



Australian Government



mainroads  
WESTERN AUSTRALIA

**BUILDING OUR FUTURE**

# Design Inspiration

## for the Swan River Crossings Project

The Government of Western Australia acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal communities and their cultures; and to Elders both past and present.



# Introduction

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The Swan River Crossings Project will improve journeys over land and water. The multi-modal transport project will replace the Fremantle Traffic Bridge, upgrade rail for passengers and freight, improve pedestrian and cycling infrastructure across the Swan River at Fremantle, while also making the river channel safer for boats.

Two new bridges (one road and one rail) will be built between the existing rail bridge and the existing Fremantle Traffic Bridge.

New cycling and walking paths will transform the way people can move more sustainably into and out of Fremantle and access riverside paths.

This next phase of consultation is all about Design. In this document we set the scene for the stories, themes and context of this significant place where the river meets the Indian Ocean.

The Whadjuk Nyoongar people have shared stories about the area which have been carried over thousands of years, when Wadjemup (Rottnest Island) was still connected to the mainland. The arrival of European settlers in the 19th Century saw the new colony develop quickly into a thriving port and commercial centre.

With the pace of development, four different iterations of the road bridge at our project location provided versions of safe passage for people to cross between north and south.

We invite you to find out more about this place and its many stories, before responding to our online survey or participating at one of our Community Design Forums.

Delve into this new and exciting phase of the Swan River Crossings Project.

***“Build into this bridge, something that says you are on Whadjuk Nyoongar country.”***

Whadjuk Nyoongar Elder Farley Garlett

# Previous consultation

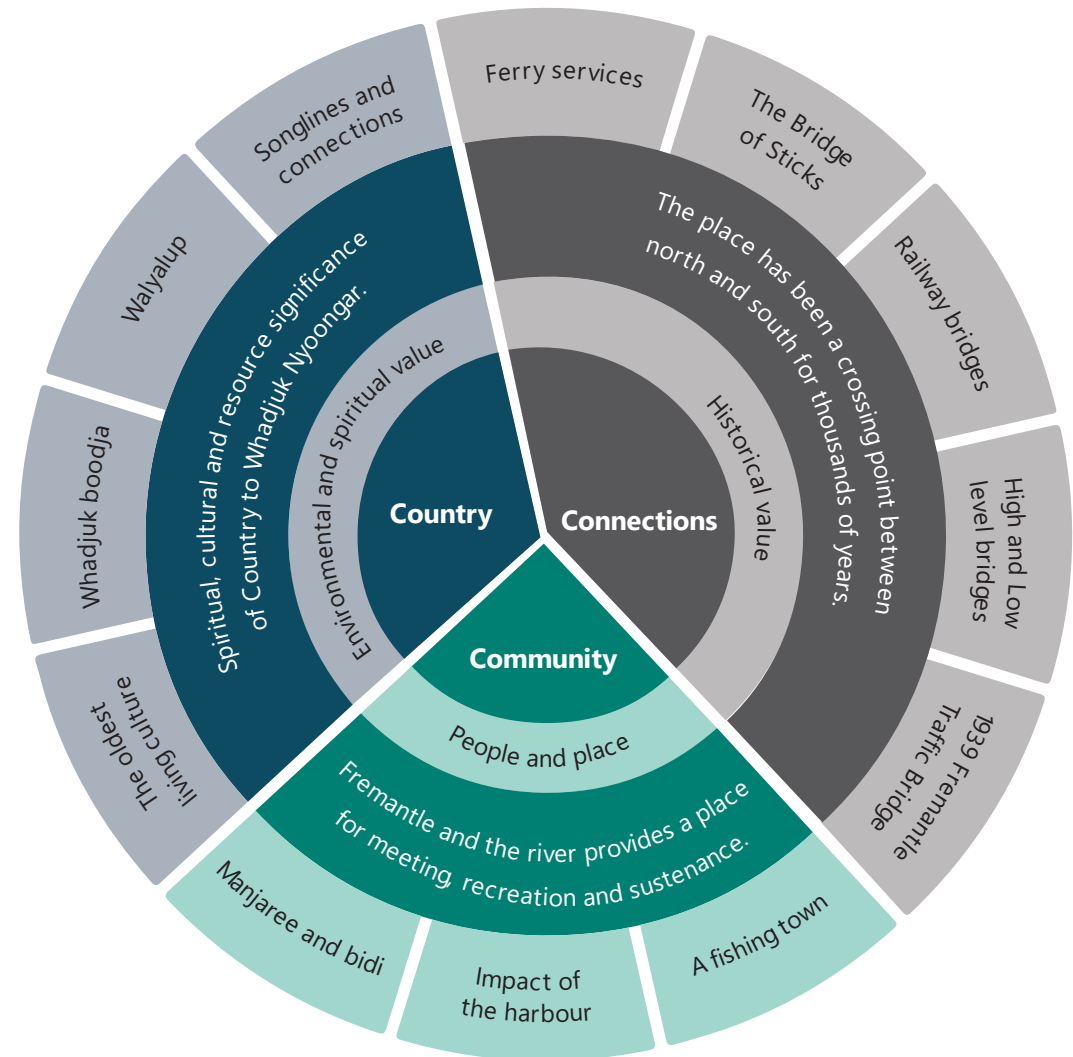
In 2020 consultation and research was undertaken to understand themes and site stories for the Swan River Crossings project.

