

LRD Planning Application
Parkway Valley
Dublin Road,
Limerick

Site Lighting Report

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0	30/09/2025	AM	MF	JM	Initial Report

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1.0 Executive Summary

This report outlines the site lighting design intent and considerations to be taken with regards to the proposed development

The complete external lighting installation will be designed in accordance with the following:

- Regulations for electrical services as ETCI National Rules for Electrical Installations IS10101
- Limerick City and County Council Public Lighting Design Specifications
- EN13201 – 1, 2 and 3 Road Lighting Design
- CIBSE LG6- Exterior Lighting for public spaces
- BS5489-1 COP Design of Road Lighting

Public lighting plays a crucial role in creating safe, functional, and visually appealing residential environments. The design of public lighting for this development requires careful consideration of various factors to ensure optimal performance, energy efficiency, and the well-being of residents.

Key considerations:

1. **Safety and Security:** One of the primary objectives of public lighting is to enhance safety and security in urban spaces. Lighting should provide adequate illumination to minimize the risk of accidents, deter crime, and create a sense of safety. Areas such as pedestrian crossings, parking areas, public parks, and pathways should receive special attention to ensure optimal lighting levels and visibility.
2. **Uniformity and Glare Control:** Achieving uniformity in lighting distribution is important to avoid dark spots or areas with excessive contrast. A well-designed lighting system should provide even illumination across the space, enhancing visibility and reducing shadows. Additionally, glare control is crucial to prevent discomfort and maintain visual comfort for pedestrians, motorists, and residents. Proper shielding and orientation of luminaires can help minimize glare.
3. **Lighting Quality and Colour Rendering:** The quality of lighting is essential for creating a pleasant environment. High-quality lighting fixtures should be selected to provide accurate colour rendering and reveal the true colours of objects and surfaces. This improves visibility, facilitates wayfinding, and enhances the aesthetic appeal of the surroundings.
4. **Energy Efficiency and Sustainability:** Energy efficiency is a critical consideration in public lighting design. LED technology should be prioritized due to its superior energy efficiency, long lifespan, and low maintenance requirements. Lighting controls, such as dimming and occupancy sensors, should be implemented to optimize energy usage and reduce light pollution. Sustainable practices, such as using renewable energy sources and minimizing light spill, should also be incorporated.
5. **Adaptive Lighting and Smart Controls:** Implementing adaptive lighting systems and smart controls can further enhance the efficiency and functionality of public lighting. Adaptive lighting adjusts lighting levels based on real-time conditions, such as ambient light, traffic patterns, and pedestrian activity. Smart controls, integrated with sensors and remote management systems, allow for remote monitoring, maintenance scheduling, and the ability to respond to specific events or emergencies promptly.
6. **Aesthetic Integration:** The Public lighting shall be harmoniously integrated into the landscape, taking into account architectural elements and the overall character of the area. Luminaires and poles shall be selected to complement the surrounding environment and enhance its visual appeal, contributing to the overall aesthetics of the urban area.

The predicted performance of the external lighting installations shall be assessed in detail using Lighting Simulation software.

Our design intent comprises of column lighting for public areas and pathways.

The proposed lighting scheme has been carefully considered in order to minimise the effect on bat populations.

The Scheme comprises primarily of pole mounted Warm White (2700k) LED fittings with internal louvres. The Warm White LED light source has the least negative impact on insects and bat prey items as identified in previous studies and is also a compact light source which enables easier control of the light spread.

The internal louvres minimise light spill, particularly to the rear of the fitting, and also completely eliminate any upward light from the fittings. Internal louvres are a recommended strategy for reducing the impact of lighting on bats as identified in previous studies.

The fittings will be angled no greater than 5 degrees to further reduce light spill.

The design light levels have been chosen in order to both comply with Irish Standards for external lighting, while at the same time maintaining light levels as low as practically possible considering the safety of people on site, the locality, and the proximity of bats to the site.

In addition, the site lighting profiles shall be selected as described in section 2 of this report, when human activity on the site will be lower in order to further reduce the impact of the site lighting on bats.

In line with the Limerick Development Plan 2022-2028, Section 6.3.13 the external lighting design shall take into account the importance of light emissions from external lighting at night-time. The lighting design shall be designed to avoid unnecessary light spillage that would have an adverse on local wildlife.

2.0 Design Guidelines

A study of artificial light sources and controls was undertaken by Emery (2008) and concluded that shielding and masking of streetlights using internal or external louvres, can reduce light spillage by as much as 97%. He recommends that due to their high cost, they are used where the lighting is extremely close to bats. In other areas he recommends that shields can be used which reduce light spill by up to 40%.

Emery considered several lamp types in his analysis, but not however LED sources, which were not as prevalent for external streetlights then as they are now.

