



Transport
for NSW

AECOM

WYNYARD STATION UPGRADE REVIEW OF ENVIRONMENTAL FACTORS

DECEMBER 2014



The new state
of business

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Glossary

Term	Definition
A	
(the) Access Strategy	The Sydney City Centre Access Strategy (Transport for NSW, 2013)
Arterial roads	The main or trunk roads of the State road network.
ATM	Automatic Teller Machine
B	
Background noise level	The ambient sound-pressure noise level in the absence of the sound under investigation exceeded for 90 per cent of the measurement period. Normally equated to the average minimum A-weighted sound pressure level.
BCA	Building Code of Australia
C	
CBD	Central Business District
CCTV	Closed circuit television.
CEMP	Construction Environmental Management Plan. A site specific plan developed for the construction phase of a project to ensure that all contractors and sub-contractors comply with the environmental conditions of approval for the project and that environmental risks are properly managed.
CNS	Construction Noise Strategy, a Transport for NSW policy.
CNVMP	Construction Noise and Vibration Management Plan.
CSELR	CBD and South East Light Rail project.
CTPMP	Construction Traffic and Pedestrian Management Plan.
D	
dB(A)	Decibels using the A-weighted scale measured according to the frequency of the human ear.
DECCW	NSW Department of Environment, Climate Change and Water (formerly DEC, DECC and now OEHS and the EPA).
DP	Deposited Plan. A plan of land deposited in Land and Property Information (part of the Land Management Authority) and used for legal identification purposes. They most commonly depict a subdivision of a parcel of land.
E	
EMS	Environmental management system. A quality system that enables an organisation to identify, monitor and control its environmental aspects. An EMS is part of an overall management system, which includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy.
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW).
EP&A Regulation	Environmental Planning and Assessment Regulation 2000 (NSW).
EPA	NSW Environment Protection Authority.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).

Term	Definition
ESD	Ecologically sustainable development. As defined by the <i>Protection of the Environment Administration Act 1991</i> , requires the effective integration of economic and environmental considerations in decision making processes including: <ul style="list-style-type: none"> - The precautionary principle. - Inter-generational equity. - Conservation of biological diversity and ecological integrity. - Improved valuation, pricing and incentive mechanisms (includes polluter pays, full life cycle costs, cost effective pursuit of environmental goals).
G	
Greenhouse gas (GHG)	Greenhouse gases are those gases which reduce the loss of heat from the earth's atmosphere by absorbing infrared radiation. Six greenhouse gases are regulated by the Kyoto Protocol: Carbon dioxide (CO ₂), Methane (CH ₄), Nitrous oxide (N ₂ O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF ₆). The emissions of greenhouse gases are reported in carbon dioxide equivalents (see above).
Ground vibration	The combined speed of ground oscillation at a point from a source of vibration such as a blast or vehicle.
H	
HCEMP	Heritage Construction Environmental Management Plan.
I	
ICNG	Interim Construction Noise Guideline (DECC, 2009).
Infrastructure SEPP	State Environmental Planning Policy (Infrastructure) 2007
INP	NSW Industrial Noise Policy (EPA, 2000).
L	
LA10	The noise level which is exceeded for 10 per cent of the sample period. During the sample period, the noise level is below LA10 level for 90 per cent of the time. The LA10 is a common noise descriptor for environmental noise and road traffic noise.
LA90	The noise level which is exceeded for 90 per cent of the sample period. During the sample period, the noise level is below LA90 level for 10 per cent of the time. This measure is commonly referred to as background noise level.
LAeq	The equivalent continuous sound level. This is the energy average of the varying noise over the sample period and is equivalent to the level of constant noise which contains the same energy as the varying noise environment. This measure is a common measure of environmental noise and road traffic noise.
LAm _{ax}	The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.
LEP	Local environmental plan.
LGA	Local government area.
LoS	Level of service. A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers.
N	
NML	Noise management level.
NWRL	North West Rail Link.
O	
OEH	NSW Office of Environment and Heritage.
OEH (Heritage Division)	The heritage division of the NSW Office of Environment and Heritage.
One Carrington Street development	A proposed commercial office tower development located immediately east of the proposal, formerly referred to as the CityOne development. This development would directly impact the Menzies Hotel and Thakral House.

Term	Definition
P	
PM	Particulate matter.
PM ₁₀	Particulate matter less than 10 microns in diameter.
POEO Act	Protection of the Environment Operations Act 1997 (NSW).
(The) proposal	The Wynyard Station Upgrade
R	
REF	Review of Environmental Factors
RBL	Rating background level. The median value of the assessment background levels value for the period over all of the days measured. There is therefore an RBL value for each period — daytime, evening and night-time.
RNP	NSW Road Noise Policy (DECCW, 2011).
ROL	Road Occupancy Licence
S	
Section 170 register	A register established in accordance with section 170 of the <i>Heritage Act 1977</i> to record all heritage items in the ownership or under control of the Railcorp (or other state government agency).
Sensitive receiver	A sensitive receiver, such as a residence, school or other place where people spend some time. An elevated sensitive receiver is a point above ground level.
SEPP	State environmental planning policy.
SWRL	South West Rail Link.
Sydney LEP	Sydney Local Environmental Plan 2012
T	
TfNSW	Transport for NSW
TSC Act	Threatened Species Conservation Act 1995 (NSW).
V	
VDV	Vibration Dose Values, which accumulates the vibration energy received over the daytime and night-time periods.
W	
WHS	Work health and safety
X, Y, Z	
Zoning	Zoning regulates land use within an environmental planning instrument (usually by different colour codes on a map accompanying a local environmental plan). Land use tables set out the various purposes for which land may or may not be used or developed in each zone.

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Executive Summary

Wynyard Station is one of the busiest stations on Sydney's rail network and an essential link for both the City Circle and North Shore Lines. The station has undergone several alterations since operation commenced in 1932, but has not had significant improvements since the addition of platform lifts in 1998. Transport for NSW proposes to upgrade Wynyard Station to transform the ageing station into a new gateway for Sydney's financial district and western CBD. The upgrade would increase station capacity and improve pedestrian flows, making it easier for people to move in and around the station. It would also include new and refurbished station facilities and amenities to create a fresh, new look for the station.

Proposal objectives

The key objectives of the proposal are to:

- Improve the customer experience at Wynyard Station by relieving congestion at ticket gatelines and stairs and enhancing the amenity of the station and visual connection throughout the station.
- Improve passenger flow throughout the station (including station concourse and platforms) to accommodate increased patronage associated with the new Wynyard Walk project and rail network growth, by removing station enclosures and increasing paid concourse width.
- Provide improved station facilities and amenities for customers and station staff, including public and staff toilets, Station Manager's Office and other station facilities.
- Improve wayfinding throughout the station by removing obstacles that impede visual connectivity.
- Provide a safer and more secure environment for customers and station staff.
- Improve the station's compliance with Statutory Codes and Regulations (such as Building Code of Australia, Disability Discrimination Act and Work Health and Safety).
- Enhance the interface with adjacent properties such as Wynyard Walk, Metcentre, Hunter Arcade and the proposed One Carrington Street development.

The proposal

Wynyard Station upgrade would include the following key features:

- Refurbishment of the York Street foyer.
- Reconfiguration of the unpaid concourse area, including widening the northern concourse area and inclusion of the southern unpaid concourse area within the expanded paid concourse.
- Expansion of the paid concourse area and reconfiguration of the gateline to respond to pedestrian movements, including the provision of new ticket gates.
- Refurbishment of the concourse level.
- Refurbishment and de-cluttering of Platforms 3 and 4 and provision of a new staircase between the platforms and the paid concourse area.
- Refurbishment and de-cluttering of Platforms 5 and 6, including demolition of the former escalator enclosures and re-orientation of one staircase between the platforms and the paid concourse area.
- Reconfiguration of the station facilities, including relocation of the Station Manager's Office and new or refurbished amenities (such as public and staff toilets).
- Fit out of Transport House basement levels for station facilities, including the reconstruction of stairs to the concourse.
- Other works relating to the provision of services to support the station upgrade, within roof and wall cavities throughout the station and within adjoining properties.

Need for the proposal

Wynyard Station experiences congestion during morning and evening peak periods, with around 39,000 pedestrian movements over the three and a half hour morning peak period. Congestion at the station results in customers queuing on the stairs, which can increase the dwell times of trains.

Sydney's population and economy is forecast to continue growing and measures are required to reduce congestion and boost capacity across the busiest transport corridors. Passenger numbers at Wynyard Station in particular would be influenced by an overall increase in jobs and passenger numbers in the CBD as well as the construction of a number of nearby private developments and transport infrastructure projects. The Wynyard Walk project (which is currently under construction) would facilitate access for a large proportion of users of the Barangaroo site directly to Wynyard Station.

The development of Barangaroo and continued employment growth in the CBD means that the number of people exiting the station during the morning peak is predicted to increase by five per cent per annum by 2015 from the number of passenger exits in 2011. By 2025, the number of people exiting the station during the morning peak would grow by 2.7 per cent per annum. As a result of this growth, congestion at Wynyard Station would increase. Retaining the current station layout would likely lead to further queuing, delays on platform stairs, and crowding and congestion within the concourse and platforms.

In addition, new services currently being added to the network, such as the NWRL and SWRL, will require additional capacity within the rest of the rail network and particularly at CBD stations (Transport for NSW, 2012). While a second harbour crossing and new CBD rail line have been proposed to ease congestion and existing capacity constraints, an upgrade to the Wynyard Station is required in the interim.

Statutory and planning framework

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the system of environmental planning and assessment in NSW. The *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) aims to facilitate the delivery of infrastructure across NSW and stipulates that development for the purpose of railway or rail infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.

The Wynyard Station Upgrade falls within the definition of rail infrastructure facilities, which includes railway stations, station platforms, areas in a station complex that commuters use to get access to the platforms, public amenities for commuters and railway workers' facilities. As such, the proposal is permissible without consent and can be assessed under Part 5 of the EP&A Act, which sets out environmental impact assessment requirements for activities to be undertaken by public authorities which are permissible without consent.

This Review of Environmental Factors (REF) has been prepared to meet those requirements, and assesses the potential environmental impacts of the construction and operation of the Wynyard Station Upgrade in accordance with Clause 228 of the *Environmental Planning and Assessment Regulation 2000*.

