



IRIS Visual Planning + Design



Transport Access Program

North Strathfield Station

Visual Impact Assessment

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Abbreviations

Term	Meaning
CBD	Central Business District
CCTV	Closed Circuit TV
CPTED	Crime Prevention Through Environmental Design
DSAPT	<i>Disability Standards for Accessible Public Transport (2002)</i>
OHLE	Overhead line equipment
TGSI	Tactile tiles or Tactile Ground Surface Indicators

Definitions

Term	Meaning
Concept design	The concept design is the preliminary design presented in this REF, which would be refined by the Contractor (should the Proposal proceed) to a design suitable for construction (subject to TfNSW acceptance).
Detailed design	Detailed design broadly refers to the process that the Contractor undertakes (should the Proposal proceed) to refine the concept design to a design suitable for construction (subject to TfNSW acceptance).
Disability Standards for Accessible Public Transport	The Commonwealth <i>Disability Standards for Accessible Public Transport 2002</i> (“Transport Standards”) (as amended) are a set of legally enforceable standards, authorised under the Commonwealth <i>Disability Discrimination Act 1992</i> (DDA) for the purpose of removing discrimination ‘as far as possible’ against people with disabilities. The Transport Standards cover premises, infrastructure and conveyances, and apply to public transport operators and premises providers.
Out of hours works	Defined as works outside standard construction hours (i.e. outside of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sundays/public holidays).
Overhead line equipment	A system of masts and overhead wires used to supply electricity to trains and light rail vehicles.
Rail possession	Possession is the term used by railway building/maintenance contractors to indicate that they have taken possession of the track (usually a block of track) for a specified period, so that no trains operate for a specified time. This is necessary to ensure the safety of workers and rail users.
Sensitive receivers	Land uses which are sensitive to potential noise, air and visual impacts, such as residential dwellings, schools and hospitals.
The Proposal	The construction and operation of the North Strathfield Station transport access upgrade.
Zincalume	Aluminium-Zinc coated sheet steel

1.0 Introduction

IRIS Visual Planning + Design were commissioned by Transport for NSW to undertake an assessment of the visual impact of a proposed accessibility upgrade at North Strathfield Station. North Strathfield Station is located on the Main Northern line (T1 service), within the Canada Bay local government area, about 12 kilometres west of the Sydney CBD. This visual impact assessment has been prepared to inform the Review of Environmental Factors (REF) for the proposal.

North Strathfield Station has been identified for inclusion in the Transport Access Program for a precinct accessibility upgrade as it currently does not accommodate mobility impaired access to rail services, or meet key requirements of the Disability Standards for Accessible Public Transport (DSAPT) or the Commonwealth *Disability Discrimination Act 1992* (DDA).

The proposed upgrade would include three new lifts; these will be located at the western platform, island platform, and at the eastern station entrance on Queen Street. Other proposed improvements include upgrades to the stairs, kiss and ride, taxi zone, signage and tactile indicators, and other associated public realm improvements.

Objectives of the Transport Access Program

The Transport Access Program is an initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure. Key benefits include:

- Stations that are accessible to people with a disability, limited mobility and parents with prams
- Modern buildings and facilities for all modes that meet the needs of a growing population
- Modern interchanges that support an integrated network and allow seamless transfers between all modes for all customers.

2.0 Study scope

This visual impact assessment identifies the potential visual impacts of the proposal on views to the station from surrounding areas. The study area for this proposal extends from Pomeroy Street in the north, east to Queen Street, south west to Hamilton Street West, and to the McDonald College in the west.

This assessment is based upon a viewpoint assessment, identifying and assessing views that represent the range of publicly accessible views to the proposal. This assessment includes views from surrounding commercial areas, footpaths and streets, parks, and the North Strathfield Railway Station.

This assessment begins with the identification of: the existing character of the station precinct; a description of the visual character of the proposal; and an individual viewpoint assessment. The viewpoint assessment includes identifying the sensitivity of the view and the magnitude of change that is proposed. These factors are then combined to determine a level of impact.

The assessment has identified the impacts of the proposal during the day and night, and throughout construction and operation. In particular, this assessment considers the visual impacts created by works as seen within the context of the local heritage listed buildings from a landscape character perspective. Detailed consideration of potential heritage impacts have been addressed separately as part of the REF in the *Statement of Heritage Impact Assessment – North Strathfield Station* [Extent Heritage, 2018].

The assessment also considers the urban design and landscape impacts of the proposal in terms of the proposals consistency with requirements of the DCP, tree removal, overshadowing and legibility.

This assessment is based on Concept Drawings prepared by Design Inc. North Strathfield Station Upgrade Transport Access Program, TAP3 Architectural, 13/08/2018, Architectural plans and sections.

3.0 Station location and description

North Strathfield Station consists of two suburban lines with a central island platform and one side platform to the west (refer Figure 3-1). A third line is located in an open tunnel on the eastern side of the rail corridor. This line was constructed as part of the North Strathfield Rail Underpass project and is used for freight trains.

The station platform is currently accessed by a pedestrian overbridge, with stairs at the eastern

and western side of the bridge, at Queen Street and near Hamilton Street East. The platforms are accessed via stairs connecting to the overbridge.

A pathway connects Hamilton Street East and Pomeroy Streets, west of the station, providing station access to local schools and residential areas. To the east of the station, a zebra crossing on Queen Street connects the entrance of North Strathfield Station to the local shopping precinct



Figure 3-1 Site location

4.0 The proposal

Proposal components

The North Strathfield Station upgrade aims to provide improved integration and access to, within and around the station precinct for all users, including persons with impaired mobility.

The proposal includes:

- provision of three new lifts and associated weather canopies to allow for access to each of the station platforms and Queen Street from the existing footbridge
- upgrade of existing platform surfaces (re-grading) across all platforms to provide compliant accessible paths and ramps
- modifications to the existing station building including:
 - upgrade of the existing unisex (ambulant) toilet
 - upgrade of the existing family accessible toilet
- upgrade of the existing footpaths including widened footpaths at the Queen Street entrance and modified footpaths from the Hamilton Street entrance to Platform 3
- provision of one new DDA-compliant on-street parking space and one DDA-compliant kiss-and-ride space along Queen Street to the south of the station entrance, including new kerb and ramps
- landscaping and planting works within the station precinct
- ancillary works including adjustments to lighting, electrical upgrades, minor drainage works, new seating, improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding signage

and installation of tactile ground surface indicators (TGSIs).

Subject to planning approval, construction is expected to commence in early 2019 and take around 12 months to complete.

