Crows Nest Station Design and Precinct Plan

City & Southwest Chatswood to Sydenham project

Revision	Revision Date	Status
J	Feb 2024	Final for submission to DPHI
I	Oct 2023	Final for DRP exhibition and submission to DPIE
H	Sept 2023	Final for DRP exhibition and submission to DPIE
G	Sept 2023	Final for DRP exhibition and submission to DPIE
F	Jan 2022	Final for DRP exhibition and submission to DPIE
E	Sept 2021	Draft for Public Exhibition

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Executive summary

This Station Design and Precinct Plan has been prepared to fulfil Condition E101 of the Chatswood to Sydenham project approval SSI 15_7400 for Crows Nest Station.

Condition E101 requires that:

> *Before commencement of permanent built surface works and/or landscaping, the Proponent must prepare **Station Design and Precinct Plans (SDPP)** for each station. The SDPP must be prepared by a suitably qualified and experienced person(s), in collaboration and consultation with relevant stakeholders including but not limited to relevant council(s) and the local community. The SDPP(s) must present an integrated urban and place making outcome for each station or end state element. The SDPP(s) must be approved by the Secretary following review by the DRP and before commencement of permanent aboveground work…*
>
> *… Elements covered by the SDPP(s) must be complete no later than the commencement of operation of the Sydney Metro to paid services, unless otherwise agreed with the Secretary.*

The Condition notes that the SDPP may be submitted in stages to address the building and landscaping elements of the project. This SDPP is for the Crows Nest Station. This SDPP has been prepared by Crows Nest Design Consortium.

Through urban design principles and place making, Sydney Metro stations will be more than somewhere to catch the train; they will be the centre of the communities through a variety of uses.

This outcome has been achieved through:

- integrating the station precinct with adjoining precinct areas and contributing to an active public domain
- providing opportunity for others to enhance adjacent existing public spaces
- acknowledges the constraints of the site such as along the Pacific Highway, while integrating the development's role as an entry point into the precinct, prioritising pedestrian access, permeability and amenity within the development and across the precinct
- facilitating legible, safe and convenient interchange opportunities across transport mode.

This SDPP provides an outline of the integrated and urban place making outcome for the Crows Nest Station and associated public domain works in accordance with the requirements of Condition E101 of the Chatswood to Sydenham project approval SSI15_15_7400 in particular condition E101.

1. Introduction

1.1. Purpose of the Station Design and Precinct Plan

This report has been prepared to document the Station Design and Precinct Plan (SDPP) for the Crows Nest Station component of the Sydney Metro City & Southwest Chatswood to Sydenham project. The plan has been prepared to present an integrated urban and place making outcome to guide the design of the permanent built surface works and landscaping associated with the project.

An integrated urban and place making outcome must be achieved through the consideration of existing and planned public domain and private developments adjacent to the project and effective consultation and collaboration with relevant stakeholders. This SDPP illustrates and describes the urban, landscape and architectural design for the station and shows how the project's permanent works will integrate with the surrounding context. This considers the urban design principles and transport interchange strategy for the project, and Interchange Access Plans prepared by Sydney Metro and other relevant plans and projects touching on the station precinct.

The preparation of the SDPP is a requirement of Condition E101 of the Chatswood to Sydenham project approval SSI-7400. Condition E101 allows the SDPP to be submitted in stages and, as identified in the Staging Report. Consistent with the requirements of Condition E101, this SDPP considers:

- details specific design objectives, principles and standards
- identifies design opportunities including incorporation of public art and salvaged elements
- describes the key design features
- outlines implementation of the plan, including maintenance and monitoring
- provides evidence of consultation.

As required by Condition E101, the SDPP has been prepared by suitably qualified and experienced person(s):

- this SDPP was prepared by a team comprising urban and architectural designers and environmental planners. Please see Appendix C for the CV's of the authors of this SDPP, which demonstrates their suitability for developing this plan.

1.2. Project overview

Sydney Metro is Australia's biggest public transport program. A new standalone railway, this 21st century network will revolutionise the way Sydney travels.

There are four core components:

Metro North West Line

This project is now complete and passenger services commenced in May 2019 between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and $1 billion under budget.

Sydney Metro City & Southwest

Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of the Metro North West Line at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. Stage 1 (Chatswood to Sydenham) is due to open 2024 and Stage 2 (Sydenham to Bankstown) is due to open 2025, with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition, it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

In 2024, customers will benefit from a new fully-air conditioned Sydney Metro train every four minutes in the peak in each direction with lifts, level platforms and platform screen doors for safety, accessibility and increased security

Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs. The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

Services Started in May 2019 in the City's North West with a train every four minutes in the peak. Metro rail will be extended into the CBD in 2024, with new metro railway stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, and new metro platforms at Central, and then onto Bankstown in 2025.

Sydney Metro - Western Sydney Airport

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City’s growth for generations to come, connecting communities and travellers with the rest of Sydney’s public transport system with a fast, safe and easy metro service. The Australian and NSW governments are equal partners in the delivery of this new railway

The Sydney Metro project is illustrated in Figure 1-1.