A comprehensive study by Emma Stone (2014) University of Bristol/Bat Conservation Trust, entitled “Bats and Lighting”, considers the optimum means to mitigate the effects of artificial lighting on bats.

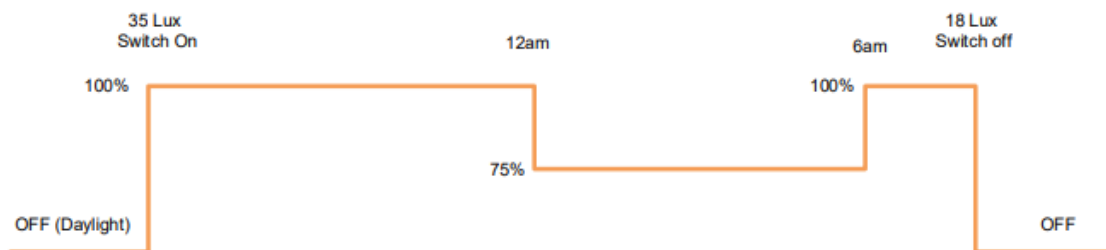
This study concludes that the type of light fitting with the lowest negative impact on bats are

- Narrow Spectrum Lights with no UV content
- Low pressure sodium and warm white LED*
- Directional downlights - illuminating below the horizontal plane which avoid light trespass into the environment.
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Warm White LED (2700K) sources have a low relative attractiveness for insects, and therefore least effect on bat prey items. It is proposed that all lights shall have a colour temperature no greater than 2700k for column lighting.

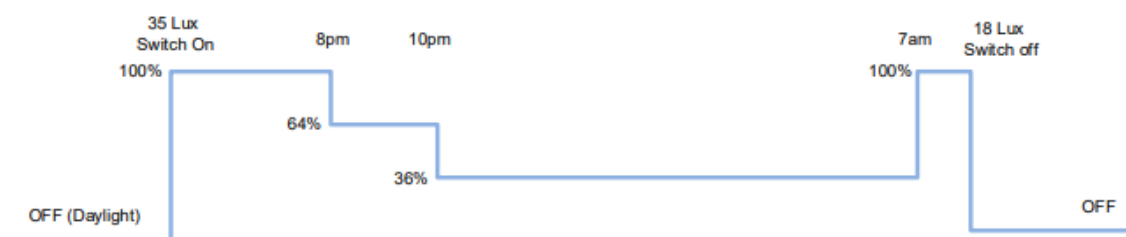
This study also proposed that lighting control regimes be considered such as dimming lights at certain times, in order to reduce illumination and spill. Public Lighting Profile 2A can be selected in this regard.

Profile 2A



In areas where bats are passing and feeding, light levels will be reduced further to a minimum of 1.2 lux whilst maintaining compliance with the regulations. Public Lighting Profile 4D will be selected in this regard.

Profile 4D



3.0 Proposed Site Lighting Design

The proposed scheme comprises primarily of LED luminaires on 6-metre-high poles for public areas and roadway areas.

The quantity of luminaires will be calculated to achieve an average illuminance on pathways and roads in line with Classes P3 and P4 of IS EN 13201/BS5489

The proposed light fitting/scheme has the following features which will help mitigate the effect of the artificial lighting on the bat population:

- Warm White LED (2700K) light source – less attractive to insects, and a good light source to enable directional luminaires.
- Internal Louvres – to reduce light spill and eliminate upward light.
- Lowest possible design illuminance levels considering the nature of the site.
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Typical Lighting Fittings:



Modern decorative LED luminaire, available in 2 sizes. Ideal for roadway applications.

Construction: Die-cast aluminium with integrated heat sink. IP66. IK08 as standard, IK10 on request.

Lens: Tempered glass as standard.

Installation: 3 mounting options:
A - Side entry (60 mm) - Standard
B - Post-top
C - Bracket mounted
(see application images).

Finish: Grey RAL 9006 as standard. Other RAL colours on request.

LED: 10w to 172w available. 4000K as standard, 3000K or other CCT on request. Asymmetric street optic A10 as standard. LED Lifetime: L80 B10 >100,000 hours. (at 25°C).

LED Driver: 220-240V AC 50/60 Hz. Internal Driver.

Mains Surge Protection: 10kV device included as standard.

Options: Various Optics, DALI, 1-10V, Programmable Dimming, Constant Lumen Output (CLO), Various Mounting Options.

Manufactured: EU.

Product Compliance: EN 60598; CE.

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Typical Lighting Fittings:



Camino Bollard

External lighting



Robust LED Bollard with high performance optics suitable for wider pathways and cycleways, roads, smaller carparks, plazas etc, especially where normal bollards would not be adequate.