A tree within the s170 heritage listed gardens would be removed to install the new lift at the Queen Street entrance. There would also be a small area of garden, within the construction footprint, that would be removed to accommodate the works. The existing vegetation to the northeast of the station, along Queen Street, would not be altered.

Architectural design

Western and central platform lifts

New lifts, including:

- face brick base to the lifts to match face brick detailing of the existing platform buildings
- Exposed steel frame to the lift shaft with glass infill panels to all sides of the lift shaft, other than the lift entrances
- louvres to the upper sections of the lifts within the exposed steel frame
- Zincalume cliplock sheeting horizontal roof over lift entries and waiting areas to the lifts.

Footbridge connection:

- concrete (textured finish and painted) deck
- full height anti throw screening to the new footbridge connections
- Zincalume cliplock sheeting horizontal roof over lift entries and waiting areas to the lifts.



Figure 4-1 Existing view north along the platform



Figure 4-2 Proposed view to the western and central platform lifts



Figure 4-3 Existing view to the eastern (Queen Street) station entry



Figure 4-4 Proposed view to the eastern (Queen Street) station entry lift

Eastern (Queen Street) entry

New lift including:

- face brick base to the lift to match face brick detailing of the existing platform buildings
- Exposed steel frame to the lift shaft with glass infill panels to all sides of the lift shaft, other than the lift entrances
- louvres to the upper sections of the lift within the exposed steel frame.
- full height anti throw screening to the new footbridge landing
- Zinalume cliplock sheeting (Colourbond® Surfmist) horizontal roof over lift entries and waiting area at footbridge level and Queen Street level
- reinstatement of the heritage gardens immediately surrounding the eastern lift.

Construction

A temporary construction compound would be required to accommodate a site office, amenities, laydown and storage area for materials. An area for a construction compound has been proposed on the eastern side of the existing rail corridor, between the tracks adjacent to Platform 1 and Queen Street (refer Figure 4-5). The area nominated for the compound is within the existing rail corridor, owned by Sydney Trains. This site was previously used as a compound site for the construction of the North Strathfield Rail Underpass and is currently a cleared area. Impacts associated with utilising this area have been considered in the environmental impact assessment including requirements for rehabilitation.

Additional areas along the eastern side of the rail corridor (adjacent to the North Strathfield Rail Underpass dive) would also potentially be required for material laydown (to the south of the station/platforms).

Subject to ongoing development of the construction methodology, temporary access to The McDonald College site may be required to allow for crane/lifting operations during the installation of the western lift. This would be subject to further discussion with The McDonald College and refinement of the final construction methodology.

Separate lift work areas would be established for each lift, including:

- a lift work area at the Queen Street stairs, to the north of the footbridge and extending into an area of the gardens
- a lift work area on the island platform to the south of the footbridge
- a lift work area on the western platform, to the south of the footbridge, between the rail corridor and footpath.

The works would be undertaken over a program of approximately 12 months. The station would remain operational for the duration of the works (outside of scheduled track possessions), with customer accessible areas maintained around the construction works. While some footpath widths may be reduced, with the exception of scheduled track possessions, it is not expected that customer access to the station platforms would be restricted / closed during construction.

The lift work area and main construction compound would be enclosed in temporary security fencing and hoarding. The machinery and activities occurring in these areas would include excavators, cranes, heavy and light delivery vehicles, concrete trucks and pumps, and other typical construction equipment.

The majority of works required for the proposal would be undertaken during standard (NSW) Environment Protection Authority (EPA) construction hours, which are as follows:

- 7.00 am to 6.00 pm Monday to Friday
- 8.00 am to 1.00 pm Saturdays
- no work on Sundays or public holidays.

Certain works may need to occur outside standard hours and would include night works and works during routine rail possessions which are scheduled closures that would occur regardless of the Proposal when part of the rail network is temporarily closed and trains are not operating.



Figure 4-5 Location of construction areas

5.0 Planning context

There are several state and local government planning documents which provide relevant guidance for the landscape character and visual values of the site.

State government guidance

Transport for NSW

The NSW Government is committed to the development of a customer focused transport network to help it achieve its economic, social and environmental objectives. Good urban design can help achieve the NSW Governments aims for the rail systems of NSW. The urban design principles contained in these documents explain how it applies to specific elements of rail infrastructure and the precincts around them.

These documents include:

- Around the Tracks: Urban Design for Heavy and Light Rail
- *Managing Heritage: issues in rail projects guidelines*
- *Creativity Guidelines: for transport systems*
- *Commuter Car Parks: urban design guidelines*
- *Sustainable design guidelines, Version 4.0*

The *Sustainable design guidelines* refers to eight principles, drawn from the Interim version of the Urban Design best practice guideline *Around the Tracks urban design for heavy and light rail*. These principles are:

1. *Draw on a comprehensive site and context analysis to inform the design direction.*
2. *Provide value-for-money design solutions that achieve high quality low maintenance architectural and urban design outcomes that have longevity.*
3. *Provide connectivity and permeability for pedestrians.*
4. *Principle 4 Integrate the project with the surrounding area.*

5. *Maximise the amenity of the public domain.*
6. *Protect and enhance heritage features and significant trees.*
7. *Maximise positive view opportunities.*
8. *Design an efficient and functional transport solution which enhances and contributes to local amenity and prosperity.*

Projects are required to outline how they have addressed each of these principles at a minimum as part of their project UDLP.

The office of the NSW State Government

The office of the NSW State Government Architect has prepared a suite of documents under the title of 'Better Placed' which aim to improve the urban design quality of places in NSW. These documents include:

- *Better Placed: An integrated design policy for the built environment of NSW, State Government Architect NSW (2018)*
- *Better Placed: Draft Good Urban Design Strategies for realising Better Placed objectives in the design of the built environment, State Government Architect NSW (2018)*
- *Better Methods: Evaluating Good Design, Implementing Better Placed design objectives into projects. (2018).*

These documents are intended to inform those involved in the design, planning, and development of the built environment in NSW. The overriding policy establishes the objectives and expectations in relation to design and creating good places.

The policy includes seven distinct objectives for the design of the built environment. These objectives apply to the design of landscapes, buildings and our public domain and aims for design which is 'healthy, responsive, integrated, equitable.'

