

Case Study



REBOUND SIGNMASTER™

**Retroreflective LED illuminated and Non-illuminated
Self-Righting Bollards**

**Highly Commended - Chartered Institute of Highways &
Transportation Award for Technological Application 2011**



 **Glasdon UK working in conjunction with:**



Introduction

Blackpool is the spiritual home of electric lighting, with the world-famous Blackpool Illuminations entertaining millions of visitors each year. Blackpool was the first place in the world to install electric street lighting, back in 1879.

Blackpool Council recently secured funding from the Department for Transport for a £153m scheme to replace more than 80% of the town's street lights, along with 85% of traffic signals and 100% of the town's illuminated bollards and signs. The deal is the first in the country to include signal installations.

Community Lighting Partnership (Blackpool), a joint venture between Equitix and Pell Frischmann, was awarded the contract and E.ON appointed as principal contractor for the maintenance works. Following a competitive tender process, E.ON selected Glasdon UK's Rebound Signmaster™ LED Bollard to replace existing tube-illuminated units.

Rebound Signmaster LED is the result of years of research and development by the Glasdon Group's dedicated team of product design specialists. The Glasdon Group has over fifty years' experience in the manufacture of high quality street furniture, and has been producing impact-absorbing verge markers since the 1960s.

Rebound Signmaster LED improves on traditional designs and offers proven benefits in road safety, financial and environmental factors:

- Illuminated and non illuminated Signmaster have attained Performance Standard NE4 of BS EN 12767:2007 to the maximum speed of 100kph.
- LED illumination of the whole bollard requires less than 20% of the power of standard illumination methods.
- Drastically reduced maintenance costs.

Glasdon UK worked closely with E.ON to ensure the Rebound Signmaster LED met with their exacting requirements. The Sublite basebox was modified to accept E.ON's preferred remote monitoring system, transmitting a signal by mobile phone containing up-to-the-minute information on each bollard's individual performance and power requirements.



Signmaster c/w LED Sublite and ducting chamber



Safety Benefits

Rebound Signmaster is fully certified as passively safe to the highest possible standards. The bollard was driven through by TRL at 100kph and found to comply with Performance Standard NE4 of BS EN 12767:2000. This means that the vehicle was not significantly slowed by the collision and there was almost no damage to the car, preventing or reducing the severity of personal injury, even at 100kph (62mph). Rebound Signmaster will continue to function to statutory requirements after a collision, reducing the need for maintenance and costly road closures.

Unlike traditional designs of traffic bollard, Rebound Signmaster LED utilises retroreflective patches that conform to national non-illuminated standards, resulting in a bollard that remains effective and highly visible day or night, even in the event of a loss of power.



TRL testing footage

Environmental Benefits

Rebound Signmaster utilises LED illumination, which requires significantly less electricity compared to standard fluorescent lighting methods. The Glasdon Rebound Signmaster LED has an infrared photoresistor that enables the bollard to be lit only during hours of darkness. The previous bollards used in Blackpool require 36W and were illuminated 24 hours a day.

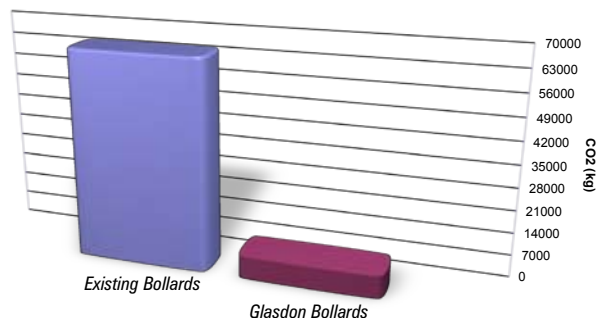
At 7W and an average of 13.5 hours a day of use, the Rebound Signmaster LED bollard has an annual power requirement of 34.493kW, compared to 315.360kW for the existing units – a reduction of 89%.