Consultation

Transport for NSW has prepared a Community and Stakeholder Engagement Strategy for the proposal with the key objective of providing appropriate consideration of the interests of stakeholders and the community.

Consultation with stakeholders, including the City of Sydney, Sydney Trains, Roads and Maritime Services, the Office of Environment and Heritage (Heritage Division) (OEH) and adjoining property owners has been undertaken during the preparation of the REF.

In accordance with the Infrastructure SEPP, consultation will continue with City of Sydney during the display of the REF due to potential impacts on their asset.

Consultation activities will continue during the public display period. In addition to the public display of the REF, a community information session will be held on Thursday 4 December 2014 at the Transport for NSW Community Information Centre in the Sydney CBD.

Consultation with key stakeholders will continue during design development and construction of the proposal as necessary.

Environmental impact assessment

This REF identifies and assesses potential environmental benefits and impacts of the proposed Wynyard Station Upgrade during construction and operation. It also identifies mitigation measures to manage and reduce the potential impacts of the proposal.

Construction

The key impacts expected to occur during construction of the proposal include temporary restrictions and disruption to traffic and pedestrian movements, noise and vibration impacts, and cumulative impacts from interactions with other developments. The construction would also result in some permanent non-Aboriginal heritage impacts.

Works in and around the station that would have low impacts for customers would be undertaken during standard construction hours where feasible and reasonable. Construction works which are likely to have more substantial impacts for customers would generally be completed outside of standard construction hours to maintain safe and adequate access to the station, and to minimise disruption to road, rail and pedestrian networks.

Construction noise and vibration

Exceedance of noise management levels at external receivers are predicted during the commissioning of operational systems, such as testing of alarms and sirens, which already occurs occasionally and for a short duration. For construction activities that would occur outside standard construction hours, noise levels are predicted to comply with the noise management levels and sleep disturbance criterion at all sensitive receivers.

There are likely to be some noise impacts to receivers within the station public domain, mezzanine level and commercial receivers above or adjacent to the station (as described in **Section 5.1**), including structure-borne noise impacts. Exposure of pedestrians to elevated noise levels would generally be temporary given the transitory use of these spaces. However, workers within the station and nearby retail spaces, and customers of certain retail businesses (such as cafes), would be exposed for a longer duration.

To minimise exposure to noise and vibration impacts, hoardings would be installed within the public domain area of the station where practicable. Works that generate substantial levels of noise would be scheduled to occur outside standard hours and/or extended retail hours. Feasible and reasonable noise mitigation would be implemented for noisy works, including consultation with the affected receivers.

Construction noise and out-of-hours work would be managed in accordance with the *Interim Construction Noise Guideline* (DECCW 2009) and *Construction Noise Strategy* (Transport for NSW 2011). A Construction Noise and Vibration Management Plan would be developed prior to construction and would describe the proposed noise and vibration mitigation measures for the Wynyard Station Upgrade.

Pedestrian access

The construction of the proposal would see temporary disruptions to pedestrian access and wayfinding due to the installation of hoardings and the temporary closure of areas within the public domain. The primary impact would occur with the closure of the southern unpaid concourse. This closure would occur prior to the expansion of the northern unpaid concourse and as a result has the potential to increase pedestrian congestion in that area.

The construction activities within the public domain would be staged to maintain adequate and safe movement of customers.

Pedestrian management measures, including minimum width walkways, completion of works outside peak commuter times and use of appropriate wayfinding and signage, would be incorporated into a Construction Traffic and Pedestrian Management Plan (CTPMP).

Traffic and access

Potential traffic impacts include temporary occupation of road space by heavy vehicles when loading/unloading, restricted access to the Wynyard Lane Car Park and goods deliveries, and conflicts with other service vehicles and private vehicles using the surrounding roads and laneways while deliveries are in progress.

Construction works would be undertaken in accordance with a CTPMP, which would be integrated within the broader construction staging strategy to minimise disruption to traffic and transport services. Mitigation measures in the CTPMP would include scheduling movements of construction heavy vehicles outside peak periods; implementing traffic control measures during loading/unloading activities; and provision of signage to notify motorists and pedestrians of changes.

Heritage

The proposal would impact on four heritage-listed items: Transport House (a State heritage item), Wynyard Station, the Former Wynyard Tram Tunnels and Wynyard Park.

The proposal would result in the permanent loss of some original fabric of the station, and the reconfiguration of the station would alter the original layout in some locations. Impacts would

also occur at Transport House, which would require approval from Office of Environmental and Heritage (Heritage Division) under Section 60 of the *Heritage Act 1977*. Temporary impacts to Wynyard Park may occur should it be required for construction access. There remains little original fabric within Wynyard Station and Transport House as a result of upgrades that have occurred since the opening of the station in 1932. However, there is the potential for unexpected finds. Archival recording of the original fabric would be undertaken where permanent heritage impacts are likely. Measures would also be implemented to avoid or minimise impacts on remaining fabric and these would be described within a Heritage Construction Environmental Management Plan.

Land use and business impacts

Direct impacts would result from the removal of retail spaces within the station concourse as well as temporary impacts to Wynyard Lane Car Park and potentially Wynyard Park due to construction compound and access requirements. The proposal also has the potential to cause temporary indirect noise and vibration impacts to businesses surrounding the station as well as traffic impacts and changes to pedestrian flows.

Pedestrian movements in and around the site would be changed during construction, including access to surrounding businesses. While access to businesses would be maintained, changed access arrangements to the station and potential pedestrian congestion may discourage people from using the station for through movements.

Transport for NSW has consulted with surrounding businesses during development of the REF and will continue to consult during design and construction to provide information regarding construction activities and timing of works. This will include consulting with directly affected businesses regarding measures to mitigate potential impacts from changes to pedestrian movements.

Visual quality and urban design

Visual quality and amenity could be impacted by active construction works within the public domain and the use of hoardings and temporary finishes. This proposal includes the option to establish a temporary construction compound in Wynyard Park which would reduce available public space and, for a short time, introduce a distinct new feature to the park. If established, this compound would result in a temporary impact on visual amenity and on views of the park from surrounding streets and from buildings that overlook this space.

The design will continue to be developed in consultation with the City of Sydney to ensure best practice urban design principles are applied and visual impacts reduced.

Cumulative construction impacts

Simultaneous construction of the proposal and other projects around Wynyard Station would result in cumulative impacts to traffic and pedestrian access and noise and vibration. These impacts will be minimised through a coordinated approach to environmental management involving Transport for NSW, Brookfield and relevant construction contractors. This would include a consultative approach to the preparation and review of Construction Environmental Management Plans, staging of construction activities to minimise length or intensity of construction impacts and negotiating common loading areas and vehicle access arrangements.

Operation

Key impacts expected to occur during operation include improvements in visual amenity and pedestrian access. The proposal would improve the overall customer experience for users of Wynyard Station. The upgrade would provide an open, bright space with refurbished facilities, premium fixtures and finishes and new wayfinding signage.

Changes to the public domain layout would reduce pedestrian pinch points and deliver improvements to sightlines, wayfinding, pedestrian flow, providing an improved level of service within the station. Widening the paid concourse area, installing new and modified staircases and increasing the number of ticket gates would result in improvements to pedestrian flows and reduce congestion on stairs and platforms.

Conclusion

This REF has been prepared in accordance with relevant environmental planning legislation and policies, taking into account to the fullest extent possible matters affecting or likely to affect the environment as a result of the proposed upgrade of Wynyard Station. This REF has considered and assessed the potential environmental impacts during construction and operation of the proposal.

The Wynyard Station Upgrade would result in improvements to customer experience, passenger flow and wayfinding. The upgrade will also provide improved amenities and facilities creating a safer environment for customers and station staff.

The main construction impacts associated with the upgrade are temporary and would be managed in accordance with the mitigation measures outlined in this REF. These include disruption to customer and pedestrian access, traffic impacts, exceedances of noise management levels for some receivers and reduction in visual amenity.

It is considered that the Wynyard Station Upgrade is unlikely to significantly affect the environment. Accordingly, an Environmental Impact Statement under Part 5.1 of the EP&A Act and approval under the *Environment Protection and Biodiversity Conservation Act 1999* are not required.

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1 Introduction

Transport for NSW (TfNSW) proposes to upgrade Wynyard Station in Sydney to accommodate the expected future passenger demand at the station and improve station amenity (the proposal). This Review of Environmental Factors (REF) presents an assessment of the proposal under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Proposal background

Wynyard Station opened in 1932, providing an essential link between the City Circle and North Shore rail lines. The station is one of the busiest on Sydney's rail network and is the gateway to Sydney's western Central Business District (CBD) and financial district. The station is congested during peak periods and receives approximately 39,000 movements over the three and a half hour morning peak period. Passenger numbers are expected to increase with the opening of Wynyard Walk and the first development at Barangaroo (scheduled for 2015). Future passenger numbers would also be influenced by the opening of the CBD and South East Light Rail (CSELR) and other surrounding commercial developments (such as the One Carrington Street development). The broader growth of Sydney's rail network, through projects such as the North West Rail Link (NWRL), will see additional passengers utilising the rail network and place further pressure on CBD stations. While a second harbour crossing and new CBD rail line have been proposed to ease congestion and existing capacity constraints, immediate measures are required in the interim.

The station has undergone several alterations since it opened, but has not had significant improvements since the addition of platform lifts in 1998. Given the age of the station and the continually growing demand for rail travel to and from the CBD, there is a need to reconfigure the station to improve circulation in order to meet current and future capacity requirements and to improve safety and comfort for customers and staff.

1.2 Proposal objectives

The objectives of the proposal are to:

- Improve the customer experience at Wynyard Station by relieving congestion at ticket gatelines and stairs and enhancing the amenity of the station and visual connection throughout the station.
- Improve passenger flow throughout the station (including station concourse and platforms) to accommodate increased patronage associated with the new Wynyard Walk project and rail network growth, by removing station enclosures and increasing paid concourse width.
- Provide improved station facilities and amenities for customers and station staff, including public and staff toilets, Station Manager's Office and other station facilities.

