Australian Government

BUILDING AUSTRALIA

mainroads WESTERN AUSTRALIA

FACT SHEET
December 2024

Boorloo Bridge

(Causeway Pedestrian and Cyclist Bridges Project)

High-tech lighting to transform Perth's skyline

Boorloo Bridge comprises a 6-metre-wide segregated path linking the Victoria Park foreshore with Matagarup (Heirisson Island) and Perth's CBD at Point Fraser and features iconic cable-stayed bridges spanning across the Derbarl Yerrigan (Swan River). The project is being delivered by the Causeway Link Alliance, comprising Civmec Construction and Engineering, Seymour Whyte, WSP Australia, and Main Roads WA.

Integrating architectural and feature lighting

With the sophisticated integration of architectural and feature lighting, Boorloo Bridge is set to become an iconic new landmark, transforming Perth's skyline both day and night.

A high-tech stay cable system for the bridge pylons has been developed, designed, and installed, featuring architectural LED light units integrated into each stay cable duct.

The stay cables on the boomerang pylon near Point Fraser, on the City side of the bridge, has closely spaced LED lights transforming it into a digital canvas capable of displaying colourful messages and images.

A total of 17,130 energy efficient and durable LED lights will provide feature lighting on both sides of the bridges' cables.

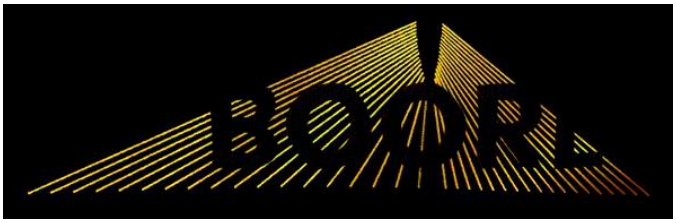

Figure 1: The cable LEDs will create a digital canvas, displaying static and moving images and messages.

The lighting control system allows individual control of each LED light, enabling transitions from white to a wide range of colours. This system manages brightness and intensity, with the ability to dim or switch off lights as needed.

Uplights will illuminate each of the bridges' three feature pylons in white or colour. This architectural lighting highlights the details and impressive heights of the pylons whilst integrating with the stay cable lighting. The intelligent control system allows the uplights to be coordinated with the feature lighting content creating amazing visual effects.

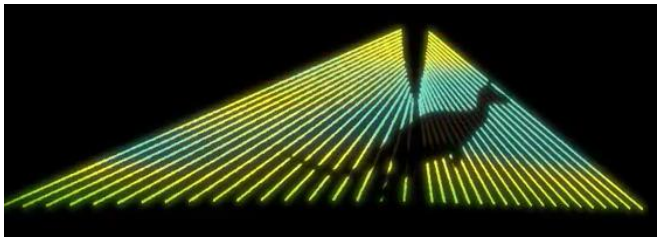

Figure 2: Lighting content will tell significant Noongar stories as well as celebrate special events and days in Western Australia.

To complement the cable stay lighting, Gobo (**Go**es **B**etween **O**ptics) projectors have been installed at each of the three pause points on the bridges. These projectors shine through lens templates to display images on the bridge deck. The images are created using a combination of colour changing lights and lens with etched artwork, designed to align with the feature lighting on the stay cables.

The feature lighting has the capability to highlight significant events and celebrations in Western Australia, such as Christmas, Lunar New Year, WA Day, and Anzac Day.

The lighting designers consulted with the Matagarup Elders Group to gather place specific stories to be told through lighting. This content is underpinned by the project's cultural narrative, with lighting content featuring stories significant to Noongar people including depictions of the six Noongar seasons.

Details of the lighting stories will be available after the opening event on 22 December via the project webpage.

Where are the best vantage points to view the bridge lighting?

A map of the best vantage points on Matagarup and upstream and downstream from Point Fraser and McCallum Park is available via the project webpage.

Overcoming technical challenges in innovative lighting through rigorous studies and tests

Implementing an architectural and integrated lighting system posed several technical challenges, which were successfully addressed through various studies and tests, including:

- Wind tunnel testing to ensure the lights did not interfere with the stability of the cables and bridge.
- Development of a large-scale model, to confirm the installation methodology as well as feasibility for maintenance and LED replacement.
  This resulted in a specially designed outer duct to accommodate the LEDs, allowing the lights to be efficiently installed along the stay cables, whilst concealing all the wiring. This design enables LED's to be individually replaced along the outer duct to facilitate future maintenance requirements.

Additional studies confirmed lighting could be controlled to:

- Minimise glare and obtrusive light effects for path users on the bridges and for road users on the existing Causeway Traffic Bridge
- Reduce light spill into the river, minimising impacts on marine life and maritime users.

Figure 3: An outer duct with LED lights being installed on the cables at Point Fraser

A wide range of functional lighting on and around Boorloo Bridge

Additional lighting has been installed, which plays an important function in meeting operational, safety and security requirements of Boorloo Bridge. This includes:

- Shared path lighting to create safe pathways for pedestrians and cyclists, including integrated handrail lighting on the bridge and plenty of lights along the connecting and river foreshore paths.
- Public safety lighting to support surveillance and the safe movement of path users between Point Fraser and McCallum Park.
- Lighting to create welcoming and safe spaces including:
    - Integrated seating and bench lights
    - Lighting to showcase four colourful murals on the bridge abutments and three impressive sculptures located on Point Fraser, Heirisson Island and McCallum Park.
    - Lighting to enhance the comprehensive landscaping, way-finding and interpretive signage on and around Boorloo Bridge.

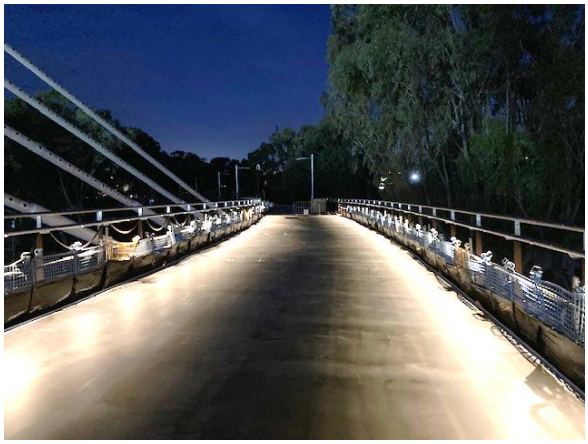

Figure 4: Handrail lighting being tested at the Point Fraser end of Boorloo Bridge.

Further information

If you have any further enquiries, please contact 138138 or email enquiries@mainroads.wa.gov.au

More information about this project is also available on the project webpage and you can also subscribe for updates: www.mainroads.wa.gov.au/causeway-path