Consultation has included:

- Whadjuk Nyoongar engagement: Whadjuk Working Group briefing and two workshops with Aboriginal Elders to develop a Heritage Interpretation Strategy
- Community drop-in sessions: community members were introduced to stories of the Swan River Crossings which might influence design
- Heritage Movement and Place Working Group: place making discussions with key stakeholders including local governments, State Government leaders and project architects
- An online survey in August 2020 received more than 300 responses from members of the public
- Feedback on the alignment of the new bridge led to a new opportunity to review the location of the bridges, with widespread support for a proposal to move the alignment west – between the existing road and rail bridge.

In July 2021, a Whadjuk Elders Advisory Group was established to provide architects, urban landscapers and bridge designers with stories and cultural guidance regarding the significance of the location. The group will continue to meet throughout the design process in a collaborative process to incorporate Aboriginal design elements into the final project outcomes.

Site stories from research and consultation were collated into three key themes:



# Timeline

## PRE-HISTORY

Nyoongar people lived in the Whadjuk Nyoongar area and the South West for at least 50,000 years before British colonisation.

**1697**

Dutch explorer Willem de Vlamingh landed on the coast of Western Australia in the vicinity of the area now known as North Fremantle. 'Swaene-Revier' was named.

**1829**

The Swan River colony was established on Whadjuk Nyoongar boodja (land of the Aboriginal people of the Swan River plains), with three towns: Booro (Perth) as the capital, Mandoon (Guildford) as the inland port, and Walyalup (Fremantle) as the ocean port. There was no treaty between the Nyoongar and the British.