The objectives are:

- *Better fit – contextual, local and of its place*
- *Better performance – Sustainable, adaptable and durable*
- *Better for community – Inclusive, connected, and diverse*
- *Better for people – Safe, comfortable and liveable*
- *Better working – Functional, efficient and fit for purpose*
- *Better value – Creating and adding value*
- *Better look and feel – Engaging, inviting and attractive.*

Local Government guidance

The site is located within the City of Canada Bay local government area. The *Canada Bay Local Environmental Plan* (City of Canada Bay Council, 2013) and the *Canada Bay Development Control Plan* (City of Canada Bay Council, 2017) provide some specific guidance for the site. Relevant clauses from these documents are summarised in the following sections.

Canada Bay Local Environmental Plan, 2013

The *Canada Bay Local Environmental Plan 2013* (LEP) includes a number of plans which offer guidance for development within the study area including land use zoning, heritage areas and maximum heights for development.

The study area includes a number of land use zones including:

- SP2 – Infrastructure (Railway)
- B1 – Neighbourhood Centre
- B3 – Commercial Core
- B4 – Mixed Use
- R3 – Medium Density Residential
- R2 – Low Density Residential
- RE1 – Public Recreation.

There are some objectives identified for these zones that are relevant to the visual amenity of the study area, these are listed in the following paragraphs.

North Strathfield Station and railway is covered by the SP2 zone. The objectives of this zone relevant to this project include:

“To prevent development that is not compatible with or that may detract from the provision of infrastructure.”

North Strathfield neighbourhood centre (B1) is located to the east of the railway station, along Queen Street, including small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood. On the other side of the station, there is a small block of mixed use (B4), between the station and George Street, including business, office, residential, retail and other development. Further to the south, the commercial core of North Strathfield is located between the rail corridor and George Street, including the *‘Bakehouse Quarter’*, located in the historic former Arnott’s complex. The objectives

of these zones do not specifically relate to maintaining and/or enhancing visual amenity.

R3 Medium density residential and R2 Low density residential covers remaining land surrounding the Station. This area contains a small number of residential buildings and streetscapes on the local heritage register. The objectives for the R2 zone are also not relevant to visual amenity.

The LEP also sets out the maximum building heights allowable in the study area. The maximum heights allowable in the areas surrounding the Station are:

- 16 metres applies to the Mixed Use (B4) zone to the west of the station
- 8.5 metres, applies to low and medium density residential (R2/R3) and the Neighbourhood Centre (B1) to the east of the station
- 17.5 metres, applies to areas within the commercial precinct (B2) and high density residential (R4) immediately west of the Station
- 26 metres applies to the Commercial Core (B3) precinct to the south west of the station.

The LEP identifies and sets out the direction for heritage items in the study area. The following heritage items are located in the vicinity of the proposed station upgrade:

- North Strathfield Railway Station Group (State listed heritage item, not on in LEP), including the station building, platforms, footbridge and ornamental garden
- Street trees (adjacent to North Strathfield Railway Station) in Queen Street (I397).

The objectives for heritage items which are relevant to this project include: ... *“To conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views”* (clause 5.10).

Although the LEP has no clause setting out general urban design objectives for the local government area, it requires the design of developments to be *“compatible with the desired future character of the area and with the height, bulk, scale, massing and modulation of surrounding buildings”*. It also advocates development schemes to achieve *“excellence in urban design, while relating to the local context”* (Principal development standards, clause 4.4.2F).

Canada Bay Development Control Plan, 2017

A Development Control Plan has been prepared for the Canada Bay local government area to support the Canada Bay Local Environmental Plan. Key objectives of the DCP are: ... *“Encourage development that responds to its context and is compatible with the existing built environment and public domain”* ... and ... *“Recognise and reinforce the distinctive characteristics of Canada Bay’s neighbourhood and centres”*. It also encourages ... *“design that maintains and enhances the character and heritage significance of heritage items and heritage conservation areas”* (clause A1.5).

Although the DCP contains no specific clauses or requirements relating to the design of public infrastructure such as railway buildings and structures, it places importance on the

appearance and compatibility of development with the surrounding context, including:

Development height and scale:

- *“Height is an important control because it has a major impact on the physical and visual amenity of a place” (clause E3.6)*
- Use of landscaping: *“To improve the visual amenity of industrial development sites and areas” and ... “All security fencing should be located behind the landscaped setback” (clause G3)*

Design of built form:

- *“To ensure the form and scale of development enhances the streetscape and visual quality of the area”*
- *Building height, mass, and scale should complement and be in keeping with the character of surrounding and adjacent development”*
- *Colours should be consistent with the themes of adjoining development and enhance the visual amenity” (clause G4)*

Concord West Precinct Masterplan, 2014

The Concord West Precinct is located immediately north of North Strathfield station and Pomeroy Street, between the rail corridor and Powells Creek.

A number of industrial sites within the Concord West Precinct have been identified for potential rezoning for predominantly residential purposes. A Masterplan was prepared in May 2014 and provides a framework for the rezoning of land.

6.0 Methodology

Guidance for visual assessment

While there are no specific legislative requirements for the methodology of an assessment such as this in New South Wales, the industry typically refers to the guidance offered by:

- *Guidance note EIA-N04 Guidelines for Landscape Character and Visual Impact Assessment, NSW State Government, Roads and Maritime Services (2013)*
- *The Guidance Note for Landscape and Visual Assessment (GNLVA), Australian Institute of Landscape Architects Queensland (2018).*

The methodology used for this assessment conforms generally with the direction offered by these guidelines.

This Visual Impact Assessment has identified potential visual impacts during construction and operations of the proposal, day and night.

The process involved the identification of:

- existing visual conditions
- visual sensitivity
- magnitude of change
- visual impact
- mitigation opportunities.

The potential visual impacts have been classified according to the impact significance criteria set out in this methodology.

Identification of existing visual conditions

The key landscape features of the site have been identified, described and located on a site plan. (refer Figure 7-5).

A number of viewpoints have been selected to illustrate the visual influence of the proposal. These views represent publicly accessible viewpoints from a range of locations and viewing situations. Particular attention was paid to views from places where viewers are expected to congregate such as the station and commercial areas, as well as views to and from heritage items.

Visual sensitivity

Visual sensitivity refers to the nature and duration of views. Locations from which a view would potentially be seen for a longer duration, where there are higher numbers of potential viewers and where visual amenity is important to viewers can be regarded as having a higher visual sensitivity. In addition, any views recognised by local, state or federal planning regulations would, by nature of their recognition in these documents, increase the sensitivity level of the view.

In order to ensure the assessment of impact is reasonable, the sensitivity of a viewpoint is considered in the broadest context of possible views, from those of national importance through to those considered to have a neighbourhood visual importance. For this reason, the following terminology is used to describe the level of visual sensitivity, see Table 6-1.

