

PHILIPS

Professional lighting

Roads and streets



Lighting
**the way
forward**



An aerial night photograph of a city, likely Singapore, showing several tall, modern skyscrapers with warm yellow lights emanating from their windows and architectural details. The surrounding urban landscape is densely packed with smaller buildings and streets, also illuminated. The overall scene is a vibrant display of city lights at night.

Illuminating cities

By 2050, it is estimated that we will have 2.4 billion more people on this planet. A good 1.4 billion of them, close to 60% of this surge in statistics, are estimated to come from Asia Pacific region. With two-thirds of the world's growing population perceived to be living in cities by 2050, there will be a lot more land to be cleared, more roads to be paved and certainly, a greater need for urban planners and authorities to create safer and smarter cities complete with improved roads and infrastructure.

How will this look like for our communities? In cities that are currently amply-lit, we see enthusiasm from city planners to move into better and more intelligent LED lighting choices for roads and streets. In cities and provinces that are yet to be fully paved and lit, we see the interest to transform at a faster pace, to offer brighter and safer roads to benefit the community while keeping energy consumption to a minimum.

The right lighting can deliver a lot more beyond illumination. With the experience gathered from working on road lighting projects around the world, we are innovating and addressing every single lighting need, one at a time, to help people lead happier and more fulfilling lives.



With you
at every corner





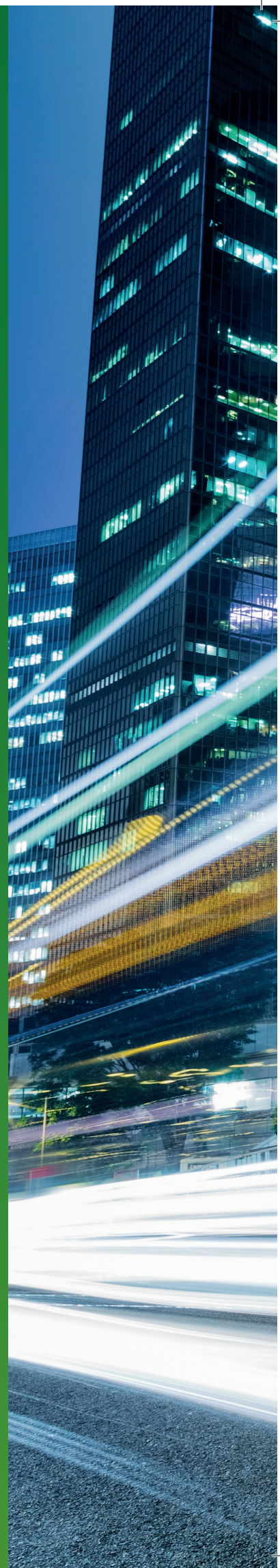
Lighting accounts for 19 per cent of the world's electricity consumption, so there's a strong need to get the bright and right lights up and running for urban and rural regions in an efficient manner. Within this, street lights make up 15% of the total consumption, so by making the switch to LED, every city can achieve significant savings of at least 40% or up to 80% when paired with intelligent controls. New lighting technologies can potentially reduce carbon emissions by 670 million tons of CO₂, which is equivalent to what's generated by 642 power plants.

Sustainability – LED lighting is an efficient and easy way forward for cities wanting to lower its carbon footprint. Simple to install, built without any hazardous materials, and housed in quality luminaires that are easily recyclable, LED road and street lights are brighter and more uniform in its light distribution level, requiring little or no maintenance as they are engineered and tested to be long-lasting.

Designed for harsh environments – 70% of the world's worst lightning strikes and thunderstorms occur in the tropics, in Central Africa and Southeast Asian countries located near the equator. LED lights for roads and streets must be designed to be robust with high quality LEDs and LED drivers, to be shock and vibration-resistant, with quality surge protectors and to have excellent heat management features and high ingress protection. Together with a firm understanding of in-country energy fluctuations, strict safety regulations and changing energy legislations across cities, our R&D teams keep up with these and a whole lot more.

Intelligent & Connected – Required light levels and lighting needs in the region are constantly studied and researched upon. Philips luminaires can be programmed to dim during off-peak hours and send out alerts when in need of servicing. All these are made possible when the road lights are paired with CityTouch connect application. From quality luminaires, surge protection devices to Amplight, TotalTunnel and CityTouch, the best of lighting technology and connected systems are available to apply to new highways and revamped minor roads.

A brighter legacy





Overview

of roads and streets



1

City major roads



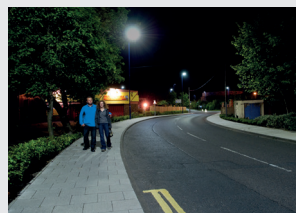
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Motorways