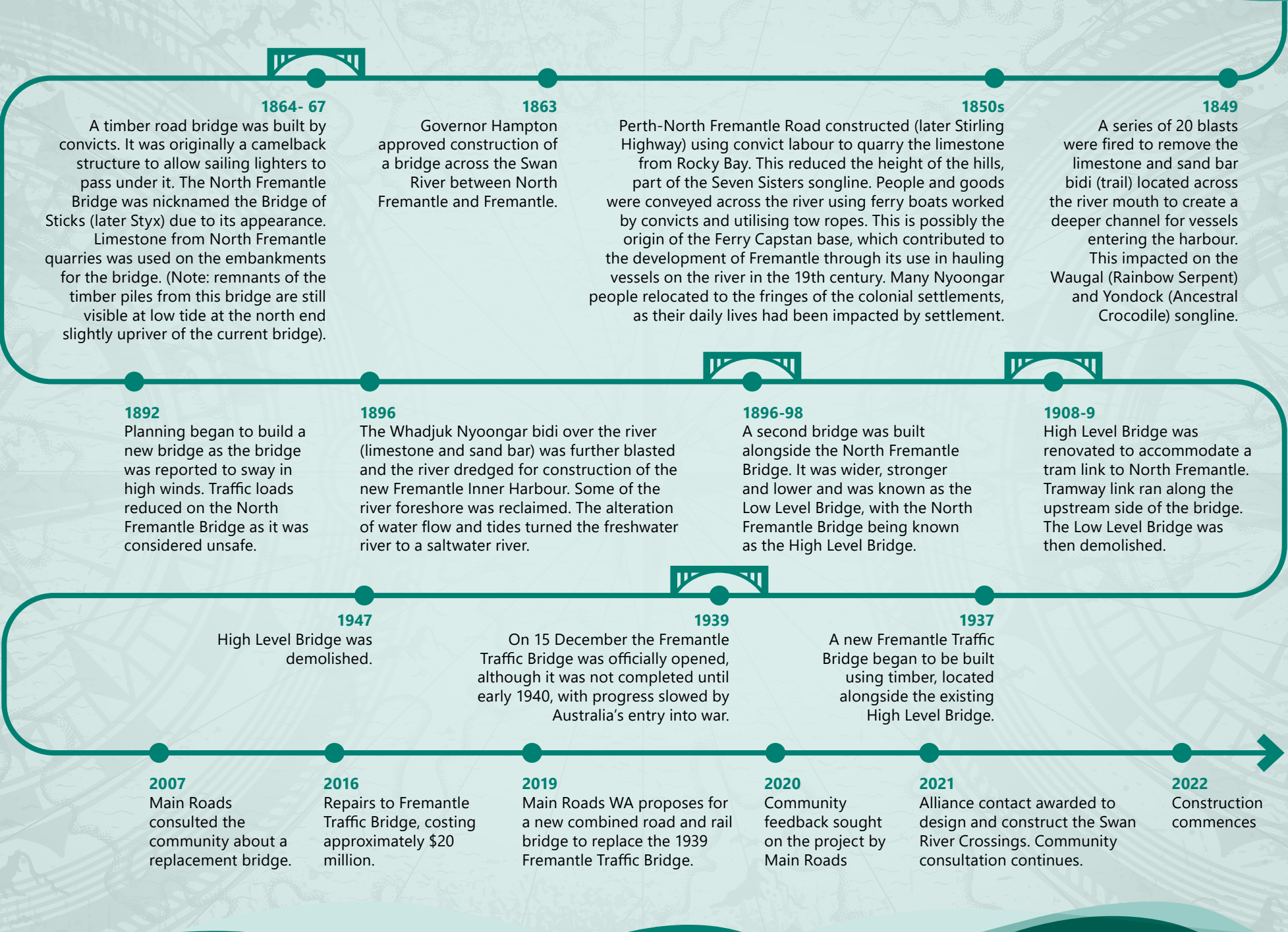
**1832**

The Colony relied on river transport and an early ferry service operated from Niergarup (Preston Point) in East Fremantle across to Minim Cove in Mosman Park, and from Willis Point in Fremantle to Lukin's Jetty in North Fremantle. Yagan explained the intricacies of Whadjuk Nyoongar groups to Robert Lyon who recorded the patrilineal territorial boundaries, leaders' names and various place names.

**1838**

Prison for Aboriginal men and boys was established on Wadjemup (Rottnest Island). Nyoongar women would light fires at night atop Dwert Weearidinup (Cantonment Hill) or at Manjaree (Bathers Beach) to guide them home should they escape.





1864- 67

A timber road bridge was built by convicts. It was originally a camelback structure to allow sailing lighters to pass under it. The North Fremantle Bridge was nicknamed the Bridge of Sticks (later Styx) due to its appearance. Limestone from North Fremantle quarries was used on the embankments for the bridge. (Note: remnants of the timber piles from this bridge are still visible at low tide at the north end slightly upriver of the current bridge).

1863

Governor Hampton approved construction of a bridge across the Swan River between North Fremantle and Fremantle.

1850s

Perth-North Fremantle Road constructed (later Stirling Highway) using convict labour to quarry the limestone from Rocky Bay. This reduced the height of the hills, part of the Seven Sisters songline. People and goods were conveyed across the river using ferry boats worked by convicts and utilising tow ropes. This is possibly the origin of the Ferry Capstan base, which contributed to the development of Fremantle through its use in hauling vessels on the river in the 19th century. Many Nyoongar people relocated to the fringes of the colonial settlements, as their daily lives had been impacted by settlement.