Table 6-1 Visual sensitivity levels

Visual sensitivity	Description
National	Heavily experienced view to a national icon, e.g. view to Sydney Opera House from Circular Quay or Lady Macquarie's Chair, view to Parliament House Canberra along Anzac Parade.
State	Heavily experienced view to a feature or landscape that is iconic to the State, e.g. view along the main avenue in Hyde Park.
Regional	Heavily experienced view to a feature or landscape that is iconic to a major portion of a city or a non-metropolitan region, or an important view from an area of regional open space, e.g. an identified view corridor to a state heritage listed item.
Local	High quality view experienced by concentrations of residents and/or local recreational users, local commercial areas, and/or large numbers of road or rail users, e.g. view to a local heritage listed item such as the views to North Strathfield Station and gardens.
Neighbourhood	Views where visual amenity is not particularly valued by the wider community such as views from local streets, pocket parks and small groups of residences.

Magnitude of change

Magnitude describes the extent of change resulting from the proposal and the compatibility of these new elements with the surrounding landscape. There are some general principles which determine the magnitude of change; these include elements relating to the view itself such as distance, landform, backdrop, and contrast. There are also characteristics of the development itself which are: scale, form and line/alignment. Change can result in an improvement or reduction in visual amenity.

A high magnitude of change would result if the development contrasts strongly with the existing landscape. A low magnitude of change occurs if there is minimal visual contrast and a high level of integration of form, line, shape, pattern, colour or texture values between the development and the environment in which it is located.

In some circumstances there may be a visible change to a view which does not alter the amenity of the view, this would be due to the visual absorption capacity of the surrounding landscape and / or the compatibility of the proposal with the surrounding visual context. Table 6-2 lists the terminology used to describe the magnitude of change.

Table 6-2 Magnitude levels

Magnitude	Description
Considerable reduction or improvement in visual amenity.	Substantial part of the view is altered. The proposal contrasts substantially with surrounding landscape.
Minor reduction or improvement in visual amenity.	Alteration to the view is clearly visible. The proposal contrasts with surrounding landscape.
No perceived reduction or improvement in visual amenity.	Either the view is unchanged or if it is, the change in the view is generally unlikely to be perceived by viewers. The proposal does not contrast with the surrounding landscape.

Identifying night time visual impacts

The assessment of night time impacts has been undertaken with a similar methodology to the daytime assessment. However, rather than assessing particular viewpoints or landscape features, this assessment draws upon the guidance of the Institution of Lighting Engineers (UK), and their 'Guidance for the reduction of obtrusive light' (2011). This guidance note

identifies environmental zones, useful for the categorising of night time landscape settings.

These zones are:

- E1: Intrinsically dark landscapes – national parks, state forests etc.
- E2: Low district brightness areas – rural, small village, or relatively dark urban locations
- E3: Medium district brightness areas – small town centres or urban locations
- E4: High district brightness areas – town/city centres with high levels of night time activity.

Specific features of the lit landscape can be described in terms of:

- sky glow – the brightening of the night sky above our towns, cities and countryside
- glare – the uncomfortable brightness of a light source when viewed against a dark background
- light trespass – the spilling of light beyond the boundary of the property or area being lit.

The level of impact on the precinct has been described according to the impact levels that are identified in Table 6-4.

The precinct is considered to be an area of medium district brightness, as the Beecroft Station and local centre are used at night and are brightly lit, surrounded by lights from residences, street lighting and vehicle headlights.

Assigning impact levels

An assessment of visual impact has been made on a range of representative viewpoints. An impact visual impact level has been determined by combining the sensitivity and magnitude level. The following criteria have been used, refer to Table 6-3 and Table 6-4.

Table 6-3 Visual impact levels

		Sensitivity				
		National sensitivity	State Sensitivity	Regional sensitivity	Local sensitivity	Neighbourhood sensitivity
Magnitude	Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse	Minor adverse
	Minor reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse	Negligible
	No perceived change	Negligible	Negligible	Negligible	Negligible	Negligible
	Minor improvement	Very high benefit	High benefit	Moderate benefit	Minor benefit	Negligible
	Considerable improvement	Very high benefit	Very high benefit	High benefit	Moderate benefit	Minor benefit

Similarly, for the assessment of visual impacts at night, the following criteria has been applied. (Table 6-4)

Table 6-4 Night time visual impact levels

		Sensitivity			
		E1: Intrinsically dark landscapes	E2: Low district brightness	E3: Medium district brightness	E4: High district brightness
Magnitude	Considerable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse
	Minor reduction	High adverse	Moderate adverse	Minor adverse	Negligible
	No perceived change	Negligible	Negligible	Negligible	Negligible
	Minor improvement	High beneficial	Moderate beneficial	Minor beneficial	Negligible
	Considerable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial

Mitigation measures

Following the identification of potential landscape and visual impacts opportunities for mitigation were identified. Measures include opportunities to avoid, reduce and manage potential adverse impacts during construction and operation of the proposal.

Photomontages

Photomontages have been prepared to illustrate the massing and scale of the proposal. These combine the architectural 3D model with photo editing to create an artist’s impression of the proposal.

The photomontage locations were selected in consultation with TfNSW to illustrate typical viewpoints toward the proposal. The photomontage locations were selected from accessible sections of surrounding road corridors and from within the station precinct.

Assessment of Urban Design and Landscape Character Impacts

For the purposes of this assessment, impacts on urban design and landscape character have included:

- a discussion of the project’s consistency with the design intent and strategies identified in the DCP, and
- an assessment of the impact of tree removal, overshadowing and alterations to the legibility of the precinct.

7.0 Assessment of visual impacts

Existing conditions

The landform generally falls from north to south with the station sitting slightly below Queen Street in the east, and level with areas to the west. To the north of the station, as the landform rises, the railway line is in cutting, and the Pomeroy Street overbridge (refer Figure 7-1 and Figure 7-2) provides east-west connectivity over the railway line and elevated views to the station. The railway cuttings are largely vegetated as it extends north of the station, creating a strong north south visual boundary, enclosing views between the station and upper Queen Street. To the south of the station, the railway line is generally level with the adjacent streets and apartment buildings.

Areas to the east and west of the rail corridor are characterised by a mix of historic and modern residential, commercial and educational buildings. The visual conditions of the study area are described in the following paragraphs and illustrated in Figure 7-5).

North Strathfield Station (c. 1918), is characterised by the distinctive single storey Victorian style red brick platform building with a gabled roof, wide corrugated metal awnings and decorative timber valances at either end of the awnings. It is a local landmark along with the ornamental garden at the eastern station entrance. (refer Figure 7-3 and Figure 7-4) This garden ... *'adds greatly to the suburban setting of Queen Street'* (NSW State Heritage Register, 2009).