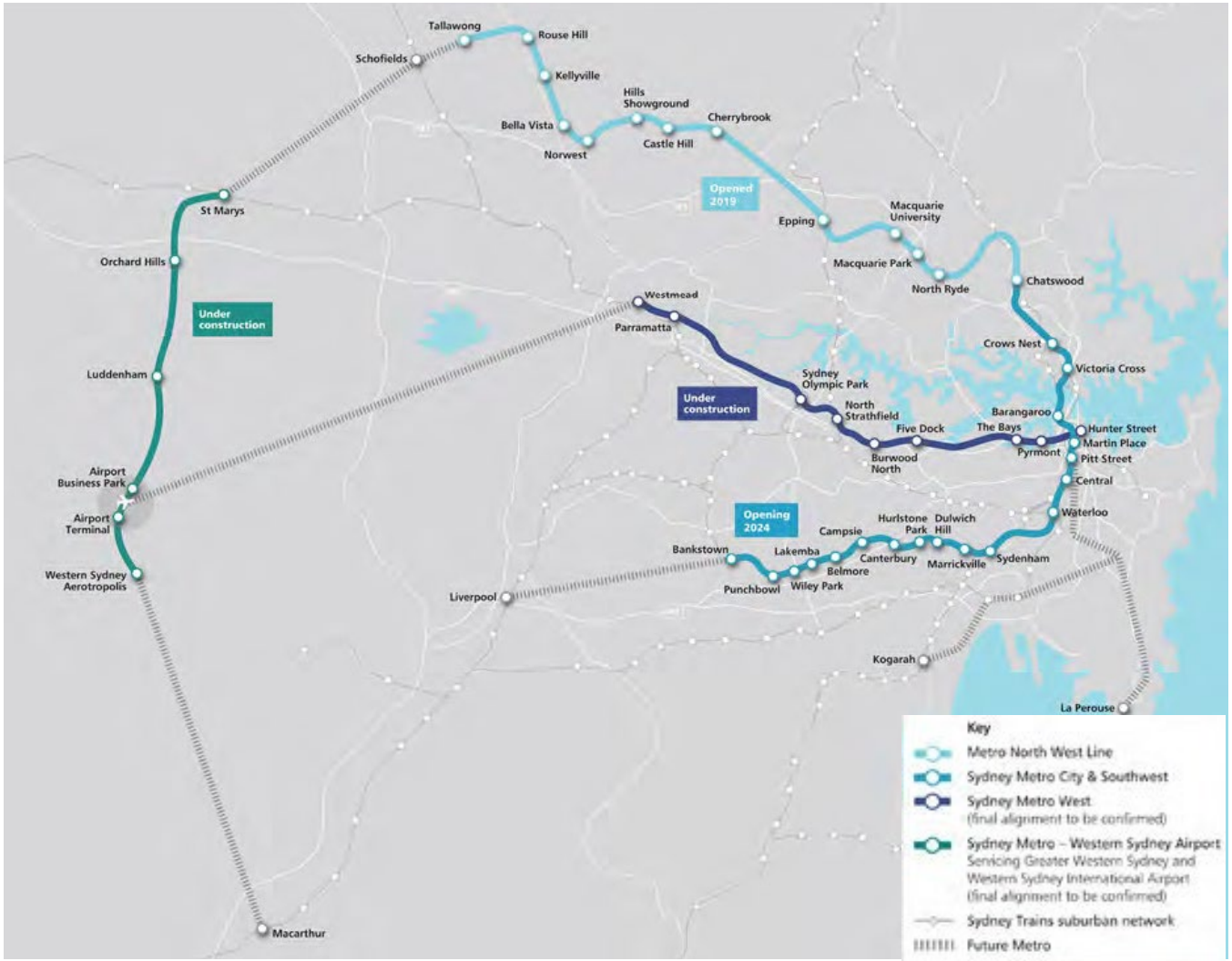


Figure 1-1 The Sydney Metro project

From a planning approvals perspective, Sydney Metro City & Southwest has been split into two components - Chatswood to Sydenham and Sydenham to Bankstown.

The Chatswood to Sydenham component of Sydney Metro City & Southwest involves the delivery of approximately 16.5 kilometres of metro rail line between Chatswood and Sydenham, including connections to the existing rail network, ancillary infrastructure, metro platforms at Central and Sydenham stations and the following new metro stations:

- Crows Nest Station
- Victoria Cross Station
- Barangaroo Station
- Martin Place Station
- Pitt Street Station
- Waterloo Station.

1.3. Scope of this Station Design and Precinct Plan

This SDPP presents an integrated urban and place making outcomes for the following project works within the Crows Nest station precinct (refer to Figure 1-2 Figure 1-3).

Scope of station work

- station with above and below ground concourse, platforms and services and back of house facilities
- canopies and station entry awnings
- two Station entrances with one located off the Pacific Highway between Oxley Street and Hume Street and one located off Clarke Street near the corner of Hume Street.

Scope of precinct work

- public domain works including footpaths, street tree planting, lighting and street furniture
- new pedestrian crossing with traffic lights at the Pacific Highway and Oxley Street intersection
- new pedestrian crossings on Clarke and Hume Streets
- widened pedestrian crossings at Pacific Highway and Hume and Oxley Streets
- new bike parking on Hume Street, Pacific Highway, Clarke Street and Oxley Street
- new on-road marked cycle link on Hume Street
- new kiss-and-ride and taxi bays on Clarke Street and Oxley Street
- relocation of two bus stops on the Pacific Highway
- installation of wayfinding signage and Sydney Metro information.

Sydney Metro has considered the design and visual impacts of the permanent aboveground infrastructure elements within the Crows Nest Station precinct that have not been identified in the dot points above (i.e. tunnelling and station excavation, overhead power, tunnel ventilation systems etc.). However, the SDPP and associated design objectives and principles do not override the detailed design of these elements as their design requirements are governed by engineering and / or safety standards.

The study area and SDPP boundary considered in this SDPP is shown in the following figures.

The study area has been identified to determine the key design drivers and influences of the broader urban context for the project. The SDPP boundary is the area within which works identified in this SDPP will be delivered as part of the project.

The Crows Nest Station development will provide enhanced accessibility to a broader area within Crows Nest's business, health, education and residential communities, as well as adding to the commercial and residential mix of the precinct through over station development, subject to relevant planning approval and associated design process.

