



Australian Government
National Capital Authority

COMMONWEALTH AVENUE BRIDGE RENEWAL

CANBERRA, AUSTRALIA CAPITAL TERRITORY

Statement of Evidence to the Parliamentary Standing
Committee on Public Works

NATIONAL CAPITAL AUTHORITY

May 2023

[This page intentionally blank]

Table of Contents

1	Project Title	7
2	National Capital Authority	7
3	Context	7
	<i>Location of the Works</i>	7
	<i>ACT Government Light Rail Project</i>	9
4	Need for the Works	10
	<i>Purpose of the Works</i>	10
	<i>Project Description</i>	10
	<i>Options Considered</i>	10
5	Scope of Works	17
	<i>Bridge Strengthening</i>	17
	<i>Bridge Widening</i>	18
	<i>Active Travel Infrastructure</i>	19
	<i>Bridge Materials</i>	19
	<i>Landscaping</i>	20
	<i>Planning and Design Concepts</i>	20
	<i>Structural Design</i>	20
	<i>Provisions for People with Disabilities</i>	20
	<i>Security Measures</i>	21
	<i>Fire Protection</i>	21
	<i>Occupational Health and Safety</i>	21
	<i>Plans and Drawings</i>	21
6	Other Issues	22
	<i>Legislation, Standards and Guidelines</i>	22
	<i>Zoning</i>	22
	<i>Approvals</i>	22
	<i>Heritage Assessment</i>	23
	<i>Environmental Assessment</i>	24
	<i>Sustainability</i>	25
	<i>Impact on the Community</i>	25
	<i>Community and Stakeholder Consultation</i>	26
7	Cost-effectiveness and Public Value	28
	<i>Project Delivery Method</i>	28

Construction Program and Schedule	28
Revenue	29
Public Value	29
Appendix A	30
Appendix B	31

Commonwealth Avenue Bridge Renewal Project

The purpose of this Statement of Evidence is to provide information to the Australian public to comment on, and the Parliamentary Standing Committee on Public Works to enquire into the works proposed under the Commonwealth Avenue Bridge Renewal (CABR) Project (the Project).

Executive Summary

The National Capital Authority seeks approval from the Public Works Committee to proceed with the Commonwealth Avenue Bridge renewal project. The works are proposed to renew Commonwealth Avenue Bridge and provide a minimum of a further 50 years design life.

The renewal will strengthen and widen both bridge structures, replace all safety barriers, create dedicated pedestrian and cycle paths on both sides of the bridge and replace approach ramps and lighting on the bridge. Utility and services work form part of the project.

The estimated cost of the Project is \$137.5 million (excluding GST). The cost estimate includes project management, design fees, construction costs, and provision for construction risk. No revenue is expected to be generated by these works.

Preliminary environmental investigations have been undertaken and the project has been designed to minimise impacts. All works will be designed and constructed in accordance with the relevant legislation, standards, codes and guidelines. Buildability experts will review the design works.

The Project will promote opportunities for local enterprises through construction trade packages, providing potential employment opportunities.

1 Project Title

- 1.1 National Capital Authority, Commonwealth Avenue Bridge renewal project (the project).

2 National Capital Authority

- 2.1 The National Capital Authority (NCA) is a non-corporate Australian Government agency established under the *Australian Capital Territory (Planning and Land Management) Act 1988* (the PALM Act) for the delivery of the functions set out in Section 6 of the PALM Act.
- 2.2 The NCA seeks approval from the Public Works Committee to proceed with the project.

3 Context

Location of the Works

- 3.1 Commonwealth Avenue Bridge (the bridge) is located over Lake Burley Griffin, connecting Commonwealth Avenue between Civic and Parkes, Australian Capital Territory.
- 3.2 The bridge forms part of the dual carriageway Commonwealth Avenue and comprises two separate parallel structures about 310 metres (m) in length.
- 3.3 The bridge, as part of Commonwealth Avenue, provides a critical and strategically important arterial corridor in Canberra's metropolitan transport network and is one of two major crossings over Lake Burley Griffin. The western span provides a northbound traffic and shared path bridge, and the eastern structure provides a southbound traffic and shared path bridge.
- 3.4 The bridge was designed in the late 1950s to a standard to accommodate a 32 tonne (T) HS20 vehicle.
- 3.5 Beyond the Bridge abutments are four 'landscaped' areas. These are Henry Roland Park (northwest abutment), Commonwealth Park (northeast abutment), the Parliamentary Zone (southeast abutment), and unnamed open space (southwest abutment).

Meeting current and future road user needs

- 3.6 Commonwealth Avenue is classed a 'general access road' as such, vehicles with a load rating of up to 42.5T should be able to travel along Commonwealth Avenue. However, due to the bridges current load rating of 32T such a vehicle is unable to cross from one side of the avenue to the other via the bridge.
- 3.7 Load limits are currently in place on the bridge.
- 3.8 The strengthening of the bridge will enable the current load limit to be increased. The load rating of 42.5T is similar to the T44 design load rating as defined in the 1992

Austrroads Bridge Design Code. Therefore, a T44 vehicle load rating has been adopted for strengthening the bridge.

3.9 A Load Rating (RF) assessment can determine the theoretical load carrying capacity for a bridge. An RF of one or more indicates that the structure has sufficient capacity to support the nominated vehicle loading. A RF of less than one indicates that there is a deficiency and strengthening is required.

3.10 The RF for a bridge is calculated as follows:

$$\text{RF} = \frac{\text{Available bridge capacity for live load effects}}{\text{Live load effects of nominated rating vehicle}}$$

3.11 In 2020, the RF was calculated for Commonwealth Avenue Bridge. The RF is calculated by dividing the current load rating for the bridge (i.e. 32T) by the nominated design load rating for the project (i.e. T44). The current bridge has an RF of 0.73. This indicated that strengthening of the bridge is required to achieve a T44 load rating.

Improving shared user path needs

3.12 In addition to catering for vehicular traffic, Commonwealth Avenue Bridge also serves as the primary north-south link for pedestrians and active travel users. Data recorded by Pedal Power ACT in 2018, further emphasises this point, indicating that between 650 and 820 trips (by pedestrians and cyclists) are made across each span of the bridge, during the morning and evening peaks. At only 2.4m wide, the existing shared paths, on both spans of the bridge, do not meet Austroad Guidelines or industry standards.

3.13 Commonwealth Avenue Bridge is part of the highly popular Central Basin walking loop. The project will double the width of the path system, significantly improving safety for both pedestrians and cyclists.

