

## Planning Report

# Works Approval Application

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<b>Works Approval Subject:</b>	<p>The proposed works subject of this application are:</p> <ul style="list-style-type: none"> <li>■ Light rail stops along Federal Highway and Northbourne Avenue, excluding the Alinga Street (Civic) terminus.</li> <li>■ Mid-block crossings along Northbourne Avenue.</li> </ul>
<b>Site location:</b>	<p>The proposed works are located within the Federal Hwy and Northbourne Ave road corridor.</p>
<b>Canberra Metro Works Approval Ref:</b>	<p>DWA 12</p>
<b>Approval required under the NCA because:</b>	<ul style="list-style-type: none"> <li>■ The works are located in a Designated Area.</li> <li>■ Schedule 2 of WA20277 stipulates that further Works Approval applications are required for:             <ul style="list-style-type: none"> <li>■ architectural and furnishing detail of the stops and any other associated infrastructure.</li> <li>■ mid-block crossings within the Northbourne Avenue median and the associated landscaping, south of Antill Street.</li> </ul> </li> </ul>
<b>Canberra Metro Doc #</b>	<p>00-CMC-DEV-MAN-NA-0020</p>

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## Abbreviations

ACTPLA	ACT land and planning authority
CCTV	Closed-Circuit Television
CEMP	Construction Environmental Management Plan
CM	Canberra Metro
DA	Development Application
DDA	Disability Discrimination Act 1992
DKE	Dynamic Kinetic Envelope
EIS	Environmental Impact Statement
EPD	Environment and Planning Directorate
EPA	Environment Protection Authority
FLR	Fixed Location Reader
LED	Light Emitting Diode
LRV	Light Rail Vehicle
NA	Not Applicable
NCA	National Capital Authority
NCP	National Capital Plan
P&D Act	Planning and Development Act 2007
PA	Public Address
PALM Act	Australian Capital Territory (Planning and Land Management) Act 1988
PID	Passenger Information Display
PPP	Public-private partnership
RGBW	Red Green Blue White
TCCS	Transport Canberra and City Services
TCLR	Transport Canberra – Light Rail
WA	Works Approval
WAA	Works Approval Application

# 1. INTRODUCTION

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## 1.1 Project Background

Approval has been granted by the National Capital Authority (NCA) and the ACT planning and land authority (ACTPLA) of the Environment and Planning Directorate (EPD) for the construction of Stage 1 of a light rail network in Canberra, ACT, from Gungahlin Town Centre to the City (the Project).

The Project is being developed through a public-private partnership (PPP) between Transport Canberra Light Rail (TCLR) (ACT Government) and Canberra Metro, the consortium chosen to deliver the Project. The Canberra Metro consortium comprises Pacific Partnerships, CPB Contractors, John Holland, Mitsubishi Corporation, Aberdeen Infrastructure Investments, Deutsche Bahn International and CAF.

The Project section from the Gungahlin town centre to the Flemington Road/Federal Highway junction (along the transport corridor and adjacent lands) is Territory land under ACT Government administration. Approval for the section was granted by the ACTPLA on 21 December 2015 (Development Application (DA) 20152851). The Project was assessed in the impact track under section 123 of the *Planning and Development Act 2007* (P&D Act).

The Project section from the Flemington Road/Federal Highway junction to the Canberra civic centre is Territory land, however it is zoned as a Designated Area in the National Capital Plan (NCP). Under the Australian Capital Territory (Planning and Land Management) Act 1988 (PALM Act) the NCA have responsibility for determining detailed conditions of planning, design and development for proposals in Designated Areas. Northbourne Avenue and the Federal Highway are specifically identified within the Designated Area category of 'Main Avenue and Approach Routes'.

An initial approval for selected details of the Project within the section under the NCA's planning jurisdiction was granted on 27 April 2016 (NCA ref. Works Approval (WA) 20277 / CM ref. WA1). The works approved under WA20277 include the removal of existing infrastructure, installation of rail tracks, tree removal and landscaping.

WA20277 has a number of associated conditions and exclusions which require further works approvals. Works requiring further approval from the NCA are being sought through a series of subsequent WA applications (WAAs) staged to follow the detailed design of relevant elements and enable efficient construction sequencing. This application forms one of these subsequent WAAs.

## 1.2 Summary of Proposed Works under this Application

The works proposed under this WAA are the light rail stops along Federal Highway and Northbourne Avenue, and mid-block crossings (for pedestrians/cyclists) along Northbourne Avenue.

The following six stops are subject of this application:

- Phillip Avenue stop
- Swinden Street stop
- Dickson Interchange stop
- Macarthur Avenue stop
- Ipima Street stop
- Elouera Street stop.

The design for the Alinga Street terminus and the surrounding Civic precinct will be proposed as part of a separate future WAA.

The key elements of the stops include:

- Platform
- Canopy
- Integrated services cabinet

- Customer facilities/furniture:
  - Bench Seating
  - Bin
  - Drinking fountain
  - Balustrades and handrails
- Public Art
- Electronic ticketing
- Signage including wayfinding signage.
- Lighting

The above stop elements are discussed further in Section 3.1. This application does not seek approval for the following elements which are still under design development. Any information on these elements in this report and in any drawings, is for contextual information only.

- Wayfinding signage, including stop signage; Street lighting, and overhead line equipment poles.
- Tactile Ground Surface Indicators.

Ten mid-block crossings along Northbourne Avenue are also subject of this application. Key elements of the mid-block crossings include:

- 'Pedestrian race' / retaining wall
- Pavements
- Kerbs
- Grading
- Soft landscaping
- Lighting (not subject of this application).

The above mid-block crossing elements are discussed further in Section 3.2.

### 1.3 Planning Approval History

Works Approval was initially provided for the project on 27 April 2016. Table 1 provides an overview of the key work elements covered by that approval.

*Table 1 Works Approval for the Project granted by the NCA*

WAA	Description of Works	Date Approved
NCA Ref: WA20277 CM Ref: WA1	<p>Works Approval was granted for the following works associated with the construction of Stage 1 of the Light Rail:</p> <ul style="list-style-type: none"> <li>▪ Demolition of infrastructure within the Federal Highway and Northbourne Avenue road reserves, north of Antill Street as shown on the approved drawings.</li> <li>▪ Demolition/removal of all existing infrastructure within the Northbourne Avenue and Federal Highway medians (the medians) as shown on the approved drawings. For clarity the demolition also includes the median kerb if damaged during construction. The kerb is to be replaced to match existing kerb detail.</li> <li>▪ Earthworks as shown on the approved drawings, and subject to detail excavation drawings being submitted for approval.</li> <li>▪ Removal of trees and other soft landscaping within the medians as shown on the approved drawings.</li> <li>▪ Removal of trees as shown on the approved drawings within the Federal Highway/Northbourne Avenue verges, north of Antill Street.</li> <li>▪ Installation of approximately 5.4 kilometres of embedded rail tracks and concrete track form within the medians as shown on the approved drawings.</li> <li>▪ Installation of soft landscaping including trees within the medians and verges as shown on the approved drawings, and as described in Condition 3a.</li> <li>▪ Construction of new road pavement and road intersections.</li> </ul>	27 April 2016

NCA noted at the time of approval that further Works Approvals would be required for the light rail stops and mid block crossings that are the subject of this application.

## 2. SITE CONTEXT

### 2.1 Site Location

The proposed works apply to the Northbourne Avenue and the Federal Highway road corridor. The six proposed stop locations are indicated with blue circles in Figure 1. The proposed mid-block crossing locations are indicated in Figure 2 with blue lines.



Figure 1 Location Plan – proposed stops



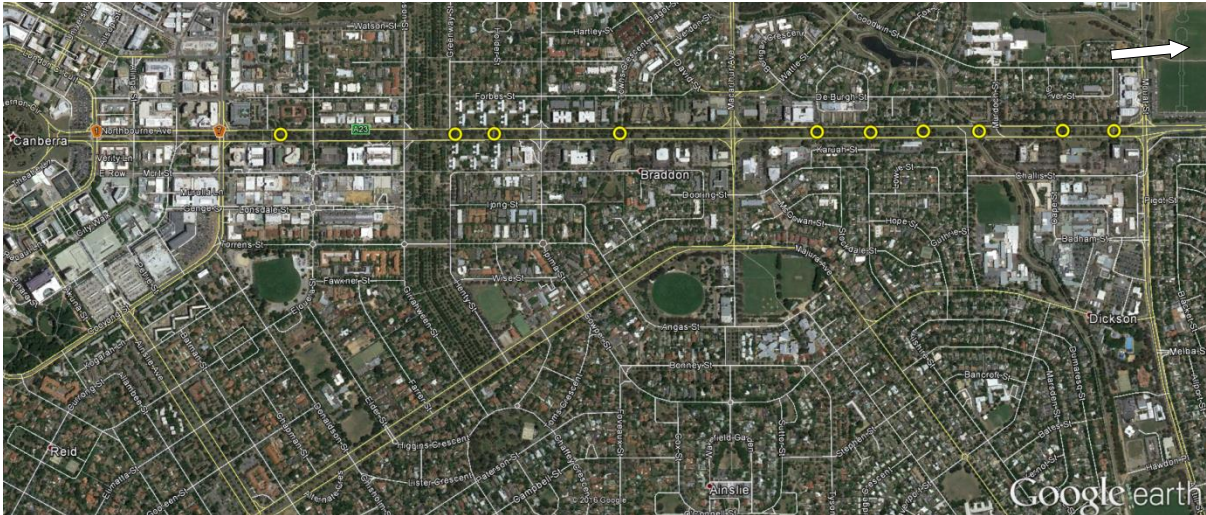


Figure 2 – Proposed mid-block crossings (yellow circles) along Northbourne Avenue

## 2.2 Land Custodian

The land subject to the proposed works is unleased Territory Land. The land custodian is Transport Canberra and City Services (TCCS; formally Territory and Municipal Services (TAMS)).

## 2.3 Planning Jurisdiction

The land subject to the proposed works is a Designated Area of the NCP under the PALM Act. The NCA is responsible for approval all works within Designated Areas. Refer Section 4.1 for further legislative context.



## 3. PROJECT DESCRIPTION

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### 3.1 Stops

The light rail stops proposed under this WAA are the stops along Federal Highway and Northbourne Avenue:

- Phillip Avenue stop
- Swinden Street stop
- Dickson Interchange stop
- Macarthur Avenue stop
- Ipima Street stop
- Elouera Street stop.

This application does not seek approval for the following elements which are still under design development. Any information on these elements in this report and in any drawings, is for contextual information only.

- Wayfinding signage, including stop signage; Street lighting and overhead line equipment poles.
- Tactile Ground Surface Indicators.

#### 3.1.1 Design Approach

The stops designs have been developed to provide a strong visual identity that is consistent and clearly legible throughout the system corridor, and an integrated element of the streetscape.

##### ***Design approach – Public realm***

Canberra Metro's approach to public domain and structures has been to design infrastructure that:

- Provides a high civic quality befitting of Canberra, the nation's capital.
- Offers transparency, optimising, enhancing and protecting views and vistas.
- Uses a light touch and low impact approach that complements the natural environment.
- Delivers a modular system design which is scalable and will grow with Canberra.
- Designs for Canberra's natural climate and seasonality.
- Provides uplift of the native landscape.

##### ***Design approach – The light rail corridor***

The light rail corridor is the geometric driver of the project, determining the system operational and traction power requirements while defining the extent, scale and degree of impact and change upon the local environment, utilities and public realm. Low impact is a constant theme underpinning the design approach while delivering high quality outcomes for safety and urban design and maintaining local urban character.

Canberra Metro's approach to the light rail corridor has been to:

- Design the light rail horizontal and vertical alignments to minimise impacts in the public realm and maximise safety.
- Design the light rail corridor to prioritise meeting the urban design objectives of providing high quality public space which upholds local precinct character.
- Provide an urban design landscape planting, colour and materials palette for the light rail corridor that adjusts to the precinct progression from north to south. This is demonstrated with the earth and buff colours, tones, and native grassland plantings of Flemington Road transitioning through to the more structured Federal Highway gateway precinct and Northbourne Avenue, towards the formal avenue trees and Canberra Central materials of Alinga Street Terminus.
- Define the light rail corridor while achieving integration with the local precinct urban and landscape design. This is illustrated by the visual contrast of platform, walkup and trackform with the adjacent track-form area outside the stop environs.