Figure 1-2 Station context considered as part of the SDPP

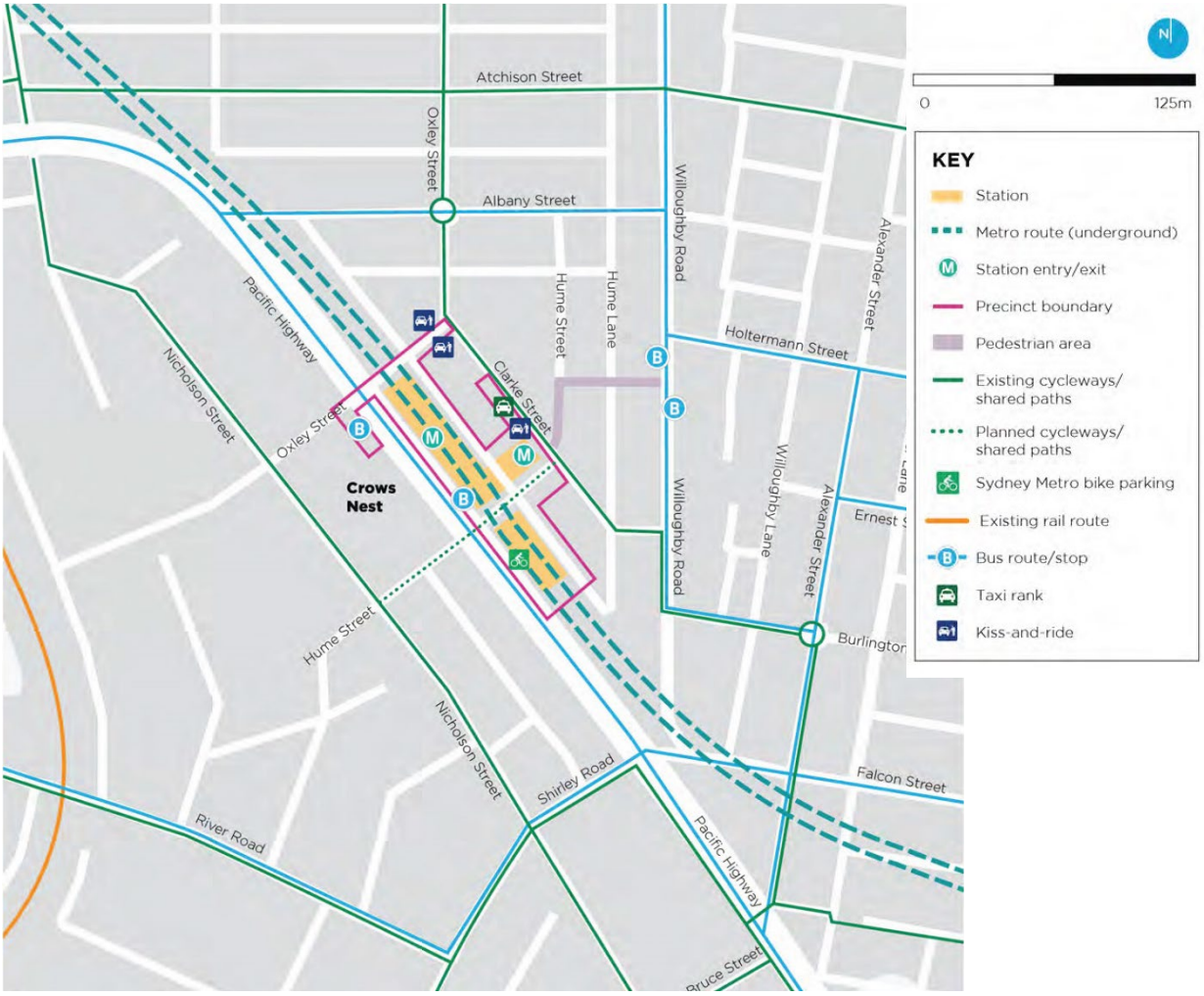


Figure 1-3 SDPP boundary

The Crows Nest Station scope of work is summarised below:

- detailed excavation and drilling required for sumps, track sub-invert, on-site detention tanks, drainage, services and foundations to support the structural works
- waterproofing of the station box
- all primary and secondary structural works including for the entire station box, entrances, all services, utilities, systems, fit out elements, concourses, station platforms, over-track exhaust plenums and vertical transport
- track invert slab including underline crossings, earthing mats and drainage
- architectural Builders Works and Finishes and building services for Crows Nest Station, and other associated structures
- foundations and structures to support the Over Station Development (OSD)
- interchange facilities, pedestrian and vehicle access in accordance with the Sydney Metro Interchange Access Plan (IAP)

- safeguard for a possible future underground pedestrian link that will support further improvements in easy transfer. This includes a connection to: • Areas to the west under the Pacific Highway.
- all mechanical and electrical systems required and incorporated into Crows Nest Station
- station, interchange, precinct and public domains, including landscape works, provision for public art, furniture, fitments, and any specialised elements, wayfinding and signage
- the works for the base build of the retail spaces within the station Lot
- any temporary or permanent traffic diversions that are required to allow a prompt and efficient mobilisation for the Crows Nest Station Contractor
- utility augmentation, installation, protection, and diversions and any associated project road and footpath works required for both the Station construction activities and Station operation
- interface documentation for the Building Management System (or equivalent)
- accommodation for system-wide electrical and mechanical systems.

Works to be performed for the areas of the OSD which are located within the station box footprint and below the OSD transfer level which are required for the integration of the OSD Works would be undertaken as part of the station works. This would enable further construction of the OSD works without disruption to the operating station.

1.4. Status of this Station Design and Precinct Plan

The information contained in this report is the latest available at the time of writing. The nature of the design process on a project of this scale is one that requires continuous development and refinement until the project is constructed. Notwithstanding this, the material herein provides a clear appreciation of the scale, nature and treatment of the facilities proposed and their interactions with the environment.

Following consultation of this SDPP, an updated SDPP would be prepared for the approval by the Secretary. Refer to Section 2 for the overview of the design development process.

1.5. Structure of the Station Design and Precinct Plan

The SDPP has been structured as follows:

- Section 1: this section includes the background to the project and the Conditions of Approval
- Section 2: provides an overview of the design development process that has occurred for the project to date
- Section 3: outlines the consultation that has been undertaken during the preparation and review of this plan and how the feedback received has been addressed

- Section 4: identifies the design objectives, principles and standards specific to the relevant scope element of the plan
- Section 5: identifies design opportunities, including in regard to public art, heritage interpretation and use of salvaged elements
- Section 6: details the key features of the station/element design and the precinct/public realm plan
- Section 7: outlines the implementation phase including timing for delivery of access, landscaping and public realm initiatives and the monitoring and maintenance procedures for landscaping
- Section 8: provides an assessment of the visual impact for the relevant design elements and identifies if a 'minor benefit' rating (or at a minimum a 'negligible' rating) has been achieved.

1.6. Compliance with the Conditions of Approval

The following table identifies the requirements of the relevant conditions of approval of SSI 15_7400 and where these have been addressed in the SDPP.

Table 1-1 Compliance with the Conditions of Approval

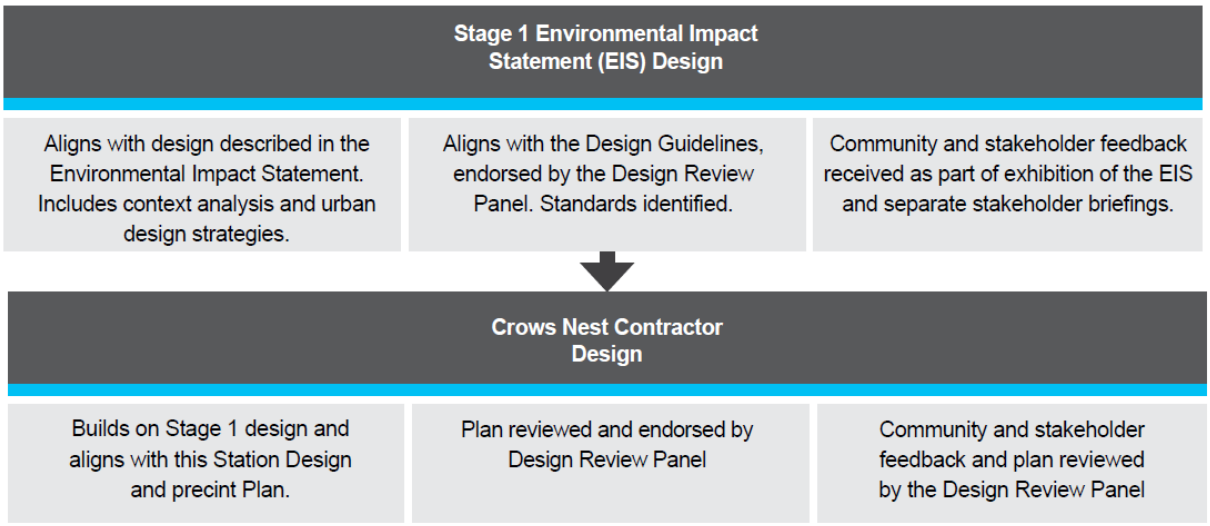
Requirement of the conditions of approval	Where addressed in the plan
Condition E93	
In developing the Interchange Access Plan, the Proponent must consider: a) traffic and accessibility requirements; and b) the Station Design and Precinct Plan(s) required by Condition E101.	Section 4 identifies design objectives, principles and standards. Where these objectives principles and standards are relevant to the Interchange Access Plan(s), they would be considered in these plans. In addition, the Interchange Access Plan(s) would consider the relevant SDPP, including the station design and precinct plan details provided in Section 6 of this plan.
Condition E78:	
The Proponent must undertake supplementary analysis and modelling as required by the TTLG to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations, public including changes to and the management of pedestrian, bicycle and public transport networks transport services, pedestrian and cyclist movements. Revised traffic management measures, must be incorporated into the Construction Traffic Management Plan(s), Interchange Access Plan(s) and Station Design and Precinct Plan(s).	At the time of this SDPP, supplementary analysis and modelling for traffic management has not been requested by the TTLG. This SDPP has, however, been developed through regular consultation, including with the TTLG. See Appendix A for evidence. For example, the design of Hume Street was amended based on traffic modelling outcomes and in consultation with the TTLG.
Condition E21:	
…The Heritage Interpretation Plan must inform the Station Design and Precinct Plan referred to in Condition E101…	Opportunities identified in the Heritage Interpretation Plan considered in the SDPP have been identified in Section 4.3, Section 5.3 and Section 5.4.
Condition E101:	