3

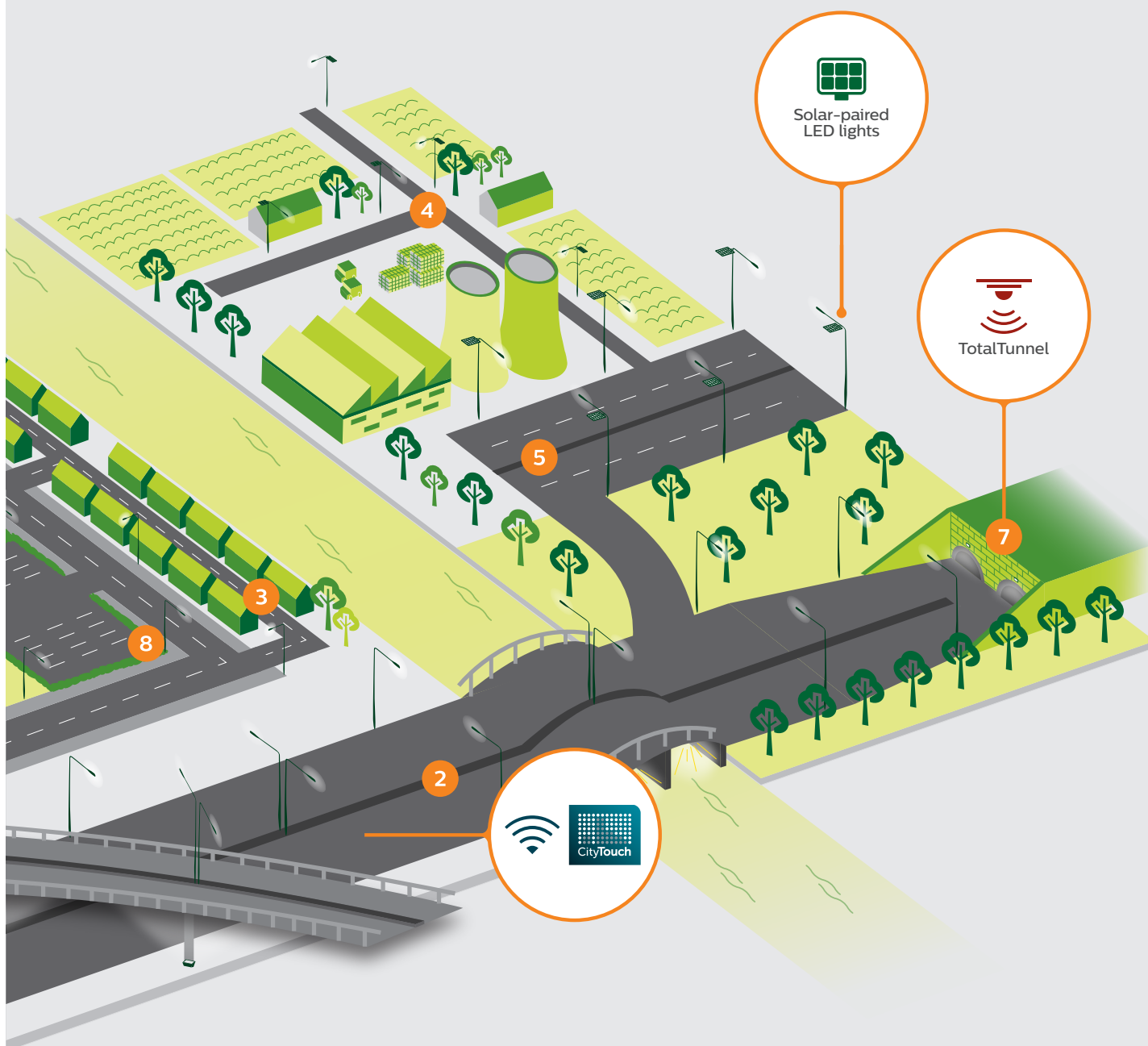
Residential roads



4

Minor roads





5

Industrial roads



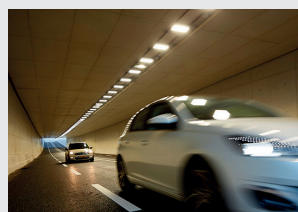
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City centre lighting



7

Tunnels



8

Carparks



A nighttime photograph of a city street. In the foreground, a dark asphalt road with white lane markings is visible. In the middle ground, a large tree stands on the left, and a tall street lamp with a bright, starburst light is positioned next to it. To the right of the tree, a road sign is visible. In the background, several tall, modern buildings with many lit windows rise against a dark blue night sky. Horizontal streaks of red and white light, likely from passing vehicles, are visible across the middle ground. The overall scene is illuminated by the street lights and the city lights from the buildings.

City major roads

Brighter roads with a lighter load

As the world goes digital, so has LED lighting. With traffic safety, pedestrian safety and road monitoring that can be better managed with systems, innovative LED luminaires of today can work with intelligent road lighting management and control systems such as CityTouch and Amplight. While busy major roads need to be optimally lit for long hours, light levels can be programmed to come down to a slightly reduced level during wee hours in the morning when extremely low traffic is expected. Imagine when accidents happen on busy city roads, the light levels can automatically brighten for the safety of other drivers. The best roads should offer the right amount of light precisely where and when it is needed, for enhanced safety, and also to save energy and maintenance costs.



