in major asset classes define what public lighting is to be provided. Maintenance service levels are defined for lighting across major asset classes	Infrastructure and Works
3.3	Audits are undertaken against defined service levels						M	A-OPEX	Audits are undertaken and 'gaps' are included in future budgets	Infrastructure and Works
3.4	Progress with introduction of smart lighting						M	A-OPEX	Business case prepared for a smart lighting project. Project included in works program if feasible	Infrastructure and Works
3.5	Lighting contributes to a safe road network						M	A-OPEX	Fatal and Serious night time crashes decrease year on year	Infrastructure and Works