The steel and concrete footbridge and stairs (c.1992) at the southern end of the station are a modern edition, providing access to the platforms from Queen Street and areas to the west (refer Figure 7-6 and Figure 7-7).



Figure 7-1 Pomeroy Street bridge



Figure 7-2 View south over station from Pomeroy Street bridge



Figure 7-3 Station heritage platform building



Figure 7-4 View across the station entry gardens to Queen Street



Key:

 North Not to scale	 Existing trees  Local heritage trees (LEP listed)  Tree to be removed	 Heritage platform (s170)  Heritage platform building (s170)  Heritage ornamental gardens (s170)
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Figure 7-5 Landscape and visual features of the site



Figure 7-6 View north to the footbridge and stairs from the platform

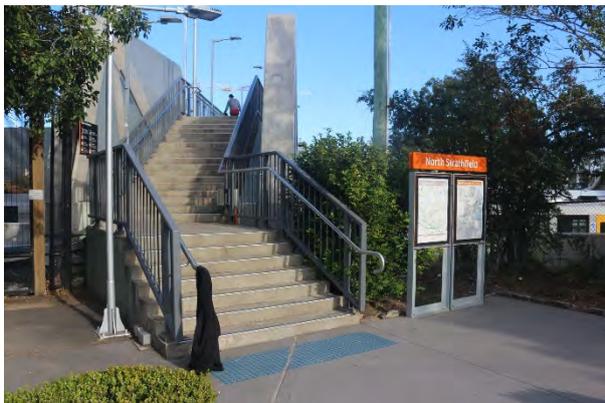


Figure 7-7 View to the entry stairs to the east of the station



Figure 7-8 View to freight line in open cut tunnel, east of the station

A freight line is located to the east of the station, in an open cut tunnel (refer Figure 7-8). Concrete panels extending up either side of the tunnel block views to freight trains passing through the station.

The corridor includes numerous overhead poles and wires, and corridor security fencing which

create some visual clutter particularly to the south of the station.

To the east of the station, Queen Street runs parallel to the railway corridor and is the main street of the North Strathfield village. It is characterised by early twentieth century two-storey commercial terrace buildings with retail and offices at street level, allowing visual connectivity between Queen Street and the station through the trees and ornamental gardens.

In the vicinity of the Queen Street station entrance, the streetscape is characterised by mature Brushbox trees (refer Figure 7-9), also noted as a local landscape feature in the State heritage register description. This distinctive grouping of trees and surrounding ornamental gardens are a local visual feature and a landmark associated with views to the station in this area.

A dense corridor of vegetation is located along the rail cutting and street trees enclose views to the station from upper Queen Street. In this area, the streetscape has a leafy character created by several mature Camphor laurel and Brushbox trees (refer Figure 7-9 and Figure 7-10). A pathway runs beside the rail corridor along Queen Street, linking to the Pomeroy Street overbridge. Views to the station from the pathway and adjacent seating areas are filtered by vegetation along the eastern rail cutting.



Figure 7-9 Brushbox trees at Queen Street station entrance



Figure 7-10 Camphor Laurel trees on the elevated area of Queen Street

To the west of the station, the railway line is bordered by educational facilities and low-medium rise residential apartments (refer Figure 7-14). A narrow pedestrian pathway provides north-south access to the station between Pomeroy Street and Hamilton Street East (refer Figure 7-13). The built form within the McDonald College (reaching 2 to 3 storeys) and vegetation along the school boundary encloses views to and from the station (Figure 7-12).



Figure 7-11 Seat at corner of Pomeroy and Queen Street



Figure 7-12 View to schools and vegetation west of the station



Figure 7-13 View to pathway and vegetation west of the station



Figure 7-14 View to apartments beside rail corridor, south west of station

Assessment of Representative Viewpoints

The following viewpoints were selected as representative of the range of views to the site and the proposed development:

1. View south west from Queen Street
2. View south west from Queen Street near the corner with Waratah Street
3. View south from the footpath to the west of the station
4. View south from Station platform
5. View northeast from Hamilton Street East

The location of these viewpoints is shown on

Figure 7-15, and an assessment of each viewpoint is been summarised on the following pages.



Figure 7-15 Viewpoint location plan

Viewpoint 1: View south west from eastern side of Queen Street



Figure 7-16 Viewpoint 1: View south west from Queen Street - existing view

Existing view: The Queen Street station entrance is the focal point of this view. It includes ornamental gardens and mature Brushbox trees, both local visual features in this area. Beyond the gardens, the stairs and overbridge are visible. In the background of the view there are medium density residential apartments, and a telecommunications tower can be seen, rising above the station overbridge.

Queen Street is visible in the foreground, which runs parallel to the railway corridor and is the main street of the North Strathfield village. The station is set below street level, with the platform buildings concealed by vegetation and landform. The top of commuter trains are regularly seen travelling across this view. The view includes lighting, fences and overhead wires and associated equipment along the rail corridor.

Visual sensitivity: This view is of local visual sensitivity as it is located at the railway station, which is a gathering place for large groups of people. This station also has a Local heritage listing and is on the Sydney Trains S170 register.

Visual impact during construction: A lift work area would be established in the middle ground of the Queen Street station entrance. The works would include the removal of vegetation within the footprint of the works (including one tree), and construction of the lift. The character of this construction activity would contrast somewhat with the heritage and leafy character of the station and streetscape.

This would create a minor reduction in the amenity of this view, and result in a **minor visual impact** during construction.

Visual impact during operation: From this location all three new lifts would be visible, with the eastern lift and existing stairs being the focal point, in the middle ground of the view. The new western lift would be located to the south (left) of the footbridge. In the middle to background of the view, the central platform and eastern lifts would be visible, rising above the footbridge. Each lift would rise approximately six metres above the footbridge, partially obstructing views to the rail corridor and residential apartments beyond. The visual impact of the lifts is reduced by the simple form and material palette of a steel frame with glass infill panels.

In the foreground, rectification works to the ornamental gardens at the Queen Street entrance would have been reinstated, including the installation of replacement trees adjacent to the lift (where possible) or within the wider station precinct, providing some additional

screening to the rail corridor and built form to the west of the rail corridor.

The proposed lifts at platform level reference the existing material palette of the heritage platform buildings and therefore not competing visually with the heritage structures, which are out of view.