Renewing active travel infrastructure

3.14 Existing traffic barriers and handrails on the bridge do not comply with current standards. Existing pathways in the four approaches to the bridge and the pathways and facilities on the bridge provide low levels of accessibility compliance.

3.15 A detailed assessment was undertaken as part of developing the requirements to address the key needs of the project. This need to replace all barriers on both bridge spans to comply with code requirements and improve safety for all users of the bridge was identified.

3.16 On 20 March 2020 the project business case was accepted for Infrastructure Australia's evaluation. Following the acceptance of the business case, the Australian Government announced funding to deliver the project.

ACT Government Light Rail Project

- 3.17 The ACT Government has announced its intention to construct its Light Rail System to Woden. The project is proposed to be built in two stages. Stage 2A, which is currently under consideration by the NCA envisages the construction of the rail system from Civic to Commonwealth Park. The ACT Government has advised the NCA that construction of this stage will commence in the 2024/25 Financial Year and be completed in the 2027/2028 Financial Year.
- 3.18 The NCA has worked closely with the ACT Government to consider the interaction between the two projects. NCA officers and representatives of the ACT Government have shared information regarding matters such as construction timing, services relocation, balustrade design and path connections. The design of the Commonwealth Avenue Bridge renewal has been informed by these discussions.

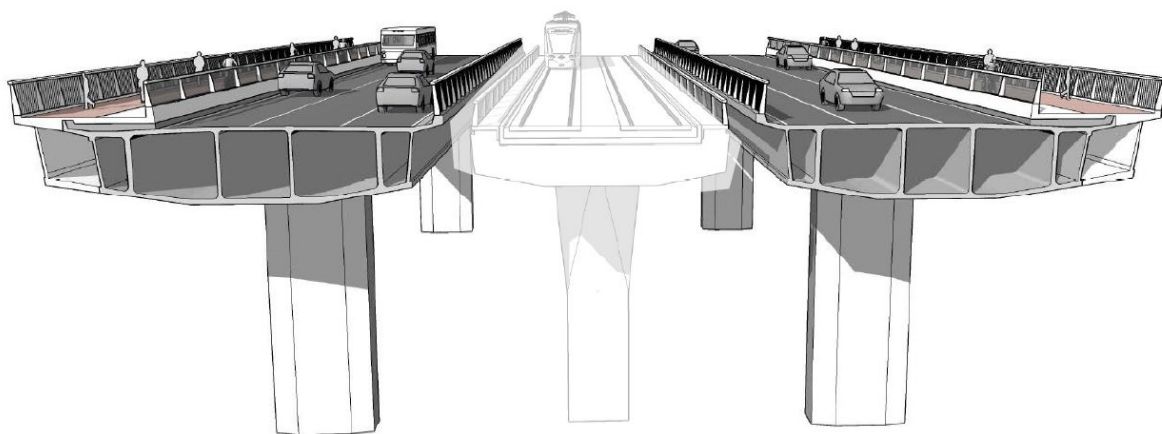


Figure 1: An artist's impression of the Commonwealth Avenue Bridge renewal works showing an indicative bridge to accommodate the future Light Rail, further design work by the ACT Government to be undertaken

- 3.19 The NCA has not been advised by the ACT Government of the anticipated commencement or completion date for Stage 2B (Commonwealth Park to Woden). However, as the Commonwealth Avenue Bridge Renewal is anticipated to be completed in 2025, it is expected that the strengthening and widening work will be complete prior to Light Rail Stage 2B commencing.

4 Need for the Works

Purpose of the Works

- 4.1 The purpose of the works is to renew Commonwealth Avenue Bridge. The objective of the renewal is to strengthen and widen both bridge structures, replace all the traffic and shared path safety barriers on the bridge, and upgrade the shared path approach ramps and lighting on the bridge. Utility work form part of the project.
- 4.2 The key objectives of the works are to:
- meet current and future road user needs in the corridor. Strengthening work will enable the bridge vehicle load capacity to be increased, extending the design life of the current bridge
 - improve the shared user path. Widening the bridge will provide increased shared user path capacity and provided better separation between all users. Improvements to the bridge approaches will enable the shared path network to be compliant with Disability Standards for access
 - meet current design standards and improve the amenity of all users. New active travel infrastructure will improve safety on the bridge and comply with current Australian Standards. New lighting on the bridge will improve the amenity and user experience.

Project Description

- 4.3 The proposed works will renew the bridge in these key areas:
- strengthening - the bridge structure is to be improved to provide a live loading capacity of T44/L44
 - safety – the vehicular and pedestrian safety barriers will be replaced to meet contemporary standards. The shared user paths on both sides of the bridge will be widened from the current 2.4m to 5m with dedicated north-south cycle lanes proposed
 - accessibility - new barriers, lighting and bridge approach ramps will be designed to comply with accessibility access codes improving urban amenity and access for all users of the bridge.
- 4.4 The proposed Commonwealth Avenue Bridge renewal project will enable NCA to undertake the works to the bridge to meet current and future forecasted user demands, comply with current Australian Standards and codes and extend the bridges functional design life.

Options Considered

- 4.5 The NCA identified the need for the project in 2018 and commenced consideration of the approach for the project. The Initial Business Case prepared in late 2018 considered a range of renewal options for the current Bridge, and a single new construction option. In total eight options for the project were developed including a 'do nothing' option.

4.6 The identified options were as follows:

- do nothing and retain the existing bridge (Option 1)
- retain the existing bridge and strengthen, replace barriers only (Option 2)
- retain the existing bridge and strengthen, replace barriers, path widened by outward extensions (Option 3)
- retain the existing bridge and strengthen, replace barriers, path widened into traffic lane (Option 4)
- retain the existing bridge and strengthen, replace barriers, new cyclist bridge (Option 5)
- retain the existing bridge and strengthen, replace barriers, Light Rail Stage 2 in traffic lane, path widened by outward extensions (Option 6)
- retain the existing bridge and strengthen, replace barriers, new cyclist bridge, and Light Rail Stage 2 on the existing bridge (Option 7)
- build a new bridge for traffic, light rail vehicles, pedestrians, and cyclists (Option 8).