Luma



RoadGrace



RoadFlair



Stela

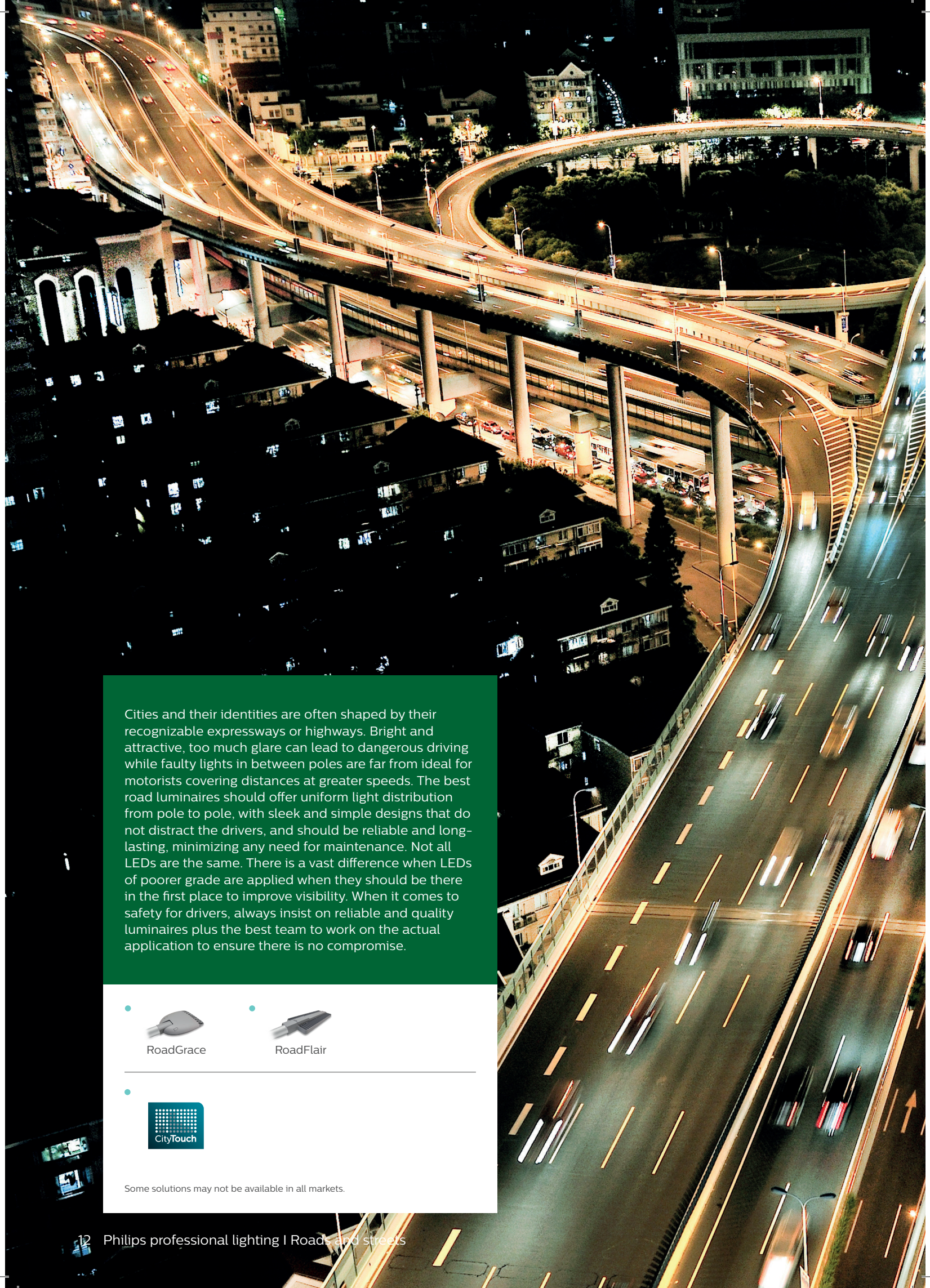


CityTouch



Solar option
available

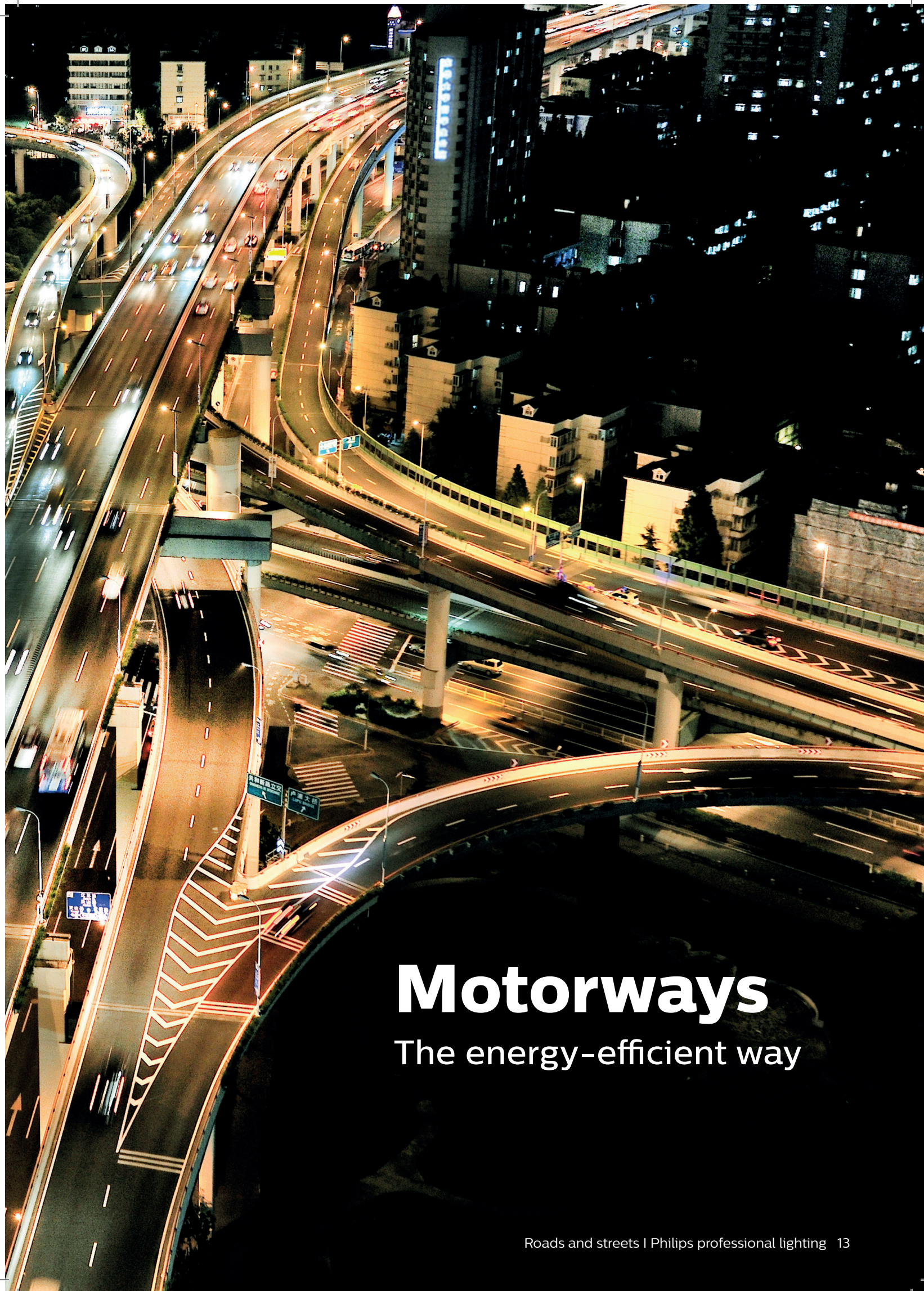
Some solutions may not be available in all markets.



