

## Energy savings Case Study Preston Railway Station Car Park LED Luminaires Retrofit for Virgin Trains

### Introduction

Lorne Stewart PLC Energy Services were tasked with the opportunity to develop an energy and environmental saving project for the Car park at Preston Railway Station. The existing lighting installation being predominantly Holophane Atlanta luminaires, installed at high level. The client's requirement was to maintain the lighting levels and have minimum disruption to the existing infrastructure.

### Options

Several options were considered including complete replacement of luminaires, retrofit of Holophane LED upgrade, bespoke retrofit LED Gear Tray manufactured by Morgan Hope Lighting and all combinations of the above. Longevity of warranty Pay-back and capital costs were also taken into account.



### Trials

It was agreed to trial a retrofit LED alternative manufactured by Morgan Hope Industries from their Lighting Division installed directly into the existing luminaire housing to ensure lighting levels could be maintained and savings achieved. Recent advances in LED technology and ongoing developments by Morgan Hope, have resulted in new options for lighting, with several potential advantages. Well-designed LED luminaires can provide the required surface luminance using less energy and with improved uniformity. LED luminaires also have significantly longer life with improved lumen output and minimum maintenance. Other LED advantages include: they contain no mercury, lead, or other known disposal hazards and they illuminate instantly without run-up time or restrike delay. LED technology is improving very rapidly in terms of luminous efficacy, colour quality, optical design, thermal management, and cost. All these added together have improved the ambiance of the building creating a new and vibrant impression for the client and staff.

### Installation

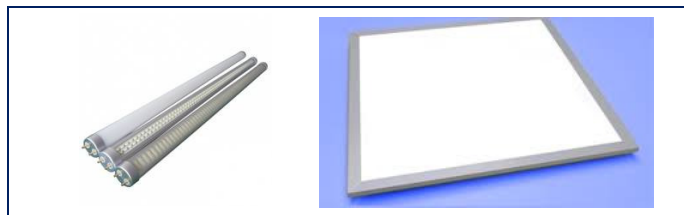
The trial using the Morgan Hope LedLite Linear LED PCB system was successful for lumen, colour, savings and following the recent successful installation of various Morgan Hope LED fittings and lamps at other West Coast Main Line Stations, it was agreed to carry out a full replacement program of the existing installation. During the project of replacing some four hundred fluorescent lamp based luminaires, the scheme was extended to replace another two hundred additional luminaires at Runcorn Railway Station Car Park.

### Anticipated Calculated Savings

The estimated savings have been calculated to be 65% of the existing load resulting in an anticipated annual saving of some 50KW (Load), 300,000 KWh, 150,000 kg CO<sub>2</sub>, and £30,000 year on year on year.

### Additional Benefits & Advantages

- Longevity of equipment
- Savings in maintenance costs
- Minimised risk
- Creating a positive image for the company
- Extended lamp life



### Actual Savings

Following the installation, the electrical consumption has been monitored from the main electrical half hour data meter for the site, with the actual savings been measured at 26,000KWh per Month.

### Executive Summary

We are delighted to report the annual savings following our LED installation can be measured at 312,000 KWh, 156,000 kg CO<sub>2</sub> and £31,000. This is slightly more than the anticipated savings and represents an excellent investment with a payback based on less than three years.

***In brief the annual savings are over 312,000 KWh, 156,000 kg CO<sub>2</sub> & £31,000 a Year  
Year on Year on Year***

**Prepared by Graham Murphy, EngTech TMEI, LCIBSE - Lorne Stewart PLC Energy Services**