- Provide a safe light rail corridor design for pedestrians, cyclists and motorists with well-defined and consistently located, designed and detailed crossing and access ways. The design provides a smooth, light coloured pedestrian crossing surface and utilises darker granite setts to define the crossing zone edge conditions. This approach provides an intuitive visual and tactile indication for sighted and visually impaired pedestrians that they are on the correct walking surface, while also providing a tactile and audible traffic calming effect to motor vehicles.

### ***Design approach – Stops***

Capital Metro is an ambitious, city-changing project that will meet customer needs and provide a safe, high quality public transport solution and uplift to the public domain. To realise the project objectives Canberra Metro has adopted the following overarching principles to guide the design.

#### *Customer experience*

The urban, landscape and system architecture design has focused upon the needs of the customer, resulting in a design solution that comprehensively incorporates safety, accessibility requirements and Crime Prevention through Environmental Design principles as well as risk assessment, management and mitigation. Safety in Design strategies of hazard identification and risk mitigation have formed an important part of the early design process. Risk assessment and the control of risk form an integral part of design verification and validation reviews.

The developed stop designs provide a strong visual identity that is flexible and scalable, but also simple, easy to use and consistent and clearly legible throughout the system corridor. Stops are designed as an integrated element of the changing streetscape and are subservient to the surrounding natural landscape, while maintaining sufficient presence to be clearly seen and understood.

#### *Design for Canberra*

The Canberra Metro urban and landscape design follows the principles of integrated design and the provision of a world class light rail system with high quality stop environments that are safe, easy to use and highly accessible.

#### *Transparency and light*

The Canberra Metro urban and landscape design delivers a light touch which is subservient to the natural landscape. Stop infrastructure and systems are designed to protect, optimise and enhance views through and around the stop walk-up spaces, while providing legibility and design identity with a carefully considered suite of elements integrated with the natural environment.

Stop designs are crafted as jewel-like and sensitive interventions, designed to be subsidiary to and complement the surrounding natural environment.

## **3.1.2 Materials and finishes**

Materials and finishes are guided by reference documents such as the Capital Metro Urban Design Handbook, which provides high level outlines of proposed materials for the public realm and the light rail stops.

Key objectives identified for materials are that the selected materials and finishes achieve a contemporary style, and that materials and finishes reflect the quality defined in the public architecture and urban design of the National Capital.

Further local authority publications including the Design Quality Manual prepared by the NCA and the Canberra Central Design Manual were consulted to establish criteria for the selection and use of materials in the Canberra public realm.

Among other things the NCA Design Quality Manual calls for materials that are:

- High quality, robust and carefully chosen to be suitable for their use and consistent with the expressive intent of the architecture;
- Sustainable, durable and non-toxic, with a low level of embodied energy; and
- Capable of ageing in a manner that enhances their appearance, and reduces their requirement for cleaning and maintenance.

- Where texture and colour are used in finishes, they should ideally be integral to the material rather than applied.

More detailed information on some finishes was sourced from the Canberra Central Design Manual, as well as consideration of contemporary urban design works such as the Constitution Avenue upgrade and architecture such as the National Portrait Gallery and the Australian War Memorial.

Material selections for the light rail stops and the wider public domain have been based on long-term, vandalism-resistant performance; natural materials with varying colour and pattern have been selected rather than reconstituted, regularly patterned products; monolithic and durable materials have been preferred over surface coatings and thin surface finish applications; and the cost of asset management has also been an influencing factor in materials and finishes selections, with the key objective being value for money over the long term.

The Materials and Finishes Guidelines has been provided with this WAA. Only the materials and finishes for the stops and mid-block crossings are subject of this application.

### 3.1.3 Platforms

#### ***Sizing***

The platforms are sized to suit a 33m Light Rail Vehicle (LRV). Minimum acceptable platform widths are established by site constraints and accessibility requirements. The required peak period Fruin Level of Service is C.

All platforms are consistently set out from the rail centre line. The front edge of the platform is 300mm above the trackform. All platform surfaces fall away from the trackform to reduce the likelihood of a pram or wheelchair rolling onto the track. The minimum cross fall is 1:100 and the maximum cross fall is 1:41.

#### ***Module***

The structural canopy column grid is 5m. Decorative sawcuts in the platform concrete floor are at 1,250mm centres and are set out along the structural grid. Sawcuts in the adjacent coloured concrete trackform are also at 5m centres, and aligned with the platform structural grid.

Vertical components that are integrated into the platform, such as handrail supports and the panel joints in the windbreak screens, are coordinated with the 1,250mm grid.

The ceiling sub-grid reflects the structural grid. The extended cantilevers at the canopy ends have been extended as a visual expression of a welcoming gesture to those approaching the stop either by foot or by light rail vehicle. The extended cantilevers also contribute to the dynamic nature of the canopy design and contribute towards the memorable, iconic form of the stops.

#### ***Materials and finishes***

Generally the platforms are coloured, washed concrete that will be sealed. The platforms, walkup areas and adjacent trackforms at stops are a buff-coloured concrete. The coloured concretes will include aggregate that is reflective of Canberra's local geology. The concrete specification includes a water resisting admixture to mitigate stray current and touch potential effects. A precast coloured concrete coping edge with a nonslip broom finish is proposed for the front edge of all platforms.

Where required rain water outlets or short lengths of trench drains are provided to capture surface stormwater. The slip resistance of any grates or services pit lids located in the platforms will match that of the surrounding surface. The finish of the rain water outlets and trench drains has been coordinated with the platform colour.

The concrete trackform at the stops areas is colour matched to the platform, and extends from the 45m future extension to the pedestrian crossing. The stop walkup area is also matching coloured concrete.

Pedestrian crossings of the trackform are defined by a light coloured pedestrian crossing surface and utilise darker granite sets to define the crossing zone edge conditions. This approach provides an intuitive visual and tactile indication for sighted and visually impaired pedestrians that they are on the

correct walking surface, while also providing a tactile and audible traffic calming effect to motor vehicles.

### **Access**

The stops design incorporates whole-of-journey, whole-of-system and whole-of-life principles. Stops are integrated with the public domain designs, which respond to customer needs by setting a priority in designing and providing a safe, secure and easily accessible environment.

The design approach considers the broader walk-up spaces and pedestrian desire lines, and the continuation of the adjacent streetscape character into new public domain, stop and termini environments. Local material palettes established by design manual and guides have been incorporated into the design where practicable to fit with local context.

Where possible platforms blend in with the adjacent ground plane to achieve a seamless interface with the light rail corridor and a barrier-free walk-up space.

### ***Walkways, kerbs and ramps***

Wherever practicable walkways have been used rather than ramps. The preferred gradient is 1:21, which obviates the requirement for handrails for equitable access, though the provision of handrails may still be required from a safety perspective.

A slightly over-scaled kerb detail defines the edges of the walkway in matching coloured concrete, and has been proposed to prevent wheelchairs or prams slipping off the edge of the walkway, and to provide a shoreline for users with limited vision. The kerb continues along the edges of the adjacent walkup area, where they have been installed to deter customers from inadvertently stepping into the track zone. The kerb size is approximately 300 mm wide x 200mm high, which is a similar dimension to kerbs used in recent public realm projects such as the Constitution Avenue upgrade. A negative detail is proposed to reduce the likelihood of any damage to the kerbs by “grinding”.

Walkway length varies, depending on the topography specific to each site.

### ***Disability Standards for Accessible Public Transport 2002 (DSAPT) provisions***

A minimum of two allocated spaces must be available for customers if required. These spaces, which are marked out on the platform surface have been provided under cover, with seating for a companion nearby. The spaces are adjacent to the front of the LRV to reduce the travel distance if an LRV driver must assist a customer with a boarding device.

Accessible conveyance boarding areas are also indicated on the platform.

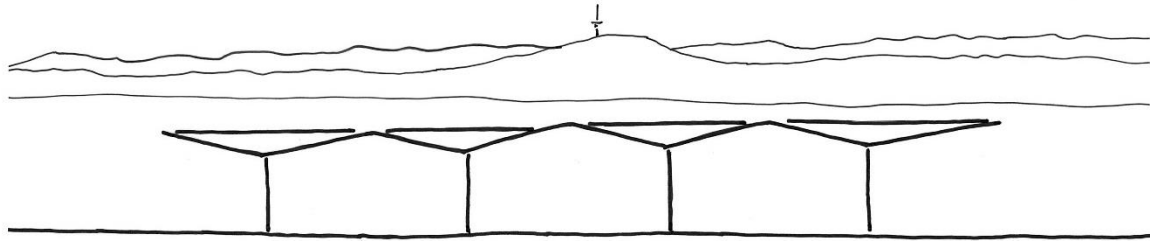
The setout of the controls of emergency help telephones and electronic ticketing equipment such as ticket vending machines must also comply with DSAPT provisions. Due to variations in topography over the system corridor, these controls may be located within an acceptable range, rather than at a consistent height above finished floor level.



### 3.1.4 Canopies

#### *Design Approach*

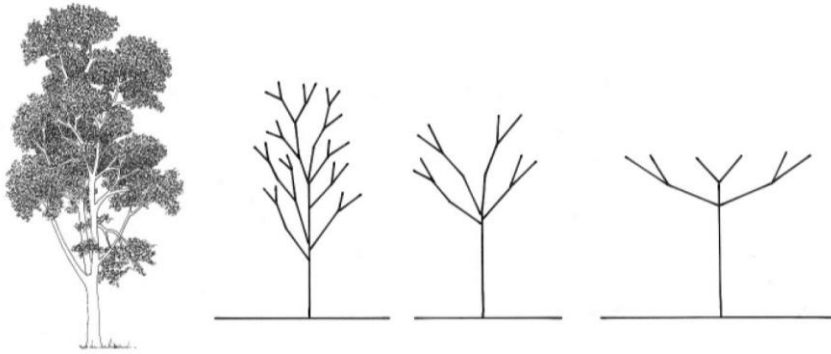
The canopy form developed as a response to the Canberra context, sense of place and the broader landscape is a dynamic shape which interprets the distinctive physical character of Canberra's surrounding Brindabella ranges. The resulting canopy design establishes a legible and distinctive physical form that unifies the stop environment and gives expression to generous shelter.



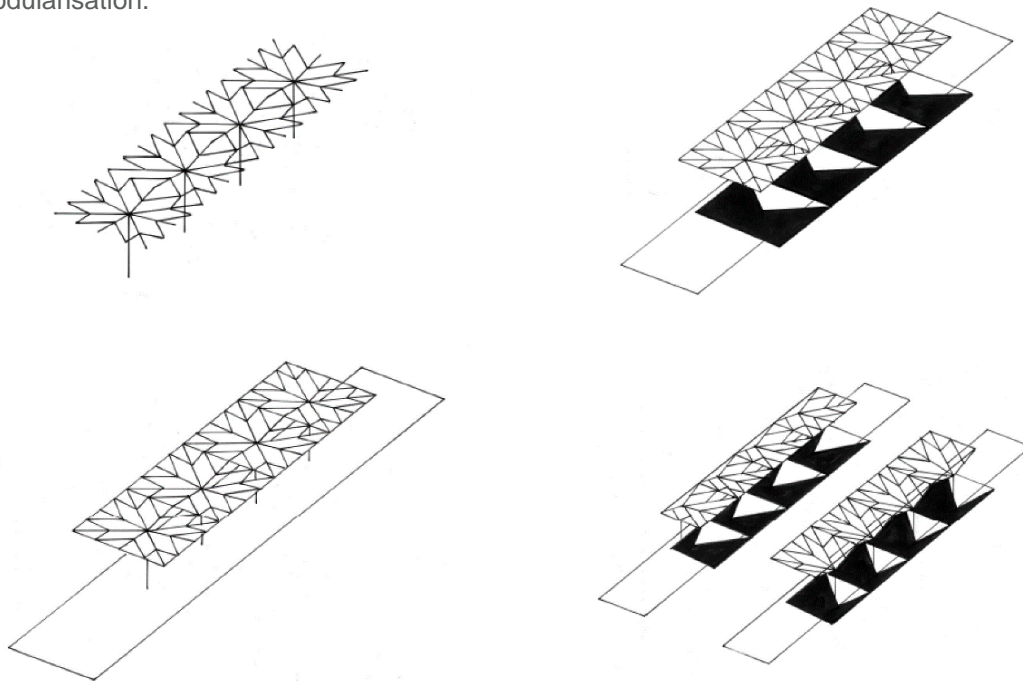
The canopy supporting structure is inspired by Canberra's endemic woodlands.