Cities and their identities are often shaped by their recognizable expressways or highways. Bright and attractive, too much glare can lead to dangerous driving while faulty lights in between poles are far from ideal for motorists covering distances at greater speeds. The best road luminaires should offer uniform light distribution from pole to pole, with sleek and simple designs that do not distract the drivers, and should be reliable and long-lasting, minimizing any need for maintenance. Not all LEDs are the same. There is a vast difference when LEDs of poorer grade are applied when they should be there in the first place to improve visibility. When it comes to safety for drivers, always insist on reliable and quality luminaires plus the best team to work on the actual application to ensure there is no compromise.



Some solutions may not be available in all markets.



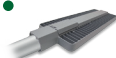
Motorways

The energy-efficient way

For the well-being of residents and local businesses, the number one priority to achieve along residential streets is safety. White light is known to be able to lower crime rates by improving light levels, and enhancing facial and features recognition on CCTV cameras, in turn discouraging crime, and helping the young and the elderly head home safely. From taller road lights to intimate street lights for smaller estates, the right lighting choices can save energy for the district or ward, while improving lives for the neighborhood. Solar options can also be paired with LED street lights based on AC or DC connection, to bring greater savings and greener surroundings.



RoadGrace



RoadFlair



Stela



Luma



CityTouch



AmpLight



Solar option
available

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Residential roads

Taking you home safely

Minor roads

Unfazed by hazy conditions

Even more important to be brightly lit, road lights for minor roads should never be compromised, for motorists to safely get from point A to point B despite having to maneuver a tighter drive along the coast, travel within deep forestation or amongst packed buildings. This photograph featured is taken on a small, quiet road on a hazy evening, under Philips GreenVision luminaires. See how the light beam is still strongly guiding the driver along his way, offering optimal visibility within compromised weather conditions like haze, fog and rain.



Luma



RoadGrace



RoadFlair



Solar option
available

Some solutions may not be available in all markets.





Industrial roads

Productive lights at work



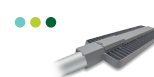
Heavy vehicles, cement ashes and dust from construction. Lights on industrial roads have to be hardy and tough to provide constant and consistent illumination for the vehicles that are driven through from dawn to dusk. The best lights should require minimum maintenance in order to ensure little or no disruption to goods transport schedules. In far-flung areas where no trucks or pedestrian are expected at all for several hours past midnight, intelligent controls can be paired and activated to dim the light levels slightly to ensure while there is enough light, electricity can further be saved and used productively.



ClearFlood



RoadGrace



RoadFlair



CityTouch



AmpLight



Solar option available

Some solutions may not be available in all markets



City centre lighting

Lighting the centrestage

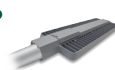
Communal spaces should be welcoming and delightful for people to come together, enjoy an activity or two, or simply enjoy a nice evening together under the night skies. Street luminaires come in various color temperatures to ensure paths are lit in cool daylight for safety and visibility, while gentle and cozy warm lights are applied to common spaces for the community to relax and unwind after a tiring day. Lights in this area do not have to be lit around the clock so smart controls here can do the job to ensure a careful balance of the right light levels at the right time.



FreeStreet



RoadGrace



RoadFlair



Stela



Metronomis



Luma



CitySoul
gen2 LED



CityTouch



Solar option
available

Some solutions may not be available in all markets.

Tunnels

Safely in and out

Proper road lighting involves the right LED luminaire solutions plus the right lighting design, to ensure accident rates are reduced to a minimum. When approaching a tunnel, motorists have to see the way forward clearly, and drive with extreme caution, especially on bad-weathered days. Safe tunnels need to be carefully lit with quality LED for reduced glare, and long-lasting solutions to ensure reduced maintenance needs. Once inside, drivers must be able to focus on the road and not be greeted with dark interiors. Visibility is key here, for drivers to stay alert at all times



FlowStar



FlowLine



ClearFlood
Tunnel



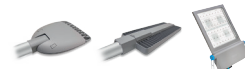
TotalTunnel



City major roads



Industrial roads



Motorways



City centre lighting



Residential roads



Tunnels



Minor roads



Outdoor carparks





We've got you covered

As your lighting solutions partner, we aim to give you complete one-stop solutions that can maximise your investment. We can customize our solutions and professional services to meet your specifications, standards and budgets. What's more, we stay ahead of lighting trends to make your roads and streets as future-proof as possible.