1849

A series of 20 blasts were fired to remove the limestone and sand bar bidi (trail) located across the river mouth to create a deeper channel for vessels entering the harbour. This impacted on the Waugal (Rainbow Serpent) and Yondock (Ancestral Crocodile) songline.

1892

Planning began to build a new bridge as the bridge was reported to sway in high winds. Traffic loads reduced on the North Fremantle Bridge as it was considered unsafe.

1896

The Whadjuk Nyoongar bidi over the river (limestone and sand bar) was further blasted and the river dredged for construction of the new Fremantle Inner Harbour. Some of the river foreshore was reclaimed. The alteration of water flow and tides turned the freshwater river to a saltwater river.

1896-98

A second bridge was built alongside the North Fremantle Bridge. It was wider, stronger and lower and was known as the Low Level Bridge, with the North Fremantle Bridge being known as the High Level Bridge.

1908-9

High Level Bridge was renovated to accommodate a tram link to North Fremantle. Tramway link ran along the upstream side of the bridge. The Low Level Bridge was then demolished.

1947

High Level Bridge was demolished.

1939

On 15 December the Fremantle Traffic Bridge was officially opened, although it was not completed until early 1940, with progress slowed by Australia's entry into war.

1937

A new Fremantle Traffic Bridge began to be built using timber, located alongside the existing High Level Bridge.

2007

Main Roads consulted the community about a replacement bridge.

2016

Repairs to Fremantle Traffic Bridge, costing approximately \$20 million.

2019

Main Roads WA proposes for a new combined road and rail bridge to replace the 1939 Fremantle Traffic Bridge.

2020

Community feedback sought on the project by Main Roads

2021

Alliance contract awarded to design and construct the Swan River Crossings. Community consultation continues.

2022

Construction commences

# Country – Environmental and spiritual value

Nyoongar people hold the oldest living culture, having lived in the Perth area and the South West for at least 50,000 years prior to British colonisation. Nyoongar people have 14 different language groups. Walyalup (Fremantle) is home to the Whadjuk Nyoongar people.

Central to the beliefs and customs of Nyoongar people is the Waugal, the serpent that formed the river contours, landforms and all living things. In Aboriginal spiritual dreaming, the lakes and wetlands of the area are of spiritual significance. Through the waterways, all places and songlines are connected.

Important places within Walyalup include Manjaree (where the river mouth meets the ocean), which was a neutral place for different groups to meet and trade.

Prior to the dredging of the Derbal Yerrigan (Swan River) in 1892, a sandbar and limestone crossing bidi (trail) linked the nearby cultural areas of Beeliar and Mooro.