The canopy structure is an abstraction of the original wooded plains and now curated, tree-lined avenues of Canberra.



The structure is organised in an elegant and rational manner into columns and branching cantilevers, to form a unified system with the potential for standardisation of its component parts and modularisation.



The canopy form offers complexity of visual experience through the considered manipulation of daylight and shadow play.

Engagement with the changing intensity of daylight conditions and the movement of the sun will generate a varied and dynamic casting of shadows – a dappled light, found beneath a tree's sheltering canopy of leaves.

### **General**

The primary function of the canopy structures is the provision of shelter, wind protection and shade for arriving, waiting and departing customers.

Stop canopies are typically located at the centre of the stop platforms.

The canopy design incorporates a module size of five metres and single, expressed columns. The expressed structure and generous module of the design enables stop components to fit between, rather than around the canopy structure, simplifying both construction sequencing and maintenance over the long term as well as minimising component size. The larger module also reduces the number of canopy column foundations, with the benefit of reducing construction impacts upon the ground plane and underground utilities.

The column corners are radiused to reduce wear on the steel coating system. A double-skinned canopy includes the provision of services routes and cableways for lighting, Closed-Circuit Television (CCTV), Public Address (PA) System and Passenger Information Displays (PIDs).

The canopy end modules are fully opaque. The intermediate canopy modules each include a glazed section that will offer the play of daylight and shadow to customers waiting on the platform below.

Canopy extents are determined by the extents of touch potential exclusion zones, Dynamic Kinetic Envelope (DKE) offsets and minimum signage heights as well as requirements for the provision of protection from wind-driven rain at an angle of twenty-five degrees. These requirements established the height and extent limits of the canopy.

The minimum height to the underside of the typical canopy is approximately 2.95m above finished floor level. The canopies do not follow platform falls but rather maintain a consistent, horizontal edge floating above the ground plane. The canopy extends approximately 150mm past the front edge of the platform to provide as much weather protection as possible to customers boarding or alighting from the LRV, while remaining clear of the DKE.

### ***Materials and finishes***

The canopy roofing is 3mm aluminium supported by the roof structure and sub-frame to prevent any damage or deformity caused by maintenance access. The canopy roof glazing is heat-strengthened and laminated glass capable of bearing loads associated with maintenance activities and finishes with a non-slip ceramic frit and subtly integrated solar shading.

The soffit lining is a timber veneer plywood with expressed joints and concealed panel fastenings. The design of the soffit panels is based on a fractal iteration of the branding canopy structure that enables the efficient use of materials to minimise waste.

The canopy verges are finished with a brake-formed, powdercoated metal profile to provide a fine, continuous edge to the canopy roof. The powdercoat finish is colour matched to the steel protective coating system that is applied to all exposed steel on the stop platform. Support brackets for fixtures such as PIDs will also be powdercoated in a matching colour.

The canopy structural steel is finished with a fluoropolymer-based steel protective coating system that has been selected based on durability including gloss retention, scratch and abrasion resistance and coating to first maintenance. This coating system has been selected for similar public transport projects such as the North West Rail Link and CBD and South East Light Rail (Sydney Light Rail).

### ***Form and massing***

The canopies have been designed to maximise transparency and present an open, fine structure. The balance of vertical glazing or open extents to opaque materials has been maximised and the canopy cross-section kept as thin as possible, with slender, continuous edges.

### ***Weather protection***

Canberra Metro proposes full height glazed screens as well as perpendicular wind breaks at the ends of screens. This minimises the visual impact of the structures whilst providing effective weather protection. Full height screens were designed in response to customer comments obtained during early stage community consultation, where weather protection was identified as a high priority in the Capital Metro Early Design Consultation Report and the Capital Metro Urban Design Consultation Report.

Full height glazed screens are provided along the length of canopies on side platforms, as well as perpendicular wind breaks at either end to provide additional protection from wind and wind-driven rain as part of a customer-focused and evidence based design approach. Smaller glazed screens are provided along the centreline of island platforms. The extent and location of the glazed screens do not interfere with views of approaching LRVs.

The glazed screens were reviewed against touch potential zones and adjusted where required to maintain clearances. Coordination of the canopy overhang with the DKE is continuing to maximise opportunities for weather protection while providing the necessary clearances.

The provision of vertical screening along the length of the canopy on side stops, or away from the integrated services cabinet on island stops, increases the extent of weather protection without interfering with other activities such as purchasing tickets, thus assisting with customer flows and



contributing towards the minimisation of vehicle dwell time at each stop. This approach also offers opportunities for the integration of public art into the extensive glazed screens. Public art is further discussed in Section 3.1.7.

### ***Stormwater management***

Each canopy module drains to a sump located above the module column. The downpipes are concealed within the columns.

Leaf guards are specified to prevent downpipe blockage from leaf litter.

### **3.1.5 Integrated Services Cabinet**

Integrated services cabinets are located at the centre of stop platforms, and will accommodate the service equipment required for the provision of the following services:

- Communications and PA
- CCTV
- Electrical supply
- Help Point
- Customer information control equipment
- Other services as required.

The platform design, planning and location of equipment is in coordination with the LRV design generally and customer boarding and alighting areas particularly.

Electronic ticketing equipment is also housed in the cabinet, and backlit customer information displays. The PID containing real-time network information is located adjacent to the integrated services cabinet. The PIDs are suspended from the canopy at a height of approximately 2.5m above finished floor level. The PID faces are perpendicular to the platform edge and the PID is located at the centre of the platform, to maximise visibility of the PID from the whole platform area. The collocation of customer information displays with the ticket vending machines supports smooth, efficient customer decision-making.

The cabinets have been designed as compact, integrated components, minimising the spatial impact on the platform area and optimising visual transparency for the station environment. Cabinets are clear of the required accessible paths of travel. Horizontal surfaces and ledges have been avoided to reduce the build-up of dust, dirt and litter.

### ***Materials and finishes***

Precast concrete panels with a honed and polished finish are proposed for the ends of the cabinets. The concrete colour and aggregate are matched to the stop platform concrete, and finished with an anti-graffiti treatment. The long faces of the cabinets are fabricated from the rigidized, patterned stainless steel sheet.

Static customer information is enclosed in glazed, backlit display panels that are integrated into the cabinet doors facing the platform.

The rear faces of the integrated cabinets on side platforms are finished with hardwood timber battens.

Ventilation louvres will be fabricated from satin finish stainless steel, located low on the cabinet elevations and detailed to finish flush with the cabinet cladding. Doors and panels will have concealed fixings and recessed door hardware.

### **3.1.6 Customer Facilities**

As far as is practicable stops furniture has been consistently located at stops to aid way-finding and promote intuitive use. Components are grouped to minimise clutter on the platforms.

The stops design includes the provision of customer and signage information, bench seats, rubbish bins and handrails on side platforms.

Stop furniture has been placed in locations that:

- Maintain accessible paths of travel along the platforms
- Maintain way-finding sight lines
- Minimise congestion through placement removed from LRV boarding and disembarking areas, and clear of areas where customers purchase tickets or consult customer information displays
- Minimise opportunities for climbing
- Preserve access for maintenance, repair and replacement activities, such as replacing fittings in light poles.

### ***Furniture and fittings materials and finishes***

The stops furniture is fabricated from a restricted palette of materials. The material selections respond to existing local patterns of use and the selections guided by local codes and standards such as the Canberra Central Design Manual and the National Capital Plan.

### ***Bench seats***

Timber seats with bronze armrests are proposed, mounted in horizontal precast concrete panels resting upon concrete plinths. Customers may also sit on the cantilevered ends of the precast panels. Seats are proposed for uncovered areas on the platforms in addition to seats located beneath the canopies.

The timber seats are fabricated from appropriately scaled dressed hardwood timber. The concrete colour and aggregate of the horizontal precast panels matches that selected for the stop platforms, the panel finish matches the panels used in the integrated services cabinets, and the seat shape is sympathetic to the more rectilinear forms of the cabinets.

### ***Rubbish bins***

The proposed rubbish bins consist of precast concrete panels and rigidized stainless steel as used in the integrated services cabinets and the bench seats.

The bins are to be positioned near stops access and exit points and clear of the primary circulation path and seating and principal waiting areas.

### ***Drinking fountains***

The proposed model is a stand-alone unit comprised of a drinking fountain and bottle re-fill station mounted in a framed, lozenge-shaped column. The column is mounted in a drainage pit which is finished with a grate. Water from the fountain runs down the unit into the pit.

The drinking fountains will be installed as freestanding elements on the stop platforms where they are required.

### ***Balustrades and handrails***

Handrails and balustrades are provided along the rear edges of side platforms.

Balustrades are fabricated from mild steel flat bar finished with a durable steel protective coating system. This steel protective coating system is used for all exposed steel on the stop and is colour matched to a bronze tone. Balustrade infills are glazed and the handrails are fabricated from red brass (bronze) circular hollow sections which through use and weathering will develop a patina over time. Handrail joints are detailed to finish flush. All fixings are countersunk and tamper-proof.

Clear glass has been preferred to low-iron glass for the balustrade infills, as the visual difference with clear glass screens in an external environment is not readily discernible. Further, low-iron-glass has longer delivery lead times and is more expensive than standard clear glass. Use of standard clear glass will provide improved performance in regards to maintenance, repairs and obtaining spare and replacement glass.

### 3.1.7 Public Art Strategy

Urban art is to deliver art that is:

- Integrated within the light rail infrastructure and urban design; and
- Fulfilling a specific purpose in relation to the identification of precinct, location and place.

Key considerations for public art have been as follows:

- Public art has the opportunity to be an outdoor exhibition that matches the calibre of Canberra's significant cultural standing. It can also act in a way to reflect the city's lifestyle and social identity.
- Through public art the nation has a history of supporting artwork and artists of national importance, which can be continued through the commissioning of high quality, contemporary works building a legacy for tomorrow.
- It is intended that works will be sympathetic with surroundings and focused on landscape as the primary generator of an art strategy.
- Artworks can act as markers/destination pieces that create meeting places and also drive visitation, becoming part of the reason people visit the place and use the light rail.
- Low maintenance.
- Works should help each precinct station be uniquely identifiable but present with continuity between each station.

The proposed urban art approach is highly collaborative. Areas under consideration for integration of urban art into the stops and urban design include:

- Within the stop walk-up area ground plane;
- Within the glazed weather protection screens;
- Art located within the stop and walk-up space;
- Art coordinated with lighting and stop area dynamic lighting; and
- Sound art coordinated with stop sound systems.

A local artist, Hannah Quinlivan, has been commissioned following a selection process involving a range of prominent Australian artists. Ms Quinlivan, working collaboratively with the architects, has developed a range of options for the implementation of art into the project. Specifically weather screens are proposed to incorporate Ms Quinlivan's design work. These artworks focus on the use of line, form and light and complement the landscape design and philosophy for the stop architecture. The Public Art Concept Design has been provided with this application for approval.

### 3.1.8 Electronic Ticketing

Electronic ticket vending machines are located at the centre of stop platforms, inserted in the integrated services cabinet and beneath the platform canopy, and will be monitored by CCTV. Both real time and static customer information displays are near the ticket machines to support customer decision-making and ticket purchasing. A card reader is always located adjacent to the ticket vending machine so that a customer can tap on once their card credit has been reloaded.

Card readers (Fixed Location Readers (FLRs)) are located to promote ease of tapping on or off the system, and to minimise congestion around the ticketing vending machines located at the centre of the platform. FLRs have been distributed along the platforms in consistent and convenient locations so that customers do not have to detour to "tag on", or backtrack to "tag off".