FreeStreet



ClearFlood



RoadFlair



Luma



Stela



RoadGrace



FlowBase



FlowStar



Metronomis



CitySoul
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LumiStreet



ClearFlood
Tunnel



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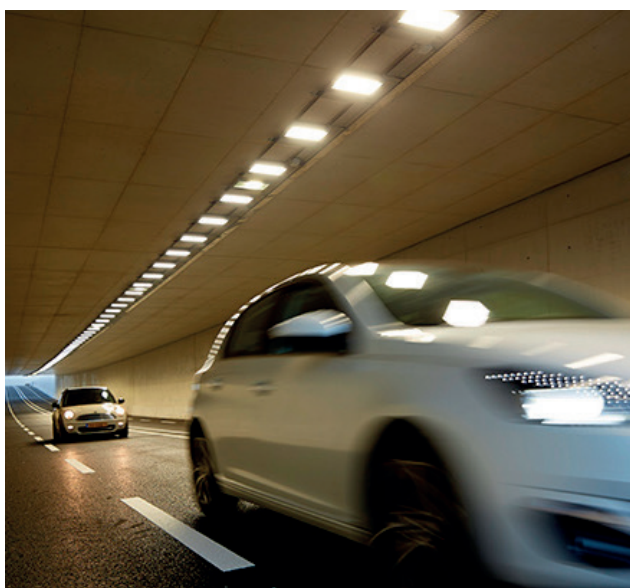
Going beyond **illumination**



CityTouch

What if lights on your street knew when to stay on longer and when to switch off? What if you could easily check online how much energy your street lights are using and which ones need repair? What if your city had full control over its lighting, setting schedules and dimming levels on demand? What if it had access to elaborate data visualization and analytics, to make better decisions?

At Philips, we believe this would make cities around the world more sustainable, smarter, more efficient and ultimately, a better place to live in. With CityTouch connect application, simple softwares can help cities manage their street lights and analyze lighting data easily to heighten safety and improve operational efficiency.



TotalTunnel

Historically, traditional lighting control system designs have been the responsibility of the maintenance contractor. Through our extensive experience and integrated product solution design, engineering of intelligent lighting controls, Philips has reduced the burden on the installer to minimize complicated electrical designs and significantly reduce labor, traffic management and capital expenditure.

TotalTunnel is our dedicated tunnel control and monitoring system designed specifically for LED technology. The system is easy to install, commission, operate and maintain, providing a safe lighting control which delivers results you can count on.



Solar powered LED lighting systems

Say goodbye to darkness in the evenings and costly electricity bills. Our solar-powered LED lighting solutions harness the sun's energy to provide high-quality illumination for indoor and outdoor applications. These solar versions of road lights deliver a flexible and sustainable way to light up the area with minimal investment and maintenance costs. Available in AC or DC versions, capable to deliver results without a need for AC grid access, payback period is relatively short while giving you substantial energy savings.





Surge Protection Device

Road lights are often exposed to the dangers of lightning as well as overvoltages. When lightning strikes or there is an overvoltage, this causes a voltage spike higher than the acceptable limit. This can damage luminaires, and disrupt lighting on the streets.

As a standard, luminaires should be protected from overvoltages up to 2 kV. Philips exceeds this requirement with a minimum protection of 4 kV. For areas highly vulnerable to lightning strikes and electrostatic discharge (ESD) risk, additional protection with minimum 10kV is recommended. That's why Philips recommends the use of a Surge Protection Device (SPD) – to ensure continuous service, and keep motorists and pedestrians safe on the road.

An SPD acts as a voltage-controlled switch. When the network voltage exceeds the activation voltage, the SPD diverts the surge energy and prevents it from destroying the equipment. An SPD wears out over time. Therefore, in choosing an SPD, it's essential to consider the equipment's exposure to the effects of lightning, along with the maximum impulse voltage that the equipment should withstand. Philips can provide advice and install the right SPD for your road lighting system.

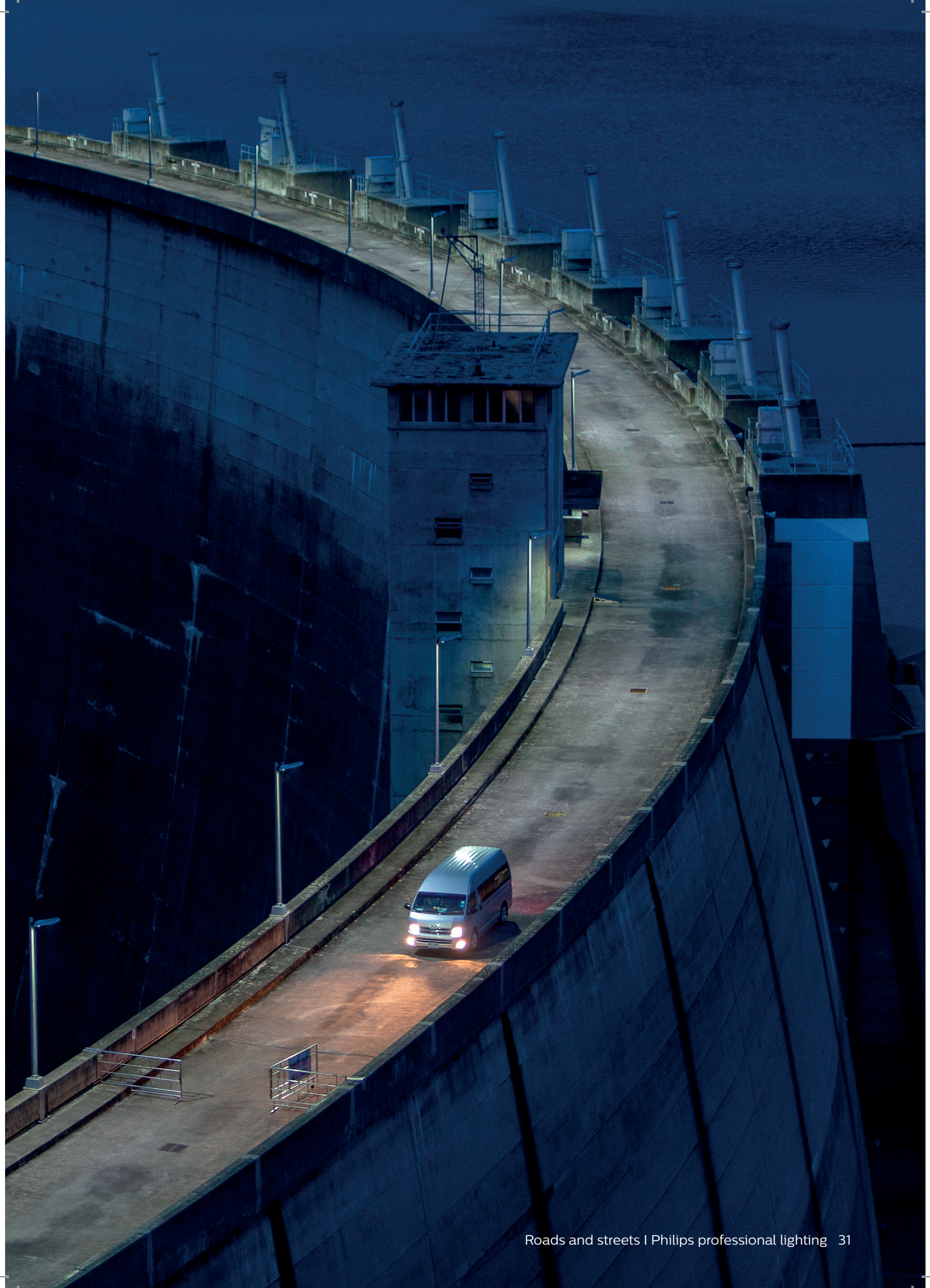
In the long run, SPD is an inexpensive way to protect road lights against random power spike damage. They're not all the same. And they do not last forever. So it is important to apply a quality SPD that is reliable that prevents the luminaire from failing, and also quality luminaires that allows easy access of the SPD for simple replacement when needed.