4.7 Each of the options was evaluated using a multi-criteria assessment to facilitate a comparable evaluation of each option. The analysis of each option was carried out across thematic areas of transport function; urban design, strategic planning and policy alignment; and engineering, environment, and deliverability as detailed below:

- transport function (50 percent weighting)
 - extent to which option supports safe, direct and accessible walking connections
 - extent to which option supports safe, direct and accessible cycling connections
 - extent to which option impacts on current vehicle traffic capacity
 - extent to which option meets future transport demand forecasts (30 years)
 - extent to which design option supports future light rail connectivity
- urban design, strategic planning and policy alignment (25 percent weighting)
 - degree of alignment with strategic planning objectives (e.g. ACT Transport Plan, National Capital Plan)
 - consistency with NCA Avenues Design Strategy principles and Burley Griffin design intent
 - extent to which option retains or enhances views of the surrounding area /landmarks and visual amenity of the bridge structure
 - extent to which the option enhances the public domain (amenity)
 - likelihood of the option obtaining public support
- engineering, environment, and deliverability (25 percent weighting)
 - ease of construction
 - extent to which option would impact on transport network function (vehicle, pedestrian and cycling movements) during construction
 - extent to which option impacts on adjacent infrastructure (e.g. sewer stacks, bridge landings)

- extent to which option will likely result in environmental impacts
- ease of compliance with heritage, environmental planning and approvals requirements.

4.8 The outcomes of the Initial Business Case (IBC) were that three options were identified for further analysis in a Detailed Business Case (DBC). The options carried forward were Option 1, Option 3 and Option 8. A base case or 'do minimum' was also added to comply with Infrastructure Australia guidelines. The traditional 'do nothing' option (Option 1) was included for the purpose of comparison to Option 3 and Option 8. Option 3 as part of the IBC options assessment was identified as being the preferred option and was therefore carried forward for further option analysis. Option 8 was carried forward to assess and test the relative merits of a combined delivery solution with the ACT Governments Light Rail Stage 2 project.

Detailed business case

4.9 The next stage was a detailed analysis of the shortlisted options.

4.10 The options assessment framework applied to identify and assess the options followed the methodology below:

- establish project needs and functional requirements
- establish the project scope
- establish options
- assessment of options including cost-benefit analysis and financial assessment
- preferred option selection
- option refinement (design optimisation and value management).

4.11 As part of this work, the following refinements to the project were made and assessed:

- the addition of new lighting on the bridge, which was triggered due to safety and required works
- further assessment of the design requirements, including refinement of the bridge loading requirements
- investigation of an appropriate shared path width and configuration and the inclusion of the approach works
- further traffic modelling to assess the impacts the Project may have on the traffic network
- further consultation with the ACT Government into a preferred alignment for Light Rail Stage 2 project.

4.12 The key elements of the four options assessed in the DBC are summarised below.

Base case - do minimum

The Base Case is effectively a 'do minimum' to achieve the Project need and functional requirements. Under this option, the current bridge would be reduced to two traffic

lanes in each direction, with the vehicle lanes widen to 3.7m. A new 5m wide shared path utilising the current shared user path and the current outside traffic lane would be constructed. New vehicle barriers would be installed to separate the new pedestrian and traffic lanes. The Base Case for the Project is therefore, effectively a 'do minimum' to make the bridge functional.

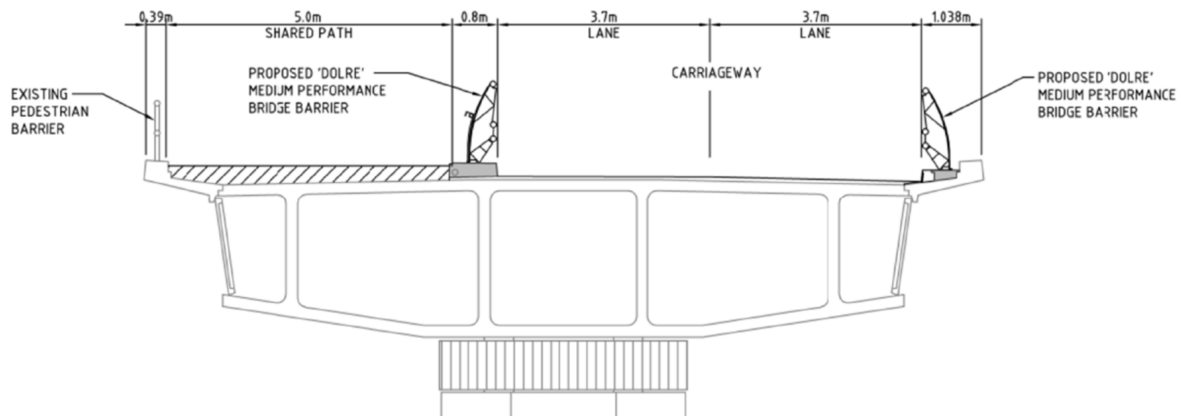


Figure 2: Detailed Business Case Base Case

Option 1 - do nothing

The do-nothing option would not result in the current bridge being strengthened or widened. Current bridge infrastructure (i.e. safety barriers, lighting and the bridge approach ramps) would be retained and maintenance would continue to be carried out as required. The do-nothing option was not considered a feasible alternative as it would not meet the objectives of the project including meeting current standards such as DDA compliance requirements. A do-nothing option would not assist in meeting the current and anticipated future needs of the community.

Option 2 - strengthen and widen the existing bridge

Option 2 proposes to increase the load bearing capacity of the current bridge to handle current and forecast traffic load demands, and to extend the design life by at least 50 years. It is also proposed to upgrade the vehicle and pedestrian safety barriers and widen the bridge to make it safe and operational.

The widening includes minor increases to traffic lane widths and an appropriate shared pedestrian and cycle pathway to ensure the corridor can adequately and safely cater to all users now and into the future, in accordance with current Austroads Standards.

Works are also proposed to tie the widened bridge into the pathways beyond the bridge in either direction, the replacement of lighting and the relocation of services that are currently located in the bridge structure.