Requirement of the conditions of approval	Where addressed in the plan
Before commencement of permanent built surface works and/or landscaping, the Proponent must prepare Station Design and Precinct Plans (SDPP) for each station.	This plan.
The SDPP must be prepared by a suitably qualified and experienced person(s), in collaboration and consultation with relevant stakeholders including but not limited to relevant council(s) and the local community.	Section 1.1 details the qualifications and experience of the authors of the plan. Section 3 details the consultation that has occurred during preparation of the plan. This is supported by the consultation evidence provided in Appendix A.
The SDPP(s) must present an integrated urban and place making outcome for each station or end state element.	This plan, with a statement provided in Section 6.3.
The SDPP(s) must be approved by the Secretary following review by the Design Review Panel (DRP) and before commencement of permanent aboveground work.	The plan will be submitted to the Secretary for approval. Section 3 details the review undertaken by the DRP.
Each SDPP must include, but not be limited to:	
a) identification of specific design objectives, principles and standards based on i. the project design objectives as refined by the DRP ii. maximising the amenity of public spaces and permeability around entrances to stations iii. local environmental, heritage and place making values; iv. urban design context v. sustainable design and maintenance vi. community safety, amenity and privacy, including 'safer by design' principles where relevant vii. relevant urban design and infrastructure standards and guidelines (including relevant council standards, policies and guidelines) viii. minimising the footprint of the project (including at operational facilities)	Section 4 identifies the design objectives, principles and standards.
b) opportunities for public art c) landscaping and building design opportunities to mitigate the visual impacts of rail infrastructure and operational fixed facilities (including the Chatswood Dive, Marrickville Dive, Sydney Metro Trains Facility South, Artarmon Substation, station structures and services, noise walls etc.) d) the incorporation of salvaged historic and artistic elements onto the project design, including but not limited to the Tom Bass P&O fountain, the Douglas Annand glass screen (if present), the Douglas Annand wall frieze and heritage fabric from Martin Place Station, unless otherwise agreed by the Secretary	Section 5 details the design opportunities, including for public art, the incorporation to salvaged elements and opportunities to mitigate visual impacts. Sections 6.1 and 6.2 details the landscaping and building design opportunities specific to Crows Nest ISD.
e) details on the location of existing vegetation and proposed landscaping (including use of endemic and advanced tree species where practicable). Details of species to be replanted/revegetated must be provided, including their appropriateness to the area and habitat for threatened species f) a description of the Critical State Significant Infrastructure (CSSI) design features, including graphics such as sections, perspective views and sketches for key elements of the CSSI g) the location, design and impacts of operational lighting associated with the CSSI and measures proposed to minimise lighting impacts	Section 6 details the station design and precinct plans. The station / element design in Section 6.1 details the key design features, including station operational lighting. The precinct plan in Section 6.2 details the location of existing and proposed landscaping within the precinct/public realm plans and operational lighting within the precinct.

Requirement of the conditions of approval	Where addressed in the plan
h) details of where and how recommendations from the DRP have been considered in the plan	Section 3 details the feedback from the DRP and where and how the recommendations have been considered.
i) the timing for implementation of access, landscaping and public realm initiatives j) monitoring and maintenance procedures for vegetation and landscaping (including weed control), performance indicators, responsibilities, timing and duration and contingencies where rehabilitation of vegetation and landscaping measures fail	Section 7 outlines the implementation of the plan, including timing and monitoring and maintenance.
k) evidence of consultation with the community, local Councils and agencies in the preparation of on the SDPP(s) and how feedback has been addressed before seeking endorsement by the DRP.	Section 3 details the consultation that has occurred during preparation of the plan and how this feedback has been addressed. This is supported by the consultation evidence provided in Appendix A.
Elements covered by SDPP(s) must be complete no later than the commencement of operation of the Sydney Metro to paid services, unless otherwise agreed with the Secretary.	Refer to Section 7 which details implementation of the plan.
Note: The SDPP may be submitted in stages to address the built elements of the CSSI and landscaping aspects of the CSSI.	Refer to Section 1.3 for the scope elements considered as part of this SDPP. The SDPPs for other scope elements have been / would be considered as part of other SDPPs.
Condition 102:	
The SDPP must achieve a minimum visual impact rating of at least “Minor Benefit” as defined in the EIS, as amended by the documents listed in A1, for all design elements of the project, where feasible and reasonable. Where it can be demonstrated, to the DRP’s satisfaction, that a “Minor Benefit” is not achievable, then a “Negligible” visual impact rating must be achieved as a minimum.	Section 8 provided the visual impact assessment and identifies the rating achieved. Section 3.3 discusses relevant input from the DRP on this rating.

2. Design development process

The design for the Sydney Metro City & Southwest Chatswood to Sydenham project has developed from an initial scoping design through to the detailed design (refer to flow chart below). At each stage a range of consultation and stakeholder engagement activities have occurred. This has also been supported by the development of design objectives, the Chatswood to Sydenham Design Guidelines and now this Station Design and Precinct Plan, all of which has been refined in consultation with the Sydney Metro Design Review Panel.



This SDPP draws upon the design work that occurred prior to obtaining planning approval for context, and then details the design work and associated consultation activities that have occurred since planning approval was obtained (i.e. during the detailed design stage).

It is noted that this SDPP relates to the Crows Nest Station and surrounding precinct subject to the SSI project approval SSI-7400.

2.1. Over station development

Within the Crows Nest Station site, Sydney Metro is seeking to secure concept approval for a mixed use development comprising three buildings above the Crows Nest Station. The approval and design of each over station development component is subject to one of two planning approval and associated design process. Two of the three Over Station Developments (OSD) (Site A and B) is otherwise known as the Sydney Metro Crows Nest Over Station Development State Significant Development Application (SSD-9579). In contrast Site C Over Station Development can be identified by a separate planning approval SSD – 13852803.

The concept application (SSD-9579) seeks consent for building envelopes and land uses, maximum building heights, maximum gross floor areas, pedestrian and vehicular access, circulation arrangements and associated car parking and the strategies and design parameters for the future detailed design of the development. Site C OSD SSD-13852803

includes the design and construction of a nine storey commercial building only. At the time of developing this SDPP, SSD-9579 was at the determination stage, while Site C SSD 13852803 has been approved.