### 3.1.9 Signage Strategy

Stop signage details are not subject of this application and will be submitted for approval in a future WAA. This section provides an overview of the signage strategy for information.

An integrated design approach has been adopted for the provision of signage on the stop platforms. Signage includes not only two-dimensional information and wayfinding, but also real-time PIDs and electronic information display.

The objective is to provide customers and service users with timely, easily viewed and relevant information that is integrated into the overall stop design.

- Illuminated, double sided ribbon signs along the length of the canopy identify the stop to customers arriving at the stop or disembarking from an LRV, and can be easily seen by either user group. The ribbon signs also offer a means of navigation to customers arriving via other modes such as bus, bicycle or car.
- Backlit displays of customer information are housed in display units integrated into the doors of the stop integrated services cabinet, located centrally at each stop. The PID is located centrally on the stop to maximise visibility, and is adjacent the integrated services cabinet. The PID is positioned perpendicular to the platform edge.
- Additional signage conveying information such as appropriate behaviour or other statutory signage will be placed to maximise visibility to customers while avoiding the creation of additional clutter. For example, statutory signage may be integrated where possible into the ribbon sign or the customer information displays.
- The finish of signage cases, panels, brackets and fixings is coordinated with the overall stops design.

Signage shown on the drawings submitted with this application is for context only, and is not for approval.

### 3.1.10 Wayfinding Strategy

Wayfinding signage is not subject of this application and will be submitted for approval in a future WAA. This section provides an overview of the wayfinding strategy for information.

Wayfinding must:

- Respond to the needs of light rail users;
- Take into account future transport node development to increase the coverage of the light rail network;
- Meet best practice performance standards in the design of wayfinding signage;
- Consider integration of supplementary information separate from light rail information content; and
- Work to deliver necessary information in key locations and to avoid superfluous signage.

Wayfinding signage positions have been identified through a series of on-site reviews combined with a map study of the pedestrian circulation routes that provide access to each stop.

The sign nominations for each stop are based on providing information at logical decision points as customers approach the stop. This approach ensures that customers will be faced with practical commuting information along the journey pathways located within the established wayfinding signage zones.

Signs are strategically positioned within a minimum 250m radius surrounding each stop. In most cases, where wayfinding information is deemed necessary and logical with respect to typical customer journeys, the placement of signage may extend beyond the 250m perimeter. Keeping the amount of new signage to a minimum while providing practical and sufficient wayfinding information is preferred.

The orientation of the new light rail line in relation to main roads extending from Gungahlin to the city centre supports intuitive commuting to the stops via established pathways through residential zones. Landmarks and good sight lines to the carriageway and stop platforms assist with journey recognition.

From a branding perspective, the opportunity is to create a distinctive presence across the city of Canberra. The application of the current Transport Canberra identity should create clear visibility and positive associations for the user that clearly identifies and communicates the various levels of messaging. The objective is to create a strong, positive brand impression for customers that provides clarity and assurance and inspires confidence in using the light rail network.

### 3.1.11 Stop Lighting Strategy

#### Overview

The lighting for the stops will satisfy the requirements of:

- Transport Canberra and City Services (TCCS) Canberra Central Design Manual,
- ACT Trunk Road Infrastructure Technical Specification (TRITS) to TCCS requirements
- National Capital Plan and its supplement Outdoor Lighting Policy.

The lighting scheme aims to provide a high quality public domain lighting experience, including safety and amenity while enhancing the customer, road user and pedestrian experience and in particular, the experience of persons with disabilities. This is achieved through delivering excellent design utilising high quality, modern technology to create inviting public spaces, improve sustainability outcomes and so contribute to the unique social, landscape and urban quality of Canberra.

**At the stop:** The lighting for the stops is integrated with the structure and combines intensity and colour to display the architecture, the materials and high quality finishes used in the facility. These include the reds and browns of the timber veneer soffit below the canopy, the bronze elements of the structure and trimmings, the patterns in the pavement and the artwork on display at every stop.

The light rail theme is reinforced and complemented by the linear arrangement of the lighting at the stops, as each platform is illuminated by a single line of light running the full length of the canopy, with a parallel line of light along alternate sections of the centre spine of each stop.

The commuting customer enters the stop below the inverted pyramidal structure of the canopy where the rich colour of the timber veneer above creates a warm ambience and welcoming atmosphere. The illumination of the space provides commuters with a feeling of safety and the lighting levels are suitable for CCTV cameras to operate, providing that added feeling of security at night.

**The artwork:** A vertical element consisting of glazing that divides each stop encapsulates artwork, placed permanently on display for the fascination and pleasure of the public. The glazing is transparent, enabling commuters to see through to the other side, while the artwork is illuminated from above, bringing the artist's work to life.

**The ticketing area:** The textured metallic ticketing machines and are well defined, with high quality lighting, enabling the customer to transit through this space in visual comfort.

**The platform:** The colours of people's clothing appear bright and vibrant as the commuter enters the external platform and their faces are easily recognisable, enhancing the experience of the journey. New and interesting lighting poles assist to illuminate the journey from the platform and enhance the transition from the light rail stop. These light poles, selected for their architectural appearance, provide added interest to the landscape during the day.

#### **Aims: Customer Service Principles**

- **Safety:** Lighting must provide for a safe environment that meets or exceeds all relevant Australian and/or International safety standards.
- **Personal Security:** The stops will be well lit so that the service can be used at all times without anxiety and be suitable for CCTV surveillance camera vertical illuminance and colour rendering requirements.
- **Enjoyment:** Enhance the customer experience through lighting design that compliments the surrounding city context, the architecture and creates interest. This will include not only illuminating the space and the architecture, but also feature lighting of public artwork.
- **Public art:** Illumination of public artwork according to the intentions of the artist, creating visual interest and enjoyment.
- **Consistency:** A modular lighting approach to achieve a consistency of customer experience across the stops.
- **Integrated lighting design:** The stop lighting will be integrated with the surrounding or abutting roadway and street lighting to manage the transition to and from the stops, while providing a suitable contextual integration with adjoining suburban areas and the NCP Designated Area.



- **NCA Outdoor Lighting Policy objectives:** The lighting will contribute to the creation of a high quality public realm, such that the form, material and finish of the lighting hardware forms an integrated, cohesive palette of materials and fittings.

#### **Considerations: Urban Design Principles:**

- **Low glare** – create visually comfortable environment.
- **Sustainable design** – utilising energy efficient luminaires with strategic placement.
- **Quality** – utilise durable, high quality fittings and support structures with a high standard of detail and finish.
- **Reliability** – use of high quality, long life luminaires supported by a manufacturer’s warranty.
- **Maintenance** – use of low maintenance luminaires, with modular replacement components, installed for ease of access.
- **Cost effectiveness** - technology selected to achieve value-for-money design.
- **Light pollution** - control of obtrusive light and limitation of upward light.

#### **Colour Temperature:**

For the below reasons, the overall Project lighting strategy adopts a colour temperature of 4000K for all white lights in the Project:

- Major arterials such as Northbourne Avenue, are generally illuminated with high pressure sodium (HPS) lighting which has a colour temperature of 2000K, which is orange in appearance.
- Upgrading of all the lighting on Northbourne Avenue to white LED is inevitable, at some time in the future, to 4000K LED.
- The street lighting at the intersections will be upgraded to 4000K LED lighting as part of the Project along the NCA corridor.
- TCCS have standardised on 4000K as the standard colour temperature for all white light public lighting.
- The colour temperature of the lighting in the Light Rail Vehicle (LVR) carriages will be 3500 – 4500.
- A 3000K colour temperature is warmer in appearance than 4000K, and may be considered more inviting, especially in Canberra during winter. A 4000K colour temperature does provide a more crisp, clean appearance, would match the lighting at the intersections and be consistent with the typical TCCS white light policy.

The lighting quality, incorporating mixture of the new white lighting at the stops located within the surrounding orange street lighting, will be a short to medium term outcome. Upon completion of the upgrade of the street lighting to white LED in the future, the overall desirable effect achieving a consistency of 4000K white lighting will be the long term outcome.

#### **Colour Rendering**

Colour rendering characteristics of the lighting is important to enable colours to be seen correctly under artificial light. All white lighting will have a colour rendering index (CRI) equal to or higher than 80.

#### **Prototype**

Prior to the construction of the stops subject of this application, a full scale prototype of a stop will be constructed to test functionality and ensure the stop meets the design intent. The prototype will provide an opportunity to test the functionality of the stop lighting and to ensure it is consistent with the NCA Outdoor Lighting Policy.

#### **Stops General Lighting**

The Stops General Lighting refers to lighting that is required to satisfy statutory requirements (i.e. Australian Standards) for illumination, but will not be connected to the public lighting network.

Stops general lighting will be connected to the Light Rail network power system. The stops general lighting requirements will be achieved by an integrated lighting strategy that includes the contribution from elements of the dynamic lighting installation.

The integration of the general lighting system and the dynamic lighting system will provide for an enhanced customer experience.

Stops General Lighting includes:

- Type P pole mounted public realm lighting on the platform for each stop.
- Illumination to statutory requirements will be achieved by the type P pole mounted lighting in conjunction with dynamic lighting type L2a edge nosing LED lighting on the stop canopy.

More information on type L2a lighting is included under the Stops Dynamic Lighting Strategy section below.

**Type P – Pole mounted lighting**

The pole mounted luminaire proposed for the stops general lighting is an IP66 LED streetlight solution incorporating adjustable lighting modules integrated into a tubular pole.

**Lighting arrangement:**

Typically two type P light poles will be provided for each stop platform, one at each end.

These luminaires will provide the integration of the platform lighting with the adjoining street lighting and in conjunction with the type L2a lighting, provide a complete compliant lighting system for the platform.

**Integration of the Stops General lighting with Street lighting**

- The lighting design for the stops will be coordinated with the adjacent public lighting infrastructure to ensure complete integration with the street lighting.
- Compliance with the requirements of the applicable Australian Standards will be maintained across the boundaries with adjoining areas.

**Minimum performance requirements:**

The table below designed the performance requirements for the platform lighting:

Area / Zone / Element	Minimum Average Horizontal Illuminance (Lux)	Minimum Vertical Illuminance (Lux)
Undercover areas of platform	40 lux (equivalent to AS/NZS 1680.2.1 – interior circulation areas)	7 lux (in line with AS/NZS 1158.3.1 – subcategory P6)
Open areas of platform	21 lux (in line with AS/NZS 1158.3.1 – subcategory P6)	7 lux (in line with AS/NZS 1158.3.1 – subcategory P6)

- The general lighting for each of the platforms will be designed to comply with or exceed the above requirements
- As age related visual impairment is becoming more prevalent as the population ages. Lighting plays a pivotal part in the management of visual disability. The lighting design will pay particular attention to providing high quality, low glare lighting to provide a safer and more comfortable visual environment for the general population and also to assist the partial visually impaired.

Day time appearance of general lighting hardware – poles and luminaires:

- As the poles and luminaires will form part of the daytime street furniture, they will be selected to compliment the architecture and contribute to the unique and innovative quality the Project.

**Stops Dynamic Lighting**

The Stops Dynamic Lighting is an innovative lighting solution that contributes to maintaining safety and adds interest to create a sense of high quality. The decorative element of the dynamic lighting will complement the architecture and space to enhance the customer experience.



The function of the Dynamic Lighting is to:

- Illuminate the space to create a feeling of safety
- Compliment the architectural features of the structure and the linear nature of the stop
- Wash the ceiling to create a low glare ambience
- Highlight the artwork in the vertical glass panels.

Dynamic lighting will achieve its objectives by utilising:

- White LED linear striplight to illuminate the platform to statutory requirements (type L2a)
- White LED column mounted ceiling wash lighting to illuminate the underside of the canopy (type L5)
- White LED strip lighting in the ribbon to wash downwards to illuminate the artwork in the vertical glass feature wall (type L7).

#### **Type L2a – Edge nosing LED strip:**

Type L2a lighting will consist of a continuous linear LED strip located at the outside edge of the platform canopy and will extend to the full extent of the perimeter of the canopy.

The LED strip will be high output, white LED with colour temperature to match type P lighting.