Overall, the station would have an increased visual prominence in this view. The proposed station additions would constitute a minor improvement in the amenity of this view. They would be in character with the developed nature of the station, and the ornamental gardens and streetscape planting along Queen Street would remain as an important visual feature. This would result in a **minor beneficial visual impact** during operation.

Viewpoint 2: View south west from Queen Street near the corner with Waratah Street



Figure 7-17 Viewpoint 2: View south west from Queen Street near the corner with Waratah Street

Existing view: This view across Queen Street includes the railway corridor and station in the middle ground of the view. A fenced area of the rail corridor can be seen to the south of Queen Street, it currently used for maintenance access and construction support, and includes a driveway, traffic barriers and is largely cleared. The rooftop of the heritage listed platform building is visible, rising above the landform. This includes a distinctive gabled corrugated iron roof with brick chimneys. The pedestrian overbridge at the southern end of the platform can also be seen through intervening vegetation. There is a background of urban development with some mature trees to the west of the corridor. The view includes several vertical elements, including lighting poles, fences, telecommunications towers and overhead wiring and associated equipment along the rail corridor. The upper part of commuter and freight trains are also seen travelling across this view.

Visual sensitivity: This view is of local visual sensitivity as it is located at North Strathfield local centre, which is a gathering place for people and a place of local business.

Visual impact during construction: A construction compound would be established in the middle ground of the view, to the west of the station along Queen Street. Trucks and construction vehicles would be seen travelling along Queen Street, between the main construction compound and lift work area. This compound would obstruct views to the station heritage building and some of the proposed construction activity within the station. However, it is likely that there would be some visibility of the construction of the central and western lift structures.

Whilst the visual condition of the existing rail corridor does not currently contribute to the amenity of this section of Queen Street, the character of this construction activity would further contrast with the heritage and leafy character of the streetscape.

This would create a considerable reduction in the visual amenity of this view, and result in a **moderate adverse visual impact** during construction.

Visual impact during operation: During operation the main construction compound would be reinstated as a maintenance area, restoring the

view to the heritage listed platform station building. The view would also include the existing footbridge to the south of the platform building (centre of view) and retained stairs leading to the island platforms. This footbridge would also include the new central platform and western lifts to the south and rising above the footbridge.

The simple form and the steel framed structure with glass infill panels and louvres would have some transparency, reducing the visual bulk of the structure.

Overall, the new structures would comprise a small part of this view, and the proposal would be largely absorbed into the background of this view. This would result in no perceived change in visual amenity of this view, and a **negligible visual impact** during operation.

Viewpoint 3: View south from the footpath to the west of the station



Figure 7-18 Viewpoint 3: View south from the footpath to the west of the station

Existing view: This view includes the western platform and two commuter lines in the middle ground. The focal point of this view is the heritage platform building, with its distinctive brickwork, gable roof and chimney pots. This building is located on the heritage listed curving brick faced island platform. The existing footbridge and station access stairs can be seen in the background, beyond and set back from the heritage station building. This includes the recently built eastern footbridge connection to the station entry at Queen Street, which has a distinctive frame over the bridge abutments.

This view is framed by trees to the west (right of view), and there are trees on the central platform, and along Queen Street, forming a vegetated backdrop to the view.

The view includes lighting, fences and overhead wiring and associated equipment along the rail corridor. Commuter trains are regularly seen travelling across this view.

Visual sensitivity: This view is of local visual sensitivity as it is located at the railway station, which is a gathering place for large groups of people. The station also has a local heritage listing which recognises its value to the community.

Visual impact during construction: Three visually separate lift work areas would be seen in the background of this view, to the south of the existing footbridge. Each work area would include construction equipment and works rising above the existing built form and rising above the backdrop of trees. There may also be works seen within the main construction compound in the background. In the middle ground, platform regrading works and works associated with the upgrading of the toilets would be visible.

The character of this construction activity would contrast with the heritage and leafy character of the station. This would result in a minor reduction in the amenity of this view, and a **minor adverse visual impact** during construction.

Visual impact during operation: Three new lifts would be visible in the background of this view, rising above the footbridge. The eastern and western station entrance would be partly screened by vegetation alongside the rail corridor and Queen Street ornamental gardens.

Whilst there would be more built form in the background of this view, the visual bulk of the lifts would be reduced by the simple form and use of glazing on the upper levels. The brick base to the lifts, at platform level, draw upon the character of the existing heritage buildings and would recede somewhat in this view. The heritage platform building would remain the focal point of the view.

Due to the scale of the changes, and distance from the heritage buildings, this would result in a minor reduction in the amenity of this view, and a **minor adverse visual impact** during operation.

Viewpoint 4: View south from Platform 1/2



Figure 7-19 Viewpoint 4: View south from Platform 1/2

Existing view: This view includes the northern elevation of the heritage platform building, in the middle ground of the view, with its distinctive brickwork, gable roof and chimney pots. The existing footbridge and platform access stairs can be seen in the background, to the east and west of the platform building. This includes the recently built eastern footbridge connection to the station entry at Queen Street, which has a distinctive frame over the bridge abutments.

This view is framed by trees to the east and west. It includes various vertical elements, creating some visual clutter, including a telecommunication tower in the background, lighting, fences and overhead wiring and associated equipment along the rail corridor. Commuter trains are regularly seen at the platforms to the east and west of the view.

Visual sensitivity: This view is of **local** visual sensitivity as it is located at the railway station, which is a gathering place for large groups of people. This station has a local heritage listing, reflecting its value to the community.

Visual impact during construction: Activity at the three lift work areas would be seen in the background of this view, to the south of the

heritage platform building. The construction works at the Queen Street station entrance would also be visible from this location (left of view), with works including the removal of a tree, and construction of a new lift. Works to construct the central platform lift and western lift would be partly screened by the station platform building, with some elements rising above the roofline of the platform building visible amongst the overhead wiring and associated equipment and adjacent to telecommunication tower. In the middle ground, platform regrading works and works associated with the upgrading of the toilets would be visible.

The character of this construction activity would contrast somewhat with the heritage and leafy character of the station, resulting in a minor reduction in the amenity of this view. This would result in a **minor adverse visual impact** during construction.

Visual impact during operation: The new eastern, central platform and western lifts would be located in the background of this view, behind the existing heritage listed island platform building. Each lift would rise above the footbridge and be a new skyline element in this view.

The eastern, at the Queen Street entry, would be the most clearly seen from this angle, set amongst the existing vegetation of the Queen Street entry gardens. The central and eastern lifts would be somewhat screened by the platform building, but the upper level of the lifts would rise above the heritage platform building.