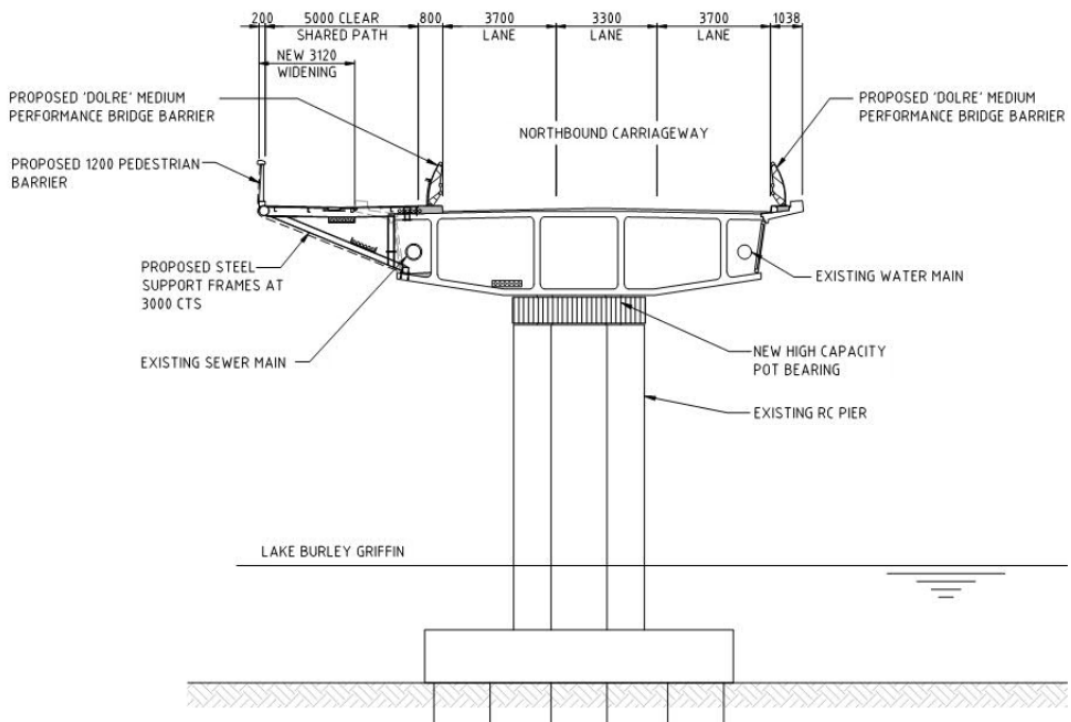


Figure 3: Detailed Business Case Option 2

Option 3 - replace the current bridge with a new twin bridge

Under this option, the current bridge would be demolished, and a new twin bridge constructed. The new twin bridge structure would be capable of accommodating all transport modes, including light rail, six lanes of vehicle traffic (three lanes in each direction) and 5m wide bi-directional paths on both bridges which provide adequate separation between all shared path users.

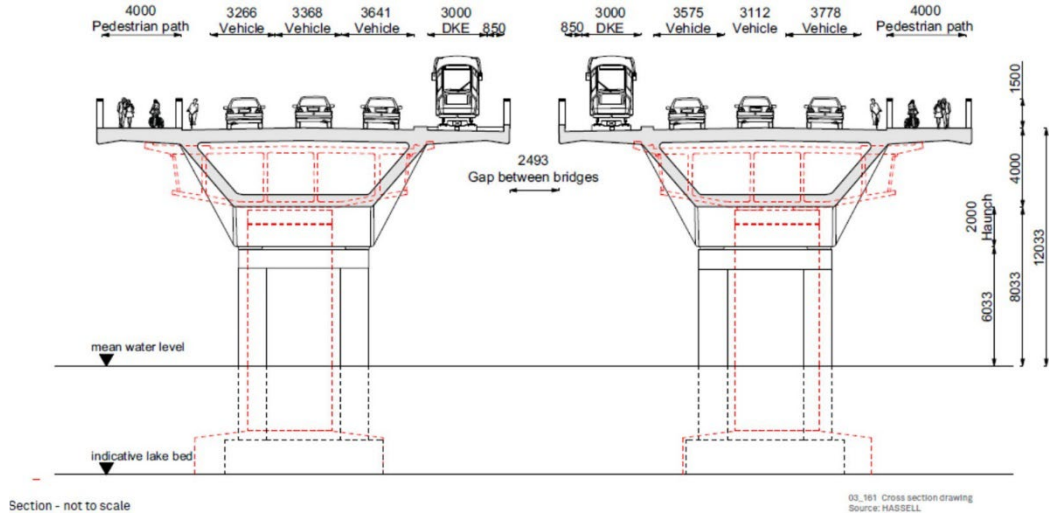


Figure 4: Detailed Business Case Option 3

Analysis of options

4.13 Each of the options was evaluated using a multi-criteria assessment. This approach was based on the following core principles that each option must satisfy:

- strengthening the bridge structure to T44/L44 loading capacity
- widening the shared user paths on both sides of the bridge (from 2.4m to 5m)
- replacing all barriers on both bridge structures to comply with current design standard requirements for all users of the bridge
- improvement to the bridge approaches to improve access to the bridge for all users and improve integration with wider network.

4.14 The options assessment also included consideration of the following objectives:

- ensuring any upgrades to the Commonwealth Avenue transport corridor are consistent with the overall urban design and vision for the Avenues, as envisaged in the original Walter Burley Griffin plan for Canberra and as articulated in the NCA's Kings and Commonwealth Avenue Design Strategy
- consistency with broader ACT Government transport planning objectives and relevant Austroads Guidelines around pedestrian and cycling safety, access and connectivity.

4.15 Recognising the critical role that Commonwealth Avenue plays within the wider transport network and urban planning context, the options assessment in the Detailed Business Case also considered the interface with the proposed Light Rail Stage 2 project.

Preferred option

4.16 Option 2 was identified as the preferred option. Option 2 adequately meets the project objectives and user requirements, reduced risk to the NCA and Australian Government and represented the greatest value for money outcome. In summary Option 2 provided the NCA with a solution that:

- strengthened the current bridge structure and improve the live loading capacity
- delivered additional shared user path space on both sides of the bridge
- addressed safety requirements of the current bridge and improve access with the surrounding shared path network.

Cost benefit analysis

4.17 A Cost Benefit Analysis was undertaken as part of the Detailed Business Case and the project produced a benefit cost ratio of 2.65.

Procurement of design firm

4.18 The procurement process commenced with a request for tender for design consultant services advertised through the Government tendering portal, AusTender. SMEC Australia has been awarded the contract for designing the project works. For this

design package of work the firm are required to develop options for each of the main design areas of:

- bridge strengthening
- shared path widening
- design standards and user amenity controls
 - shared path and Bridge abutment connection improvements
 - bridge road barrier and pedestrian railing upgrade
 - bridge form and material selection
 - lighting design.

5 Scope of Works

5.1 The scope of works proposed for the preferred option is outlined below. The NCA has undertaken planning, site investigations, stakeholder consultation, and requirements development to determine the scope of the proposed works.

Bridge Strengthening

5.2 Commonwealth Avenue Bridge will be strengthened to enable T44/L44 traffic loading on the bridge and will include the following areas of work as outlined in the design plan at Figure 5.

- widening of all access holes inside the bridge
- web strengthening reinforcement at each bridge pier and span. This will include both vertical and horizontal dowel reinforcement
- bottom slab strengthening. This will involve longitudinal and dowel reinforcement between each pier
- top slab strengthening. This will involve longitudinal and dowel reinforcement at each pier
- thickened boxout to existing bridge tendons.