In harmony with dark skies

Responsibly providing full cut-off lighting

Meeting international standards of downward projected lighting for outdoor lights of above 3000 lumens, the right LED lighting should always be engineered for full cut-off illumination. This is to prevent light from emitting upwards toward the sky or the surrounding neighborhood. This way, the ground is better lit for motorists and pedestrians, promoting safety while consuming very little power through energy-efficient LEDs. This ensures optimal visibility with lights that continuously shine horizontally, guiding the way forward and not sending light upwards. Philips Lighting is a sponsor of the International Year of Light in 2015, a UNESCO-led initiative, in its best form to benefit communities.



A night photograph of a street corner. A bright street lamp illuminates the scene, casting a warm glow. Power lines crisscross the upper part of the image. In the background, there are trees and a road sign. The overall atmosphere is dark and quiet, emphasizing the importance of lighting for safety.

Because safety always comes first

International product standards
International lighting application standards

Lighting is essential. Basic lighting gives illumination, but it takes proper lights and lighting design expertise that both meet international standards, to give you quality lighting that is evenly distributed from pole to pole. Drivers and motorists want roads with uniformly distributed white lights. Pedestrians need hardy and long-lasting lights that will not fail them. With increased assurance from good lighting, improved road lighting conditions can then prevent road accidents and also lower crime rates that can cripple tourism and daily livelihood.



Safer drive, Safer cities









GreenVision Xceed with CityTouch **8 cities, Indonesia**


Philips Indonesia has successfully installed GreenVision Xceed LED road luminaires paired with CityTouch application across multiple cities in Indonesia. These cities include Jakarta, Surakarta, Sidoarjo, Surabaya, Semarang, Bandung, Tangerang, and Makassar. In order to help lower the cities' energy consumption levels, CityTouch application enabled lighting asset management, which means the lighting spots can easily be controlled, and precise locations of these Philips GreenVision Xceed LED road lights can be identified clearly, through the CityTouch connect app. This enables city administrators to operate, control and maintain street lighting via a laptop or a computer connected to the internet. The cities involved can now save up to 60% of its energy consumption, and reduce its operational costs by eliminating the need for regular physical checks. This also means great connectivity – in the sense of transparent and real-time lighting status monitoring, auto-notification of faults and accuracy in information on energy usage of each streetlight. Philips Lighting Indonesia team is truly excited to bring connected lighting to the country, moving beyond LED lighting, delivering not just energy savings but added new capabilities and applications to support local road authorities.





Fujieda City
Shizuoka Prefecture, Japan

To reduce energy consumption and improve street safety, Fujieda City officials commissioned Philips Lighting Japan partner IRIS Ohyama for a city-wide LEDification project, starting with road lighting. Almost 1000 pieces of GreenVision Xceed BRP371 and BRP 372 luminaires were installed throughout the city. These delivered a significantly enhanced cool white light, which was comfortable for the eyes, and had better light distribution and uniformity, compared to the older sodium lights they replaced. As a result, the city's residents and businesses now enjoy a higher quality of life with the improved lights, while the city benefits from low-maintenance, long-lasting LEDs that deliver energy savings.



Canal Bank Road Lahore, Pakistan

Lahore, Pakistan's second largest city of Pakistan and one of its major cultural centres, engaged Philips to clad its Canal Bank road in a whole new light while uplifting energy efficiency. To meet this requirement, Philips proposed LEDs for one of the Pakistan's first projects to deploy LED road lights. Around 400 Philips GreenVision Flexi LEDs provided high-quality lighting with high color consistency, which has helped the city meet road lighting safety standards. Now, Canal Bank road also enjoys energy savings of up to 50%. The vibrant road lights have also improved lighting conditions aiding greater visibility for motorists, and improved safety for residents and tourists.





