



# Project Lundbytunnel

Location  
Philips Lighting

Gothenburg, Sweden  
TunLite LED

**PHILIPS**



“We worried about glare from the LED lighting but this turned out not to be an issue at all. The TunLite LED luminaire provides good light distribution and uniformity, plus the system solution as a whole is very attractive.”

Berth Torsson, Technical Project Manager, Trafikverket (Swedish Transport Administration)



# The new LED lighting in the Lundbytunnel reduces CO<sub>2</sub> emissions by 25 tonnes per year



## Facts

### Client

Trafikverket, Berth Torsson

### Location

Lundbytunnel in Gothenburg, Sweden

### Lighting solution

Fast traffic LED tunnel lighting

### Philips products

TunLite LED BCP550 48LED

### Project realization

2012

## Background

The lighting in the 2.2 km Lundbytunnel has been divided into five phases. The first phase - interior lighting - is always on, day and night. At night, extra luminaires are turned on. Phase two - entrance lighting - is turned on during the day. It is important to have sufficient lighting at the tunnel entrance and two phases are always turned on here. The other three phases are controlled using luminance sensors that measure the light on the outside of the tunnel in order to gradually adapt the lighting in the tunnel openings in accordance with the natural light and the adaptation capability of the eyes. The old lighting in the Lundbytunnel had reached the end of its useful life and was due to be replaced. The lighting installation, equipped with SON 70W, had suffered corrosion damage.

## Challenge

Trafikverket wanted the new tunnel lighting to be energy-efficient and to provide white light with good colour rendering. Since it is expensive to close a tunnel to carry out lighting maintenance, it was also important for the lighting solution to have a long service life. It is important to achieve lighting uniformity in a fast traffic tunnel to prevent any stroboscopic effects. The tunnel lighting needed to have an uniformity of 40% and to provide 3 candela/m<sup>2</sup>. "It has all been experimental. It is part of the New Light project, which is focused on testing new technology. I tested several luminaires and TunLite LED was simply the best. It does not cause glare and provides a good distribution of light. And since TunLite LED meant that we needed 30% fewer luminaires than before, the investment also made financial sense. Another benefit is that TunLite LED is lightweight and smooth. This makes it easy to install, and it does not attract as much dust as previous solutions. The luminaires will be easy to maintain," explains Berth Torsson, Technical Project Manager, Trafikverket.

## Lighting solution

"We carried out a test installation using 10 66 W TunLite LEDs. We wanted to see the LED light compared with high-pressure sodium. The lighting results were so good that we decided to reduce the power to 61 W. The result was really impressive, so we ordered 160 luminaires that were installed in the center of the tunnel ceiling. The distance between the luminaires is 8 meters; previously, the distance was 6 meters. We have now decided to install LEDs in the entire tunnel. And we have therefore ordered an additional 100 TunLite LEDs. We will subsequently be replacing the lighting in the tunnel openings but, since the openings require high-strength lighting, we have yet to decide which type of lighting to use," says Berth Torsson.

## Advantages

"The new LED lighting is much more energy-efficient and provides lower CO<sub>2</sub> emissions than the old high-pressure sodium lamps. The LED lighting consumes an average of 75,000 kWh per year, whereas the old SON lighting consumed 96,000 kWh per year. We are actually reducing the power consumption by 21,000 kWh per year and the CO<sub>2</sub> emissions by 25,000 kg per year. The LED lighting has a service life of 60,000 hours, and the maintenance costs for the lighting will be less than previously. The carriageway, which is 9 meters wide, has been equipped with even lighting and, as a driver, you know will experience a well-lit road. Users have reacted very positively. They find that the white LED lighting is much clearer than the yellow light from the old SON lamps. They also have better color rendering, Ra 70, resulting in improved traffic safety in the tunnel, Berth Torsson says.



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