5.3 The design work by SMEC identified that the current bridge requires strengthening by approximately 54 percent at the piers and approximately 12 percent between the piers to meet T44/L44 traffic loading. The design plans are shown in Appendix A.

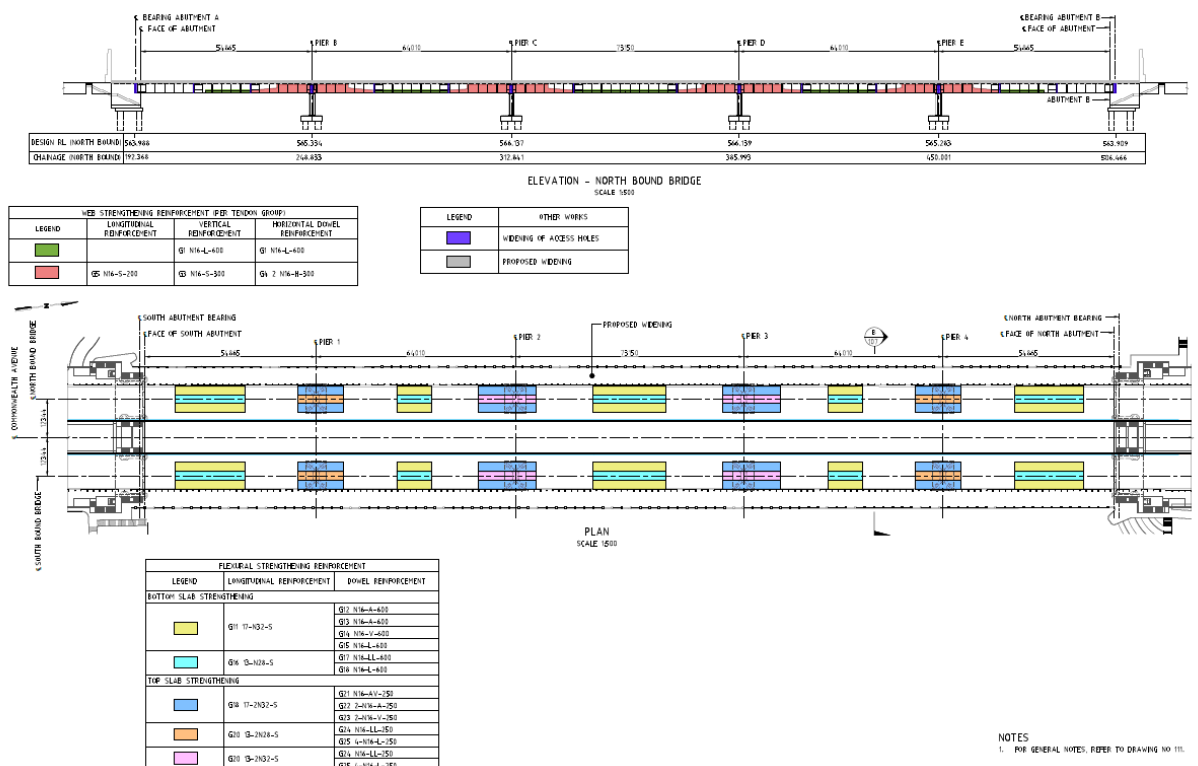


Figure 5: Proposed strengthening of Commonwealth Avenue Bridge

Bridge Widening

- 5.4 The approach to deliver of the bridge widening is a critical element in the overall design as it is required to be lightweight and complementary of the current bridge structure.
- 5.5 The widening of the bridge will include the following infrastructure:
- new internal steel trusses to support the new widened shared path and architectural cladding. The trusses will be at approximately 1.5m spacings longitudinal to the bridge
 - new bottom precast concrete slab/cladding. This will be supported off the bottom of the steel truss to match the current bridge profile
 - new pavement slab and precast edge beam
 - new concrete service tray to support existing utilities and services below the new pavement slab. Utility works for the project include all activities and works necessary for the disconnection adjustment and relocation of infrastructure related to utility services which are affected by the project.
- 5.6 The widened shared path will provide more space for pedestrians, cyclists, and other active travel users. The design will provide an overall 5m shared path. The increase in shared path space equates to approximately 52 percent of additional shared path space compared to the current path.

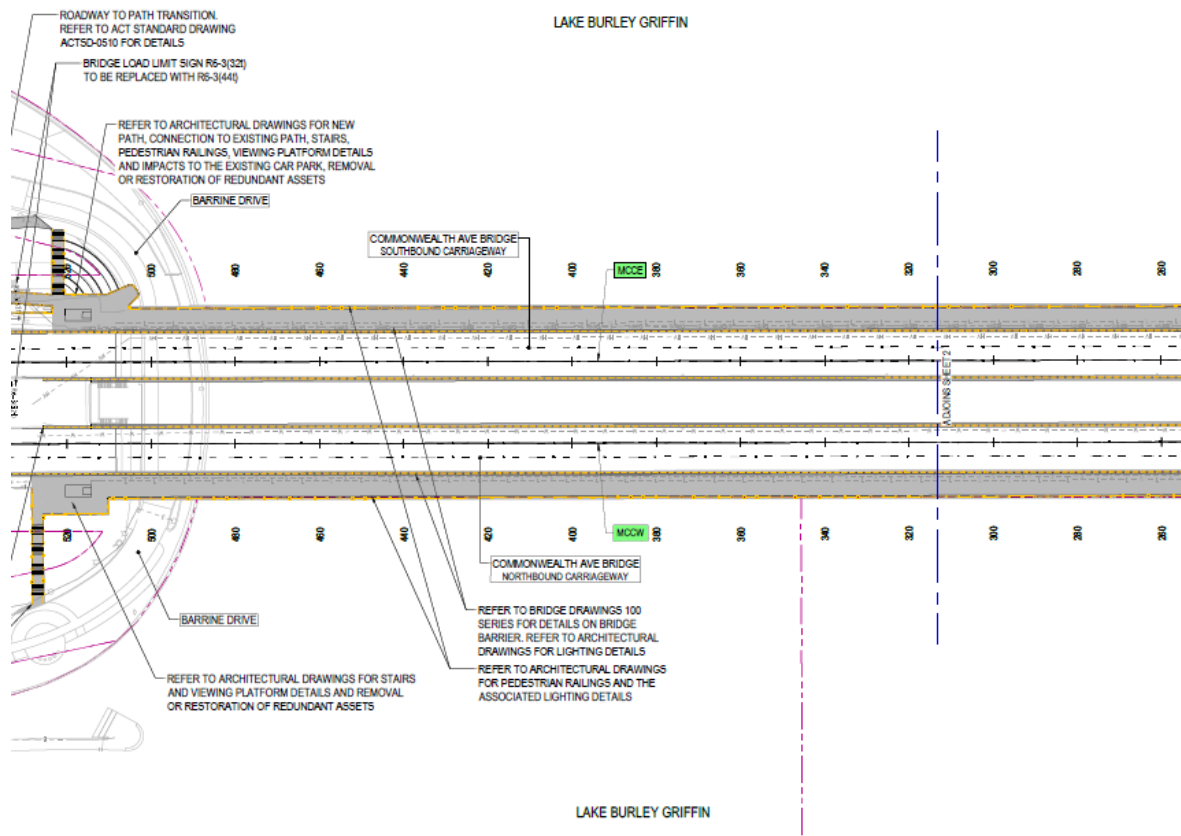


Figure 6: Aerial section of proposed widening (in grey) of Commonwealth Avenue Bridge