- Improve wayfinding throughout the station by removing obstacles that impede visual connectivity.
- Provide a safer and more secure environment for customers and station staff.
- Improve the station's compliance with Statutory Codes and Regulations (such as Building Code of Australia, Disability Discrimination Act and Work Health and Safety).
- Enhance the interface with adjacent properties such as Wynyard Walk, Metcentre, Hunter Arcade and the proposed One Carrington Street development.

1.3 Overview of the proposal

1.3.1 Context

Wynyard Station comprises public domain areas (including the paid and unpaid concourse areas, the platforms and mezzanine level below Wynyard Park dome) and station facilities (which include the Station Manager's Office and back-of-house facilities, and customer amenities such as public toilets and telephones, vending machines and ATMs, and retail and commercial spaces). The existing station infrastructure is described further in **Section 5.1** and includes station access, fire and emergency access and egress, and electrical, communications, hydraulic and mechanical services. This station infrastructure is located throughout all areas of the station. Wynyard Station is operated by Sydney Trains and is owned by Railcorp.

Since its construction in 1932, Wynyard Station has been through a number of upgrades to facilitate movement into and around the station as patronage has increased. These upgrades included installation of additional escalators and passenger lifts between the concourse and platforms, reconfiguration of concourse areas and relocation of the ticket barriers. Since the 1990s only minimal changes have been made to the station area, although the retail areas have evolved continuously.

1.3.2 The surrounds

As shown on **Figure 1**, Wynyard Station is located in the north of Sydney's CBD. The platforms and paid concourse areas are located directly below York Street, Wynyard Park and Transport House (refer to **Figure 2**). The station concourse forms part of the lowest basement level (B4) of Transport House. Further details are provided in **Section 5.1**.

There are numerous retail outlets located in the Metcentre, Hunter Arcade and Hunter Arcade tunnel, and along the George Street ramps, all of which have direct access to the unpaid concourse area at Wynyard Station. Other surrounding retail and service uses include Coles and a public car park, which are located above the concourse level. The car park is directly adjacent to the eastern wall of Platform 3.

The areas above ground in the immediate vicinity of Wynyard Station consist of high-density commercial land uses, with occasional residential buildings, hotels and short stay accommodation, churches, and education establishments.

Key non-retail receivers surrounding the station include:

- The Menzies Sydney Hotel (Menzies Hotel), 2 Carrington Street.
- Residential apartments at 42 – 44 Margaret Street.
- Scots Presbyterian Church, located on the ground floor of 42 – 44 Margaret Street.
- St Phillip's Anglican Church, 2 York Street Sydney.
- Travelodge Wynyard, 7-9 York Street, Sydney.
- The York by Swiss-Belhotel, 5 York Street, Sydney.
- The Carrington Apartments (serviced apartments), 57 – 59 York Street, Sydney.
- Several educational establishments within 11-17, and 19 York Street, Sydney including Navitas Professional, La Trobe University and the Australia College of Applied Psychology.

Wynyard Park represents a key landscaped open space area in the vicinity of the station, which is heavily used by local residents and workers. Wynyard bus interchange is located around the perimeter of this park.



Figure 1 - Location of Wynyard Station

- Existing light rail
- -●- - CBD and South East Light Rail
- Sydney Trains

- T Train
- F Ferry

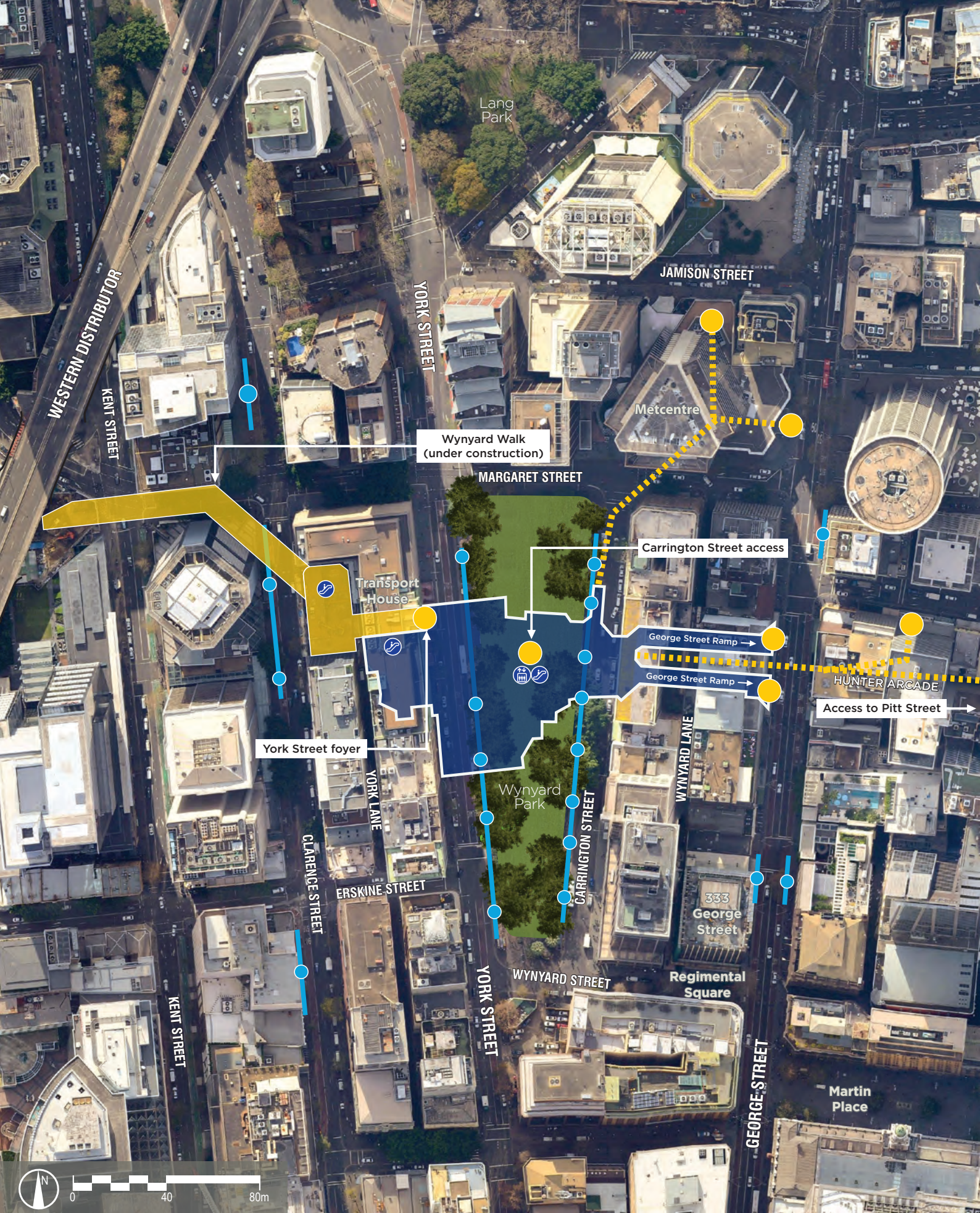
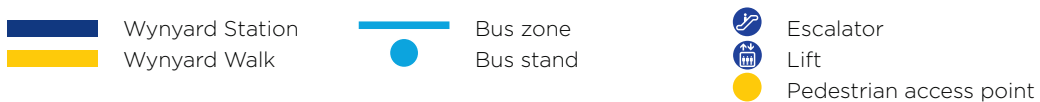


Figure 2 - Wynyard Station and key access points



1.3.3 Access

As shown on **Figure 2**, pedestrian access to Wynyard Station is by:

- four escalators within Transport House connecting the concourse level to the York Street foyer
- escalators, a pedestrian lift and stairs to Carrington Street and Wynyard Park
- stairs to the Hunter Arcade
- direct access to the Metcentre
- direct access via two ramps to George Street.

The Kent Street pedestrian tunnel has been closed as part of the Wynyard Walk project. Wynyard Walk is due to open in 2016 and will provide another key pedestrian access to the station.

1.3.4 Scope of proposed works

The Wynyard Station Upgrade would increase capacity and improve pedestrian flows in order to meet current and future passenger demand. The key features of the proposal include:

- Refurbishment of the York Street foyer.
- Reconfiguration of the unpaid concourse area, including widening the northern concourse area and inclusion of the southern unpaid concourse area within the expanded paid concourse.
- Expansion of the paid concourse area and reconfiguration of the gateline to respond to pedestrian movements, including the provision of new ticket gates.
- Refurbishment of the concourse level.
- Refurbishment and de-cluttering of Platforms 3 and 4 and provision of a new staircase between the platforms and the paid concourse area.
- Refurbishment and de-cluttering of Platforms 5 and 6, including demolition of the former escalator enclosures and re-orientation of one staircase between the platforms and the paid concourse area.
- Reconfiguration of the station facilities, including relocation of the Station Manager's Office and new or refurbished amenities (such as public and staff toilets).
- Fit out of Transport House basement levels for station facilities, including the reconstruction of stairs to the concourse.
- Other works relating to the provision of services to support the station upgrade, within roof and wall cavities throughout the station and within adjoining properties.

The proposal is described further in **Chapter 5**.

The construction boundary for the proposal is shown in **Figure 3**. This boundary does not include works that may need to extend into adjoining properties associated with service upgrades and alike.

1.4 Surrounding development

There are five major development projects currently in planning or construction phases proximate to the proposal site. These include:

- One Carrington Street development – a proposed commercial office tower development located immediately east of the proposal site.
- Wynyard Walk – provision of a new western entrance to Wynyard Station from Barangaroo.
- CBD and South East Light Rail (CSELR) – provision of light rail along George Street, including a stop at Wynyard.
- Sydney City Centre Bus Infrastructure modifications – provision of new bus stops, shelters and layovers including in the vicinity of Wynyard Park.
- 333 George Street redevelopment – new retail and commercial development.

These developments and their interaction with the proposal are discussed further in **Section 7.11**. There are also a number of other developments or transport initiatives that will affect Wynyard Station such as bus network changes, Barangaroo development and Sydney rail network changes (such as the NWRL). These would both directly and indirectly influence passenger numbers and use of the station.