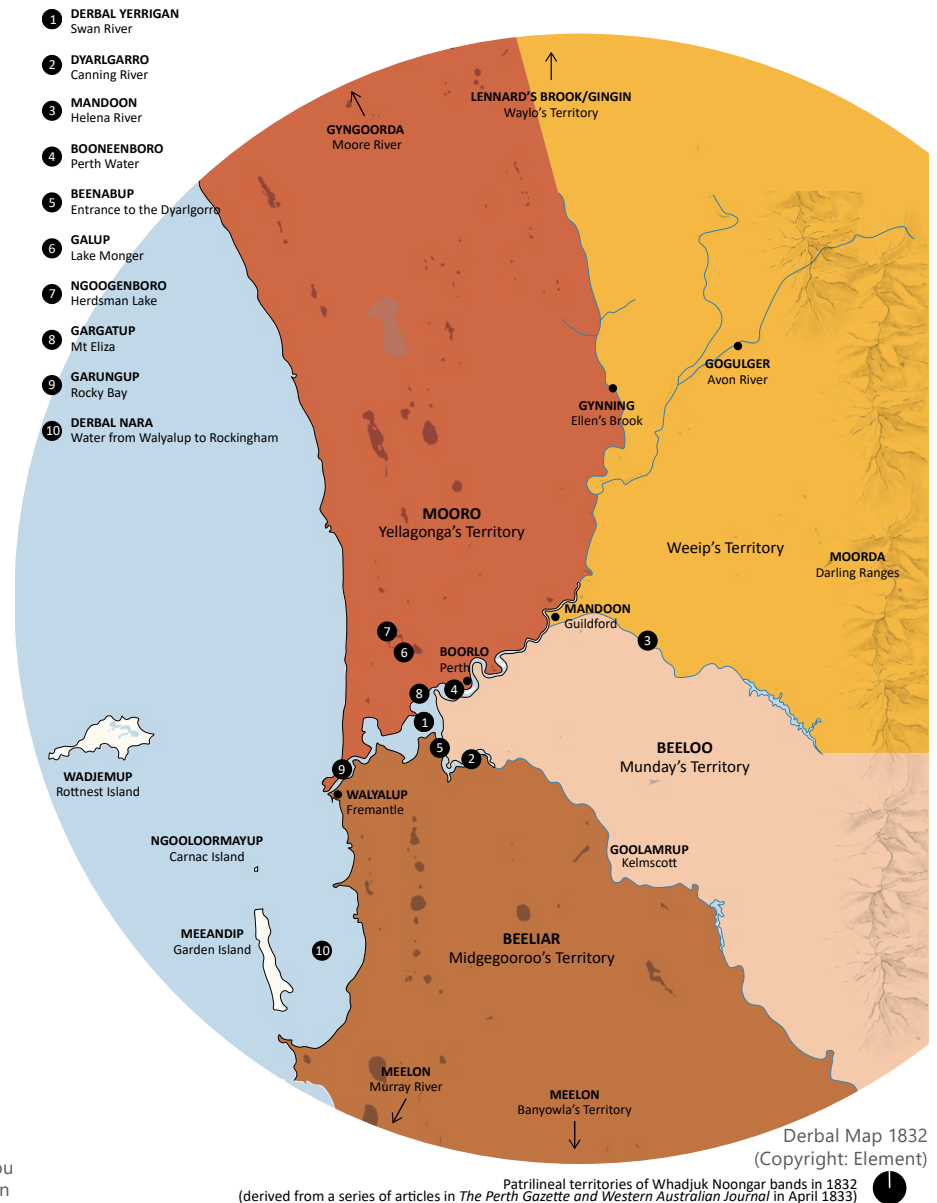
This is roughly where the Maritime Museum sits today on Victoria Quay.

Whadjuk Nyoongar Elders have been completing a cultural mapping exercise for Walyalup, which provides a stunning visual of the area and highlights the bridge location as a place for safe crossing and a point where many songlines and totems travel through. The group have talked to the project team about the Seven Sisters, the Booladarlung (Pelican) dreaming and the Kwilana (Dolphin) dreaming. The map also shows the importance of connections from the upper reaches of the Derbarl Yerrigan and other river systems through to off-shore areas, historic land bridges and connections to Wadjemup (Rottnest Island).

The uninterrupted flow of the river water at the location of the crossings is one of the most important considerations Whadjuk Elders have discussed with our design team.



Alan Muller, Walyalup – Mou of the River, 2019; Acrylic on canvas, 900mm x 300mm





# Connections – Historical value

The narrow point in the Derbal Yerrigan (Swan River) between Fremantle and North Fremantle has been a crossing for thousands of years. Colonial settlers built the first bridge in this location in 1866. The new bridge will be the fifth bridge built at this location.

The Ferry Capstan Base is a rare surviving example of the technology used to haul river vessels across the river in the nineteenth century. It may be the only existing capstan base in Western Australia and is one of a few in Australia. However, its date of construction is unknown and its relationship to ferry boat services in Fremantle is unclear. A common view is that the ferry capstan was connected to a ferry boat by a moving rope cable. In the centre of the capstan base was a vertical axle, around which a wood and iron bolted capstan rotated, which according to some accounts, was powered by ten convicts pushing around an iron bar.



Remains of the Ferry Capstan base  
(Source: Element)



◀ Left:  
North Fremantle  
Bridges, opened  
1866 (Source: SLWA)



Right: ▶  
Low Level Bridge,  
opened 1898  
(Source: SLWA)



◀ Left:  
High Level Bridge,  
opened 1909  
(Source: SLWA,  
Izzy Orloff  
Collection)



Right: ▶  
Fremantle Traffic  
Bridge, opened 1939  
(Source: SLWA)

# Community – People and place

The colonial governments chose the locations of the first three townsites (Perth, Guildford and Fremantle) due to their proximity to fresh water and the river. Walyalup (Fremantle) was a main campsite for the Whadjuk Nyoongar people for the same reasons. There were numerous freshwater springs, and the river held an abundance of animals and plant life for food.