Construction: Diecast aluminium head, IP66, IK10. Galvanised steel shaft. 1.1m high as standard, 0.6m, 1.6m or 2.1m high on request.

Lens: Clear tempered glass 10mm.

Installation: Flanged as standard.

LED: 4-16 LED Neutral white 4000K as standard. 3000K or 2700K on request. L90 B10 >100,000 hours @ 25°C.

Driver: 220-240V AC 50/60Hz.

Optics: Asymmetric. Wide as standard designed to light pathways. Forward throw or other optic on request.

Finish: Grey RAL 9006 as standard. Other RALs on request.

Operating temperatures: -20°C to 40°C.

Options: Various Optics and Tilts (example Flat Glass 0°, 10°, 20° etc), heights, Emergency Option, DALI or other dimming.

Manufactured: Ireland.

Product Compliance: EN 60598, CE.

4.0 Design Information

The design uses 44 x Atina Series 36w LED 2700K mounted on 35 x 6m poles, with no tilt, with the following optics and mounting arrangements:

22 x Street Optic R03 with internal black shield (all single) for the roads around the perimeter of the site

3 x Forward Throw A14 Optic (all single)

1 x Street Optic A10 by the central plaza to the north

18 x Symmetric C6 Optic (9 x Twin on 9 x 6m poles)

64 x Camino Bollard 10w LED 2700K (50 x Asymmetric Wide Optic XW and 14 x Forward Throw Optic), all 1.1m tall, to light the paths

Light levels are as follows:

Paths – 10.9 lux average, 1.5 lux minimum. *The average here is slightly higher due to some bright spots directly below the bollards increasing the overall average. It is still compliant and well lit.

Plaza – 8.2 lux average, 1.7 lux minimum.

Road – 7.5 lux average, 1.5 lux minimum.

These levels comply with IS EN 13201-2:2015 / BS 5489-1:2020 for roads and paths – class P3 (7.5 lux average, 1.5 lux minimum).

5.0 Warranties

Warranties shall be provided for all lighting products used for the development. Warranties can only be provided when an electrical contractor is identified during the construction phase of the project. During the construction phase, a full technical submittal shall be provided and submitted to LCC.

For the technical submission of public light fittings to Limerick City and County Council, the warranty provisions are a critical component of the compliance and acceptance process. The Council places significant emphasis on long-term reliability, maintainability, and lifecycle performance of all public lighting infrastructure. As such, all proposed LED lanterns, photocells, and associated control gear must be supported by comprehensive manufacturer-backed warranties that demonstrate durability and operational integrity over an extended period.

The Council specifically requires a full 10-year manufacturer's parts and labour warranty for all LED lanterns submitted as part of the public lighting proposal. This is not intended to be a limited or pro-rata warranty; rather, it must provide complete coverage for defects in materials, workmanship, LED failure, driver failure, optical degradation, corrosion, and electronic component malfunction throughout the warranty period. The warranty must clearly confirm that both replacement parts and labour costs associated with repairs or replacements are included without additional expense to the Council.

In addition to lantern warranties, a separate 10-year manufacturer's warranty is required for photocells and lighting control equipment. Photocells are considered essential operational components within the public lighting network, particularly where dusk-to-dawn switching systems are employed. The Council requires assurance that these devices will maintain accurate switching performance and reliability throughout the operational life of the installation. The warranty documentation must therefore include details relating to switching thresholds, weather resistance, surge protection, and long-term operational stability.

An important requirement within the technical submission is that all warranties must explicitly reference the development or project to which they apply. Generic manufacturer warranty statements are not considered sufficient. The warranty documentation must identify the scheme name and confirm that the warranty can be transferred to the Council upon the development being "taken in charge." This ensures that responsibility for future maintenance and defect rectification remains enforceable after handover from the developer or contractor to the local authority.

The commencement date of the warranty period is also clearly defined by the Council. The 10-year warranty only begins once the public lighting installation has been fully erected, tested, certified, and is fully operational to the satisfaction of the Planning Authority. This requirement ensures that incomplete installations, commissioning delays, or unresolved defects do not erode the effective warranty period available to the Council. Full certification and operational acceptance are therefore prerequisites before the warranty becomes active.

To support warranty compliance, the Council additionally requires that only recognised lighting manufacturers with proven long-term product support and spare part availability be proposed. Lanterns must comply with relevant standards including I.S. EN 60598-2-3 and IEC 62722-2-1, while products are generally expected to be SEAI Triple E registered. The emphasis on established manufacturers reflects the Council's objective of minimising maintenance risks and ensuring availability of replacement components for many years after installation.

Overall, the warranty requirements set out by Limerick City and County Council are intended to ensure high-quality, durable, and maintainable public lighting infrastructure that delivers reliable performance, reduced lifecycle costs, and long-term operational resilience for the public lighting network