Active Travel Infrastructure

- 5.7 Active travel infrastructure (barriers, lighting and paths etc.) works include a range of works to improve the safety and experience for all users of the bridge. This includes landscape works that address accessibility access. The focus is to improve connectivity around the bridge and include improved pedestrian access links to and from the bridge.
- 5.8 The proposed works will include new barriers, lighting and path connections to and from the bridge. The scope of the proposed works includes:
- replacing all vehicle barriers on the bridge with a proprietary barrier such as the *VGAN 300 TL4* barrier. The proposed barrier height is 1200mm with 1800mm post spacing. A rub rail will be attached to the back of the vehicle barrier. Consideration of lighting in the rub rail is being investigated
 - replacing the shared path bridge balustrades. The proposed pedestrian balustrade height is 1200mm. A rub rail attached to the back of the vehicle barrier to avoid a cyclist from striking the barrier. A consideration of lighting in the rub rail is being investigated.
 - improvements to each bridge approach will provide better access for all users and integrate with the wider shared path network. Each approach will provide widened paths and new stairs, with the exception of the southwest approach which will only provide a new path. All works will be compliant with current accessibility standards.
- 5.9 The existing car park at the bottom of the northeast ramp at Barrine Drive will be removed and replaced with a new accessible pathway. New accessible parking is being investigated as part of the northeast urban design work.
- 5.10 Landscaping works will be carried out as part of the bridge approaches. Some existing landscaping and vegetation may be disturbed due to the project. New landscaping will be designed with the existing landscape surrounding the bridge and to be of low maintenance and low water use where practicable.

Bridge Materials

- 5.11 The following heritage design principles have been factored into the material and colour options provided.
- light colours to the bridge - responding to existing white precast with exposed Quartz aggregate
 - light colours to steel and aluminium balustrades and crash barriers
 - precast panels in line with the existing panels and detail
 - textures and colours of the surrounding area and respond to them.
- 5.12 New infill elements will recognise the characteristic materials, textures and colours of the surrounding area and respond to them. They will not be a copy of the current materials but will rather use the existing as a point of reference and reinterpreted in either a considered harmonious, complementary, or contrasting way. Light and

shadow affect how materials and colours are perceived, and this will be considered as part of the design process.

- 5.13 To maintain the aesthetics of the bridge, the addition of vertical light poles on Commonwealth Avenue Bridge should be avoided in order to maintain the original horizontal lines that characterise the bridge. New lighting elements will reinforce the horizontal emphasis of the original bridge when viewed from afar. Lighting for the shared user paths will be upgraded to increase safety on the bridge through increased lighting levels. Final lighting solution must focus the light onto the deck of the bridge and provide uniform lighting eliminating dark light patches. The use of asymmetric light distribution lens is recommended for the Project.

Landscaping

- 5.14 New landscaping is expected as part of the works. Some existing landscaping and vegetation may be disturbed due to the installation of new path connections to and from the bridge. New landscaping will be designed to improve path gradients and connections at all four abutments. New landscaping will be designed to be of low maintenance and low water use.

Planning and Design Concepts

- 5.15 The planning and design considerations for the bridge renewal include:
- meeting a design life of at least 50 years for the bridge
 - complying with relevant government legislation
 - compliance with Australian Standards and Austroads Guides relevant to bridge and road design
 - meeting all relevant work health and safety standards
 - the functional requirements of the project
 - whole-of-life cycle cost and value for money requirements.

Structural Design

- 5.16 Structural design will ensure that all works are designed to the current applicable design codes and be suited to long-term durability for exposure to traffic and pedestrian use in line with current and expected forecast use.
- 5.17 Existing structural systems will likely be replicated given they have been proven to be fit for purpose in their application and use.

Provisions for People with Disabilities

- 5.18 The project will comply with required provisions for disabled access detailed in the *Disability Discrimination Act 1992*. A number of non-compliances with respect to the bridge approach ramps will be addressed during the design development process.

Security Measures

- 5.19 Various measures and treatments can be used to improve the security of public spaces. The Design Consultant will consider design requirements to be adopted to address security and crime prevention strategies for the project.
- 5.20 Prior to commencing any works security requirements (e.g. security screens and safety barriers) will be addressed in order to control unauthorised access, vandalism, or unintended damage to the project site.

Fire Protection

- 5.21 All construction and fire protection requirements will, as a minimum, be in accordance with the provisions of applicable codes and standards.

Occupational Health and Safety

- 5.22 The Project will comply with the *Work Health and Safety Act 2011 (WHS) (Cth)*, *Federal Safety Commissioner Act 2022*, and Work Health and Safety Regulations.
- 5.23 The Design Consultant will employ a Safety in Design approach to address risk mitigations and document safety measures to be adopted in both construction and operation of the works. The Construction Contractor will be required to develop and adhere to a safety management plan for the construction phase, which incorporates Safety in Design mitigations identified by the Design Consultant as well as other relevant risk mitigations, prior to commencing any works.
- 5.24 Project safety and work health and safety specialists will undertake work health and safety assessments to ensure all impacts are identified and correctly managed during the works.

Plans and Drawings

- 5.25 The project design plans and drawings are attached at Appendix A. These plans are concept design only as the detailed design is yet to be completed.
- 5.26 The design is based on the functional requirements of the Commonwealth Avenue Bridge renewal project.

6 Other Issues

Legislation, Standards and Guidelines

6.1 The following key legislation is considered in the development of the project. Relevant Australian Standards and the National Construction Code are applicable to all design, and construction works.