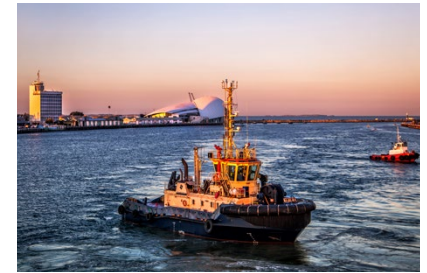
*“Camp sites were chosen for a reason. The swamps at Freo would’ve had loads of turtles, fish, prawns, everything.”*

Whadjuk Nyoongar Elder Neville Collard

For thousands of years the river flowed to a large estuarine delta at Walyalup (Fremantle), only flushing into the ocean during the winter rains. Dredging the river, blasting the bidi and reclaiming the river foreshores to build the harbour permanently altered the river’s hydrodynamics. It created a saltwater environment in what was once a freshwater environment and caused great distress to Nyoongar people at the time and to this day. Not only was a sacred site connected to the Waugal (Rainbow Serpent) impacted, but the river changed from a winter flushing flow to tidal flushing. The level of salt in the water rose and affected the abundance and types of flora and fauna once found in the river and river edges.

The harbour shaped Fremantle as the port city, allowing for commercial shipping. It was bustling at the height of the Western Australian gold rushes. Post-war immigration, particularly from Italy, helped shape Fremantle’s character. A key point of significance in Fremantle’s history was hosting the 1987 America’s Cup, which gave international attention to the port city. Commercial fishing industries in Fremantle have existed since the 1800s and Fremantle remains popular for recreational fishing.

Today Fremantle is popular with locals and tourists alike thanks to its spirit and its vibrant and rich culture and history. It is the home of alfresco dining in Western Australia, has an acclaimed live music scene, world-class museums, restaurants and pristine beaches.





# What is confirmed?

## Essentials:

- Bridges will be built between the existing rail and traffic bridges
- 4 lanes on road bridge
- 2 tracks on rail bridge
- New separated pedestrian and cyclist pathways
- New PSP from North Fremantle Station, with new bridge over Tydeman Road

## Obligations:

- Maintain 1 lane of traffic each way during construction
- Demolish existing Fremantle Traffic Bridge
- Keep the river navigation channel open during construction

## Design considerations:

- Project boundaries
- Pursuing simple design
- Space constraints

## Construction method:

- Incremental launch bridge (max 19m)
- Primary material likely to be concrete

## New traffic bridge considerations:

- Road tie-in on the north will be higher than the existing road
- Other things still to be determined:
  - Paths on the western side might be set below the road level
  - Final number of piers, we will reduce piers in river
  - Depth of girder (beam)
  - Number and location of screen walls
  - Width of PSP and footpath
  - Possible retention of remnant portion of the existing Fremantle Traffic Bridge (19m over water on the south)



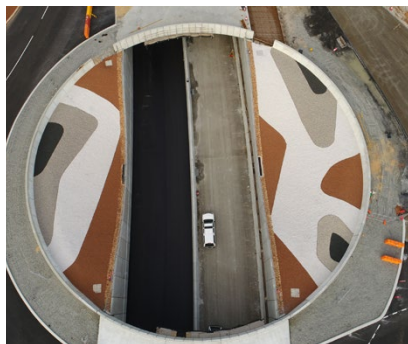
Alignment of the two new bridges across the Swan River in Fremantle

# What are the possibilities?

## Bridge aesthetics:

- Aboriginal design principles and features, a celebration of Whadjuk Nyoongar culture
- Feature lighting – on and under the bridge, on paths and at each end of the bridge structure
- Light poles and furniture
- Seating
- Public art

