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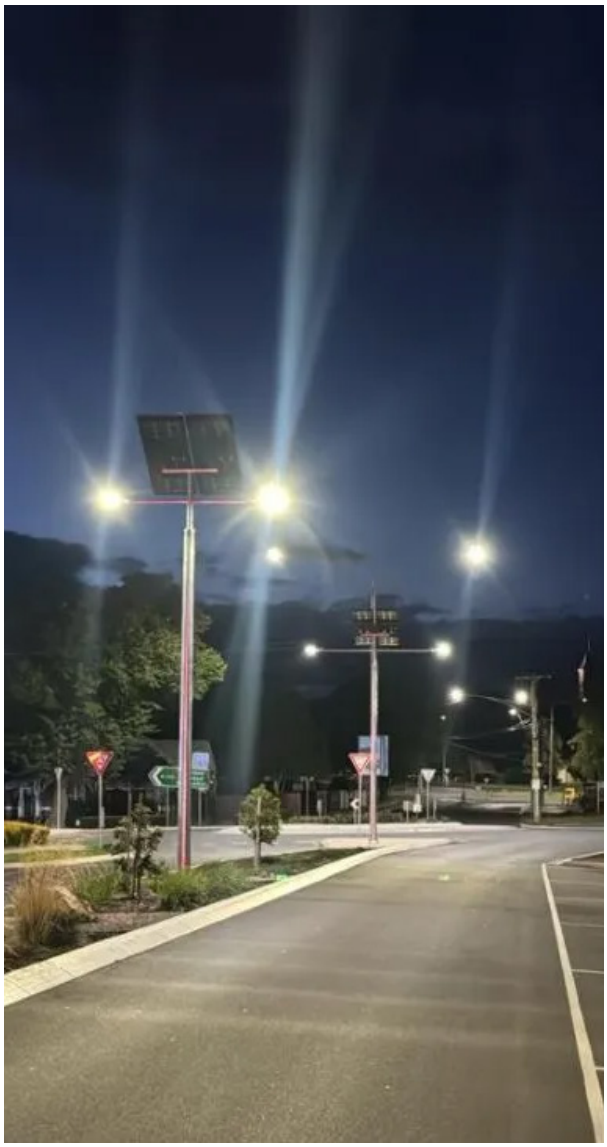
CASE STUDY

CLIENT
Southern Grampians Shire Council

PROJECT
Cox Street, Hamilton

TRADITIONAL CUSTODIANS
Wiradjuri People

Major Hamilton Road Gets High-power Street Lighting Powered by Solar



A key part of the $4.6 million reconstruction and revitalisation of Cox Street, one of Hamilton's most important arterial roads included upgrading road lighting to improve safety and ensure compliance with the Australian Safety Standard for V3 category roads. The challenge, however, was how to deliver it. The rocky ground beneath Cox Street and a network of underground services presented a significant barrier to conventional grid-powered lighting. It was clear an alternative approach was needed. Commonly used in smaller residential street lighting applications, solar powered lighting was the most promising solution with no trenching or underground cabling required, but could it deliver for a major arterial road like this?g,

For two decades, Leadsun has led the way in innovative solar street lighting continually pushing the boundaries of where solar can be deployed. On Cox Street, Leadsun's new range of high-power solar road lights were chosen to deliver Australian standards-compliant illumination for a major arterial road with no trenching or cabling needed.

The project represents the next bold step for high-power road lighting in Australia, and demonstrates how solar is no longer a niche alternative, but a mainstream solution for critical road infrastructure.

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Hamilton is the regional capital of the Southern Grampians Shire, situated in Western Victoria approximately 290 kilometers west of Melbourne. The city is a thriving regional hub, home to more than 10,000 residents and an important stop along the Glenelg Highway for trucks and tourists visiting the Grampians National Park.

Cox Street is one of the busiest and most strategically important streets in the CBD, cutting through the centre of town and forming a critical link in the city's road network. Recognising the importance of this busy arterial, in 2018 the Victorian Government and the Southern Grampians Shire announced joint funding for the Cox Street Redevelopment Project, including upgrading infrastructure, activating the precinct and improving pedestrian access and safety.

New lighting was identified as an import part of the project. The existing street lighting along Cox Street was not compliant with AS/NZS 1158, the Australian safety standard for road lighting. Besides the obvious safety risks this presented for all road users, it also made the area less attractive as a destination after dark.

Project Challenges

Shaped by millions of years of volcanic activity, the rocky terrain of Cox Street made conventional footing excavation with standard equipment impossible.

Prior to construction, Council also carried out site surveys and inspections which revealed a dense network of critical underground services beneath Cox Street including water and Telstra cabling. Some of these services imposed strict separation requirements, preventing trenching within three meters.

Traditional grid-connected street lighting relies on underground electricity cables to connect each pole to the electricity network. However, given the complex network of underground services along Cox Street, Council's engineering team determined early on that laying new power cables safely and affordably was simply not viable. It was clear an innovative new approach was needed.

High-power Solar Road Lighting Steps Up

A decade ago, Leadsun pioneered the use of solar powered street lights for smaller residential streets. Up until that point, grid-connected lighting had always been used.