Karma Compound

Giza, Egypt

At Karma Residential Compound in Giza, Philips has lit the area with a safer, more sustainable and energy-efficient choice of street lighting using LED. With the use of Dynadimmer technology for the first time in Egypt, energy savings came close to 90%, when compared to conventional lights. The project highlights the possibility of effecting a clean city with less carbon dioxide emissions and lowered power consumption, leaving everyone impressed and wanting to see more of the same. In Egypt, the trend is fast shifting to LEDs, being cooler lights and giving huge energy savings benefiting the city and in turn the communities.





NamSong Cross Road Project **Wonju City, South Korea**

Wonju City in GwangWon Province has enjoyed a boom over the last few years, thanks to its natural beauty, and the central government's support to boost infrastructure in the city. As a result, there has been a rise in electric consumption throughout the city.

In its drive to reduce power consumption, the city has prioritized the conversion of road lights to energy-efficient LEDs. Partnering with L-Top, Philips Lighting Korea has leveraged several LED road opportunities, from demand generation to installation and maintenance, in Wonju City and GwangWon province.

The Namsong cross road lighting project in particular has impressed many with its much improved light uniformity. Residents and motorists now feel safer with the new road lights at cool daylight (5700K), while the local government has shared that energy consumption has been reduced by 68%. With the success of this project, Wonju City has subsequently confirmed its intention to see more LED installations on its roads each year.

As citizens have expressed a desire to replace all conventional luminaires with LED luminaires, Wonju City has confirmed that 100 new LED luminaires will be installed in roads every year.



Thesaban 1 Pathum Tani, Thailand

An old province north of Bangkok, Pathum Tani is becoming increasingly urbanized. In a province most known for its rice fields, ancient arts and temples, farmers, traders and residents travel long stretches of roads each day for different errands. After kilometers of Philips GreenVision Flexi LED road lighting were installed along the major roads of Thesaban 1, farmers and villagers have observed increased visibility along this stretch of much travelled roads. Shopkeepers have expressed how residents now feel safer walking along this road. Business has in turn become brisker, with an observable drop in break-in rates, due to enhanced brightness as seen in this photograph. Recognizing that old-fashioned sodium lights are 'only bright at the top' but does not hit the ground, motorists and residents alike are delighted to see their LED-lit roads now uniformly lit, for all to start hitting the roads from as early as 3am while feeling safe and protected by the quality white lights.





Peace of mind







Support from start to finish

With expert teams around the world, we have extensive experience handling lighting challenges on behalf of our customers. We aim to be your best lighting partner, offering the right expertise and solutions. Allow us to help you with planning, implementing and maintaining your project every step of the way.



Advisory Services

Can a lighting upgrade help your business grow? Get an expert light audit from Philips Advisory Services

- Auditing your energy consumption
- Bringing creative ideas to life
- Helping you plan, making it happen
- Helping you convince the team



Project Services

Get your lighting installation completed quickly and efficiently, with Philips Lighting Project Services

- Project management
- Installing your system
- Integrating and programming
- Lighting performance contracts
- Energy savings projects



Lifecycle Services

Let Philips handle your installation with service agreements that can be tailored to your needs. These could include:

- Helpdesk, remote diagnostics and fault investigation, system health checks and spare parts replacement
- Qualified service engineers for preventive and corrective maintenance of your installation
- Asset management, data analytics and consultancy, system optimization and more



Philips Lighting Capital

Finance your new lighting system with little to no upfront investment

- Protecting your cash flow
- Saving you time and money

Note: Certain services may not be available in all countries. Kindly check with your local Philips representative for details.

Spotlight on our products

A quick overview of Philips lighting solutions – features and benefits.

For more information,
visit www.philips.com
or contact our sales team.



FreeStreet

FreeStreet suspended lighting system represents a completely new vision of public lighting. Small, stable and lightweight, this state-of-the-art and award winning catenary LED solution delivers excellent lighting while blending in seamlessly with the look and feel of the area, making our streets and pedestrian precincts much more welcoming and accessible.

- Highest luminous efficacy in road segment
- Suitable to work in (-30 to +25C Ta)
- Suitable for City centre streets, squares and pedestrian zones
- Support controls under Dali
- Wide street optic



RoadFlair

Most optimized functional road luminaire design to cover fast-growing road lighting renovation and upgrade projects. RoadFlair offers a combination of latest LED and product design technology

- Highest luminous efficacy in road segment
- Suitable to work in extreme conditions (-40 to +50C Ta)
- Suitable for road, street and urban applications with its multiple optic options
- CityTouch ready and supports other controls under Dali and 1-10v protocol
- Longer lifetime, reliability and operates under extreme conditions (-40 to 50C Ta)
- Unique optic options (DM, DW1 and DW2S)



LumiStreet

Compact design and modern LED architecture; a versatile, cost-effective luminaire for basic functional road lighting

- Offers 110-115 lumen efficacy
- Easy to install, long lifetime and low-maintenance
- High-quality components



FlowBase

Compact design, reliability, and affordability in one complete package to deliver the perfect tunnel lighting solution

- Offers 110 to 120 lumen efficacy
- Perfect uniformity and minimized glare, compliant with tunnel lighting and safety standards
- The perfect LED retrofit alternative to fluorescent and HPS 250W applications
- Low maintenance and long lifetime up to 50,000 hours
- Up to 50% energy savings of compared to conventional lighting systems



RoadGrace

A complete road lighting luminaire, sleek in design, with adjustable spigot; option for side entry and post top, with easy access for SPD to be replaced

- Offers 120 to 130 lumen efficacy
- CityTouch ready and supports controls under Dali and 1-10v protocol
- Long lifetime, reliable and operates under extreme conditions
- Unique optic options (DM, DW1, DW2S, DWP and DWP3)



Stela

Stela+ gen2 we are now presenting the next generation of LEDs and introducing programmable drivers. The REVOLED cooling and light distribution concept enables tremendous energy savings and a corresponding reduction in CO2 emissions, whilst meeting current lighting standards.

