



THINK GLOBAL, ACT LOCAL

ROAD LIGHTING & ELECTRICAL ENGINEERING

The primary purpose of road lighting is to improve road safety during hours of darkness for all relevant modes of transport including vehicles and Non-Motorised Transport (NMT). Other benefits include crime deterrence and improved night-time CCTV viewing & recording.

The design and implementation of a lighting scheme must consider all applicable local and international standards and client specific requirements.

Further attention must be given to existing and other planned infrastructure and the environment. All designs are closely coordinated with the client and submitted for approval.

ITS have extensive experience in road lighting design for all groups of roads, A to C including NMT facilities.

We also take pride in remaining abreast of the latest technologies to advise on

solutions best suited to each unique project.

Energy efficiency and sustainability is a major consideration and our solutions are as "green" as practically possible.

The key focus areas for road lighting are:

Design of lighting levels

Lighting levels are designed according to applicable standards, notably SANS 10098 and includes determination of optimal pole and mast layouts, mounting height and luminaire selection.

Our experience spans both traditional High Intensity Discharge (HID) lamps and Light Emitting Diode (LED) luminaires with an in depth understanding of both technologies and their applications. LED technology has reached the stage where LED luminaires are preferred to HID lamps in almost every respect. Some of the benefits of LED luminaires are given below.

- Improved efficacy (more power efficient)
- Longer life expectancy
- Longer maintenance cycles.
- High Pressure Sodium (HPS) lamps require a warm-up period when cold and are not well suited to being dimmed. Both of these disadvantages are eliminated when using LED luminaires.

The benefits associated with LED luminaires therefore make it the preferred choice in most road lighting applications. HPS lamps might still be the preferred technology for areas with a high incidence of fog due to its warmer colour temperature.

This is also expected to change as LED luminaires with a Correlated Colour Temperature (CCT) of 3000K (warm white) are already available.

ITS are involved in trials to compare HPS with warm white LED luminaires to investigate its suitability for such conditions.

Glare is minimised to limit discomfort for road users and adjacent properties by limiting the luminaire inclination and choosing suitable reflector (HPS) or optics (LED).

Transition lighting zones are considered where applicable.

The aesthetics of the scheme is also considered and designed to fit in with the environment as far as possible.

Poles are located to minimise it as a road safety hazard and to respect NMT

ways, i.e. not cause any obstruction in footpaths or cycle ways if possible.

Pole locations are also chosen to limit the impact on existing services and different arrangements considered if necessary.

Electrical installation

ITS have experience in Low Voltage (LV) and Medium Voltage (MV) electrical reticulation design of small to large lighting installations. This includes Mini-Sub (MS) and Electrical

Kiosk (EK) specification and design, earthing requirements, load calculations and cable size requirements and cable theft mitigation measures.

In areas such as Gauteng with high risk of lightning strikes lightning protection finials are recommended.

Lighting Management Systems

ITS have experience in intelligent lighting systems for usage optimisation. These systems use telemanagement to remotely control the lighting levels or switch the lighting from a central point, such as a transport management centre. Lighting

levels required are dependent on the actual traffic volumes, and can therefore be reduced after the evening peak and increased before the winter morning peak, resulting in energy savings of up to 20%. Intelligence in lighting extends

to remote monitoring of luminaires for faults, which is of great assistance in proper maintenance. Examples of such intelligent lighting installations are the R300 and N1 (T9-1) in Cape Town.