The LED strip will be aimed downwards to illuminate the platform and the platform edge.

In conjunction with type P pole lights, the type L2a continuous linear LED strip will provide illumination of the platform to the required standard.

Type L2a lighting will be controlled by a photo electric switch so that it is ON during the hours of twilight and darkness.

#### **Type L5 - Illumination of the underside of the canopy:**

The underside of the canopy will be effectively illuminated by white LED wash lights aimed upwards.

The wash lights will be column mounted, approximately 700mm below the canopy.

The luminaires will be selected to flood light the underside of the canopy, but the luminance achieved will not be highly uniform, creating visual interest and complimenting the architectural design of the canopy.

The placement of luminaires will be coordinated with the full height glass wind breaks, with one luminaire each side of the glazing.

The luminaire placement and distribution characteristics will be coordinated to minimise spill light onto the skylight sections of the canopy.

The luminaire optical solution will be selected to suit the application.

The luminaires may be concealed from public view by a pelmet to the Architect's detail, if required.

#### **Type L7 – Illumination of artwork in vertical glass plane**

Unique public art will be located at each stop, bound in vertical glass panels.

This two dimensional artwork will be illuminated by white light, in accordance with the requirements of the Artist.

Subject to the success of a lighting trial of a prototype, it is anticipated the artwork lighting will be achieved by the provision of a narrow beam LED strip light built into the ribbon above and offset to successfully wash the artwork in the glazing.

The artwork will be illuminated from both sides in the island stops and only from one side at the side stops.

### **3.1.12 Services Connectivity**

Stop connections to electricity, drainage, water and telecommunications networks were subject of WA10 (pending approval).

## **3.2 Mid-block Crossings**

Ten mid-block track crossings for pedestrians/cyclists are proposed along the Northbourne Avenue. The locations of these crossings are different from the 15 existing mid-block crossings in the corridor.

Their proposed locations are based on existing and future desire lines which align with future development parcels as reviewed by the EPD. The crossings are also located such that the verge crossings avoid impacts on existing trees, street lights and utilities.

Landscape treatments associated with the mid-block crossings include bosque tree arrangements, shrub planting for identification and pedestrian direction, and pavements that follow a pavement strategy.

Urban design elements include kerbs, lighting and fieldstone walls to direct pedestrians and establish a safe environment. Connections to adjacent pedestrian networks and urban development are established.

### 3.2.1 Drawing References

This section summarises the mid-block crossing drawings provided with this application. A drawing schedule has also been provided in Attachment A.

- Drawings 02-ACM-DRW-CIV-RW-5155 to –5172 provides road works plans for the mid-block crossings.
- Drawing 02-ACM-DRW-CIV-RW-0011 provides a plan showing typical mid-block crossing details.
- Drawing 02-ACM-DRW-CIV-RW-0003 provides general notes and a legend to be read in conjunction with the above-mentioned road works plans.
- Drawing 02-DSB-DRW-LAN-NA-0412 provides a detailed plan and cross section of a typical mid-block crossing.
- Drawings 02-DSB-DRW-LAN-NA-5003 to -5015 provide detailed landscaping plans for each mid-block crossing.
- The Materials and Finishes Guidelines for the stops and mid-block crossings has been provided and should be read in conjunction with the detailed plans.

### 3.2.2 Pedestrian Race / Retaining Wall

The crossings are unsignalled and a number of passive controls are proposed to mitigate the risk of pedestrians/cyclists being hit by a LRV. The basic passive controls required as minimum treatment in accordance with AS1742.7 2016 (Manual of uniform traffic control devices Part 7: Railway Crossings) include a separately defined footway, signage, pavement markings to define the footway, and pedestrian holding markings.

Due to the speed of the LRV of 70 km/h in the mid-block areas, the next level of passive controls is required. This is achieved through the establishment of a “maze” or “pedestrian race” formed using a small retaining wall, forcing people to walk around the wall and to look in both directions before crossing the LRV tracks.

The retaining wall is a 450mm wide off form concrete wall with cultured stone cladding equal to Boral Dressed Fieldstone – Aspen colour or equivalent. The wall has a 10mm mild-steel capping to top of wall with ‘Mio’ paint finish, colour to match Dulux Duratec ‘Eternity Bronze Pearl’ consistent with the colour palette for the Project. Refer to the Materials and Finishes Guidelines for images.

The sight distance for pedestrians crossing the track at each mid-block crossing has been checked in accordance with AS1742.7 and are adequate. Based on a speed of 70 km/h the sight distance is 235 m. Based on a speed of 50 km/h the sight distance is 167 m.

### 3.2.3 Pavements

The mid-block crossings comprise three different pavement treatments as per the following:

- Pathway across track: Snow Cap in situ concrete with broom finish.
- Strip adjacent to pathway across track to define the crossing zone: Austral Black granite pavers with exfoliated finish.
- Remaining path areas leading up to track: Standard Grey in situ concrete with broom finish.

The layout and finish of the above pavements is illustrated in the accompanying Materials and Finished Schedule.

Mid-block crossings pedestrian paths vary between 1.85m and 2.0m. Verge crossings adjacent match to path width or vary up to 3m.

### 3.2.4 Kerbs

The current design uses a non-standard 300 mm wide by 200 mm high kerb at the mid-block crossings with block outs to prevent skateboarders damaging the kerb.

The non-standard kerb size is used at all pedestrian crossings at intersections to delineate the crossing. However the skateboard deterrent treatment is only proposed on ramps to the stops and at mid-block crossings (refer to Materials and Finishes Guidelines for an image).

Connections to adjacent pedestrian networks and urban development are established.

### 3.2.5 Grading

The grading of the mid-block crossings has been undertaken in accordance with AS1428 and the following conditions:

- Maximum grade 1:21 (Disability Discrimination Act 1992 (DDA) compliant).
- Length of crossings adjusted for grade requirements and to avoid impacts in the verge.
- Handrails are not required due to meeting the 1:21 grade. The small retaining walls will be used both for channelling pedestrians in approaching the crossing to look in both directions for the LRV and the changes in grade.

### 3.2.6 Soft Landscaping

The boulevard tree planting applies a 'bosque' structure to the spatial arrangement of trees adjacent to mid-block crossings. This bosque arrangement in conjunction with adjacent low shrub planting, allows safe pedestrian movements across the trackform. The tree plantings have been approved under a previous WAA (WA10042).

The shrub treatment proposed adjacent to mid-block crossings is a planting bed (type PB4) comprising a distinctive native shrub species mix installed in 140mm pots @ 6 plants per square metre to 1m high. The following species are in the shrub mix:

- *Correa pulchella*
- *Dianella longifolia*
- *Lomandra longifolia*
- *Westringia fruticosa*

Pedestrian eye height at 1500mm-1600mm provides unrestricted visibility over the mid-block crossing planting.

### 3.2.7 Lighting

Mid-block crossing lighting will be subject of a future Works Approval.

## 3.3 Proposed Programming of Works

The construction of the elements subject of this WAA are scheduled to commence July 2017.

## 4. STATUTORY ASSESSMENT

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### 4.1 Legislative Context

#### 4.1.1 Commonwealth Legislation

##### ACT (Planning and Land Management Act) 1988 (PALM Act)

The proposed works are in a Designated Area of the NCP as defined under the PALM Act (Commonwealth legislation).

Section 12 of the PALM Act provides that no works shall be performed in a Designated Area unless:

- The proposal to perform the works has been submitted to the NCA together with such plans and specifications as are required by the NCA;
- The NCA has approved the works in writing; and
- The works are in accordance with the NCP.

Section 4.2 demonstrates how the proposed works are consistent with the relevant principles and policies for the NCP, including policies of land use and planning of national and arterial road systems, and detailed conditions of planning, design and development.

##### Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Under the EPBC Act, approval from the Commonwealth Minister for the Department of the Environment (DoE) is required for an action that is likely to have a significant impact on a matter of national environmental significance (MNES) (a controlled action).

A referral was submitted to the DoE for the Project (Referral No. 2014/7379) and it was determined by the DoE that the Project was not a controlled action as no MNES would be significantly impacted by the proposed works.

#### 4.1.2 ACT Legislation

##### Planning and Development Act 2007

Initial approval for the section of the light rail which falls under the planning jurisdiction of the ACT Government was granted by ACTPLA on 21 December 2015 (DA 20152851). The Project was assessed in the impact track under section 123 of the P&D Act. A DA Amendment is being submitted for changes to the stop designs along Flemington Road. The Flemington Road stops are designed to be consistent with the stops along Federal Highway and Northbourne Avenue.

##### Environmental legislation

Key environmental legislation and regulations in the ACT include.

- *Environmental Protection Act 1997*
- *Environmental Protection Regulation 2008*
- *Nature Conservation Act 2014*
- *Heritage Act 2004*
- *Tree Protection Act 2005*
- *Water Resources Act 2007*

The Project, including the works subject of this WAA, will be undertaken accordance with the above environmental legislation, which is reflected in the suite of construction environmental management plans for developed for the Project. These plans have been approved by the relevant ACT government agencies who administer the above legislation, as well as an independent certifier.

## 4.2 Assessment against the National Capital Plan

This section provides an assessment of the proposal against the applicable requirements of the NCP. In providing the assessment of the proposal against the requirements of the NCP, the proposal is taken to be a Transport Facility or a Public Transport Facility in accordance with the following land use definitions from Appendix A of the NCP:

### **Transport Facility**

*The use of land or a building for or associated with the movement of goods and people by road, rail and air.*

### **Public Transport Facility**

*The use of land for the assembly, transport or dispersal of passengers travelling by any form of public transport, whether or not such public transport is provided by a public or private agency, and include facilities for the manoeuvring and temporary layover of public transport vehicles and driver amenities.*

### 4.2.1 Part Two of NCP - Statement of Planning Principles

Table 2 Part 2 – Statement of Planning Principles

NCP Ref.	Provision	Response
2.1 General Matters		
Principle for Objective 1	The hills, ridges and other major open space which form the separation between towns will be kept largely free of urban development. The planning and development of urban areas will encourage measures through which urban intensification may occur and will be sympathetic to the landscape setting of the National Capital.	Not applicable
2.2 Productivity		
Objective 1 Infrastructure & Employment	Ensure that infrastructure supports the development of Canberra's National Capital functions.	The proposed works will complement the provision of light rail, Canberra's first intra-city rail infrastructure. Accordingly, the proposed works will support the development of Canberra and its National Capital functions through supporting the provision of servicing amid the provision of new major infrastructure, and supporting the shift away from private vehicle use and toward public transport use.