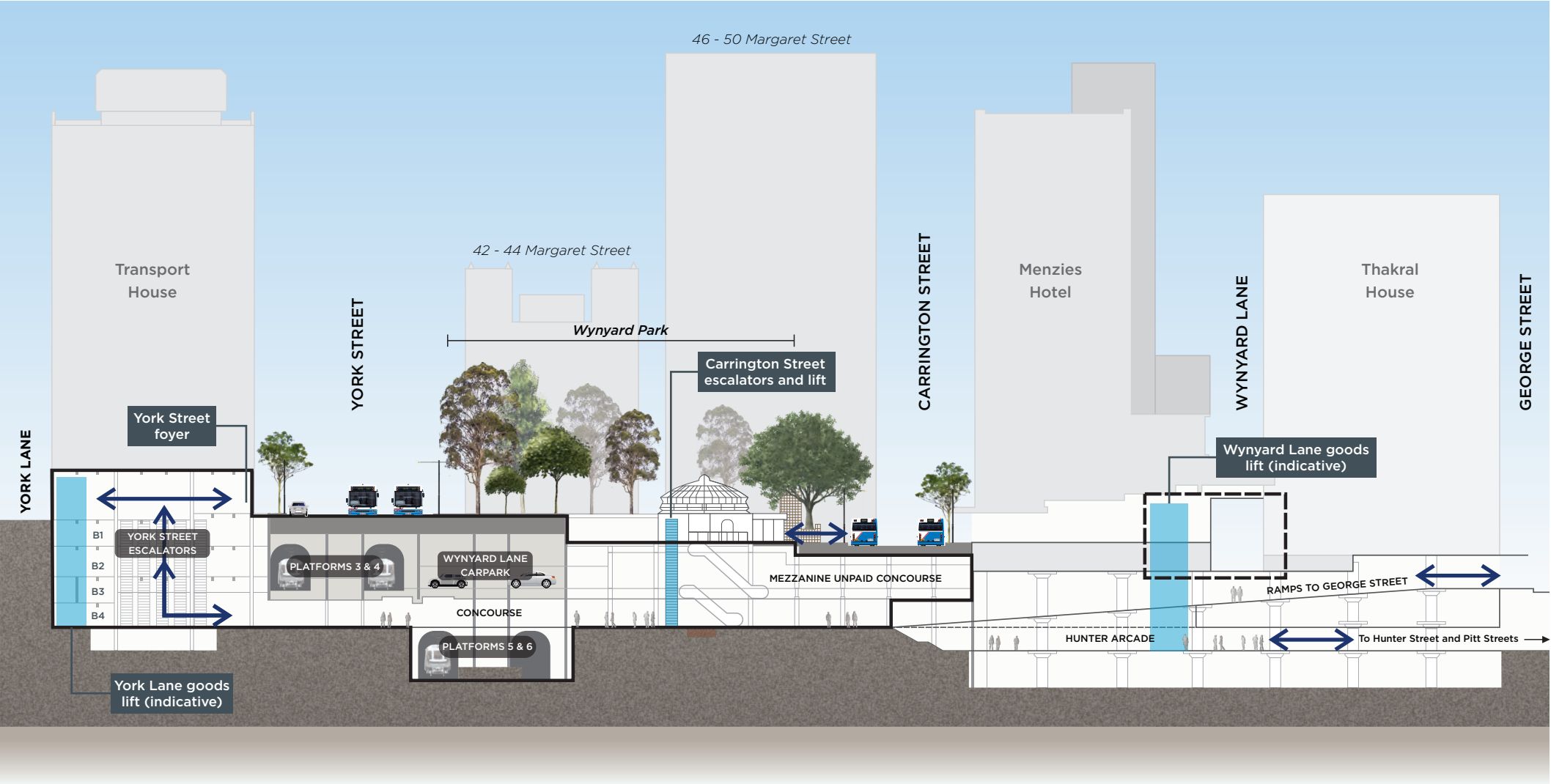
1.5 Purpose of the REF

The purpose of this REF is to describe the proposal, assess the potential environmental impacts of the proposal and identify suitable mitigation measures to be implemented to manage those impacts. The assessment has been undertaken in accordance with clause 228 of the *Environmental Planning and Assessment Regulation 2000* (refer to **Appendix A**) as well as the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) where relevant.

The REF is intended to fulfil Section 111 of the EP&A Act, which requires Transport for NSW to take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity. The REF assesses whether there is potential for the proposal to have a significant impact on the environment and therefore whether approval is to be sought under Part 5.1 of the EP&A Act.

WEST

EAST



NOT TO SCALE

Figure 3 - Construction boundary

- Lift
- Current main access
- Construction boundary
- Access point (approximate)

2 Strategic justification and proposal need

2.1 Strategic planning framework

This section describes the need and justification for the proposal in relation to the established strategic plans and policies in NSW and Sydney. It assesses the proposal in the context of the strategic direction for NSW and Sydney as a whole, as well as the future transport needs for the city and specifically the CBD.

2.1.1 NSW 2021

NSW 2021 – A Plan to make NSW Number One (Department of Premier and Cabinet, 2011) is the NSW Government strategic business plan containing specific goals and targets relating to economic growth and transport amongst others. Specifically, the proposal would support the goals to grow patronage on public transport, improve customer experience and generate investment in critical infrastructure. Priority actions that relate to the proposal include making it easier and faster for customers to move on and off trains at busy stations, improving the information services available to customers and increasing the share of commuter trips via public transport. The proposal would support these priority actions by improving capacity and amenity at Wynyard Station to relieve congestion and improve the overall customer experience.

2.1.2 NSW Long Term Transport Master Plan

The *NSW Long Term Transport Master Plan* (Transport for NSW, 2012a) establishes a framework for transport planning and transport funding priorities over the next 20 years. The Master Plan provides an integrated approach to transport planning and identifies six key challenges along with short, medium and long-term actions to deliver a customer focussed, multi-modal transport system.

Section 4.3 of the Master Plan highlights a number of growing congestion issues on Sydney's rail network. These include limited platform space and stair capacity at Central, Town Hall and Wynyard stations, which increases dwell times of trains and reduces capacity to run more trains per hour across the entire network.

The Master Plan identifies the need for transport infrastructure such as the NWRL, Barangaroo Ferry Hub, CSELR and the second harbour crossing rail line. All of these projects have the potential to interact with Wynyard Station, further increasing passenger numbers. An upgrade of Wynyard Station is required to alleviate forecast congestion and aligns with a key action of the Master Plan to upgrade and modernise city transport interchanges.

The proposal would be consistent with the objectives of the Transport Access Program, which was established in the Master Plan to improve the accessibility, safety, signage, maintenance and amenity of stations.

2.1.3 State Infrastructure Strategy 2012 – 2032

The *State Infrastructure Strategy 2012 – 2032* (Infrastructure NSW, 2012) offers independent advice to the NSW Government on priority infrastructure investments and a framework for increasing the quality of infrastructure spending in NSW. It uses multi-criteria analysis to identify and assess projects based on strategic fit, economic benefit and delivery risk.

The Strategy addresses the issue of public transport congestion in the Sydney CBD and specifically notes the existing high demand at Wynyard Station, particularly severe congestion on Platform 3 during morning and evening peak periods. An upgrade to Wynyard Station is also recommended in the Strategy, should the rapid transit system (which has commenced construction as part of the NWRL), be extended through to the CBD stations and beyond.

The proposal has been designed to address congestion issues and cater for increased growth in passenger numbers, and to relieve congestion within the paid concourse area and the platforms, by providing effective vertical transportation links between the concourse and the platforms.

2.1.4 Metropolitan Plan for Sydney 2036

The *Metropolitan Plan for Sydney 2036* (NSW Department of Planning, 2010) builds on the 2005 *Metropolitan Strategy – City of Cities: A Plan for Sydney's Future* and the 2010 *Metropolitan Transport Plan: Connecting the City of Cities*. The Metropolitan Plan sets out a long term framework to develop Sydney as a city of cities through integrated land use and transport planning.

The Metropolitan Plan includes a long term framework to sustainably manage Sydney's growth and strengthen its economic development. This includes the provision of 760,000 additional jobs within the greater Sydney area by 2036. Within the CBD job growth will be driven by the Barangaroo development and the redevelopment of the convention centre and entertainment facilities in Darling Harbour. The additional workforce at Barangaroo is expected to add further pressure to the already congested Wynyard Station.

The Metropolitan Plan also recommends a number of major rail projects, including the NWRL and South West Rail Link (SWRL). These projects would increase passenger numbers across the three main CBD stations, including Wynyard Station.

The proposal would be consistent with the aims and objectives of the Metropolitan Plan. Increased capacity at Wynyard Station would support job creation in the CBD, particularly at Barangaroo and provide for more efficient access to new rail services and movement of passengers through the station.

Sydney City Draft Subregional Strategy

The *Sydney City Draft Subregional Strategy* (NSW Government, 2008) was developed under the 2005 *Metropolitan Strategy – City of Cities: A Plan for Sydney’s Future*. It sets a capacity target for 462,500 jobs in Sydney City (defined as the City of Sydney Local Government Area (LGA)) by 2031. It also contains a plan for urban renewal projects such as Barangaroo, which it states as being vital to accommodating job and dwelling growth in the region.

The Strategy identifies the need for increased capacity and improvements to transport interchanges and stations and also highlights the recommendation in the *State Infrastructure Strategy* to upgrade Wynyard Station. As the proposal would increase capacity within the CBD transport network and include a more legible transport interchange, it is consistent with the Strategy.

2.1.5 Draft Metropolitan Strategy for Sydney 2031

The draft *Metropolitan Strategy for Sydney 2031* (Department of Planning and Infrastructure, 2013) sets a new framework for Sydney’s future growth and development, and is set to replace the *Metropolitan Plan for Sydney 2036* once finalised.

The draft Metropolitan Strategy supports the key goals, targets and actions that are identified in NSW 2021 and has been prepared in conjunction with the *NSW Long Term Transport Master Plan* and the *State Infrastructure Strategy*, to provide fully integrated land use and infrastructure outcomes. It is built around achieving five key outcomes for Sydney: balanced growth, a liveable city, productivity and prosperity, healthy and resilient environment, and accessibility and connectivity.

