

Private & Confidential

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FAO: Nairobi County Council
PO Box 30075
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Ref: **LiteLux iSmart LED Street Light Feasibility Report**

Project: Retrofit to Latema Road, Accra Road & Lagos Road in Nairobi City



Executive Summary

In recognition that NCC requires smart energy solutions it is with pleasure that we outline to you the results of our survey and analysis of City-Hall Way for the retrofit of LED street lights.

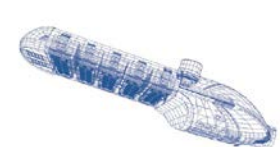
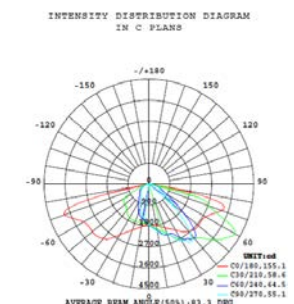
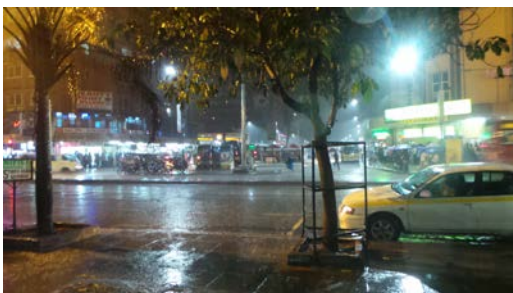
The purpose of this document is to demonstrate the current issues that Nairobi City faces regarding **light pollution, dark spots, inefficient lamp life, power surging of up to 350V+, humidity, dust pollution, insecurity (lack of light) maintenance and monitoring.**

Our Solution

With our analysis, based upon the technical information provided by NCC's engineering team and the validation of SGK's road plan drawing a comprehensive DIALux report has been produced, with the results we have designed a bespoke model range that eliminate all of the issues mentioned, in addition we achieved an energy saving in excess of 50%, along with a life span of 50,000hrs backed by a 5year guarantee.

To test our theory we installed 2 x LiteLux bespoke designed 120W iSmart lamps on City Hall Way for over 6 months. The results of the test met to our satisfaction and we proceeded to deliver a 50 pieces iSmart LED street light retrofit programme along Latema Road, Accra Road & Lagos Road in Nairobi City.

The Outcome



Issues Resolved & Supported by a 5 year Product Performance Guarantee

Delivery Capacity 10,000 pieces PCM, upscale to 50,000 within 120 days' notice.

Our Recommendation - SEMS Intelligent Street Lighting Control System

LiteLux iSmart LED street lights can be intelligently controlled using modern computer systems. These systems are better suited to the inner city, parks, public areas, main highways and more rural areas where the volume of traffic fluctuates more, and therefore intelligent dimming would realise high energy savings. Further benefits of these systems include remote monitoring, fault detection, bespoke illumination protocols and comprehensive energy usage data.

With SEMS Intelligent street lighting control systems installed, you can remotely program the output of your entire street light network and/or any number of subgroups of lights or even individual fixtures from a single location (which could be anywhere in the world).

- Lamps can be turned on and off at specific times as well as dimmed during periods where there is low traffic.
- Develop/implement lighting protocols that will optimize the performance of your street lighting network while maintaining your high level of public safety.
- Detect faults to ground, defective insulations, fused lamps, illegal connection of loads to the power lines etc.
- Perform comprehensive and accurate energy usage calculations.
- Reduce your maintenance costs and increase public safety through the development of proactive maintenance schedules.
- Quickly generate reports for installation planning, maintenance programs and energy usage.
- Set light level transition times for the lamps on a periodic basis e.g. daily, weekly, monthly, user configurable.
- Adjust light output levels to reduce energy consumption during off-peak hours or for regional events.
- Set down / dusk triggers (based on a photocell or astronomical calculation) to accommodate or localized ambient lighting.

Our Intelligent street lighting control system is the ultimate centralised street light management solution:

Reduce energy use by up to 40%.

Reduce maintenance by up to 50%.

Increase bulb life by up to 25%.

Powerful control/management software with Google map.

Payback period as low as 2 years.



Summary of Facts & Appendix of Audited Reports

Issues to Be Solved	Our Proven Solution eliminating the Issues
Light pollution	Direction Lenses - Horizontal Spread - 10 meters in front of pole
Dark spots	Level 5, 90/60 degree lenses - 15m spread either side of pole
Inefficient lamp life	Aluminium ventilated LED Modules encased in a ventilated housing.
Power surge	surge protection up to 480V
Humidity	IP65 modules, power supply, silicone cables and alloy housing
Dust pollution	independent ventilated housing
Maintenance & Monitoring	Long distant remotely operated intelligent GPRS technology. Maintenance savings
Energy Savings	In excess of 50%. With intelligent control and harvesting additional saving of up to 20%
Insecurity	Enhanced 6000K, directed light illumination.

Verification Bundle - Audited Survey & Test Reports LiteLux iSmart120W street lights supplied to NCC:

1. Return On Investment Audit Report ELC 1683 - NCC
2. DIALux Light Pollution Report - City Hall Way
3. HPS 250W vs LED iSmart 120W Comparison Report
4. iSmart 120W Data Sheet
5. Kenya-specific power Surge Protected Power Supply - Mean Well HVGC-150-700A
6. KEBS Approval
7. LiteLux Certificate of Compliance
8. LiteLux Intelligent Lighting Control System
9. LiteLux Intelligent Street Light Animation
10. **Audited Test Reports:**
 - a. Photometric Test
 - b. Intensity Distribution Diagrams
 - c. Isocandela Diagrams
 - d. Coefficient of Utilisation Curve
 - e. Isolux Diagram
 - f. Zonal Flux Diagram
 - g. Planar Illuminance Curve
 - h. Luminous Distribution Intensity Data

The key benefits of Our Solution Based Offer LiteLux iSmart 120W Range which is unique to LED street lighting:

- Simple tool-free maintenance
- Fully adjustable mounting system
- Excellent heat dissipation displacement grills
- The intelligent lighting control
- Reliable, high efficiency driver
- Surge protection up to 480V
- Full on-site training
- Software training and implementation