NCP Ref.	Provision	Response
Principals for Objective 1 Infrastructure & Employment	<ul style="list-style-type: none"> <li>▪ Infrastructure must support the effective functioning of Canberra with proper consideration of the environmental and visual impact and be integrated with land use decisions.</li> <li>▪ Infrastructure must be planned and provided in an integrated and timely manner to facilitate the development of Canberra and the Territory and ensure safety and security of supply and operation.</li> <li>▪ Energy and water supply and security issues will be given due consideration in the planning and development of any new infrastructure.</li> <li>▪ The infrastructure of Canberra and the Territory must be planned and provided to:                             <ul style="list-style-type: none"> <li>– ensure that public utilities infrastructure is available and maintained for Commonwealth and ACT Government needs and activities.</li> <li>– minimise the visual impact of electricity and telecommunication facilities, particularly along major vistas, corridors and major open space.</li> <li>– give due consideration to energy and water, supply and security issues.</li> <li>– ensure safety and security of supply and operation.</li> </ul> </li> </ul>	<p>The Light Rail stops and mid-block crossings are carefully designed and planned to integrate the infrastructure into the city and landscape context. A major feature of the project is its focus on safety for all users in the transport corridor. Canberra Metro is contracted to ensure security of supply and operations.</p> <p>All aspects of Light Rail environmental management are developed in accordance with Infrastructure Sustainability Council of Australia (ISCA) principles for sustainability. This includes energy and water use.</p> <p>The Light Rail is a public facility that has been developed in a public-private partnership (PPP) format to ensure that Commonwealth and ACT Governments needs are met. All utilities are available for use.</p> <p>Considerable design and construction effort has focussed on minimising the visual impact of electricity and telecommunication facilities, particularly along major vistas, corridors and major open space. This is demonstrated in visual material as well as technical documents associated with this application.</p> <p>Safety and security of supply and operation will be delivered as part of the CM contract.</p>
2.3 Sustainability		
Objective 1 – Environmental Sustainability and Open Space	Ensure the development of a city that both respects environmental values and reflects national concerns with the sustainability of Australia’s urban areas.	The project is inherently focussed on high sustainability outcomes. The mass transport of people is inherently respectful of the environmental values of the community, especially in the urban context.
Provisions to support Objective 1.	<ul style="list-style-type: none"> <li>▪ Urban expansion should be contained so as to minimise impacts on valuable natural and rural areas.</li> <li>▪ A substantial portion of new development must be located within existing urban areas such as town centres and along public transport routes or other strategic sites that allow for efficient use of infrastructure.</li> <li>▪ The natural environment of Canberra and the Territory will be protected and improved by reducing resource consumption</li> </ul>	<p>Not applicable.</p> <p>Not applicable.</p> <p>The Light Rail infrastructure will reduce the impact of vehicular traffic in the city through the mass transport facility. Consequently the natural environment of Canberra and the Territory will be protected and improved by reducing resource consumption and waste, improving water security and quality, energy and food security and</p>



NCP Ref.	Provision	Response
	<p>and waste, improving water security and quality, energy and food security and improving and protecting soil quality.</p> <ul style="list-style-type: none"> <li>▪ Ecological communities, threatened flora and fauna species, water catchments and water quality will be protected and supported by sustainable resource management.</li> <li>▪ Development will respect environmental values including water catchments and water quality and ensure resilience to the impacts of climate change.</li> </ul>	<p>improving and protecting soil quality through the reduction of petro-chemicals from vehicles.</p> <p>The proposed materials and finishes for the stops and mid-block crossings, employs best practice resource management. Ecological communities, threatened flora and fauna, water catchments and water quality will be protected in accordance with the approved Construction Environmental Management Plan and sub-plans prepared for the project.</p> <p>Climate change has been carefully considered in the stops design. Some initiatives include:</p> <ul style="list-style-type: none"> <li>- LED lighting is proposed for the stops to reduce energy use.</li> <li>- platforms have been designed to provide weather protection for light rail customers.</li> <li>- Water Sensitive Urban Design has been incorporated in the urban design around stops. The stop canopies deliver water runoff to landscaping rather than the stormwater network.</li> <li>- Materials have been selected that are more resistant to increased extreme and prolonged temperature events.</li> </ul>
Objective 2 – Environmental sustainability and open space	Protect the nationally significant open-space network, visual backdrop and landscape setting of the National Capital.	The proposed stops and mid-block crossings is designed to fit within the urban context and is co-located in existing transport corridors. Therefore the nationally significant open space network is protected.
Principle to support Objective 2.	The hills, ridges and other major open space will be kept largely free of urban development and will act as a natural backdrop to the National Capital.	Not applicable.
<b>2.4 Liveability</b>		
Objective 1 – Urban Design and Heritage	Enhance and preserve Canberra’s symbolic and unique design and role as the National Capital.	The proposed stops and mid-block crossings provide a high quality urban design outcome. The project will add prestige to Canberra as an exemplar Light Rail project.
Principles for Objective 1	<ul style="list-style-type: none"> <li>▪ The National Capital role requires that planning and development, in Canberra Central in particular, and generally throughout the Territory, should reflect contemporary thinking in urban design practice.</li> <li>▪ Planning controls should seek to ensure that development in all forms, including landscaping in urban and non-urban areas, complements and enriches its</li> </ul>	<p>The Light Rail stops and mid-block crossings have a strong contemporary urban design approach which is artistic, minimalist and articulated.</p> <p>All planning controls applied to the Light Rail have enforced this principle.</p>



NCP Ref.	Provision	Response
	<p>surroundings.</p> <ul style="list-style-type: none"> <li>▪ Substantial works of architecture, engineering and landscape within the Territory should be designed to contribute positively to the overall composition, symbolism and dignity of the National Capital.</li> <li>▪ Development in the National Capital should seek to achieve harmony between architecture and landscape to give continuing effect to the City Beautiful and Garden City characters of the city.</li> <li>▪ Within Canberra Central, roads, bridges, waterways and public landscaping projects should reinforce and complement the geometric lines of the Main Avenues.</li> <li>▪ Vistas to major landscape features must be protected from and enhanced by development.</li> <li>▪ Buildings in Canberra Central should be of a height generally not greater than the height of the mature tree canopy (typically 3-4 storeys), except where otherwise permitted by the Plan. In Canberra Central no building or structure which protrudes substantially above the tree canopy must exceed a height of RL617.</li> <li>▪ Opportunities should be encouraged for the enhancement and reinforcement of the physical, symbolic and visual linkages to adjoining areas of the Inner Hills and the Central National Area.</li> <li>▪ Urban development will be planned in a manner which promotes community vitality and safety, applies the principles of crime prevention through environmental design and recognises the needs of people with disabilities.</li> <li>▪ New development, including public spaces, should:                             <ul style="list-style-type: none"> <li>– exemplify sustainability principles</li> <li>– demonstrate excellence in urban design, landscape and architecture</li> <li>– facilitate pedestrian connectivity and bicycle movements where appropriate</li> <li>– encourage energy efficient development and land use.</li> </ul> </li> </ul>	<p>All aspects of this architecture of the stops and mid-block crossings contribute positively to the overall composition, symbolism and dignity of the National Capital. The artistry and architecture will evoke a sense of civic pride.</p> <p>The design approach to the landscape design has carefully considered Griffin's approach to the continuing effect to the City Beautiful and Garden City characters of the city. The proposal will contribute to the Garden City characteristics through its strong landscape-led design approach</p> <p>The proposed works are in the median of Northbourne Avenue and therefore reinforce the geometric lines of the Main Avenues theme.</p> <p>The landscape design will be a major landscape feature of Northbourne Avenue, this is a requirement for the integration of the project into the Canberra context.</p> <p>NA</p> <p>The landscape design of the project carefully considers and responds to all existing vistas and opportunities to view the Inner Hills and Central National Area.</p> <p>Crime Prevention Through Environmental Design (CPTED) principles have informed the stop designs to maximise the personal safety and security of customers travelling to or waiting at the stops. A range of passive measures are proposed, as well as the provision of active security measures such as the provision of CCTV and obvious, easily accessible Help Points. The design also meets and exceeds all relevant accessibility standards.</p> <p>The project has employed ISCA sustainability principles for the development of the project. This is the highest standard of measurement available for infrastructure projects in Australia.</p> <p>The stops design and the process of review in the design has ensured excellence in landscape and architectural design.</p> <p>Pedestrian connectivity will be improved</p>

NCP Ref.	Provision	Response
		<p>through the new facility of the Light Rail including new amenities for all users.</p> <p>The project is energy efficient as required by its cost and environmental management systems.</p>
Objective 2 – Urban design and heritage	Enhance the character of Canberra and the Territory as the National Capital by identifying, protecting, conserving and presenting natural, Indigenous and historic heritage places.	The proposed stops and mid-block crossings do not impact any heritage listed sites.
Principles for Objective 2	<ul style="list-style-type: none"> <li>▪ The National Capital Authority will consider heritage places in Designated Areas as Commonwealth Areas for the purposes of protecting the environment in the manner currently afforded under the <i>Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i> and any subsequent legislation.</li> <li>▪ Within Designated Areas, the National Capital Authority may require Heritage (or Conservation) Management Plans to accompany development applications for heritage places which should be prepared to meet requirements equivalent to those in the <i>EPBC Act</i>. The National Capital Authority may require Heritage Impact Statements to accompany development applications for a heritage place.</li> <li>▪ Development should be consistent with the requirements of any relevant Heritage (or Conservation) Management Plan for that particular place.</li> <li>▪ The management of heritage places should ensure that their use and presentation is consistent with their heritage values. Heritage places will be presented and interpreted to increase public awareness, understanding and enjoyment of the natural and cultural heritage of the National Capital and its conservation, subject to any reasonable requirements for privacy or confidentiality.</li> <li>▪ The National Capital Authority will adopt the Australian Natural Heritage Charter and the Burra Charter as key guiding documents respectively for natural and cultural heritage places within Designated Areas.</li> </ul>	The proposed stops and mid-block crossings do not impact any heritage listed sites.
2.5 Accessibility		

NCP Ref.	Provision	Response
Objective – Transport and movement	Support a connected and equitable multi-modal transport system.	The proposed stops and mid-block crossings support the light rail project which is an equitable transport system and will be integrated with other public transport systems such as bus and taxi. Facilities for integration with private transport such as private vehicles bicycles, disabled persons facilities are also included in the project.
Principles	<ul style="list-style-type: none"> <li>▪ Accessible movement systems for a diversity of pedestrian, cycle, public transport and private transport modes will be provided, with good connections between different modes of transport.</li> <li>▪ An accessible movement system will be achieved by:                             <ul style="list-style-type: none"> <li>▪ maintaining the national and arterial road systems</li> <li>▪ supporting efficient and sustainable pedestrian, bicycle and public transport systems that reduce car dependency</li> </ul> </li> <li>▪ maintaining movement around the city for a diversity of pedestrian, cycle, public transport and private transport modes</li> <li>▪ providing streets that foster a connected and pedestrian-friendly environment</li> <li>▪ reducing the barriers created by major roads to make it easier for people to access the public spaces of the city, particularly in the Central National Area.</li> </ul>	The stops and mid-block crossings design meets and exceeds all relevant accessibility standards.

## 4.2.2 Part Three of NCP – Land Use Plans and General Land Use Controls

The proposed works are located with the 'National and arterial roads' and 'Inter-town Public Transport System' land use categories of the NCP's General Policy Plan.

*Table 3 Part 3 – Land Use Plans and General Land Use Controls*

NCP Ref.	Provision	Response
3.1.3 National and arterial roads (Policies)	<ul style="list-style-type: none"> <li>▪ The National and Arterial Roads System will:               <ul style="list-style-type: none"> <li>– generally, not provide frontage access to development, except where such access will meet appropriate design standards and road safety needs</li> <li>– generally, intersect with the local road network through distributor roads.</li> </ul> </li> <li>▪ The final alignment of proposed arterial roads is subject to consultation with the National Capital</li> </ul>	Not applicable to the works proposed in this application.
3.1.4 Inter-town Public Transport System (Policies)	<p>Public transport planning and provision will:</p> <ul style="list-style-type: none"> <li>▪ Reserve a route for the development of a public transport service to link major employment nodes. As far as practicable the service will be segregated from other transport systems and will operate with priority of right-of-way.</li> <li>▪ A corridor between the city centre, the town centres and major employment nodes, suitable for priority or segregated right-of-way for use by public transport services will be reserved against a possible future need to develop a system of inter town and express routes suitable for buses or other public transit modes as appropriate.</li> </ul>	Not applicable to the works proposed in this application.

