



# Case study M4 Second Severn Crossing

Location  
Philips Lighting

M4 England to Wales  
Iridium<sup>2</sup> and Philips Lighting Control Solutions



**PHILIPS**



“The project is achieving its objective of reduced energy cost and carbon savings whilst improving the drivers’ experience. Positive feedback has been received from the workforce carrying out maintenance duties at night in the new white lighting. Soon after installation we received an email from a local resident who commented on the improved appearance of the Crossing and the reduction in light pollution.”

Tony Hudson, SRC Chief Engineer

Before



After



# Intelligent lighting cuts carbon emissions for Second Severn Crossing



## Fast Facts

### Customer

Severn River Crossing Plc.

### Location

M4 England to Wales

### Philips Products

Iridium<sup>2</sup> with 140W Cosmopolis lamp

StarSense RF with CityTouch Control Management System

Programmable Xtreme driver

### Project in Partnership with

Laing O'Rourke Infrastructure

R&M Lighting of Maidenhead

### Geometry

10m mounting height on an opposite arrangement

## Background

Severn River Crossing Plc. has upgraded the road lighting on the Second Severn Crossing to active light controlled Philips Iridium<sup>2</sup> luminaires using 140W Cosmopolis ceramic metal halide lamps. The new installation also features the innovative CityTouch program and Philips StarSense wireless control system, enabling the lanterns to be individually monitored and controlled from a central location utilising wireless technology.

Severn River Crossing (SRC) Plc. operates and maintains the M4 Second Severn Crossing and the M48 Severn Bridge on behalf of the Highways Agency. The maintenance contractor for SRC is Laing O'Rourke Infrastructure.

## The Solution

The lighting upgrade was initiated by SRC with a view to improving energy efficiency, reducing maintenance requirements and cutting carbon emissions. It involved replacing existing 250W high pressure sodium fittings with the Philips Iridium<sup>2</sup> luminaires, combined with FX2 optics to optimise light distribution. Use of advanced optics meant that the height of the columns could be lowered by 2 metres to minimise the effects of vibration whilst improving the lighting uniformity. The lighting was installed for Laing O'Rourke by R&M Lighting of Maidenhead, working at night over a period of four weeks.

SRC Chief Engineer Tony Hudson recalled: "Part of the rationale for energy savings on the lighting was to obtain the Highways Agency agreement to a 'Departure from the BSEN 13201 Standard', permitting a reduction in average carriageway lighting from 2 cd/m<sup>2</sup> to 1 cd/m<sup>2</sup> whilst improving the overall lighting uniformity enhancing drivers perception. Information provided by Philips was crucial to compiling and obtaining agreement to this submission."

Each of the 364 luminaires is fitted with a DALI (Digital Addressable Lighting Interface) programmable Xtreme driver, so that luminaires can be controlled individually through the CityTouch web-based user interface, which uses wireless communications throughout.

The intelligent lighting system enables SRC to provide the appropriate light levels according to traffic flows or restore to full lighting in the event of an incident, in compliance with Highways Agency requirements. SRC is currently trialling different active light level configurations to establish the optimum arrangement for ensuring safety while minimising energy consumption. The final dimming regime will generate over 50% energy savings and CO<sup>2</sup> emission reduction compared with the previous installation.

The CityTouch user interface software also includes asset management functionality, providing remote access to a range of key performance data. These include lamp and ballast failures, real-time lamp characteristics, operating temperatures and energy consumption for each luminaire.

"The project is achieving its objective of reduced energy cost and carbon savings whilst improving the drivers experience positive feedback has been received from the workforce carrying out maintenance duties at night in the new white lighting," Tony Hudson observed. "Soon after installation we received an email from a local resident who commented on the improved appearance of the Crossing and the reduction in light pollution," he concluded.

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