The Crows Nest Station design development has accounted for future proofing to allow for the three buildings above the station development. Allowances have been made in the design such as sizing of structural elements to accommodate future loads and achieve integrated outcomes.

The following principles will apply to the integration of the over station development and Crows Nest station:

- all modal access points to the proposed over station development will be managed and designed to not conflict with station operations
- the design will ensure that separate access points are provided that don't interfere with kerbside activity associated with the station interchange serving both the northern and southern access points
- the design should allow for shared loading dock and maintenance bays with the station and/or surrounding development.

The design should allow for shared maintenance access for the over station development and station.

These principles have been developed as part of these plans.

3. Collaboration and consultation

The stakeholder and community consultation process for Sydney Metro City & Southwest has played an integral role in informing and scoping the design of the project since 2014. The consultation and engagement activities that occurred to inform the reference design were documented in the Chatswood to Sydenham Environmental Impact Statement (EIS) and the Chatswood to Sydenham Submissions and Preferred Infrastructure Report (SPIR).

Consultation with government agencies, councils, business groups and the community has continued throughout the development of the Stage 3 detailed design and preparation of this SDPP. The SDPP has also been reviewed by the Sydney Metro Design Review Panel. The consultation undertaken and how feedback has been addressed in the plan is detailed below.

3.1. Consultation during preparation of the Station Design and Precinct Plan

This SDPP has been prepared in collaboration and consultation with the following relevant stakeholders:

- North Sydney Council
- Department of Planning, Industry and Environment
- The North Sydney Chamber of Commerce
- Transport for New South Wales
- The local community.

Collaboration and consultation activities undertaken during development of the detailed design and preparation of this SDPP include:

- a large amount of thorough background research has been undertaken for the Sydney Metro Crows Nest Station design. The urban design approach taken for Design Stages is to critically assess and develop the conceptual design, while making sure that all of the project objectives and requirements are met
- key spaces identified in the *Sydney Metro Planning Study* (February 2017) were considered important to ensuring a high standard of public domain and pedestrian experience. Crows Nest Station will complement existing and future land use in the vicinity
- the Crows Nest Station urban design has gone through a thorough review process including internal reviews and regular key stakeholder workshops.

3.2. North Sydney Council

Sydney Metro has engaged with North Sydney Council in relation to roads and public space through regular progress meetings, and meetings where Council are represented such as Design Review Panel meetings and traffic and transport related meetings. As part of the public exhibition of the Crows Nest SDPP (See Section 3.3.2) this document was provided to North Sydney Council for comment. Evidence of consultation with council has been provided in Appendix E, including where and how these comments have been addressed in this plan..

3.3. Community consultation

Consultation has been a key part of the process and informed the project and future opportunities to be safeguarded. Community consultation during the design development process has included Customer Centred Design testing and public exhibition of the draft Crows Nest SDPP. All feedback received during consultation has been considered to inform the development of the Station design and the area surrounding the station.

3.3.1. Customer Centred Design Engagement

Customer Centred Design activities were carried out during the Stage 2 and Stage 3 detailed design. The interactive sessions focused on customer experience. Feedback during the consultation focused on the following:

- station design and navigation through the station environment
- wayfinding information within the station environment
- site layout and infrastructure surrounding the station such as bicycle parking and storage facilities at Crows Nest Station.

Generally, responses to the station have been in favour of the design. Table 3-1 details responses raised during consultation.

Table 3-1 Response to community consultation

Issue	Responses raised
Architecture of the station	The general response to the station architecture was mostly positive. Key findings included: • liking the open spaces of the station concourse • good sight lines to vertical transport within the station • ease of locating facilities within the station • no issues were raised in regard to the location of Opal ticketing machines at either the station entry or at concourse level within the station. Feedback on the size of the station identified most were not expecting the station to be as large as it is.
Site layout	The single sided entry and exit arrangement of lifts was seen as an inconvenience but not a 'deal breaker'.
Station infrastructure	No issues were raised in regard to station infrastructure such as the switch back escalator arrangement. Customers understood how to navigate the design of the station and its surrounds
Wayfinding	Customers found the station easy to navigate without the aid of wayfinding. Most Customers were able to navigate easily from station entrances to platform level without the assistance of signage. Some customers were able to locate the facilities without the aid of signage. Customers thought that the location of information booths between the lifts and the escalators may be in the way.

3.3.2. Public Exhibition of the draft Crows Nest SDPP

Public exhibition of the draft Crows Nest SDPP was undertaken between 3 September 2020 and 16 October 2020. Consultation on the draft Crows Nest SDPP was advertised in a newsletter printed and distributed to properties within a 200m radius of the station and in an email to the Crows Nest distribution list on 3 September 2020. A follow up email to the Crows Nest distribution list was issued on 9 September 2020. In addition to residential and commercial stakeholders, North Sydney Council, Wollstonecraft Precinct Committee and Bike North were made aware of the consultation process via the email notifications. A copy of the draft Crows Nest SDPP was also published on the Sydney Metro website.

As part of the consultation process, the community was asked to issue their submissions via the Sydney Metro community mailbox (sydneymetro@transport.nsw.gov.au) or via the project's info line (1800 171 386).

No submissions were received from community members. North Sydney Council submitted a response on the exhibited draft SDPP in addition to consultation through regular meetings. North Sydney Council's submission and the Project's response is summarised in Appendix E.

3.4. Design review panel

Sydney Metro has a Design Review Panel (DRP) that aims for design excellence across all Sydney Metro projects. The Sydney Metro DRP is chaired by the Government Architect and members include eminent architects, designers and heritage specialists. The Sydney Metro DRP has been heavily involved in reviewing the Southwest metro project since inception.

In accordance with Condition E102, all design elements must achieve a minimum visual impact rating of at least 'minor beneficial' where feasible and reasonable. Where it can be demonstrated to the DRP's satisfaction that a 'minor beneficial' rating cannot be achieved, then a 'negligible' visual impact rating must be achieved.

As outlined in Section 8 of this SDPP, the visual impact assessment concludes that the project achieves minor benefit for three of the five key views, and negligible impact for the other two; resulting in a minimum rating of negligible. Evidence of the DRP review is provided in Appendix A.

The DRP accepts the presented outcomes of the Visual Impact Assessment, and supports the submission of the SDPP to the Department of Planning Industry and Environment.

4. Design objectives, principles and standards

The development of the design and SDPP has been guided by a range of design objectives, principles and standards.

The Sydney Metro City & Southwest Chatswood to Sydenham Design Guidelines (June 2017), as included in the planning approval documents for SSI 15_7400, provide guidelines for the spatial and functional design of the urban and public domain in each station precinct as well as the urban form of associated project elements.

The Design Guidelines identifies the five project design objectives to help meet the transformational vision and world class aspirations of the project. These are supported by design principles which describe the intent of the objectives for the design of the stations, station precincts and the wider metro corridor. The project design objectives and supporting principles, as reviewed and refined by the Design Review Panel, are detailed in Section 4.1.