## 4.2.3 Part Four (A) of the NCP - Principals and Policies for Designated Areas and Special Requirements for National Land Outside Designated Areas - Main Avenues and Approach Routes

Table 4 Main Avenue and Approach Routes Precincts Code

NCP Ref.	Provision	Response
4.15.3 Objectives for Main Avenues and Approach Routes	<ul style="list-style-type: none"> <li>▪ Establish and enhance the identity of the approaches to the Central National Area as roads of national significance and, where relevant, as frontage roads for buildings which enhance the National Capital function and as corridors for a possible future inter-town public transport system.</li> <li>▪ Ensure that works within the road reservations are carried out to the highest standards, by maintaining and enhancing landscaping, and by facilitating the flow of traffic as far as possible.</li> <li>▪ Reinforce and, where possible, express the integrity of the Griffin Plan's visual structure by strengthening the geometry and form of main avenues, vistas and public spaces.</li> <li>▪ Improve the urban design and streetscape qualities of the Main Avenues as approaches to the Central National Area.</li> </ul>	The Light Rail urban design incorporating the proposed stops and mid-block crossings provides a distinctive and prestigious identity for Northbourne Avenue and beyond. Considerable integrated design of landscape architecture art and civil engineering has occurred to ensure the project will provide civic pride. Northbourne Avenue and Federal Highway will be reinvigorated and upgraded with a major new transport amenity of distinction.
4.15.4 Detailed conditions of planning, design and development - <b>General</b>	Traffic is to be managed to ensure the continued effective function of the Main Avenues and Approach Routes. The Main Avenues will provide access to fronting buildings where practicable, and where traffic safety and flows are not adversely affected.	Traffic reduction along Northbourne Avenue is anticipated as a result of the Light Rail project, consequently traffic management on existing roads will also be managed and traffic flows are anticipated to be well managed.
4.15.4 Detailed conditions of planning, design and development - <b>Landscaping</b>	The Main Avenues and Approach Routes will be developed and maintained as high quality landscaped corridors. In built-up areas, the established design theme of verges and medians and formal tree plantings will be maintained. In areas of intensive pedestrian use, high quality paving is to be used.	The Main Avenue of Northbourne Avenue and approach route (Federal Highway) will be developed and maintained as a high quality landscaped corridor. In built-up areas, the established design theme of verges and medians and formal tree plantings will be improved with new landscape design. In areas of intensive pedestrian use, high quality paving is used. This application includes materials and finishes for the project which are high quality.
4.15.4 Detailed conditions of planning, design and development - <b>Signs</b>	Signs will generally comprise traffic, directional and visitor information signs, and unnecessary repetition will be avoided. Commercial roadside signs are not permitted in road reservations, except on bus shelters. Non-commercial signs may be permitted where they comply with the requirements for signs set out in the Signs General Code.	A wayfinding signage strategy is proposed as part of this application. Unnecessary repetition is avoided.

NCP Ref.	Provision	Response
<p>4.15.4 Detailed conditions of planning, design and development – <b>Streetscape design</b></p>	<p>A streetscape hierarchy, that complements the road hierarchy, should be established. This hierarchy should give primacy to main avenues, emphasise continuity along their length through avenues of appropriately scaled trees, consistent pedestrian pavement materials, street furniture and lighting.</p> <p>Development should generally be constructed to the street boundary to define and enclose streets and create continuous street frontage while allowing variations in individual buildings and uses.</p> <p>A limited palette of high quality pedestrian pavement materials, street furniture and lighting will be used. Pavement and landscape design should have an elegant, simple and bold design emphasising the geometry and formality of the main avenues.</p> <p>Streetscapes are to be well lit for pedestrians and optimise security and safety for night time use</p>	<p>The road hierarchy remains unchanged.</p> <p>The road hierarchy provides primacy to the main avenue of Northbourne Avenue, which emphasises continuity along the length through avenues of appropriately scaled trees, consistent pedestrian pavement materials, street furniture and lighting.</p> <p>Development is constructed to the street boundary of the median to define and enclose the avenue.</p> <p>A limited palette of high quality pedestrian pavement materials, street furniture and lighting is employed. Pavement and landscape design has an elegant, simple and bold design emphasising the geometry and formality of the main avenue and is contextually related to Canberra palette of materials.</p> <p>The Light Rail project will be appropriately illuminated for pedestrians to optimise security and safety for night time use. The lighting strategy has been prepared to address the high quality lighting outcomes designed for the project.</p>



## 5. SCHEDULE OF COMPLIANCE WITH WA20277 / WA1

Condition/Note for of WA1 (WA 20277)		How the condition has been met
1	Works Approval has been granted for the following works:	
a)	Demolition of infrastructure within the Federal Highway and Northbourne Avenue road reserves, north of Antill Street as shown on the approved drawings.	No change proposed as part of this application.
b)	Demolition/removal of all existing infrastructure within the Northbourne Avenue and Federal Highway medians (the medians) as shown on the approved drawings. For clarity the demolition also includes the median kerb if damaged during construction. The kerb is to be replaced to match existing kerb detail.	No change proposed as part of this application.
c)	Earthworks as shown on the approved drawings, and subject to detail excavation drawings being submitted for approval.	This application responds to this note by providing the detailed earthworks drawings.
d)	Removal of trees and other soft landscaping within the medians as shown on the approved drawings.	No change proposed as part of this application.
e)	Removal of trees as shown on the approved drawings within the Federal Highway/Northbourne Avenue verges, north of Antill Street.	No change proposed as part of this application.
f)	Installation of approximately 5.4 kilometres of embedded rail tracks and concrete track form within the medians as shown on the approved drawings.	No change proposed as part of this application.
g)	Installation of soft landscaping including trees within the medians and verges as shown on the approved drawings, and as described in Condition 3a.	No change proposed as part of this application.
h)	Construction of new road pavement and road intersections.	No change proposed as part of this application.
i)	Temporary site compound on Block 13 Section 63 City.	Not applicable. This application is for design only. Temporary works are subject to a separate construction WAA.
2	Approval has not been granted for the following works:	
	Access driveway to TPS6 substation adjacent to Macarthur House, all the mid-block crossings including the associated landscaping, that section of works that includes the two right hand tum lanes and pedestrian/cycle path across Northbourne Avenue between Morphett and Murdoch Street, Dickson, and the right hand tum storage lane from Northbourne Avenue onto Bunda Street.	Mid-block crossings are subject of this WAA.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
3	New Trees	
a)	The new Eucalyptus mannifera plantings within the Northbourne Avenue median are to be spaced a maximum 10 metre apart (e.g. between tree centres) as shown on Attachment B_. Except at slip lanes and proposed stop locations, the trees are to be generally located 2.5 metres from the edge of the concrete track form and 4.5 metres from the Northbourne Avenue median kerb. Prior to the commencement of tree replacement works, revised drawings are to be submitted to the NCA for Works Approval.	Not applicable.
b)	The Public Domain and Landscape Detail Plans for that section of landscape works to the north of Antill Street indicate in the legend the type of new native trees to be planted. The NCA supports the use of Eucalyptus mellidora and Eucalyptus polyanthemus within the verges and Eucalyptus mannifera within the median. The drawings are to be amended to include the tree species symbol for each individual tree within the verges.	Not applicable.
4	Temporary Site Compound	
a)	The temporary hoarding around the site compound is to be painted white.	Not applicable. This application is for design only. Temporary works are subject to a separate construction WAA.
b)	Any temporary signage associated with the site compound (except signage required for work safe purposes) is to be approved by the NCA. No signage along Commonwealth Avenue will be permitted except as required for work safe purposes.	Not applicable. This application is for design only. Temporary works are subject to a separate construction WAA.
c)	Once the temporary site compound is no longer required, the site is to be restored to a car park or another use approved by the NCA. The works associated with the restoration or another use will be the subject of a separate Works Approval application.	Not applicable. This application is for design only. Temporary works are subject to a separate construction WAA.
Prior to commencement of works approved as part of WA20277 or as otherwise agreed by the NCA, the following items need to be addressed as described.		
5	All relevant ACT Government agency approvals relating to the works are to be obtained.	This condition will be met and is demonstrated through the Project's Compliance Tracking Program.
6	Tree Assessment Report	
-	An updated Tree Assessment Report is to be provided to the NCA and TAMS which indicated which trees are to be removed as part of the Stage 1 works. Currently the report notes the probability of retention only.	An updated Tree Assessment Report has been provided to the NCA.
7	Colour Sample Schedule	

Condition/Note for of WA1 (WA 20277)		How the condition has been met
a)	This approval is for those samples related to the works approved as part of this Works Approval. All other samples will be considered as separate Works Approval applications.	A Materials and Finished Schedule for the stops and mid-block crossings has been included with this application.
b)	A sample of the concrete track form is to be approved by the NCA prior to the construction of the track form.	A sample will be provided when available.
8	Compliance monitoring and tracking	
-	Prior to the commencement of works, a Compliance Tracking Program must be developed and implemented to track and audit the requirements of and compliance with the conditions of this works approval. The program should include:	A Compliance Tracking Program (00-CMC-PMM-MAN-NA-0001) has been prepared for the Project. Compliance is additionally tracked in this table.
a)	a timeline which details the relevant approvals required and approving entities.	As above.
b)	provisions for periodic reporting of the compliance status of the approved work against the requirements and conditions of approval to the NCA and the Environment Protection Authority (EPA).	To be agreed with the NCA.
c)	mechanisms for rectifying any non-compliance identified during auditing or review of compliance.	As above.
-	Written confirmation is to be provided to the NCA that the Compliance Tracking Program has been developed.	Completed.
9	Community Information, Consultation and Involvement	
-	Prior to the commencement of works, Canberra Metro must ensure that the following are available for community enquiries and/or complaints during construction and until operation of the project:	Not applicable. This application is for design only.
a)	a telephone number on which complaints about construction activities at the site can be registered.	Established - 1300208824
b)	a postal address to which written complaints may be sent.	Established - 330 Northbourne Avenue DICKSON ACT 2602
c)	an email address to which electronic complaints can be transmitted .	Established - cbr.communications@canberra.metro.com.au
-	The telephone number, the postal address and the email address shall be displayed on signs and placed in appropriate locations, including being readily available on construction compounds and construction hoardings. A register of complaints shall be made available for inspection by the NCA upon request and provided to the NCA on a regular basis as agreed between the NCA and Capital Metro Agency.	Signage has been established at compounds and on fencing.  A register of complaints is maintained using which will be provided to the NCA quarterly and upon request, and to ACTPLA upon request.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
-	Prior to the commencement of works, a business landowner and engagement management plan must be developed and submitted to the NCA for its approval. The management plan must be implemented for the duration of the construction program.	The Stakeholder and Community Engagement Management Plan prepared for the Project (00-CMC-PLN-CTY-NA-0002) addresses this requirement.
10	Construction Environmental Management Plan	
-	A Construction Environmental Management Plan (CEMP) for each stage of the project must be endorsed by an independent environmental consultant and submitted to, and approved in writing by the NCA prior to the commencement of any work for each stage. The CEMP is required to address commitments in the Environmental Impact Statement (EIS) and must include the following:	Not applicable. This application is for design only. Construction management will be subject to a separate construction WAA.
a)	a Tree Replacement Strategy which has been agreed with NCA and reflects the approved landscape plans. The Strategy must outline the timing for tree replacements, species selection, size of stock, planting technique and ground preparation, and maintenance and replacement in the event of death or damage of a tree.	A Tree Replacement Strategy (00-CMC-PLN-MAN-NA-0014) has been developed for the Project which has been endorsed by the EPD and the Independent Certifier. The Strategy has been provided to the NCA.
b)	the mitigation and management measures committed to in the Environmental Impact Statement (EIS) for Stage 1 of the Light Rail.	There are no EIS commitments directly relevant to this application. All EIS commitments are being addressed and tracked through the Compliance Tracking Program.
d)	consideration of onsite detention of contaminated stormwater during construction to minimise downstream impacts, and the capacity and condition of the existing stormwater systems to make provisions for managing any excess flow during construction.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
e)	a Noise Management Plan developed in consultation with the EPA which addresses but is not limited to: <ul style="list-style-type: none"> <li>(i) how construction will comply with section 22 of the Environment Protection Act 1997; and</li> <li>(ii) how works in the area will comply with noise zone standards in Schedule 2 of the Environment Protection Regulation 2005, where not exempt.</li> </ul>	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.  The operation of the proposed works does not generate noise.
f)	a Dust and Air Quality Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction will WAA.
g)	a Traffic Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
h)	a Soil and Water Management Plan	Not applicable. This application is for design only. Construction management will be subject to a separate construction WAA.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
i)	a Hazardous Materials Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
j)	a Biodiversity Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
k)	a Vegetation Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
l)	a Heritage Management Plan, including unexpected finds protocol.	Not applicable. This application is for design only. Construction management is to a separate construction WAA.
m)	a Spoil Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
n)	a Contamination Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
o)	a Utilities Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
p)	a Waste and Recycling Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
q)	a Construction Emergency Response Plan.	Not applicable. This application is for design only. Construction management will be subject to a separate construction WAA.
r)	a Water Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
s)	a Construction Transport Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
t)	a revised Erosion and Sediment Control Plan which provides consideration of a whole- of-project approach and is endorsed in writing by the EPA.	Not applicable. This application is for design only. Construction management will be subject to a separate construction WAA.
u)	emergency planning procedures in accordance with Australian Standard AS3745 and provisions for appropriate access for a fire fighting response, developed in consultation with the Emergency Services Agency. Where works prevent travel along existing roads or access ways, alternate access must be provided to ensure firefighting response.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
v)	measures for an independent environmental consultant to monitor and audit construction works against the conditions of approval relating to the Construction Environmental Management Plan and report on these works regularly to the NCA and the EPA.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
11	Accessibility and Mobility Report	
-	Prior to the commencement of works, an Accessibility & Mobility Report is to be prepared by a suitably qualified person, endorsed by the ACT Territory and Municipal Services Directorate (TAMS) and submitted to the NCA. Works are to comply with the requirements set out in Condition 28.	As agreed with the NCA, an Accessibility & Mobility Report will be provided following completion of all relevant design elements.
12	Heritage	
-	Prior to the commencement of any work for each stage of the project, the following requirements must be met in respect of heritage, unless otherwise agreed with the ACT Heritage Council:	As below.
a)	provide a revised 'Unexpected Finds Protocols' as presented in GML (2015) and Parsons Brinckerhoff Australia (2015) to include Council notifications in accordance with Section 51 of the Heritage Act 2004. Where project impacts to additional heritage places or objects are identified approval must be sought from the Council in accordance with Section 76 of the Heritage Act 2004 prior to the commencement of works in that area.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
b)	The proposed works have the potential to disturb the root systems of two significant trees in Haig Park, at the corner of Northbourne Avenue and Masson Street. One of the trees is within the Designated Area. Arborist advice to be sought for the protection of these trees during the construction phase and provided to the Heritage Council for review prior to commencement of works at Haig Park. Significant impact to the identified heritage values of Haig Park may also require the approval of a Statement of Heritage Effect under Section 61H of the ACT Heritage Act 2004 prior to the commencement of works.	Not applicable to this application.
c)	prior to these investigations, Excavation Permit approval under Section 61F of the ACT Heritage Act 2004 must be obtained. The information should be provided to the Heritage Council in the Excavation Permit application to be prepared in accordance with Section 61E of the ACT Heritage Act 2004.	Not applicable to this application.
-	Written advice from the ACT Heritage Council is to be provided to the NCA as evidence of compliance with Items (a) to (d).	Not applicable to this application.