The draft Metropolitan Strategy focuses on growth within both the Sydney CBD and the regional centres of Metropolitan Sydney. Accessibility objectives focus on access to and from the Sydney CBD and the accessibility of regional centres and employment growth areas. Improving access in and around the Sydney CBD is a key focus of the draft Metropolitan Strategy. The proposal would be consistent with this objective as it would relieve congestion at one of the key CBD stations and would therefore support better rail connections to the CBD. The proposal, in combination with surrounding projects such as Wynyard Walk, CSELR, the Sydney City Centre Bus Infrastructure modifications and *Sydney City Centre Access Strategy* initiatives would be expected to improve pedestrian access to public transport. Pedestrian accessibility within the CBD would be enhanced once the continuous public domain link from Pitt Street and George Street and through to the western CBD and waterfront is established.

2.1.6 Sydney’s Rail Future

Sydney’s Rail Future – Modernising Sydney’s Trains (Transport for NSW, 2012b) has been developed as part of the *NSW Long Term Transport Master Plan*. It is a long term plan to increase the capacity of Sydney’s rail network to accommodate employment growth in the CBD and surrounding employment centres, through investment in new services and upgrading of existing infrastructure.

Crowded stations and narrow CBD platforms are identified as two of the bottlenecks that are considered to slow down the entire network.

In addition to existing congestion, the plan states that each of the three busiest CBD stations (Central, Town Hall and Wynyard) are expected to experience an increase of more than 10,000 additional passengers per hour in peak periods by 2031.

The plan recommends improving operational efficiencies across the network by de-cluttering platforms and improving dwell management, which would be achieved by the proposal.

2.1.7 Sydney City Centre Access Strategy

The *Sydney City Centre Access Strategy* (the Access Strategy) (Transport for NSW, 2013) was developed as a key action of the *NSW Long Term Transport Master Plan*. It is the first plan which shows how people will enter, exit and move in and around the CBD over the next 20 years. The Access Strategy is intended to provide an integrated approach to planning across all modes of transport in order to reduce congestion, support future growth and improve the customer experience.

The Access Strategy identifies Wynyard Station as a key transport hub and interchange precinct given its proximity to Barangaroo and multiple transport modes and its location between the proposed Barangaroo Ferry Hub and CSELR. Upgrades to Central, Town Hall and Wynyard stations are identified within the Access Strategy as being critical to the provision of short term capacity increases on the rail network. The upgrade to Wynyard Station is also specifically identified as being required to accommodate future growth and relieve congestion.

2.1.8 Sustainable Sydney 2030

Sustainable Sydney 2030: The Vision (City of Sydney, 2008) seeks to address significant issues for the City including transport congestion, aging infrastructure and accessibility and inclusiveness among others.

The Vision sets 10 targets for the City, one of which envisages 80 per cent of all city workers commuting by public transport. It also sets five aspirations to remake the city and support its growth and liveability, one of which is to create an integrated inner Sydney transport network. The proposal would be consistent with the key messaging in *The Vision* as it would improve the efficiency and attractiveness of the station to commuters by reducing congestion and improving amenity. It would also integrate well with the Wynyard bus interchange and CSELR.

2.2 Need for the proposal

As discussed in **Section 2.1** above, there is a clear strategic need for the proposal in supporting the future growth and development of Sydney. The Sydney CBD is Australia's major financial centre and is the Asia Pacific headquarters for many of the world's leading firms and national and international businesses. The Sydney City Centre is also a premier tourist destination (Transport for NSW, 2012a). Therefore, the CBD needs to maintain a high level of amenity, liveability and vitality to attract international firms, workers and visitors. As well as this, with the largest single concentration of jobs in Sydney, the CBD must remain highly accessible for commuters from all parts of the city (Transport for NSW, 2012a).

As one of the three busiest CBD stations, Wynyard Station plays a key role in ensuring the accessibility and attractiveness of the Sydney CBD. Given its location to the north of the CBD, Wynyard Station is also considered to be the gateway railway station to Sydney's financial district.

2.2.1 Existing passenger demand at Wynyard Station

Wynyard Station is one of the busiest stations on the Sydney rail network, accommodating around 110,000 passenger movements each weekday, and around 39,000 movements over the three and a half hour morning peak period (Transport for NSW, 2012a). The station platforms experience congestion during the morning and evening peak periods, suggesting the station has reached or is close to platform capacity. As discussed later in **Section 7.2**, the paid concourse area also currently operates with congested conditions for over a third of the peak period. During morning peak periods congestion leads to alighting passengers queuing on the stairs, which can impact the dwell times of trains.

2.2.2 Forecast growth in public transport use

As Sydney's population and economy grows and changes, measures to minimise congestion and boost capacity across the busiest transport corridors will become increasingly important (Transport for NSW, 2012). Jobs in Sydney are expected to grow from 2.2 million in 2012 to 2.8 million by 2031 across the city, including the CBD (Transport for NSW, 2012a).

Based on these trends, the proportion of commuters using public transport to get to work in Sydney is expected to increase by three per cent by 2031, with the number of trips made by rail expected to increase by 26 per cent over the same period (Transport for NSW, 2012a).

2.2.3 Forecast passenger demand at Wynyard Station

By 2031 each of the three busiest CBD stations are expected to experience an increase of more than an additional 10,000 passengers per hour in the peak (Transport for NSW, 2012b). Passenger numbers at Wynyard Station in particular will be influenced by an overall increase in jobs and passenger numbers in the CBD as well as the construction of a number of nearby developments or rail projects.

The Barangaroo development is expected to bring more than 23,000 office workers and up to 33,000 visitors per day once complete. The Wynyard Walk project (which is currently under construction) will facilitate access for a large proportion of users of the Barangaroo site directly to Wynyard Station. Wynyard Walk is expected to accommodate a total future demand of nearly 21,000 pedestrians per hour between Wynyard Station and Barangaroo (Transport for NSW, 2012a). While not all of these people would access the rail network, with some also accessing other transport modes located around Wynyard Station, it is estimated that 96 per cent of all rail trips to Barangaroo will be via Wynyard Station (PwC, 2012).

The development of Barangaroo and continued employment growth in the CBD mean that the number of station exits during the morning one-hour peak is predicted to increase by five per cent by 2015 and an additional 2.7 per cent per annum by 2025. This is a substantial increase compared to the historical growth rate of two per cent per annum over the last 16 years (PwC, 2012). Wynyard Station is not able to accommodate this growth with its current layout and retaining the existing station layout would likely lead to increased:

- passenger queuing and congestion
- delays on stairs leading to and from the platforms
- platform clearance times and dwell times for trains
- crowding and congestion within the concourse level.

Other nearby developments such as the proposed One Carrington Street development and the CSELR would give rise to increased numbers of passengers accessing the rail network at Wynyard Station. In addition, new services currently being added to the network, such as the NWRL and SWRL, will require additional capacity within the rest of the rail network and particularly at CBD stations (Transport for NSW, 2012b). While a second harbour crossing and new CBD rail line have been proposed to ease congestion and existing capacity constraints, immediate measures are required in the interim.

3 Alternatives and options considered

This chapter evaluates the different options considered for the proposal and identifies the preferred option based on the proposal objectives.

3.1 Options considered

The options considered for the proposal include:

- A 'do-nothing' option.
- Single paid concourse design.
- Split paid concourse design.

The criterion used to evaluate these options was the ability to meet the proposal objectives identified in **Section 1.2**. Each of the identified options is assessed against the proposal objectives below.

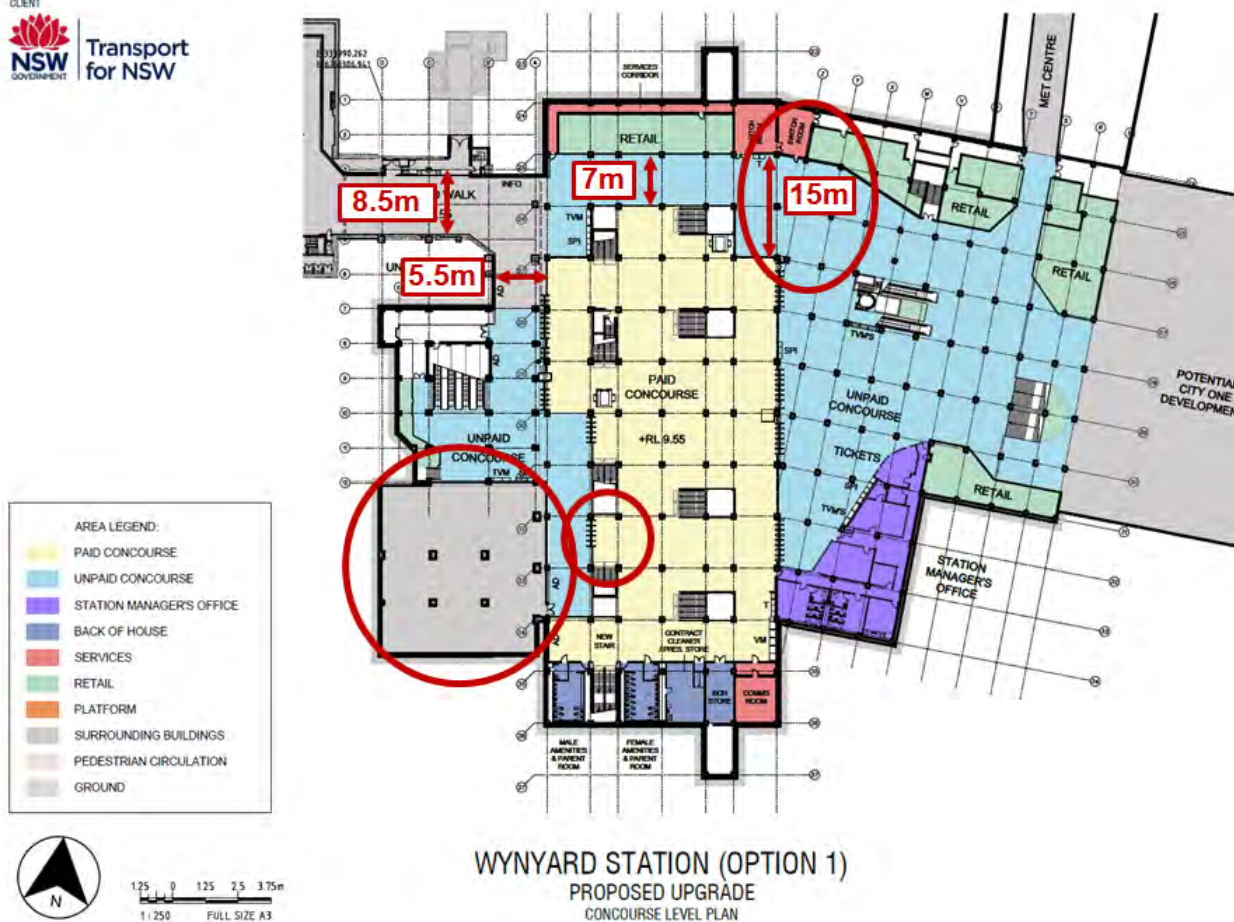
3.1.1 'Do-nothing' option

The 'do-nothing' scenario would consist of no upgrade of Wynyard Station being undertaken. A Demand Data Report for Wynyard Station undertaken by Arup (2011) determined that Wynyard Station is currently at or nearing capacity. This report states that Platform 6 is expected to fail to meet customer expectations in 2015 and Platform 3 in 2018. The broader station area is expected to become constrained between 2020 and 2025, with the ongoing development of Barangaroo.

