

The Philips logo is displayed in a white rounded rectangle on a dark background. The word "PHILIPS" is written in a bold, blue, sans-serif font.

Tunnels

Public lighting

Case study

Sørnes Tunnel with

**intelligent  
tunnel lighting**

in Ålesund, Norway



Luminance  
measurement for  
**right light  
level**



**Owners and users of tunnels need reliable lighting systems with low maintenance, good visibility for safety and simplicity with regards to controlling the lighting system. Additional having insights in the lighting installation status is also required. The requirements for reduced energy consumption are also constantly becoming stricter. All these criteria were fulfilled in the Ålesund project.**

## Background

The Sørnes Tunnel on the E136 at Ålesund in Norway had an outdated lighting system, and the Public Roads Administration was forced to make more frequent repairs. Safety and comfort with good lighting are important in tunnels, and even more important in heavily-used tunnels such as this one. Working closely with Caverion Norge AS, the contractor, the Public Roads Administration decided to change the lighting concept to TotalTunnel, using new LED lighting from Philips. This is the first installation using this solution in Norway.

The Public Roads Administration was the client and project owner. “We have used LED lighting for a number of projects, and decided to upgrade the Sørnes Tunnel using FlowStar LED luminaires communicating with TunneLogic intelligent control system in a fully integrated solution from Philips. We needed to replace the old lighting, because maintenance costs were getting too high, and parts had to be constantly replaced,” explains Senior Engineer Jan Stian Tafjord from the Møre and Romsdal branch of the Public Roads Administration. “We held a meeting with Philips Lighting on road lighting some time ago,