Sections 4.2 to 4.7 details the design principles and how the design has responded to these relevant to the aspects identified in Condition E101(a) and scope of this SDPP. These have been captured from the Design Guidelines, relevant design reports that support the detailed design and other standards and guidelines listed in Section 0.

4.1. Project design objectives

Objective 1: Ensuring an easy customer experience

Principle – Sydney Metro places the customer first. Stations are welcoming and intuitive with simple, uncluttered spaces that ensure a comfortable, enjoyable and safe experience for a diverse range of customers.

Objective 2: Being part of a fully integrated transport system

Principle – Sydney Metro is a transit-oriented project that prioritises clear and legible connections with other public and active transport modes within the wider metropolitan travel network that intersect with this new spine.

Objective 3: Being a catalyst for positive change

Principle – Sydney Metro is a landmark opportunity to regenerate and invigorate the city with new stations and associated development that engage with their precincts, raise the urban quality and enhance the overall experience of the city.

Objective 4: Being responsive to distinct contexts and communities

Principle – Sydney Metro's identity is stronger for the unique conditions of centres and communities through which it passes. This local character is to be embraced through distinctive station architecture and public domain that is well integrated with the inherited urban fabric of existing places.

Objective 5: Delivering an enduring and sustainable legacy for Sydney

Principle – Sydney Metro is a positive legacy for future generations. A high standard of design across the corridor, stations and station precincts, that sets a new benchmark, is vital to ensuring the longevity of the Metro system, its enduring contribution to civic life and an ability to adapt to a changing city over time.

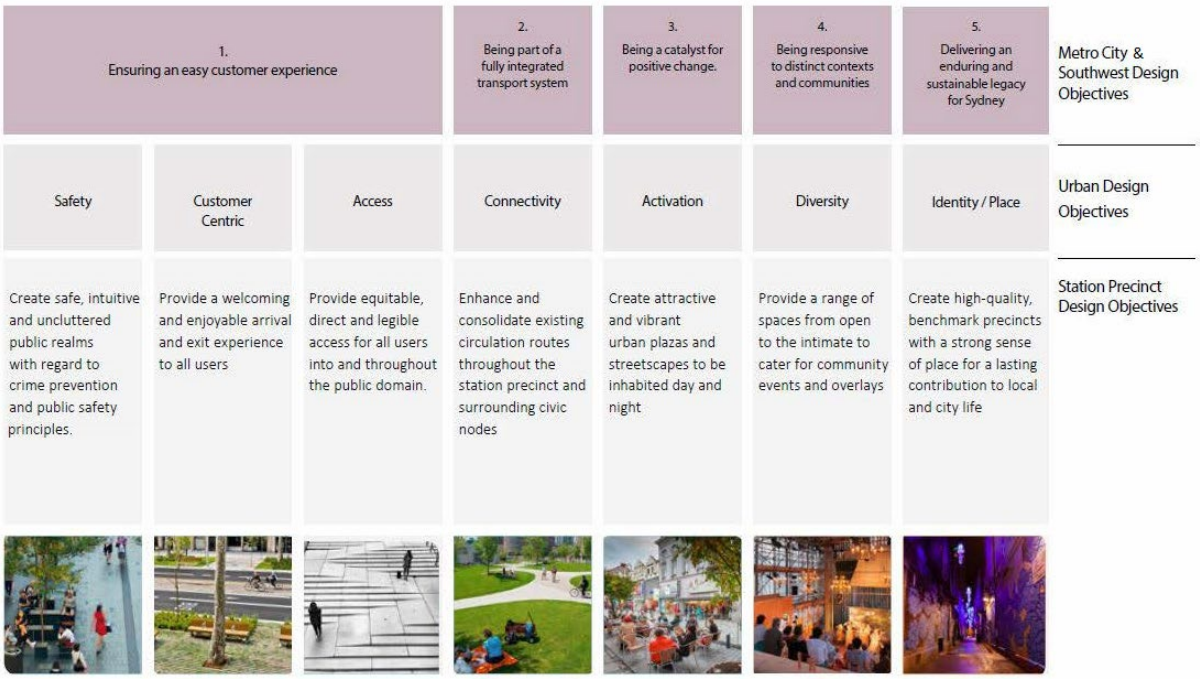


Figure 4-1 Design objectives (Design Stage 1 Report (Woods Bagot, 2020))

The Chatswood to Sydenham CSSI approval established design standards to guide the interface outcomes between stations and their surrounding locality. The key design drivers are:

- create a new transport focus on the southern side of the St Leonards strategic centre
- maximise legibility and connectivity with the local urban structure
- integrate the station with local improvement plans and make a positive contribution to the sense of place.

4.2. Maximising amenity of public spaces and permeability around station entrances

Each station precinct is its own place, with its own history and culture. Crows Nest Station will be a significant transport interchange requiring a high level of public amenity and permeability. Pedestrian comfort, safety, access and amenity are key considerations in the precinct design, along with the ability for the station to function seamlessly as a transport interchange between trains, buses, vehicles and the surrounding pedestrian environment.

There is an opportunity to create a seamless entry experience into the station through materiality and extending the character of the surrounding public domain into the station. The following table outlines the relevant design principles identified in the Chatswood to Sydenham Design Guidelines and how the design has responded to these to ensure that the amenity of public spaces and permeability around station entrances is maximised.

Table 4-1 Response to project design objectives and principles

Design Principle	Design Response
Ensuring an easy customer experience	
Customer Centred Design (CCD) is the process that brings the 'customer to the centre of everything we do'.	A Customer Centre Design review and analysis process was undertaken and informed the final design outcomes.
Provide adequate space to meet customer demands, including during peak periods and long-term patronage demands.	Footpath widths have been increased on all footpaths and around station entries to accommodate predicted pedestrian volumes as defined by the Level of Service appropriate to the location and context. New buildings are set back from the property boundary to provide footpath widths that will comfortably accommodate the projected increase in pedestrian volumes around the station. The minimum required footpath widths for Pacific Highway (5m in front of Site A and 3.5m in front of Site B) and Hume Street (5.6m for northern footpath only) have been achieved.
Provide intuitive, clear and consistent information and signage as well as legible, intuitive spaces to enhance customer journeys through efficient navigation and interchange. Wayfinding is to create a seamless and intuitive customer journey from origin to final destination to support an easy customer experience.	Station entries have been designed with clear and visually simple layouts with direct and unobstructed routes for customer access. Wayfinding signage and information is provided in accordance with the Transport for NSW (TfNSW) guidelines at station entries and transport interchanges including bus stops and cycle infrastructure. Wayfinding around the precinct will be limited to metro station signage at station entries, and directional signage to the secure bike parking. The station entries and layout have also been designed to intuitively direct passenger's movement in combination with wayfinding signage. This strategy will provide clear and simple wayfinding for customers while minimising visual and physical clutter.
Provide a comfortable customer environment that provides sufficient personal space and amenity and is well lit with effective and appropriate microclimate amenity for all users.	Continuous pedestrian weather protection and micro climate are considered in the design such as awnings and increased tree canopy cover. More than 45 new street trees are to be planted, which will provide shade, visual amenity, wind amelioration and other environmental benefits. New awnings will provide continuous weather protection and a human scale to the precinct streets. The height and width of awnings are compatible with the expected mature tree sizes, whereby the mature tree canopy will sit above awning height or outside of the awning locations. New seating will be provided across the precinct, and in close proximity to station entries and bus stops. Seating is to be located adjacent kerbs in line with trees to maintain clear paths of travel and in compliance with North Sydney Council's public domain guidelines.