As a result, the 'do-nothing' scenario would not aid in relieving congesting within the paid concourse and along the platforms. A 'do-nothing' scenario would also not improve amenity and would not support surrounding development. As such, the 'do-nothing' option would not meet the proposal objectives and was not carried forward as the preferred option.

3.1.2 Single concourse design

An indicative layout for the single concourse design is shown in **Figure 4** and includes expanding the paid concourse to the south and widening the northern unpaid concourse. It incorporates new stairs to Platforms 3 and 4 at the southern end of the paid concourse. The option assessed included the retention of the Concourse Bar in the western unpaid concourse. As part of this design, around 53 gates would be provided between the eastern and western gateline of the paid concourse area.



Source: AECOM, 2014

Figure 4 Single concourse design layout

Table 1 shows the predicted Level of Service (LoS) in 2021 for the single concourse and split concourse design option. The LoS has been predicted for the peak 20-minute period, and is expressed as a percentage of time within that 20-minute period that is spent under those conditions. LoS A represents the least congested conditions and LoS F the most congested conditions.

The modelling indicated a preference by customers for the southern end of each ticket line during the AM peak. During the PM peak, there would be a preference for the northern end of each ticket line of the paid concourse. This was attributed to customers originating from or travelling to Wynyard Walk and the Metcentre.

Modelling of pedestrian movements undertaken by AECOM (2014a) found that in the morning peak period, the single concourse design would perform at a LoS A or B for more than 65 per cent of the time. A LoS D or worse would occur less than 10 per cent of the time in the morning peak.

Table 1 Predicted Level of Service for the Single and Split Concourse Design Option (2021)

Level of Service	Single Concourse		Split Concourse	
	AM Peak	PM Peak	AM Peak	PM Peak
LoS A or B	66%	71%	57%	65%
LoS C	25%	22%	28%	24%
LoS D or worse	9%	7%	15%	10%

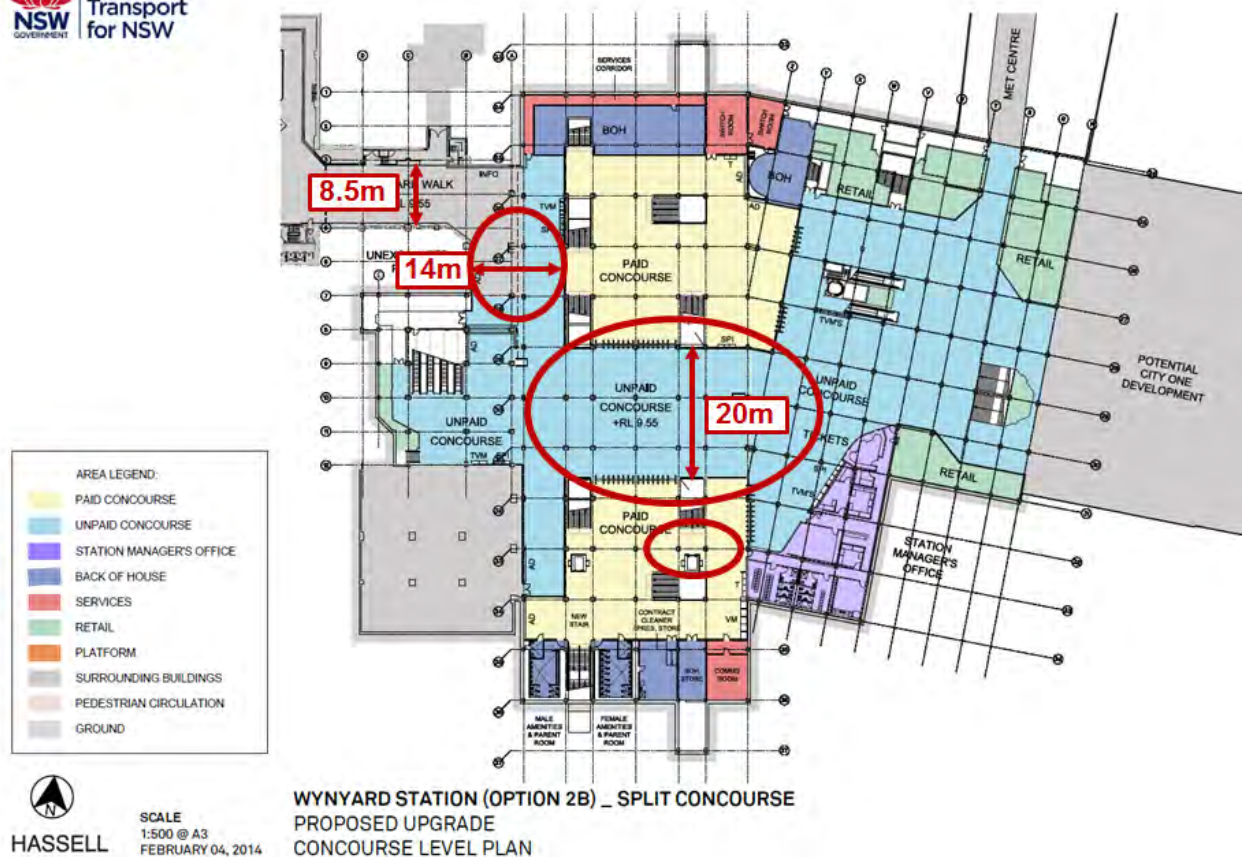
A single concourse, combined with the final alignment of the Wynyard Walk project, also minimised conflict between desire lines for pedestrians wishing to travel through the station (to the eastern unpaid concourse area), as well as commuters wishing to travel to/from Wynyard Walk and the York Street escalators from the western gateline of the paid concourse area (PwC, 2012). Bi-directional flows would occur at the entrance to Wynyard Walk, however, the provision of a desire line through the northern concourse area for pedestrians wishing to travel through the station, would minimise conflict between pedestrians.

The single concourse satisfies the proposal objectives as it would provide for increased capacity to meet future demand, and responds to congestion issues. It allows for a more even distribution of customers accessing or departing the paid concourse area, which would limit the potential for queuing at ticket gates, or at platform stairs.

3.1.3 Split concourse design

An indicative layout for the split concourse design is shown in **Figure 5** and includes extension of the paid concourse area to the north and the south and a 20 metre wide unpaid concourse area through the middle of two separate paid concourse areas. One set of stairs to Platforms 3 and 4 would be removed and two new sets of stairs would be constructed to these platforms at the northern and southern ends of the paid concourse area respectively. There would be a reduced number of gates (around 48 gates) when compared to the single concourse (53 gates).

Modelling of pedestrian movements undertaken by AECOM (2014a) (refer to **Table 1**) found that in the morning peak period, the split concourse design would perform at a LoS A or B for more than 57 per cent of the time during the AM peak and 65 per cent of the time during the PM peak. A LoS D or worse would occur less than 15 per cent of the time in the AM peak and 10 per cent of the time in the PM peak. The modelling indicated that customers would prefer the use of the northern paid concourse area, given there are more staircases to the station platforms. The modelling also indicated that customers would also use the closest staircase once they are in the paid concourse area, and would not maximise the use of all available staircases (AECOM, 2014a).



Source: AECOM, 2014

Figure 5 Split concourse design layout

PwC 2012 found that a split concourse, combined with the final alignment of the Wynyard Walk project, had potential for conflict between desire lines in the station. Conflict would occur at two locations; Wynyard Walk and the central unpaid concourse area for pedestrians wishing to travel through the station (to the eastern unpaid concourse area), as well as customers wishing to travel to/from Wynyard Walk and the York Street escalators from the western gateline of the paid concourse area. The bi-directional flow of all pedestrians wishing to travel to/from the concourse and through the station unpaid concourse area would merge at the entrance of Wynyard Walk. Cross flows within the central unpaid concourse area would occur as pedestrians from Wynyard Walk, the paid concourse area, York Street escalators and the eastern unpaid concourse area merge.

In the split concourse design, an alternative diagonal alignment of Wynyard Walk would minimise conflicts between the abovementioned pedestrian desire lines as it would provide a more direct desire line for pedestrians travelling to/from Wynyard Walk. However, the diagonal alignment had a number of drawbacks. The northern alignment of Wynyard Walk (the selected alignment), was preferred as it avoided direct impacts on the York Street escalators, had reduced risk for damage to Transport House, and had a less complicated design (PwC, 2012).

Overall, the split concourse design would be able to cater for increased demand at the station, but the design results in greater conflict between pedestrians moving in and around the station. The split design reduced the amount of available circulation space, which presented a greater potential for crowding at gates and platform stairs, and in the unpaid concourse area (between each paid concourse). More extensive works would have also been required as part of Wynyard Walk, to resolve some of the circulation issues.

3.2 Preferred option

The 'do-nothing' option was not carried forward as the preferred option since it did not meet the proposal objectives of improving capacity and reducing congestion. This option would not resolve the current issues relating to congestion on stairs and within the paid concourse area and would not support the growth in passenger numbers expected from construction of surrounding developments (including Barangaroo) and the expansion of the rail network through projects such as the NWRL.