The lifts would have a simple form and material palette of steel frame with louvres, glass infill panels and a brick base which would not compete visually with the heritage platform buildings. The character of these structures would be visually distinct from the highly ornate heritage architecture. Furthermore, the exposed steel frame of glass and louvres, would visually break up the scale of the lifts and reduce the visual bulk of the structures.

Overall, due to the scale of built form, and extent visible in the context of the heritage building, this would result in a minor reduction in the amenity of the view. This would result in a **minor adverse visual impact** during operation.

Viewpoint 5: View northeast from Hamilton Street East



Figure 7-20 Viewpoint 5: View northeast from Hamilton Street East

Existing view: This view presents a visually cluttered entry to the station from a local cul-de-sac. The middle ground includes a view through black palisade fencing to the rail corridor and commuter trains. A pedestrian footpath is also visible, ramping up towards the station and covered by a simple canopy structure.

The existing station footbridge, and rear of the station platform access stairs, can be seen beyond this footpath, in the background. The view includes various vertical elements, including signage, lighting, fences and overhead wiring and associated equipment.

Through this clutter of elements, the heritage platform building can be seen in the background of the view, framed somewhat by the footbridge. Mature trees along Queen Street form a leafy backdrop to parts of the view.

Visual sensitivity: This view is of **local** visual sensitivity as it is located at an informal arrival point for the railway station, which is a gathering place for groups of people, primarily associated with the existing kiss-and-ride location.

Visual impact during construction: Three visually separate lift working areas would be visible in the middle and background of the view.

Works to construct the western lift would be the most prominent in this view. During this time, the view to the heritage station building would be obstructed. In the background, the works to construct the central platform and eastern lifts.

The works would extend across a large portion of this view but be set back in the middle to background of the view. The character of this construction activity would contrast somewhat with the heritage and leafy character of the station.

This would result in a minor reduction in the amenity of this view, resulting in a **minor adverse visual impact** during construction.

Visual impact during operation: Three new lifts would be visible in front of the existing footbridge. The lift structures would rise about six metres above the footbridge level. The lifts would transform this view, becoming a prominent new feature in the middle to background of this view.

The exposed steel frame with louvres and glazing, used on the lifts would create some transparency and visual lightness, reducing the visual bulk of the structures.

The glimpsed view to the heritage station platform building would be restored and framed somewhat by the new built form.

Overall, the new station buildings would be visually consistent with the character of the station and be largely absorbed into this view. This would result in no perceived change in the amenity of this view, and a **negligible visual impact** during operation.

Summary of daytime impacts

The following table, Table 7-1 *Table 7-1 Summary of Assessment*, summarises the impacts identified in the viewpoint assessment.

Table 7-1 Summary of Assessment

Viewpoint number and location		Sensitivity	Construction		Operation	
			Magnitude	Visual Impact	Magnitude	Visual Impact
1	View south west from Queen Street	Local	Considerable reduction	Moderate adverse	Minor improvement	Minor benefit
2	View south west from Queen Street near the corner with Waratah Street	Local	Minor reduction	Minor adverse	No perceived change	Negligible
3	View south from the footpath to the west of the station	Local	Minor reduction	Minor adverse	Minor reduction	Minor adverse
4	View south from Platform 1/2	Local	Minor reduction	Minor adverse	Minor reduction	Minor adverse
5	View northeast from Hamilton Street East	Local	Minor reduction	Minor adverse	No perceived change	Negligible

The following summarises the findings of this viewpoint assessment.

Views from Queen Street in the east

The existing station footbridge and entry stairs are viewed from Queen Street over existing heritage gardens. This view is framed by trees but has a background which includes the existing rail corridor with overhead wiring and associated equipment, a telecommunications tower, commercial and residential buildings.

There are also views to the station over the existing rail corridor land, which is currently largely cleared of vegetation and includes maintenance tracks. In these views, the roof of the station heritage platform can be seen above the intervening landform. (refer to viewpoint 1 and 2)

During construction there would be a construction compound established on the rail corridor land adjacent to Queen Street. There would also be activity at the eastern lift work area, which would include the removal of one tree and a small garden area. This would result in a **minor adverse visual impact** during construction.

During operation, the three lifts would be seen in the middle to background of the view, screening the view to the rail corridor and built form in the background. The garden areas would be restored at the new Queen Street lift and the entrance would have a greater visual prominence in the view. Overall, the proposal would result in a **minor beneficial visual impact** during operations.

View from the north

The heritage platform building is a prominent feature in views from the north. This includes views from the station platforms and the footpath to the west of the rail corridor. (refer to viewpoint 3 and 4)

During construction, whilst the works to construct the proposal would be visible as three separate work areas, across the station precinct from east to west, it would be set back and

visually separated from the existing station platform building. The works to construct the lifts would be partly screened by the heritage platform building and by existing trees to the east and west of the station. However, there would be some works associated with the upgrading of the platform building toilets and platform regrading visible adjacent to the heritage platform building. Overall, this would result in a **moderate adverse visual impact** in views from the north during construction.

During operation, the three lifts would be seen, rising above the existing footbridge, as a new background element in the view, rising above the skyline. This new built form would be set back from the heritage platform building. It would have a simple form in views from the north, with the materials and colours reducing the visual scale of the structures. Overall, the proposal would result in a **minor adverse visual impact** in views from the north during operation.

View from Hamilton Street East in the south west

Although there is a station entry on Hamilton Street East, the view to the station is visually cluttered and the station buildings do not have a strong visual presence. The existing footbridge can be seen from this location, with a glimpsed view to the heritage station platform building through this clutter of elements. (refer to viewpoint 5)

During construction of all three lift work areas would be visible, with the western lift construction, construction vehicles and works to widen the footpath on Hamilton Street East. This would result in a **minor adverse visual impact** during construction.

During operation, the proposal would be visually prominent from this location, however, the proposal would be visually consistent in character with the existing view. The increased visual prominence would also improve the legibility of the station in the view from Hamilton Street East somewhat. On balance, this would result in **negligible visual impact** during operation.

Views at night

At night, the study area is an area of **moderate district brightness**, with the existing commercial centre, roads, station and railway corridor creating a moderately well-lit at environment night.

During construction, the work areas and adjacent main construction compound would be lit for security. However, it is unlikely that these areas would be used on an ongoing basis for construction activity during evening hours (other than for specific activities or where works are undertaken during possession periods).

Generally, the character of the construction works at the lift work area and main construction compound at night would be visually absorbed into the surrounding brightly lit environment. The works would create a minor reduction in amenity and result in **negligible adverse visual** impact during construction.