Design Principle	Design Response
Ensure stations and precincts provide a safe and secure environment for customers and also contribute to the overall public safety of urban places throughout the day and night.	A high level of amenity and security is provided in waiting areas. Crime Prevention Through Environmental Design (CPTED) principles have been embedded in the design and include security bollards at station entries, CCTV and elimination of entrapment and concealed space opportunities. A security strategy has been adopted to consider the protection of the external station infrastructure against the threat of a vehicle borne attack. This has been achieved through a perimeter of crash rated bollards around the station buildings. Minimisation of pedestrian, cycle and vehicle conflicts has been achieved through route and traffic analysis and layout, suitable footpath widths and upgraded pedestrian crossings.
Ensure the stations and associated spaces are safe, efficient, universally accessible, legible and easy for customers and pedestrians	All service elements are to be assessed for DDA compliance. Paths of travel are obstacle and step free to maximise access. Street furniture including bike parking, bins and seating will be located in a furniture zone adjacent the kerb, with building lines kept unobstructed and all other visual and physical clutter kept to a minimum and consolidated where appropriate.
Connectivity	
Provide an efficient, safe transport service that is part of a fully integrated and accessible transport system.	The precinct provides interchange between the metro station, bus stops on Pacific Highway, and the local cycle network, with priority given to pedestrian access.
Provide pedestrian connectivity between transport modes that is safe, efficient, accessible, legible and enjoyable. Provide pedestrian movement systems that clearly connect the stations with their surrounding locality. Ensure the vertical journey is a core element of the station architecture and provides step free access between the street and the platforms as it is integral to the station's design and has a major influence on the function and visual impact of the station environment	Uncluttered, comfortable and direct pedestrian routes are provided along all streets surrounding the station, with wide footpath widths aligned with predicted pedestrian volumes. A new signalised crossing is provided across Pacific Highway at the intersection with Oxley Street. Widened pedestrian crossings are provided at Pacific Highway and Hume/Oxley Streets. New pedestrian crossings across Clarke and Hume streets are provided adjacent to the Clarke Street station entry. The traffic function of Hume Street has been reduced, with the street made one way, improving safety and enabling place-making opportunities. Clarke Lane between Hume Street and Oxley Street is to be converted into a shared zone – Including new trees, the removal of kerbs and new paving and lighting, the upgraded Clarke Lane will slow traffic through the precinct and provide another option for pedestrian movement across the site.

Design Principle	Design Response
Prioritise bicycle movement consistent with the modal access hierarchy by providing optimum connectivity and convenient, secure and accessible bicycle parking at stations to accommodate current and future demands	A new cycleway connection is provided on Hume Street between Clarke Street and Nicholson Street. To facilitate and prioritise pedestrian and bicycle movements the removal off on-street parking on Hume Street is required for the bi-directional cycleway. The removal of parking on Hume Street to provide the new cycleway connection forms part of the project. Class C cycle racks are proposed adjacent to the entrances at both east and west portals, and within Clarke Lane. Temporary Class B lock up bike parking can be accessed in Site B and accessed from Pacific Highway. Later phases of the design of the OSD will see the Class B bike parking relocated to site A, nearer to the Hume Street cycleway and the site C Station entrance.
Establish a legible hierarchy of safe vehicular streets that respond to the varying customer and operational requirements for vehicular, bicycle and pedestrian movements in accordance with the modal hierarchy.	Intersections have been designed to encourage slow traffic speeds and emphasise pedestrian priority within the precinct. Taxi bays and kiss-and-ride bays are provided adjacent the Clarke Street station entry and on Oxley Street. Pacific Highway bus stops have been relocated for convenient interchange between bus and rail and are accessible via safe and direct pedestrian routes. Parking bays on the Pacific Highway adjacent to the station between Oxley Street and Hume Street will be removed as part of the project, as required because of the location of the bus stop, the station fire booster and following consultation with relevant agencies including Fire and Rescue and TfNSW (formally Roads and Maritime Services).

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Figure 4-2 Pedestrian amenity including shade trees, covered footpaths and seating

4.3. Local environmental, heritage and place making values

Sydney Metro is committed to delivering easy, safe and reliable turn-up-and-go services, and active precincts. Crows Nest Station supports this commitment by aiming to achieve a sensitive fit with existing and future precinct planning, and contribute positively to the local character of the area by ensuring the station is an integrated part of the urban fabric and public domain. To this extent, the station needs to reflect its identity as part of the wider Sydney Metro while also being sensitive to local context, with the station entries creating welcoming landmarks in the urban environment.

The following table outlines the relevant design principles identified in the Chatswood to Sydenham Design Guidelines and how the design has responded to the local environmental, heritage and place making values.

Table 4-2 Response to Project Design Objectives and Principles

Design Principle	Design Response
Identity	
Create a line-wide identity for the Chatswood to Sydenham project that is recognisably part of the Sydney Metro network while enabling elements of station design to respond to context, character and environment to create locally distinctive sustainable outcomes.	Public domain elements align with North Sydney Council's Public Domain Style Manual, ensuring the precinct reflects the local context. Complimentary furniture and surface treatments have been introduced at station entries to provide a locally distinctive station identity. Furniture and facilities within the station and transport wayfinding signage around the precinct adhere to the Sydney Metro kit of parts, maintaining the line-wide identity of the metro project.
Create welcoming, secure and well maintained public domain spaces and station buildings with an attractive 'sense of place'	The Crows Nest over station development will increase the street level activity throughout the precinct with uses including the metro station, residential and commercial over station development, and ground floor retail. The design provides continuous and active frontages along Pacific Highway and Hume Street. The built form promotes the village character of Crows Nest through a fine grain materiality and human scale building articulation. The building forms emphasises the podium as separate to the over station towers to provide a sense of scale in keeping with the surrounding built form, while suited to the future higher density development of this priority precinct. The interface with the existing Pacific Highway commercial and retail frontage is sensitively dealt with to reflect the existing character through the continuation of fine grain and active tenancies fronting onto the highway, including the cycle parking facility made visible to the south of the station precinct. The Clarke Street entry provides a portal between the metro station and Hume Street Park, creating a positive connection within the public domain, while the Pacific Highway entry responds to the Vibrant Street road classification with a generous station entry clearly legible within in a consistent built form façade.