The single concourse design and the split concourse design options would both improve passenger flows within the station compared to the existing situation. The pedestrian modelling found that the single concourse option would perform better than the split concourse option and therefore this option was considered to best meet the proposal objectives. In particular, it was found that the single concourse option would:

- Provide for better pedestrian circulation within the unpaid concourse area as it would reduce conflicts between differing pedestrian desire lines. As a result, the customer experience and the operational function of the station would perform marginally better when compared to a split concourse design.
- Improve the interface with Wynyard Walk and surrounding developments, particularly for pedestrians moving through the station as conflicts between different desire lines would be minimised.
- Provide for a more even distribution of customers accessing the platforms, which would improve customer flows to/from platforms and would relieve congestion at ticket gatelines and on staircases.

As a result, the single concourse design was carried forward as the preferred option.

3.3 Design refinements

Following the selection of the single concourse design as the preferred option, design refinements concerning the location of certain services or infrastructure have been considered. These are discussed below.

3.3.1 Extended paid concourse

Pedestrian flow modelling of the single concourse design indicated that there was a preference for customers departing the paid concourse area in the AM peak to use the southern end of each ticket line. There were also some impediments to pedestrian flows and sight lines between the northern and eastern unpaid concourse areas, given the retail spaces along the northern wall of the eastern unpaid concourse area.

To consider what improvements could be made to improve these flows, the paid concourse area was extended to the west, along with the widening of the western unpaid concourse area to improve desire lines to/from the York Street escalator (refer to **Figure 6**). The extra space required extended into areas currently occupied by commercial and retail uses (including the Concourse Bar). The modelling of the refined design showed marginal improvements to the LoS during the AM and PM period (AECOM, 2014a). Greater improvements were identified during the sensitivity modelling of the concourse layouts (being a 20 per cent increase in demand). As this design refinement would improve pedestrian flows further, and would safeguard the upgrade, the extension of the paid concourse and the western unpaid concourse areas was carried forward.

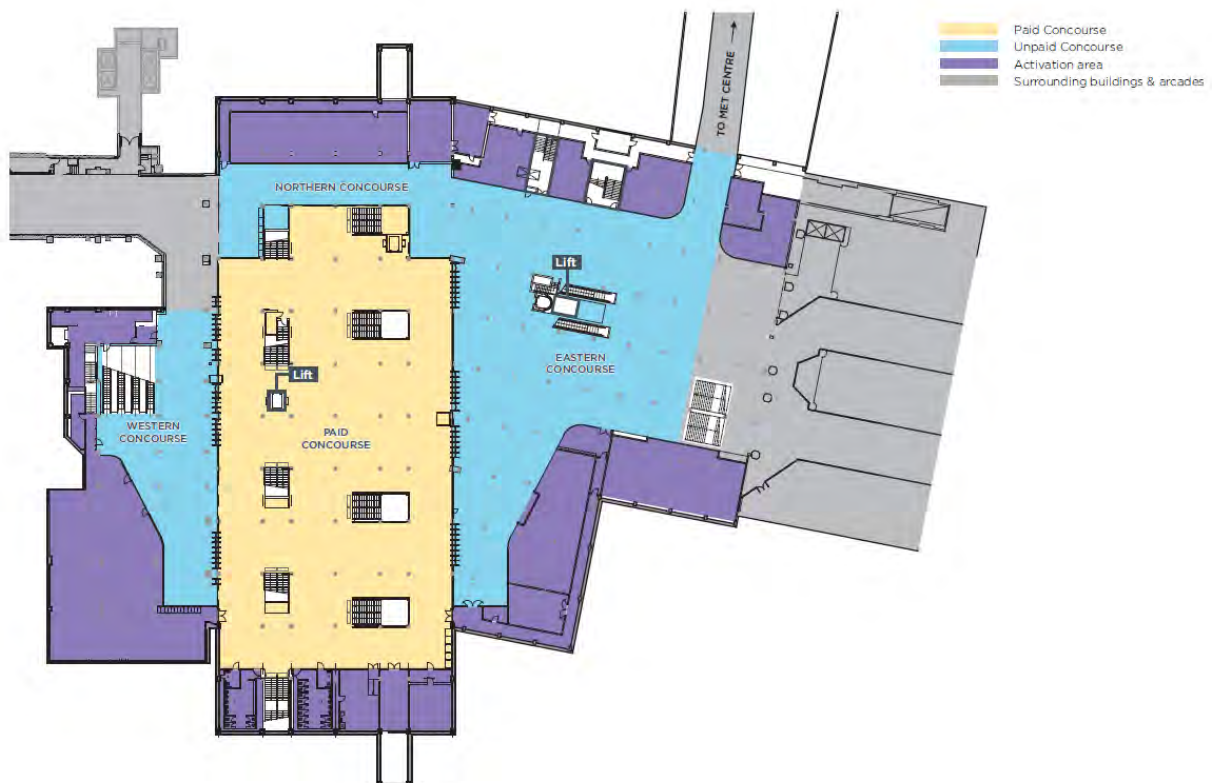


Figure 6 Extended paid concourse layout

3.3.2 Curved paid concourse configuration

The main objective of the proposal is to improve pedestrian flows throughout the station concourse areas and to improve the customer experience of Wynyard Station. In exploring the opportunities to maximise the convenience to the customer using the single and widened concourse design, the option for providing a curved gateline shape was identified to provide more direct and legible paths for customers between the paid and unpaid concourse.

A curved gateline layout of the paid concourse performs similar to or better than the rectangular gateline in facilitating pedestrian flows with some limited exceptions. In particular, the curved gateline design results in less crowding for customers using the eastern gateline, as well as customers travelling to/from Wynyard Walk and Carrington Street escalators. Given the curved gateline is considered to maximise the customer experience while achieving the operational requirements of the proposal, this option was carried forward for consideration and refinement during detailed design.

3.3.3 Station Manager's Office

The Station Manager's Office (SMO) is currently located adjacent to the northern unpaid concourse area, and would need to be relocated to accommodate the widened unpaid concourse area.

Options for the SMO include:

- The area currently occupied by the Concourse Bar and retail spaces along the western unpaid concourse area (Option A).
- The area along the southern wall of the eastern unpaid concourse area which is currently occupied by retail premises (Option B).
- Areas within the basement levels of Transport House, which are currently vacant (Option C).

The main objectives of the proposal are to improve pedestrian flows throughout the station concourse areas and to improve the customer experience of Wynyard Station. The latter objective focuses, along with other matters, on enhancing the spatial quality and upgrading of station facilities.

The SMO is required to be located reasonably close to the station public domain and must have direct access to the concourse area. All options would satisfy these requirements. However, Option A and Option B would occupy spaces that could otherwise be used for customer circulation, or to house uses that require immediate access to the concourse area or a direct customer interface (such as ticketing or potential retail spaces). Option C would maximise the potential for these spaces on the concourse level to be used for these purposes.

Option C would provide a less constrained space for station staff without sacrificing accessibility and would use spaces that are currently underutilised. However, this would require more structural changes to Transport House, which would have some heritage impacts. Despite this

potential impact, Option C is considered to maximise the unpaid concourse areas and associated station facilities for more appropriate uses. Option C also utilises spaces in Transport House for relatively low impact station office uses. Station office uses are an appropriate use for Transport House and will aid in its ongoing preservation by activating these spaces through occupation. For the purposes of assessment, Option C is considered to maximise the flexibility of the future layout of the unpaid concourse and associated station facilities for more appropriate uses. As such, this design refinement was carried forward.

3.3.4 Staged construction

An approach to stage the upgrade of the station was considered, which would allow an immediate widening of the paid concourse area and stairway upgrades. The subsequent stage would entail the widening of the northern unpaid corridor and the upgrade to the concourse and station amenities.

However the staged construction would delay the improvements to pedestrian flows, the customer experience and wayfinding. It would have limited benefits in relieving existing and future congestion and also restrict the ability for the station to completely respond to the altered interfaces with surrounding developments. As such, the staged construction was not carried forward.

4 Planning and statutory requirements

The assessment of the proposal and the associated environmental impacts has been undertaken in the context of Clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), the *Threatened Species Conservation Act 1995* (TSC Act), and the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so, this REF fulfils the requirements of Section 111 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), that Transport for NSW must examine and take into account, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity. The legislative framework relevant to the proposed works and associated approvals is set out in this chapter.

4.1 Environmental Planning and Assessment Act 1979

The proposal is subject to assessment under Part 5 of the EP&A Act. Transport for NSW is the proponent and determining authority for the proposal under Part 5 of the EP&A Act. The proposal is not declared to be State Significant Infrastructure (SSI) and would not require assessment under Part 5.1 of the EP&A Act given that:

- The proposal would not have a significant impact on the environment, including critical habitat and threatened species, populations and ecological communities and their habitats.
- The Minister for Planning has not declared the proposal to be SSI by way of an Order made under section 115U of the EP&A Act.

4.2 Environmental planning instruments

4.2.1 State Environmental Planning Policy (Infrastructure) 2007

Clause 79(1) of the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) stipulates that development for the purpose of railway or rail infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land. The proposal falls within the definition of rail infrastructure facilities, which includes railway stations, station platforms, areas in a station complex that commuters use to get access to the platforms, public amenities for commuters and railway workers' facilities. As such the proposal is permissible without consent.

The definition of rail infrastructure provided in Clause 78 of the Infrastructure SEPP specifically excludes retail development. The fit out of retail spaces does not form part of the proposal and would be subject to separate approval under Part 4 of the EP&A Act.

Part 2 Division 1 of the Infrastructure SEPP requires Transport for NSW to consult with councils and other public authorities with regard to potential impacts on council-related infrastructure or services, flood liable land and local heritage. A summary of this consultation is provided in **Section 6.2.1**.

4.2.2 State Environmental Planning Policy No. 64 – Advertising and Signage

The *State Environmental Planning Policy No. 64 – Advertising and Signage* (SEPP 64) aims to regulate signage and advertising and deliver public benefits from advertising in and adjacent to transport corridors. Advertising signage is defined in SEPP 64 as all signs, notices, devices, representations and advertisements that advertise or promote any goods, services or events and any structure or vessel that is principally designed for, or that is used for, the display of signage. Advertising signage is distinct from wayfinding or directional signage. The proposal would result in the relocation of advertising material within and around Wynyard Station. Pursuant to clause 33(1), the display of an advertisement in an underground railway station or railway tunnel is exempt development. Thus, advertisements relocated within the underground concourse areas or platforms as part of the proposal would not require further approval. Advertising signage installed subsequent to the proposal would be subject to separate approval.