- The *Disability Discrimination Act 1992* (Commonwealth)
- *Australian Standard AS5100:2004, Part 1 to 7*
- *Australian Standard AS/RMS 5100.5 April 2011 Interim – Bridge Design, Part 5: Concrete*
- *Australian Standard AS1170.2:2011 - Wind Loading*
- Austroads Guide to Bridge Technology Part 1 to 7
- Austroads Research Report *AP-R445-13 on Standardised Bridge Barrier Design*.

Zoning

6.2 The project will be predominantly located over Lake Burly Griffin. The bridge structures are contained within Commonwealth Avenue which is a road reserve. In addition, the project extends into the blocks described in the following table.

Lot Details	District	Legal Instrument	Custodian
B23 S33	Acton	Environment, Planning and Sustainable Development Directorate	City Renewal Authority
B25 S33	Acton	Environment, Planning and Sustainable Development Directorate	City Renewal Authority
B2 S75	Acton	Environment, Planning and Sustainable Development Directorate	City Renewal Authority
B5 S44	Parkes	National Land Unleased	NCA
B2 S44	Parkes	National Land Unleased	NCA
B1 S44	Parkes	National Land Unleased	NCA
B5 S2	Parkes	National Land Unleased	NCA
B8 S27	Parkes	National Land Unleased	NCA
B5 S27	Parkes	National Land Unleased	NCA
B12 S42	Yarralumla	Transport Canberra and City Services	Roads ACT

Approvals

6.3 The project will be subjected to the National Capital Authority Works Approval process. Planning approval will be granted by the National Capital Authority.

6.4 The site is located over Lake Burley Griffin. By gazette dated 8 April 2022, the Minister for the Environment included the Lake and adjacent lands in the Commonwealth Heritage List. The bridge is identified within the boundary of the schedule of this gazette under the *Environment Protection and Biodiversity Conservation Act 1999*.

The NCA will refer the project to the *Environmental Protection and Biodiversity Conservation Act 1999* approval process.

- 6.5 ACT Government Approvals. The shared user path approaches located on the north and southwestern side of the bridge are located on land that is controlled by the ACT Government. Subject to final design, there may be a requirement to seek ACT Government approvals for any temporary or permanent works undertaken for the project.

Heritage Assessment

- 6.6 The bridge has no statutory heritage status and is not currently on any heritage lists. However, by gazette dated 8 April 2022, the Minister for the Environment included the Lake and adjacent lands on the Commonwealth Heritage List. The bridge is identified within the boundary of the schedule of this gazette. The bridge is immediately adjacent to the Parliament House Vista which is a place on the Commonwealth Heritage List. Some of the works will also occur within the Vista.
- 6.7 A heritage report was prepared for the project and outlines a range of heritage values for the bridge, partly drawing upon existing research. These values are Commonwealth Heritage, possibly even National Heritage in some cases, and they relate to:
- the importance of the bridge in the history of the development of Canberra as the national capital and realisation of the city plan
 - the bridge is an important element in the context of the landscapes of the lake and Parliament House Vista, including prominent views
 - it has a range of creative and technical qualities, both in the design of the bridge and in its contribution to the framing of the Parliament House Vista
 - the potential contribution of the bridge to larger heritage places and their social values related to the Canberra and Australian communities
 - the contribution of the bridge to larger heritage places and their special associations with individuals of importance in Australia's history⁷³.

Having considered the proposed works to the Commonwealth Avenue Bridge, the heritage assessment concluded that the proposed works will:

- have a moderate impact on several heritage values given the substantial extensions to the bridge on either side, removing parts of the original structure and handrails and impacting several creative qualities. However, it would appear the design of the extensions has sought to minimise the impact through the profile and simple, modern form and materials
- have a minor impact on several heritage values given the extensions to the bridge, its otherwise changed appearance, and the changes to the landscape at the southeast end of the bridge. These impacts are assessed at a landscape scale, with the impact being greater at close range, but less perceptible in views from further away. New plantings will to some extent mitigate the landscape impact over time
- otherwise, have no impact on another relevant heritage value

- be not consistent or not fully consistent with a range of conservation policies or strategies related to the impacts noted above
- be consistent or broadly consistent with a range of other conservation policies or strategies.

Environmental Assessment

- 6.8 A flora and fauna report to assess the potential ecological impacts associated with the project. The study included an assessment of potential impacts on threatened and migratory species, endangered populations and threatened ecological communities (TECs) listed under the *ACT Nature Conservation Act 2014* (NC Act) and/or the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- 6.9 An initial desktop search was carried out to identify the probability of threatened fauna, flora and ecological communities occurring within a five-kilometre radius around the bridge. Field surveys were then carried out by SMEC on 5 December 2022. Vegetation surrounding the northern and southern sides of the bridge is characterised as a highly modified and planted urban assemblage consisting of local indigenous plants. Some native species were noted during the surveys; however, no areas met the characteristics of a remnant native vegetation community.
- 6.10 Natural Temperate Grassland of the South Eastern Highlands and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland were both identified during desktop searches as potentially being present near the bridge. Both are threatened ecological communities. Neither were found to be present during field surveys.
- 6.11 Species mapping for the area identified known habitat for several threatened species in close proximity to the bridge. Field surveys did not identify the presence of threatened flora species. The largely non-indigenous trees present in the study area can provide shelter, nesting site and feed resources for birds and arboreal mammals such as the Common Brushtail Possum. Vegetation surrounding the bridge is unlikely to provide an important resource for any threatened species.
- 6.12 The Golden Sun Moth (*Synemon plana*) was another species given careful consideration as habitat is mapped near the northern end of the bridge. Golden Sun Moth is listed as vulnerable under the EPBC Act and endangered under the NC Act. While the northern side of the bridge is within close proximity to known populations of the Golden Sun Moth, the area surrounding the bridge however is not considered suitable habitat. The south side of the bridge is more than 500m from known populations. Future colonisation or the discovery of an unknown population on the south side is very unlikely.

Overall, the assessment determined that the project it is not likely to impact any significant flora and fauna listed under the EPBC Act or the NC Act.

Sustainability

6.13 During the design development phase and ensuring that the design represents value for money, sustainability will be a priority for the project. The design will ensure the most advantageous combination of cost, quality and sustainability while meeting project requirements. In this context the following definition has been adopted:

- sustainability - Economic, social and environmental benefits in support of the project requirements.

6.14 The bridge design will seek to have the least environmental footprint practical through consideration of the following:

- use of recycled / reused materials
- using locally sourced materials / labour
- providing a robust design solution to reduce ongoing maintenance
- be sensitive to the surrounding environment.

Impact on the Community

6.15 The NCA has conducted assessments to identify potential environmental and local community impacts, and proposes the following suitable mitigation measures.