During operations, the upgraded station would continue to be brightly lit for security and safe use at night. The new platform lifts would be seen in context with the existing station lighting, commercial buildings and street lights along Queen Street.

The station is likely to create minor additional sky glow above the site. However, existing trees and intervening built form would largely screen views to the additional lighting associated with the station from the schools and areas to the west. Similarly, trees to the east of the station along Queen Street would visually separate and screen views to this additional lighting.

It is possible that there would be additional skyglow seen from the residential buildings to the south west of the site. From this location, there would currently be views across the station, which is brightly lit at night. The lighting for the project would use technologies to minimise light spill (trespass) and skyglow.

Generally, the character of the proposed station upgrade at night would be visually absorbed into

the surrounding brightly lit environment and the legibility of the precinct would be improved. Overall, this would result in no perceived change in the amenity of views at night, resulting in a **negligible visual impact** at night during operation.

8.0 Urban design and landscape character assessment

The proposed station upgrade is generally consistent with the design intent and strategies identified in the Canada Bay DCP (2017).

Whilst the requirements of the DCP are not directly relevant to this approval, the following assessment uses the requirements of the DCP as a guide.

Relevant requirements of the Canada Bay DCP include:

- *“ensure the form and scale of development enhances the streetscape and visual quality of the area”*
- *“Building height, mass, and scale should complement and be in keeping with the character of surrounding and adjacent development”*
- *“Colours should be consistent with the themes of adjoining development and enhance the visual amenity” (clause G4)*

The scale and form of the lifts enhance the streetscapes of Queen Street by improving the visual prominence of the station entry and maintaining the gardens as a forecourt to the station entry.

Similarly, in in views from Hamilton Street East, the works to improve station access would improve the streetscape. The new lifts would also increase the visual prominence of the station from this location.

Whilst the lifts would be taller than the existing station elements, the surrounding context includes two storey commercial buildings along Queen Street in the east, and to the west there are several large warehousing buildings and four to six storey commercial and residential buildings. The mass and scale of the surrounding built form would allow the proposal to be visually absorbed into this setting.

The visual impact of the lifts is reduced by the simple form and material palette of a steel

frame with glass infill panels with brick base. These colours would not compete with the brick and heritage colour palette of the station platform building. The surrounding built form on Queen Street is predominantly white, creams and warm greys, as are the buildings in the school to the west.

The project only requires the removal of one existing tree. This landscape impact would be minor as numerous other trees would be retained, and temporary, as these trees would be replaced with additional trees in the vicinity of this entry upon completion of the works.

Overshadowing of adjacent properties would be limited to the winter months, due to:

- The separation of the station and proposal from neighbouring commercial areas by Queen Street in the east, and from the schools in the west by mature trees
- The distance between the station and nearby residential properties

During construction there would be some adjustments to station access and legibility as the works are undertaken near rail customers. However, during operation, station access and legibility would be substantially improved by the proposal. The increased visibility of the eastern station entry from Queen Street, would improve legibility of the station by marking the entry to the station. Whilst the introduction of lifts and improvements to the surrounding footpaths and kerbside facilities would provide compliant access to the station for all users.

Due to the potential reduction in station accessibility and legibility during construction, and removal of one tree, there would be a temporary minor reduction in the urban design functionality of the station precinct and a **minor adverse urban design and landscape impact** during construction.

During operation, there would be substantial improvements to accessibility created by the lifts and improved legibility of the station, resulting in a minor improvement in the urban design functionality of the station precinct and a **minor beneficial urban design and landscape impact** during operation.

9.0 Mitigation of impacts

The following mitigation measures would be implemented to reduce the visual impacts of the proposal:

- An Urban Design Plan (UDP) would be prepared by the Contractor, in consultation with the relevant council, and submitted to TfNSW for endorsement by the Sustainability and Precincts and Urban Design team, prior to finalisation of the detailed design. The UDP, at a minimum, would address the following:
 - the appropriateness of the proposed design with respect to the existing surrounding landscape, built form, behaviours and use-patterns (including consideration of Crime Prevention Through Environmental Design principles). This is to include but not be limited to:
 - connectivity with surrounding local and regional movement networks including street networks, other transport modes and active transport networks. Existing and proposed paths of travel for pedestrians and bicycles should be shown
 - integration with surrounding local and regional open space and or landscape networks. Existing and proposed open space infrastructure/landscape elements should be shown
 - integration with surrounding streetscape including street wall height, active frontages, awnings, street trees, entries, vehicle cross overs etc
 - integration with surrounding built form (existing or desired future) including building height, scale, bulk, massing and land-use
 - design detail that is sensitive to the amenity and character of heritage items located within or adjacent to the Proposal site.
- A Public Domain Plan (PDP) would be prepared by the Contractor, in consultation with the relevant council, and submitted to TfNSW for endorsement by the Sustainability and Precincts and Urban Design team, prior to finalisation of the detailed design. The PDP, at a minimum, would address the following:
 - materials, finishes, colour schemes and maintenance procedures including graffiti control for new walls, barriers and fences
 - location and design of pedestrian and bicycle pathways, street furniture including relocated bus and taxi facilities, bicycle storage (where relevant), telephones and lighting equipment
 - landscape treatments and street tree planting to integrate with surrounding streetscape
 - Opportunities for public art created by local artists to be incorporated, where considered appropriate, into the Proposal
 - total water management principles to be integrated into the design where considered appropriate
 - design measures included to meet TfNSW's NSW Sustainable Design Guidelines -Version 4.0 (TfNSW, 2017) and any relevant *Infrastructure Sustainability Rating Scheme - Version 2.0* (ISCA, 2018) requirements

- o identification of design and landscaping aspects that will be open for stakeholder input, as required.
- All permanent lighting would be designed and installed in accordance with the requirements of standards relevant to AS 1158 Road Lighting and AS 4282 Controlling the Obtrusive Effects of Outdoor Lighting.
- The detailed design of the Proposal would comply with Crime Prevention Through Environmental Design principles.
- Worksite compounds would be screened with shade cloth (or similar material, where necessary) to minimise visual impacts from key viewing locations.
- Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
- During construction, graffiti would be removed in accordance with TfNSW's Standard Requirements.

In addition, the following mitigation measures should be considered.

During construction:

- All trees to be retained should be protected prior to the commencement of construction in accordance with AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties.
- Temporary access arrangements should be well signed and provide a visually legible route for pedestrians.
- Consolidate site equipment and facilities to maximise the area of useable public realm and maintain pedestrian permeability.

During operation:

- Select a colour palette which is complementary to the heritage character of the station.

10.0 References

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