4.2.3 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

The *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*, a deemed SEPP, aims to ensure that the catchment, foreshores, waterways and islands of Sydney Harbour are recognised, protected, enhanced and maintained. It also aims to ensure the environmental protection and enhancement of natural resources within the catchment.

The SREP applies to the proposal, however, the matters for consideration are largely not relevant to the proposal given it is underground and is not located directly within foreshore areas. Construction activities at the surface would be limited to Wynyard Park compound (if required) and loading/unloading activities at various access points. Potential impacts to ecology, air and water are minimal with mitigation measures recommended to further minimise any impacts.

4.3 Local Environmental Plans

4.3.1 Sydney Local Environmental Plan 2012

The proposal is located within the City of Sydney LGA and therefore subject to the provisions of *Sydney Local Environmental Plan 2012* (Sydney LEP). The proposal is located in areas zoned B8 Metropolitan Centre and RE1 Public Recreation.

Passenger Transport Facilities are permitted with consent within zone B8 Metropolitan Centre. The proposal would be prohibited within zone RE1 Public Recreation. As stated in **Section 4.2.1**, clause 79(1) of the Infrastructure SEPP allows development for the purpose of railway or rail infrastructure facilities to be carried out by or on behalf of a public authority

without consent on any land. As such, the proposal is permissible without consent from City of Sydney. The consistency of the proposal with the Sydney LEP zoning is presented in **Table 2**.

Wynyard Park is listed in Schedule 5 of the Sydney LEP as a heritage item. This is discussed further in Section 4.4.1. However, as the proposal is permissible without consent, an approval under clause 5.10 of the Sydney LEP is not required.

Table 2 Consistency of the proposal with the applicable objectives of the Sydney LEP

Zone	Objectives	Consistency of the Proposal
B8 Metropolitan Centre	<ul style="list-style-type: none"> To recognise and provide for the pre-eminent role of business, office, retail, entertainment and tourist premises in Australia's participation in the global economy. To provide opportunities for an intensity of land uses commensurate with Sydney's global status. To permit a diversity of compatible land uses characteristic of Sydney's global status and that serve the workforce, visitors and wider community. To encourage the use of alternatives to private motor vehicles, such as public transport, walking or cycling. To promote uses with active street frontages on main streets and on streets in which buildings are used primarily (at street level) for the purposes of retail premises. 	<p>The proposal would support the continued development of the zone for business, office, retail, entertainment and tourism purposes through efficiency and amenity improvements to mass public transport infrastructure.</p> <p>The proposal would support the development of Barangaroo as a global financial hub by providing an upgraded, modern efficient station with capacity to support increased passenger growth. It would encourage the use of public transport to access Barangaroo as well as the CBD in general.</p> <p>The proposal integrates well with other developments (such as Wynyard Walk and CSELR) to provide a continuous pedestrian link between George Street, Barangaroo and the Harbour foreshore.</p>
RE1 Public Recreation	<ul style="list-style-type: none"> To enable land to be used for public open space or recreational purposes. To provide a range of recreational settings and activities and compatible land uses. To protect and enhance the natural environment for recreational 	<p>The proposal may require the temporary use of Wynyard Park for construction access. The potential impacts to Wynyard Park are assessed in Section 7.5. To minimise potential impacts to the amenity of the park for users during construction, additional street</p>

Zone	Objectives	Consistency of the Proposal
	<p>purposes.</p> <ul style="list-style-type: none"> • To provide links between open space areas. • To retain and promote access by members of the public to areas in the public domain including recreation facilities and waterways and other natural features. 	<p>furniture (such as seating) would be included to reduce the impact of the temporary loss of public recreation space. The impacts would be relatively short term in duration and any land disturbed would be reinstated upon completion of construction works.</p> <p>The proposal, in conjunction with Wynyard Walk, would provide a continuous pedestrian link between the Harbour foreshore, Barangaroo, Wynyard Park and George Street.</p>

4.4 Other relevant legislation

4.4.1 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) aims to protect and conserve items of both local and State historic (non-Aboriginal) heritage significance in NSW. It establishes the Heritage Council and provides a process for approval requirements for impacts or disturbance of items of historic heritage significance.

Four listed heritage items are located within the proposal site:

- Transport House, a listed State Heritage item as well as the Sydney LEP 2012.
- Wynyard Station and the Former Wynyard Tram Tunnels, listed on the former RailCorp section 170 Heritage and Conservation Register (now kept by Sydney Trains).
- Wynyard Park, a listed local heritage item under the Sydney LEP 2012.

As works would be undertaken within the curtilage of Transport House, an approval will be required from the Heritage Council under Section 60 of the Heritage Act. Approval under Section 60 of the Heritage Act would initially be sought for works within the western concourse, York Street foyer and structural works within the basement levels of the building. A subsequent approval for the fit out of any spaces within the basement levels (excluding those detailed earlier) would be sought following detailed design of these spaces.

For works within the curtilage of Wynyard Station and the Former Wynyard Tram Tunnels, notice to the Heritage Council would be given in accordance with Section 170A of the Heritage Act at least 14 days prior to works commencing.

A permit may also be required under Section 140 of the Heritage Act should there be potential for archaeological relics to be disturbed. The listing for Wynyard Park under the Sydney LEP 2012 does not identify the item as an archaeological site. However, the *Central Sydney Archaeological Zoning Plan* (City of Sydney, 1992), a non-statutory plan, identifies archaeological potential at the site. As discussed in **Section 7.4**, it is unlikely that there is any potential for archaeological relics to be uncovered given the extent of the disturbance that occurred during the construction of the station. As such, an exemption or approval does not need to be sought under Section 139 of the Heritage Act for works proposed within Wynyard Park if those works are required.

4.4.2 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) is the primary piece of legislation which aims to protect, restore and enhance the quality of the environment in NSW. It is administered by the NSW Environment Protection Authority (EPA) and provides a mechanism for licensing of certain activities that have the potential to cause environmental harm (Scheduled Activities) listed under Schedule 1.

Railway system activities are listed as a Scheduled Activity under clause 33 of Schedule 1. However, this clause excludes an activity at a railway station building (including platforms and offices). Therefore, the proposal is not a Scheduled Activity within the meaning of the POEO Act and would not require an Environmental Protection Licence (EPL).

Sydney Trains holds an EPL (Number 12208) for the carrying out of Railway Systems Activities. While the EPL covers the proposal site, it would not be relevant to the proposal.

4.5 Commonwealth legislation

4.5.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a national framework for the management of nationally and internationally important flora, fauna, ecological communities and heritage. A referral to the Australian Government is required under the EPBC Act for actions that have the potential to have a significant impact on matters of national environmental significance or the environment of Commonwealth land.

The potential impacts of the proposal on the matters of national environmental significance defined under the EPBC Act are addressed in **Appendix B**. The proposal would not impact on matters of world heritage, national heritage or wetlands of national importance due to the distance between the site and items of relevance. A small number of listed threatened and migratory species and communities have been recorded proximate to the site, however these are not expected to be impacted by the works due to the heavily disturbed nature of the site, the lack of vegetation on the site, and because the majority of works would be undertaken underground.

The proposal is not expected to have a significant impact on matters of national environmental significance or Commonwealth land and as such a referral to the Australian Government Department of Environment would not be required.

4.6 Ecologically sustainable development

As stated in Section 5(vii) of the EP&A Act, it is an object of the Act to encourage ecologically sustainable development (ESD). ESD entails using, conserving and enhancing the community's environmental resources in a manner that sustains and improves ecological processes and, hence, the quality of life for present and future generations. The basis for achieving ESD involves the application of four principles:

- The precautionary principle.
- Intra- and inter-generational equity.
- Conservation of biological diversity and ecological integrity.
- Improved valuation and pricing of environmental resources.

Transport for NSW is committed to ensuring its projects are consistent with the principles of ESD and as shown in **Table 3**.

Table 3 Consideration of ESD for the Proposal

ESD Principle	Application to the Proposal
Precautionary principle	The detailed assessment of the potential impacts of the proposal has sought to minimise impacts on the environment. Where information has been lacking, a conservative approach has been adopted for the assessment. Safeguards have been proposed to further minimise such impacts. This includes stop work procedures for the discovery of unexpected heritage finds within the station, Wynyard Park and Transport House.
Intra- and inter-generational equity	The proposal would improve public transport for future generations. Should the proposal not proceed, the principle of inter-generational equity may be impacted as future generations would inherit a station that is unable to provide a sufficient LoS as demand for train services continues to grow. The proposal would also support the Access Strategy, which focuses on providing a more efficient and integrated transport service within the Sydney CBD. The proposal has been designed to achieve a gold rating under the <i>Transport for NSW Sustainable Design Guidelines</i> (2013), which would ensure a long term sustainable outcome for future generations.
Conservation of biological diversity and ecological integrity	The proposal would not have a significant impact on biological diversity or ecological integrity, given it is largely located underground and within existing excavated areas. Depending on the final construction methodology, one tree may be removed near the proposed Margaret Street works zone. Potential impacts, subject to the proposed safeguards, may also occur as a result of the construction of a temporary construction hoist within the Wynyard Park compound (if required). Mitigation to minimise any impacts from the removal of a tree and to ensure adequate protection is provided to supporting features such as tree roots would be implemented (as outlined in Section 7.5.4).

ESD Principle	Application to the Proposal
Improved valuation and pricing of environmental resources	This assessment has identified mitigation measures for areas that may result in an adverse impact. The implementation of these measures would result in an economic cost to the NSW Government. Likewise, the proposal has been designed with consideration to the <i>Transport for NSW Sustainable Design Guidelines</i> (2013) and climate change, which has identified measures to minimise long term costs, such as costs associated with energy consumption.

4.7 Additional licences and approvals required

Approvals (such as road occupancy licences or work zone applications) may need to be obtained from City of Sydney and the Sydney Harbour Foreshore Authority if any activities require the temporary occupation of road space. This may apply to deliveries at Wynyard Lane, Margaret Street and York Lane, vehicle storage areas at York Street, and Cumberland Street.