Traffic, transportation and road impacts

- the project is expected to have an impact on the local community, as the construction works will likely result in disruptions to traffic flow (vehicular, cycle and pedestrian) during construction. This will lead to congestion and delays, with potential flow-on impacts across the surrounding road network. The NCA (and its construction contractor) will continue to work closely with the ACT Government (and its construction contractors) to minimise traffic disruption, whilst ensuring a safe work site
- the project will establish temporary traffic flow to segregate construction from road users and pedestrians during construction works
- current traffic movements and pedestrian accesses while reduced are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary delays
- during works, traffic would be managed in accordance with a construction Traffic Control Plan.

Visual impacts

- the project includes works that will have temporary visual impact. The bridge will in general retain the visual appearance of the current bridge. New materials to strengthen the bridge will be hidden from public view due to their location within the bridge. New materials for the widening of the bridge will complement the existing bridge.

Noise impacts

- there will be some noise impacts during construction. Noise impact will depend on the source of the noise and proximity of the receiver to it. The amount of noise generated by construction activities for the project will vary depending on the site work and the type of work being carried out. For instance, noise levels from activities such as demolition and removal of excavated material will be different to noise from activities from inside the bridge
- construction activities will need to comply with the project Environmental Management Framework.

6.16 Overall, the proposed works are expected to have a positive benefit on the local community through the generation of temporary employment opportunities for construction and building contractors to support the works. During operation, the strengthening and widening would support current and future needs.

Community and Stakeholder Consultation

6.17 Since late 2020 there has been and community consultation through the provision of a dedicated informational webpage on the project hosted on the NCA's website. Further, since 2021 key stakeholders have been engaged with the project through ongoing consultation.

6.18 A diverse range of stakeholders utilise, or have a relationship with Commonwealth Avenue Bridge. Each offers a different perspective on the proposed renewal depending on their connection with the bridge. Detailed stakeholder analysis has been a key step in developing project specific communications and engagement strategies and includes:

- identifying specific stakeholders
- gathering information on how stakeholders may be affected by the project
- determining the best engagement tools to meet stakeholder needs.

6.19 The most recent consultation on the project was carried out during April 2023. A number of activities were carried out during the engagement period to give community members and stakeholders a chance to learn more about the project, meet the project team and provide feedback including:

- issuing a project update to 428 recipients who previously registered to stay up to date on the project
- publishing a public notice on the project webpage detailing and inviting the public to attend one of the four face-to-face kiosk sessions
- holding four community kiosk sessions to provide the public with an opportunity to speak to the project team face to face. The kiosk sessions were held at Queen Elizabeth Terrace near Commonwealth Place on 13 and 15 April and on the foreshore of Lake Burley Griffin at Barrine Drive on 14 and 16 April
- publishing an online survey enabling the public to provide feedback for the project.

6.20 The consultation resulted in feedback from the community. The feedback received ranged from support for the project through to matters including:

- road congestion, construction traffic and disruption during construction
- pedestrian and cyclist safety during construction
- the proposal to remove the carpark near the Lake Burley Griffin foreshore at Barrine Drive
- concern about the cost of the project
- the extent of the proposed upgrades to the path network surrounding the bridge
- how the project relates to light rail over Lake Burley Griffin.

6.21 NCA have committed to undertaking meaningful engagement with the community and stakeholders throughout the project planning, implementation and completion phases. As the project progresses a continuous improvement cycle will be implemented to ensure the NCA's engagement process reflects community needs.

7 Cost-effectiveness and Public Value

- 7.1 The total budget for the proposed works is \$137.5 million (excluding GST). The project cost includes all costs required for the delivery of the project including project management and design fees, construction costs, contingencies and escalation provisions.

Project Delivery Method

- 7.2 The NCA understands that there is a requirement to prioritise the delivery objectives in determining the best approach to deliver the project. The purpose the selection and definition of a project delivery strategy is to describe the logic applied to the selection of the form(s) of contract(s) to deliver the management, detailed design, procurement and construction of the project works. The selection of a clear and defined delivery strategy supports the following:

- the focus of management effort and effective management of risks through the course of the project
- the effective management of risks through the course of the project
- allocation of each project risk to that party best placed to manage it
- a robust and collaborative framework, which can support the specific requirements of a project of this nature.

- 7.3 In determining the appropriate delivery model, the NCA considered which model best align with the project key considerations.

- 7.4 The outcome of the Delivery option analysis method showed that a two stage Design and Construction contract model, is the preferred delivery strategy to address NCA's key considerations and the project's key risks. The contract model enables the NCA to:

- commence the design for the project early with a Design Services Team
- engage a Construction Contractor to complete the final design with the Design Services Consultant
- complete construction documentation to compete construction
- carry out the construction works.

In order to meet specific requirements for the project, the NCA have developed a number of oversight channels that provide strong governance for the project in the area of governance, procurement, project management and design. The requirements cover accountabilities in areas such as the overall delivery of the project, safety management, design management and risk and financial management.

Construction Program and Schedule

- 7.5 Subject to Parliamentary Works Committee approval, construction is expected to commence late 2023. The NCA has anticipated completion of the project by Financial Year 2024/2025.

- 7.6 A key objective of the project is to maintain access over the Lake throughout the construction phase of the project. This will ensure the project has minimal disruption to road users as far as practical during construction.
- 7.7 Throughout the design process, the design team will seek to develop a design solution that considers the following key constructability criteria:
- design will facilitate construction in a safe manner and without risk of an environmental incident
 - construction is as simple and straightforward as possible, therefore minimising, the time, cost and risk associated with construction
 - the amount of temporary works, such as temporary service relocations (if any) is minimised
 - staging of construction is to cause minimal disruption is caused to existing traffic, cyclists and pedestrians.

Revenue

- 7.8 No revenue will be derived in the construction of the project.

Public Value

- 7.9 The public will benefit from the renewal of the bridge with improved access over the Lake via widening of the shared user path which will adequately and safely cater to all users now and into the future, in accordance with current Austroads Standards. The bridge strengthening will enable the bridge to accommodate T44/L44 loads to match the load rating of the surrounding road network.
- 7.10 The renewal of the bridge will enable NCA to ensure the bridge meets current standards, and ensure the design life of the bridge is extended by at least 50 years.
- 7.11 The project will generate short-term employment within the office fit-out and building infrastructure sectors and will provide local employment opportunities in a number of areas.

Appendix A

Commonwealth Avenue Bridge renewal project Design Package

Appendix B

Commonwealth Avenue Bridge renewal project Community Engagement Report

[This page intentionally blank]