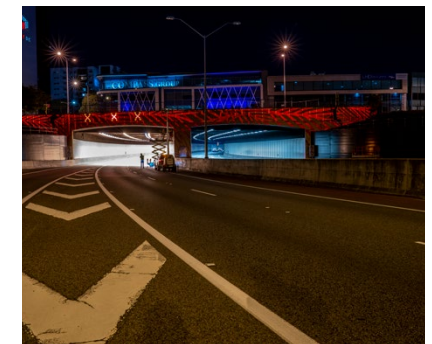
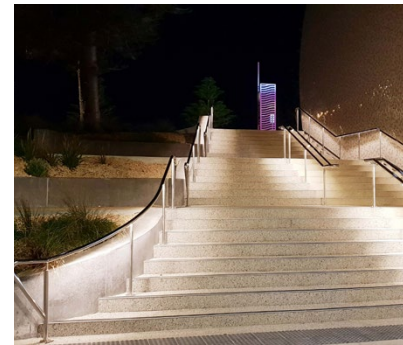
## Aboriginal design



Hard landscaping showing Aboriginal design



## Lighting



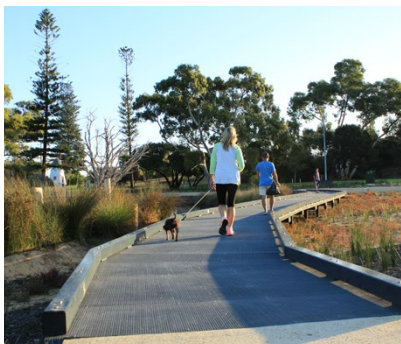
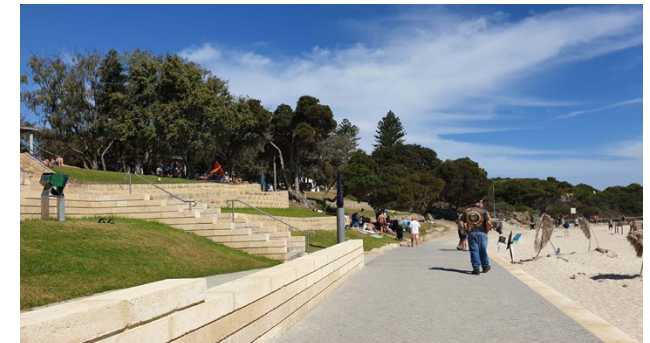


# What are the possibilities?

## Paths:

- Connection to other parts of Fremantle and other path infrastructure
- Opportunities to make paths wider with room for more recreational use
- Separating pedestrians and cyclists from road traffic
- Protection from elements (wind, sun, rain)
- Promote passive surveillance by designing spaces which invite activation

## Paths and landscaping



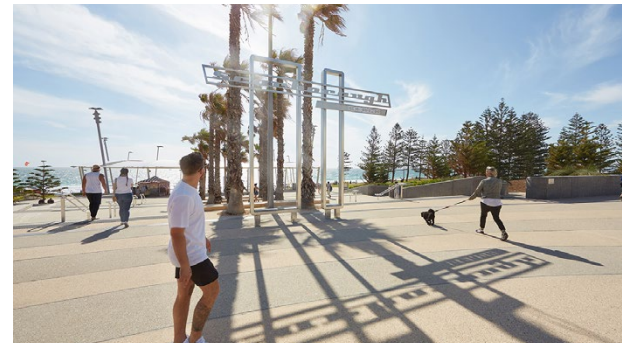
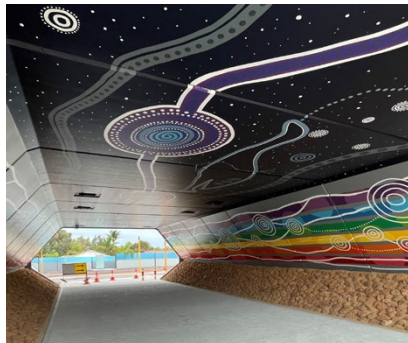


# What are the possibilities?

## European Heritage

- Ferry Capstan Base – acknowledgement and interpretation
- Potential retention of a portion of the Fremantle Traffic Bridge – make it safe and accessible
- Acknowledgement of four previous bridges

## Aboriginal art / public art



Public art and signage

Seating using remnant timber



Public art and lighting



Activation





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