LED Sublite Unit

Each kilowatt of electricity generated in the UK produces, on average, 573 grammes of Carbon Dioxide¹. Based on this estimate, a single Rebound Signmaster LED bollard reduces the carbon footprint of the installation from 180.701kg to 19.764kg, a saving of 160.937kg per year. Applied to the 362 illuminated bollards in service, Rebound Signmaster LED has reduced Blackpool Council's carbon footprint by 58.26 metric tonnes a year.

CO2 production from annual power requirement



¹ The Carbon Trust.

Cost Benefits

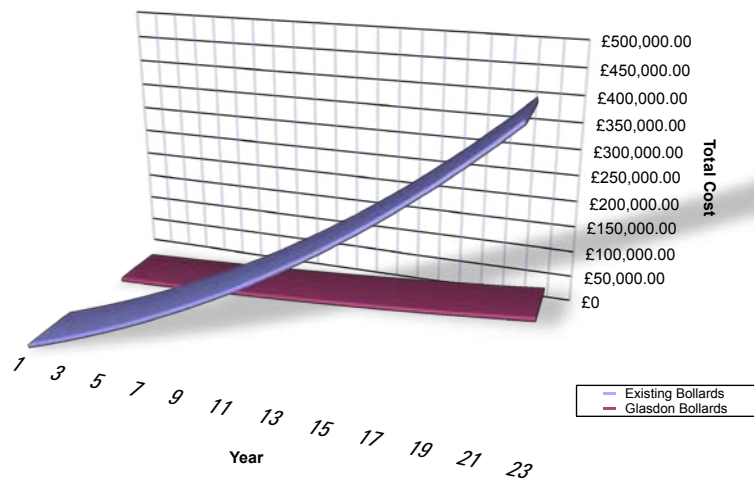
Reducing power consumption by 89% has significantly reduced Blackpool Council's lighting costs. Based on an average cost of 11p per unmetered kilowatt hour, the cost of running one Rebound Signmaster LED for 12 months is £3.79, compared to £34.69 for the standard bollard. Applied to all 362 bollards in the town, this represents a cost saving of £11,185.80 per year.

Further savings are made by reduced maintenance costs. CCFL bulbs require annual replacement at a cost of approximately £71² per bollard. Rebound Signmaster LEDs are under warranty for 10 years and have an average working life of 50,000 hours, reducing the maintenance requirement by 85%.

The total cost of illuminating and maintaining 362 CCFL-lit bollards in 24hr operation is estimated to be over £38,000 per year. The cost of operating Rebound Signmaster LED for the same time period would be approximately £5,350, an annual reduction of more than £32,500 (85%).

E.ON Energy Services is currently on target to fully replace all existing illuminated bollards with Glasdon Rebound Signmaster by the end of the third year of the 25 year PFI contract. Over the remaining 22 years to run on the deal, the total financial benefit of Rebound Signmaster can be shown to be in the region of £715,000.

Cumulative Energy Costs



Objectives Met

The goal of Blackpool Council's Private Finance Initiative was to bring the town's illuminated street furniture up to future EU standards and improve energy and cost efficiency.

- 89% energy saving.
- Reducing the maintenance requirement by 85%.
- A carbon saving of 89%.
- An annual cost reduction of more than £32,500 (85%).
- Energy cost saving of £11,185.80 per year.
- Total financial benefit of £715,000.

What the Judges Said:

The judges felt that this was a good application of existing technology with environmental benefits and the opportunity to reduce costs. The project has demonstratable benefits in implementation, value for money and has potential for wider application.

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Visit our new website to see our full range of Passively Safe products, including bollards, hazard & verge markers and our Advanced Chevrolflex™ Flexible Sign System. Downloadable product literature, case studies and video clips are also available.



Individual model specification sheets are available on most Glasdon Bollards and Traffic Safety Products. Please phone **01253 600411** for details.



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