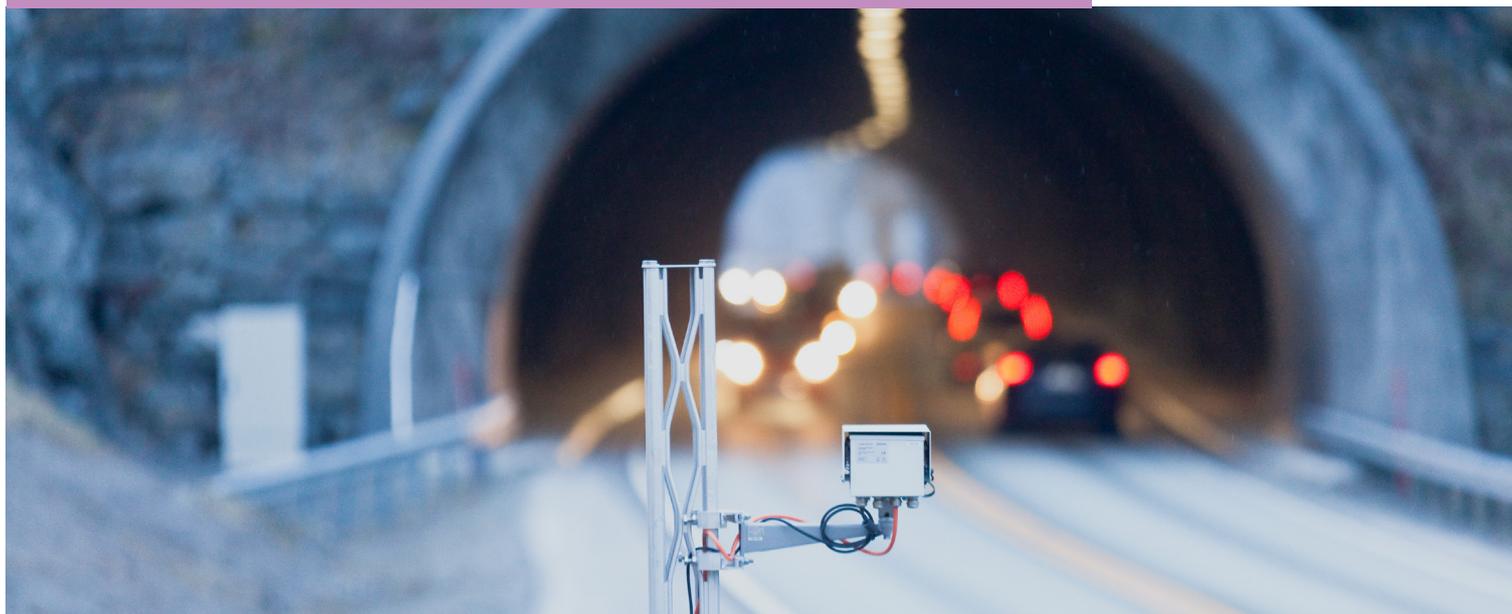


Tunnel & Underpass

“

The TotalTunnel approach from Philips saved us installation time as the cables were already fitted with plugs. We only had to mount the luminaires and connecting these in the mains.”

Bjørnar Korsnes Andersen  
Project Manager at Caverion



and they presented the TotalTunnel concept. We thought it looked very promising, and passed on our recommendation to the Public Roads Administration. We were the prime contractor for the project, and also have operating contracts with the Administration within public transport,” says Bjørnar Korsnes Andersen, Project Manager for Caverion.

## The challenge

The European highway E136 just outside the center of Ålesund is probably the busiest stretch of road in the entire district of Møre and Romsdal. The road is a divided highway with a 70 speed zone. The road carries an average of 22,400 vehicles per day and closing the Sørnes Tunnel would cause major traffic problems, as the other roads in the area are also very busy. “The traffic in the Sørnes Tunnel is dense, and

there are no real alternative roads. While the project was in progress, the tunnel was kept open for traffic during the day, allowing us to work undisturbed taking down the old lights and installing the new LED lights from Philips in the evenings and night time,” says Øystein Nedregård, Department Manager for Public Transport at Caverion.

It’s been some years now since the use of LED lighting in tunnel interior zones became common. LED technology has developed rapidly with ever better performance. 100% LED was selected for the E136 in the Sørnes Tunnel, including the entrance zones. The tunnel is 236 meters long and has no inner zone, because the entrance zones from both sides overlap by a few meters in the middle of the tunnel. The selected TotalTunnel concept included not only luminaires and a control system, but we also used dedicated professional services from Philips, like project planning, system



design, cable package and commissioning. It is a completely integrated lighting concept. The solution used in Ålesund consists of the TunneLogic control system and acid-resistant FlowStar point source luminaires that provide good, consistent lighting throughout the tunnel.

The luminaires are controlled dynamically via TunneLogic control system communicating to luminance photo meters located at the tunnel entrances, and that adjusts to the light level outside the tunnel to avoid the change in contrast for motorists as they enter the tunnel.

The control system for the Sørnes Tunnel is installed on a computer with

a user-friendly touch display, located close to the tunnel. The system TunneLogic also has features for central SCADA monitoring, to enable monitoring of multiple tunnels with lighting installations via a common control system.

## The benefits

Refurbishment of tunnel lighting is a long-term project, and making a choice for a lighting system based on the total cost of ownership makes the most sense. Through its investment in the Sørnes Tunnel, the Public Roads Administration can expect reasonable, predictable and well planned

