

Technical Note 158

Guide to the use of LED road lighting luminaires

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1 Purpose

This document provides guidance on the use of LED road lighting luminaires on the Department of Transport and Main Road's road network. The aim is to establish a uniform statewide approach to the application of this technology.

2 Background

All new road lighting for departmental Rate 3 projects is LED. The department is also upgrading all its legacy high-intensity discharge lighting to LED. Transport and Main Road's Technical Specification MRTS94 *Road Lighting* now mandates that LED luminaires and a product-approval process has been undertaken to add LED luminaires to the department's lighting fleet. This process is ongoing as the technology continues to improve.

3 Application

Where practical, it is recommended that one manufacturer's LED luminaire range be used for single installations. This is for ease of purchasing and asset management. The department shall be approached in the early design stages, to confirm the product-approved LED(s) for the project site.

4 Designing with LED luminaires

Designs shall comply with the requirements of *Road Planning and Design Manual – 2nd Edition*, Volume 6 and AS/NZS 1158 series of standards.

The department requires 0-degree upcast for all new Rate 3 road lighting designs. The standard LED luminaire for use on Rate 3 road lighting designs, will typically be unshielded luminaires with 4000k light engines. However, LED luminaires with 3000 k light engines, or manufacturer-supplied glare shields, can be used for specific environmental purposes.

A 0.8 maintenance factor shall be used for all roadway LED designs. The electrical design for LED luminaires shall comply with the department's *Electrical Design for Roadside Devices*, which can be located on the departmental website via *Traffic and Road Use Management Manual* (TRUM) Volume 4, Part 3. Attention is drawn to Section 2.3.4 Maximum demand, for dealing with LED in-rush currents.

The *LED Luminaire Selection Guide* (accompanying this document) details the current departmental product-approved LED luminaires. Should the design require a luminaire that is not product-approved, such as LED pedestrian crossing flood lights, this shall be raised with Transport and Main Roads in preliminary design discussions and must be listed on the Energy Market Operator (AEMO) load table.

5 LED luminaire equipment

All LED luminaires detailed in the *LED Luminaire Selection Guide* (accompanying this document) are on the Australian Energy Market Operator (AEMO) load table and can be used for Transport and Main Road's Rate 3 unmetered public lighting.

All LED road lighting luminaires have a seven pin Notional Electrical Manufacturers Association base and must have a departmentally-approved Smart Lighting Controller installed

Where glare shields or 3000 k light engines are required for LED road lighting luminaires, they must be approved and available from the manufacturer with their own photometric file.

Flood lights requiring external shielding to assist with compliance, must be approved and available from the manufacturer with their own photometric file.

The cleaning interval for the LED luminaires shall coincide with other periodic assessment requirements of the road lighting infrastructure but shall not be more than 6 years.

6 Referenced documents

- [AEMO, Australian Energy Market Operator – National Electricity Market Load Tables for Unmetered Connection Points](#)
- [AS/NZS 1158.1.1, Lighting for roads and public spaces, Vehicular traffic \(Category V\) lighting– Performance and design requirements](#)
- LED Luminaire Selection Guide for TN158, Guide to the use of LED Road Lighting Luminaires
- [MRTS94 Road Lighting](#)
- [Road Planning and Design Manual – 2nd Edition](#)
- [Traffic and Road Use Management Manual \(TRUM\)](#)