Continuing this spirit of innovation, today Leadsun is leading the way with high-powered solar road lighting that meets strict Australian standards without relying on the grid.

With no trenching or underground cabling required, this was the most promising solution for Cox Street's difficult terrain, but could it deliver for a major arterial road like this?

Leadsun Products Used

Solar module series	AEX
Solar size	220W
Luminaire	Leadsun RoadLED Midi
LED output programming	Dusk to dawn
Pole footing type	Rag Bolt
Pole type	Tapered Rigid Frangible

Lighting Applications

- Street lighting
- Road lights and road safety

Lighting Compliance

- AS/NZS 1158.4 (V3)

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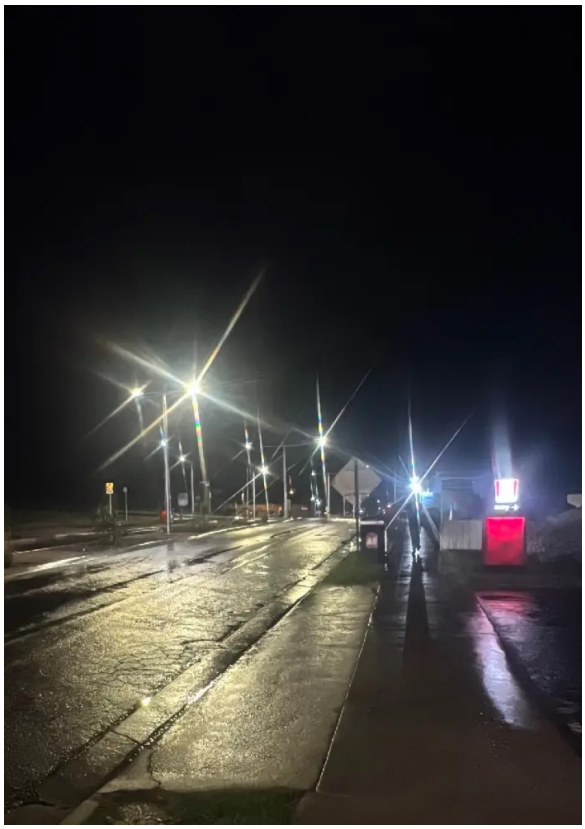
Leadsun was brought in to assess the site and develop a lighting solution capable of meeting AS/NZS 1158.4 V3 — the strict V-category lighting standard applicable to public roads. A total of 44 high-power LED luminaires were installed on 28 frangible poles, with several twin-luminaire configurations used to achieve the required lighting levels and comply with strict AS/NZS 1158.4 V3 lighting standards. Each unit pairs a high-powered 220-watt Leadsun AEX solar engine with a 60-watt RoadLED Midi luminaire. The AEX Series is purpose-built for road and street lighting applications, and the Leadsun RoadLED Midi is based on the standard luminaire used for LED street lighting in Australia. Together, they deliver reliable, dusk-to-dawn illumination powered by the sun, all year round.

The lighting design was completed by Trafficworks,ensuring full V3 compliance with Australian Standard AS1158.4. This required careful positioning of each pole to achieve correct lighting levels, across the entire carriageway. The task was made more complex by the underground site constraints which limited where poles could safely be placed.

“Every pole position on Cox Street had to be carefully worked out around the underground services. Where one location wasn’t viable, we would find another - but only if it still allowed us to maintain full V3 lighting compliance. It was a detailed, methodical process, and the team did a great job of navigating those constraints without compromising on the standard.” said Walter Terella, Leadsun’s Business Development Manager.

Where underground rock prevented standard footings, the team relocated poles to alternative positions that still met the compliance standard. In some cases, this meant adjustments to the mounting hardware and pole configuration.

Tapered rigid frangible poles with rag bolt footings were also used, ensuring compliance with mandatory road safety requirements.



A New Benchmark For High-power Road Lighting

Following successful solar powered lighting deployments in residential and development estates, this project represents the next big step for standards-compliant lighting on major arterial roads in Australia.

The upgrade delivers high-power lighting performance that improves visibility and safety for all road users and meets strict Australian Standards for public road lighting, .

By removing the need for underground cabling entirely, Leadsun's solar lighting solution eliminated the risks, disruption and complexity associated with trenching - enabling a more efficient and practical delivery approach in a highly constrained environment.[MM1.1]

More broadly, Cox Street demonstrates what is now possible with solar lighting. Leadsun is leading the way in this area, redefining how high-powered, standards-compliant road lighting is delivered, and proving that solar can meet the strict lighting demands of major arterial roads in complex urban environments.

"Cox Street is the main entry point into Hamilton's CBD from the Glenelg Highway, and we needed it to be safe, compliant and welcoming. The fact that Leadsun delivered a full V3 compliant lighting system, despite all the underground complexities, is a really positive outcome for Council and the community. It's also a strong example of where the future of high-powered road lighting is headed," said Mr Terella.

For the thousands of motorists who pass through Cox Street each day, the result is a safer, brighter road with improved night-time visibility. For the Hamilton community, it creates a more vibrant and welcoming streetscape - and demonstrates how modern solar lighting can support the next generation of road infrastructure.

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