Condition/Note for of WA1 (WA 20277)		How the condition has been met
13	Bushfire Risk Management Plan	
-	Prior to the commencement of works, a Bushfire Risk Management Plan, prepared by a suitably qualified person, is required that is endorsed by the ACT Emergency Services Agency. The Bushfire Risk Management Plan must include:	Not applicable to this application.
a)	specific dimensions for the Asset Protection Zones.	Not applicable to this application.
b)	where Asset Protection Zones are on adjacent lands, confirmation that the Asset Protection Zone/s can and will be maintained by the land manager.	Not applicable to this application.
-	The endorsed Bushfire Risk Management Plan is to be submitted to the NCA.	Not applicable to this application.
14	Pollution Control Plan	
-	Prior to the commencement of works in a particular area, a pollution control plan must be approved in writing by the Environment Protection Authority (EPA) for that area. The approved pollution control plan is to be submitted to the NCA for Works Approval. In developing the pollution control plan refer to the Environment Protection Guidelines for Construction and Land Development in the ACT.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
15	Environmental Authorisation/Agreement	
-	Prior to the commencement of works in a particular area, the contractor/builder proposing to develop that area must hold an Environmental Authorisation or enter into an Environment Protection Agreement with the EPA in respect of that area and activity. A Works Approval application is to be submitted for any works that requires the NCA 's approval.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
16	Contamination	
-	Prior to the commencement of any work, the following requirements must be met:	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
a)	the area where works are proposed to commence must be assessed and remediated as required for potential impacts from contamination by a suitably qualified environmental consultant.	As above.
b)	the findings of the assessment in part (a) must be independently audited by an EPA approved contaminated sites auditor.	As above.
c)	the findings of the audit into site suitability or proposed management (from a contamination perspective) must be signed off by the EPA.	As above.
d)	The findings of the audit endorsed by the EPA is to be provided to the NCA.	As above.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
17	Temporary Traffic Management Plan	
-	Where required, a Temporary Traffic Management (TTM) Plan must be prepared by a suitably qualified person and approved by TAMS. The approved TTM is to be submitted to the NCA for Works Approval. The TTM Plan must be implemented prior to the commencement of works within the area incorporated by the plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
-	In developing each Temporary Traffic Management Plan consultation is to occur with the station sergeant for ACT Policing Civic and Gungahlin Stations. Consultation is to also occur with any landowners who may be affected by the TTM. Evidence of this consultation is to be submitted with the Works Approval application	As above.
-	Note: The plans must address measures to be employed during construction to manage all traffic, including construction traffic, in and around the site, provision of safe pedestrian movement around the site, the provision of parking for construction workers, and associated traffic control devices.	As above.
18	Landscape Management and Protection Plan	
a)	Prior to commencement of works, a Landscape Management and Protection Plan is required to be submitted to the NCA for Works Approval. Prior to the submission of the Works Approval application the Landscape Management and Protection Plan is to be approved in writing by the Manager, Asset Acceptance, TAMS or his/her delegate.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
b)	The plan is to be implemented prior to the commencement of works for each stage of the project, including demolition or earthworks in that area.	As above.
c)	The Landscape Management and Protection Plan must be in accordance with Landscape Management and Protection Plans (LMPP) Requirements for the Protection of Public Landscape Assets Adjacent to Development Works-REF-04.	As above.
d)	The Landscape Management and Protection Plan must provide arborist advice to confirm how potential impacts around existing trees will be protected during construction works. In particular advice must be provided for trees which may be impacted by the construction of the retaining wall along the southern side of Flemington Road and western side of the Federal Highway.	As above.
19	Site Establishment Plan	
-	Prior to the commencement of works and where required, site establishment plans are to be submitted to the NCA for Works Approval. The plans are to detail the location of any temporary fencing/hoarding, access gates, signage and storage areas.	Not applicable. This application is for design only. Site establishment is subject to a separate construction WAA.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
20	Notice of commencement of construction	
-	A Notice of Commencement of Construction must be submitted to the NCA and the Manager, Asset Acceptance, TAMS or his/her delegate one week prior to the commencement of construction works for a particular stage of the project. The Notice must include:	Not applicable to this application.
a)	confirmation of any protective measures installed in accordance with the approved Landscape Management Protection Plan and Temporary Traffic Management Plan for the area; and	Not applicable to this application.
b)	notice of any existing damage to public facilities in the area.	Not applicable to this application.
-	The proponent is held responsible for all damages to ACT Government assets (including footpaths) caused by the development and they must properly repair any damages to those assets.	Not applicable to this application.
21	TransGrid Asset Management	
-	Prior to the commencement of any works in the vicinity of TransGrid assets, the applicant must:	Not applicable. No works are in the vicinity of TransGrid Assets which are at significant depth below ground.
a)	consult with TransGrid to ensure the proposed construction method and materials will not adversely affect the structure of TransGrid's Canberra Optic Fibre Cable.	As above.
b)	provide final design plans, including any changes to ground levels, to TransGrid's Asset Management Department to ensure it complies with TransGrid requirements.	As above.
22	Water Supplies for Fire	
-	Rail platforms are considered to be "light industry" and are classified Fire Risk classification F4 for water supply. The proponents will be required to meet standards as agreed by ACTEW and ACT Fire & Rescue.	Not applicable to this application.
DURING CONSTRUCTION AND/OR DEMOLITION, the applicant is required to comply with the following conditions unless as otherwise agreed by the NCA.		
-	The following conditions are required to be implemented and maintained for the duration of any work for each stage of the project.	As below.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
23	The development must be undertaken in accordance with approved plans, including but not limited to:	
a)	Construction Environmental Management Plan.	Not applicable. This application is for design only. Construction management is subject to a separate construction WAA.
b)	Temporary Traffic Management Plan.	As above.
c)	Landscape Management and Protection Plan.	As above.
d)	Pollution Control Plan.	As above.
e)	Noise and Vibration Management Plan, developed in consultation with the EPA	As above.
24	Erosion and sediment control	
-	Erosion and sediment control measures must be in place and maintained at all times during construction and at site compounds and storage sites.	Not applicable. This application is for design only. Construction management will be subject to a separate construction WAA.
-	All works must be carried out in accordance with the Environment Protection Guidelines for Construction and Land Development in the ACT, March 2011.  Note: The guidelines referred to above are available by calling 132281.	As above.
25	Rainwater	
-	All rain water that enters the site and pools in excavations during a rain storm event would be considered as a sediment control pond, and must meet the following conditions.	Not applicable. This application is for design only. Construction management will be subject to a separate construction WAA.
a)	all stormwater must be pumped out and disposed of at an approved location.	As above.
b)	no discharge is to occur from the pond unless sediment level is less than 60mg/litre. If sediment level is greater, then prior to discharge, the pond must be dosed with either Alum or Gypsum and allowed to settle until the sediment is less than 60 mg/litre.	As above.
26	Surface and groundwater	
a)	All works affecting waterways (e.g. ponds, creeks, drainage lines etc) require a Waterway works Licence before work may commence.	Not applicable. This application is for design only. Construction management will be subject to a separate construction WAA.
b)	Any take of surface water or ground water during construction or otherwise must be suitably licensed under the Water Resources Act 2007 with a licence to take water and a water access entitlement.	As above.

Condition/Note for of WA1 (WA 20277)		How the condition has been met
27	Paths of travel	
-	During construction all public areas must be constructed in accordance with the following Australian Standards:	The design complies with the following Australian Standards.
a)	AS 1428.1- Design for Access and Mobility	As above.
b)	AS 1428.4 - Tactile ground surface indicators for the orientation of people with vision impairment to highlight hazards.	As above.
c)	AS 4586- Slip Resistant Classification of New Pedestrian Surface Materials for external paving and ground surfaces.	As above.
d)	AS J 428.2- Design for access and mobility- Enhanced and additional requirements - Buildings and facilities.	As above.
e)	AS1742.10 (1991) Manual of Uniform Traffic Control Devices- Pedestrian Control and Protection.	As above.
-	Pedestrian paths must be constructed in accordance with AUSTRROADS Guide to Traffic Engineering Practice Part 13. - Pedestrians, or the most recent version of this guidance document applicable to the ACT.	As above.
-	Bicycle paths must be constructed in accordance with AUSTRROADS Guide to Traffic Engineering Practice Part 14. - Bicycles, or the most recent version of this guidance document applicable to the ACT.	As above.
POST CONSTRUCTION AND/OR DEMOLITION, the applicant is required to comply with the following conditions unless as otherwise agreed by the NCA.		
28	Operating Phase Environment and Sustainability Plan	N/A

## 6. STAKEHOLDER CONSULTATION

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Significant consultation has been undertaken for the Light Rail project, involving the ACT Government, the NCA, stakeholders and the wider community. Formal public consultations have occurred through the following avenues:

- Light Rail Integration Study Consultation
- Early Design Consultation
- Urban Design Consultation
- Public Exhibition of the EIS
- Public Exhibition of the initial NCA WAA (WA20277)
- Public Exhibition of the initial DA for project areas outside Designated land (DA201528511).

Subsequent consultation with key stakeholders has continued during the development of the detailed urban designs, including the stops and mid-block crossings. This has occurred primarily through ongoing regular consultation with the NCA, including with the NCA Design Review Panel, and periodic consultation with the Design Advisory Panel (approximately every two months).

The Design Advisory Panel was established to provide TCLR with high level independent expert advice and expertise on urban design, architecture, landscape architecture, art and sustainability. NCA representatives also attend the Design Advisory Panel meetings.

The proposed stops and mid-block crossing designs subject of this application will undergo further community consultation, undertaken by the NCA and TCLR. This includes consultation with selected community councils and online public notifications including through social media.

This WAA will be on public exhibition concurrently with the public exhibition of the DA Amendment for the stops along Flemington Road.

Comments from the community will be taken into consideration in the assessment of this WAA and the DA Amendment application.