- Suitable for traffic routes, residential, City centres, large outdoor areas
- Guaranteed long lifetime: up to 100,000 hours (L-Tune tool)
- Very attractive Total Cost of Ownership, ensuring sustainable investment
- Low energy consumption and small carbon footprint
- Easy installation and maintenance
- Highest luminous efficacy in road segment
- Dimmable version available with 1-10V / Dali / DynaDimmer / SDU



Luma

Philips' range of dedicated Revolved road and street lighting luminaires, the standard LED luminaire from a multi-lane carriage motorway to an urban street or residential area

- Offers 110 to 120 lumen efficacy
- Energy-efficient, high-performance and affordable alternative to existing conventional lighting solutions
- Covers the complete field of illuminance (S) and luminance (ME) lighting classifications up to ME1
- Completely flat design and Optiflux lens optics for perfect glare control and prevention of light pollution according to glare classifications up to G4



ClearFlood Tunnel

A range of floodlights that lets you choose the exact number of lumens you need, offering industry-leading lux per euro ratio and significant energy savings

- Offers 110 to 120 lumen efficacy
- 1:1 retrofit, with high energy savings and a fast ROI
- Versatile applications
- High LED and optical efficiency
- 100% Philips components



Metronomis

Metronomis LED is the first post-top range in the world to offer a palette of environmental lighting effects to give projects a unique contextual or aesthetic touch. An innovative play of reflection, light and shadow creates an environmental pattern on the ground or on the bowl to create additional ambience.

- Suitable for City centres, Commercial and business centres, Residential and architectural areas
- All the benefits of LEDGINE (high energy saving, serviceable and upgradable, maintains excellent light quality over lifetime, versatile in application)
- Possibility to create dynamic light effects inside the bowl. Three different effects available: diamond appearances, waves and circles. Possibility to create personalized patterns on the ground; four different patterns available.
- Suitable to work in (-25 to +35C Ta)
- CityTouch / DALI / 1-10V compatible



CitySoul gen 2 LED

CitySoul gen2 LED is one of the most versatile and inspirational urban street lighting families designed by Philips to date. This highly efficient range delivers excellent lighting levels whilst also providing the right ambience for all urban application areas, from the outskirts of the city right through to the city centre.

- A broad range of elegant, dedicated and complete sets, including poles and brackets, a tiltable option, double post-top and catenary versions
- Various features to deliver the most efficient and comfortable lighting level
- Compatible with all Philips' standard and advanced lighting controls
- Easy maintenance on-site
- Suitable for City centres, Commercial districts, Parks and plazas. Roads and streets



ClearFlood

ClearFlood is a range of floodlights that lets you choose the exact number of lumens you need for your application. Designed around state-of-the-art LEDs and extremely high efficiency optics, this very competitive solution offers an industry-leading lux per euro ratio and significant energy savings.

- Suitable for Small-scale recreational sports facilities, industrial areas, parking, billboards, facades
- Designed for 1:1 retrofit, with high energy savings and a fast return on investment
- Easy to select the required lumen performance
- Five different optics ensure versatility in application
- 10 lumen outputs in one form factor
- Easy replacement of gear and PCB
- CLO, DALI, 1-10 V controls • High LED and optical efficiency



FlowLine

Tunnels often require a linear interior lighting solution. FlowLine offers an LED solution where traditionally fluorescent lighting was used. FlowLine outperforms fluorescent lighting over the full life cycle in terms of cost, safety and performance, and is a competitive alternative to HPS point-source interior lighting on total cost of ownership.

- Suitable for traffic tunnels, underpasses
- Linear LED lighting ensuring safety and visual comfort
- Highly efficient lifetime solution
- Designed as part of the TotalTunnel approach for easy installation as well as reduced maintenance and lifecycle cost
- Stainless-steel modular build
- Long-lasting
- Designed for maintenance (modular build and glass cover)
- Can be integrated with controls and service packages for best system performance



FlowStar

Tunnel operators are looking for an LED solution for both interior and entrance lighting that delivers cost, safety and availability benefits over the full lifetime of the product. FlowStar's stainless-steel modular build and dedicated LED design provide a long-lasting and efficient LED alternative to conventional HPS lighting. FlowStar can also be combined with our controls and services for the highest levels of performance.

- Suitable for traffic tunnels, underpasses
- High lumen output; dedicated tunnel luminaire that can replace HPS entrance lighting
- Long-lasting, highly efficient lighting solution for the whole tunnel
- Easy to install and maintain
- A lifetime solution for both tunnel entrance and interior lighting in combination with service packages
- Designed for maintenance (modular build and glass cover)
- Can be integrated with controls (e.g. TunneLogic) and services for best system performance
- True point-for-point LED alternative to HPS up to 400 W
- For entrance lighting, it can be combined with the FlowLine linear interior luminaire
- Can compete on Total Cost of Ownership with current HPS solutions within the TotalTunnel approach

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Philips Lighting New Zealand
Level 3, 123 Carlton Gore Road
Newmarket, Auckland 1023
New Zealand
Ph: 0800 454 448 / 0800 4LIGHT
connected.nz@philips.com
www.philips.co.nz/lighting

Philips Lighting Australia
A sector of Philips Electronics
Australia Limited, 65 Epping Road,
North Ryde 2113, Australia
Ph: 1300 304 404
retailighting@philips.com
www.philips.com.au/lighting