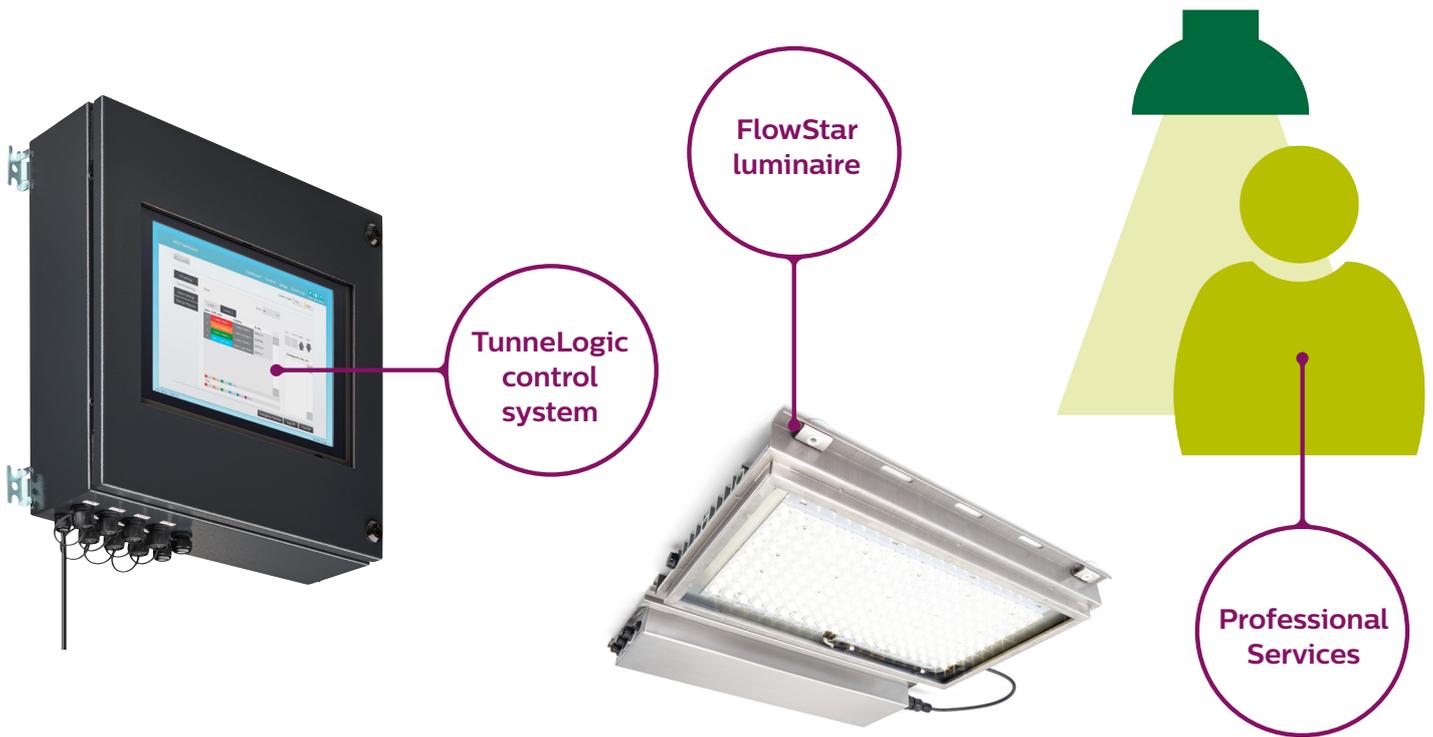
“

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Jan Stian Tafjord

Senior Engineer, Norwegian Public Roads Administration

Møre and Romsdal



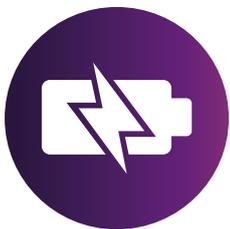


maintenance for many years to come. The solution from Philips has the longest service life on the market, and with a Philips service agreement, the TCO (Total Cost of Ownership) is easy to work out.

State-of-the-art LED technology with clear, white light improves spatial perception, provides good visibility and increases traffic safety for motorists. "This is a complete lighting solution with good light diffusion including visibility on the tunnel walls. The lighting is uniform with limited glare, which also makes it more pleasant to drive through the tunnel," says Øystein Nedregård.

The installation ready solution from Philips saved us in mounting time. All the cables were already fitted with plugs. We installed the luminaires and plugged in the cable. "By compiling accurate drawings and parts lists in advance, the work went very smoothly and saved time and costs on installation," says Bjørnar Korsnes Andersen.

"We have good experience of lighting from Philips, and this LED tunnel system is a good, sensible investment in relation to a conventional tunnel system," adds Nedregård. "We are delighted with this new installation and have received good feedback. So far, everything we have seen is very positive," says Tafjord.



Significant energy savings



Installation and maintenance costs reduction



Easy lighting control via TunneLogic



Improved comfort and safety by 100% LED lighting



Professional Services recommendation for improvements





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