Design Principle	Design Response
Ensure elements and items of heritage significance are appropriately managed and respected. Identify opportunities for heritage conservation to contribute to the celebration of local identity in station design.	Nearby heritage items include St Leonards Centre and The Higgins Building, both outside of the project scope. New built form on Pacific Highway responds to the scale of the Higgins Building opposite through building articulation. There is further opportunity to respond to site heritage through interpretive artworks at station entries. The station development will be in keeping with the small scale and regular alignment of vertical forms of the Higgins Building on the opposite side of the road through architectural treatment along the Pacific Highway frontage. This will also assist in integrating the development with the finer grain retail character along Pacific Highway leading up to Willoughby Road. The station entries are then articulated against this consistent street rhythm through an increase in scale of form and materiality.
Ensure best practice sustainable design solutions are adopted for the public domain, stations and buildings, to minimise environmental impacts and benefit customers and local communities.	Street trees and building awnings have been provided throughout the public domain for environmental benefit, amenity and microclimate. Public domain furniture and materials reflect council standards and therefore provide limited avenue for additional sustainability considerations. Refer to architectural documentation for environmental performance of the built form.
Ensure public art is integrated within the design of stations and other corridor structures to aid place-making and to enhance local amenity and celebrate local character.	Primary public art opportunities have been identified for station entrance walls, and other secondary opportunities.
Ensure a coordinated approach to lighting that responds to the local context, addresses CPTED and operational requirements and provides feature lighting representative of the Sydney Metro image. Use light to enhance station built form and corridor landscape, whilst delivering functional lighting and creating a safe and high quality experience for all users.	Lighting is provided to all streets, footpaths and paths of travel and integrated into the built form where possible to avoid clutter in the public domain. Refer to architectural documentation for internal lighting strategies.

4.4. Urban design context

The urban and public domain design must be developed with reference to the existing urban context and infrastructure as well as planned initiatives in the locality.

Crows Nest is a vibrant residential neighbourhood located in Sydney's Lower North Shore. The future Crows Nest Station is located between St Leonard's Strategic Centre and the Crows Nest Town Centre.

Located within the immediate vicinity are commercial and mixed-use activities and surrounding residential catchments. Existing land use and characteristics include low-scale commercial developments along the Pacific Highway, with a concentration of 19th century two-story shopfront facades south of Hume Street.

Oxley, Hume and Clarke Streets contain a mixture of office and apartment buildings (up to 10 storeys), and an indoor sports complex, child care centre, community centre and post office.

To the north is a mixed-use commercial and retail area with a large number of creative and professional services businesses. Hume Street Park is located opposite the station site on Clarke Street, and is the only local green space.

To the south is a transitional precinct with a mixture of high-density housing, office towers, home-office conversions, community facilities, educational institutions and the Mater Hospital.

To the west extending along Hume Street towards Nicholson Street and the areas on the western side of the Pacific Highway are large pockets of medium density housing, interspersed with lower-density residential areas and pocket parks.

The history of Crows Nest reveals the growth of a residential community and village from the subdivision of a larger estate. There are two heritage items in proximity to the station, St Leonards Centre to the north and the Higgins Building to the south.

St Leonards Centre is a six storey, late twentieth century commercial building built c. 1972 designed by Kerr and Smith, Architects and Planners, in the late twentieth century brutalist style and is a dominant building is the local streetscape (Office of Environment and Heritage, 2019).

Higgins Building is an interwar free classical style brick and masonry commercial/retail building housing a group of shops which occupies an important corner location and which complements and reflects the type of development characteristic of this streetscape.

**St Leonards And Crows Nest 2036 Plan*, Department of Planning Industry and Environment, August 2020

Figure 4-3 Built Form and Activation Context Plan

Crows Nest Station is an opportunity to enhance the amenity and character of the existing surrounding area. The stations extent of works informed by the planning conditions of approval for the project and interface with the existing public domain adjoining the station will provide the opportunity to improve pedestrian access and enhance amenity. Existing open space and other public domain work initiatives to be delivered by North Sydney Council within the precinct will potentially improve the quality and accessibility of open space.

Such opportunities may include North Sydney Council's upgrade to Hume Street Park and the partial pedestrianisation of Hume Street, a new pedestrian connection to Willoughby Road, new community uses, and the new park on Holtermann Street that forms part of the St Leonards and Crows Nest 2036 Plan.

* St Leonards And Crows Nest 2036 , Department of Planning Industry And Environment, August 2020.

** noted as 'Linear Parks' in St Leonards Crows Nest Planning Study, North Sydney Council, May 2015.

Figure 4-4 Open space context plan

Crows Nest Station is located between St Leonard's Strategic Centre and the Crows Nest Town Centre, on the western edge of the Crows Nest village. The station will provide enhanced accessibility to a broader area within Crows Nest's business, health, education and residential communities.

The Crows Nest Station development will have the following key outcomes at a precinct level:

- pedestrian connection between the station and Willoughby Road commercial high street
- improved open spaces and streetscapes
- reinforcement of Hume Street as a primary east-west axis
- greater connectivity and accessibility between activity precincts surrounding Crows Nest.

In addition to these outcomes and the principles and responses outlined in Section 4.1 to Section 4.3, the following key moves have been developed for Crows Nest station to ensure the development integrates with the urban design context.

Prioritise pedestrian comfort and safety

The pedestrian experience is paramount to a successful public domain. A comfortable and safe pedestrian environment can be achieved by:

- maximising tree canopy cover and provide continuous awnings to new buildings
- providing seating opportunities at key locations across the public domain
- integrating security measures at station entries
- avoiding visual and physical clutter.

Figure 4-5 Street trees, awnings and seating provide a comfortable and safe pedestrian environment

Integrate local pedestrian and cycle connections

Crows Nest Station will be incorporated into the mix of local transport connections to form a fully integrated transport interchange through:

- generous footpath widths suited to estimated pedestrian flows
- safe and convenient interchange between transport modes, prioritising walking and cycling routes
- the addition of a cycleway along Hume Street to provide station access and greater connection across the local cycle network
- new and improved pedestrian crossings.

Figure 4-6 Local pedestrian (purple) and cycle (orange) connections are integrated into the design

Establish active and legible building interfaces

The interface between new built form and the public domain is a key factor in the character, activation and function of the precinct. The precinct will ensure an active and legible interface through the following measures:

- accentuate station entries through architectural treatment and scale and public domain elements including paving and furniture
- provide retail and commercial lobby entries onto Hume Street and Pacific Highway to support an active streetscape environment (the OSD is subject to relevant planning approval and associated design process)
- ensure the scale and articulation of built form reflects the desired future character of the precinct.

Figure 4-7 Establish active and legible building interfaces (blue) and accentuate station entries (purple)

Refer to section 6 for details of the Station design and Precinct Plan.

4.5. Sustainable design and maintenance

Section 1.7 of the Chatswood to Sydenham Design Guidelines outlines the commitment to sustainability and acknowledges that Sydney Metro would achieve new benchmarks in sustainability infrastructure delivery. The design must ensure best practice sustainable design solutions are adopted for the public domain, stations and buildings to minimise environmental impacts and benefit customers and local communities.

All design elements have been designed to achieve either:

- an ‘excellent’ rating using the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) rating tool
- a 5-star rating using the Green Building Council of Australia (GBCA) Green Star Sydney Metro rating tool.

In addition, the Sydney Metro City & Southwest Sustainability Strategy 2017-2024 identifies examples of sustainable design initiatives being considered for the project.

Sustainability initiatives to be considered in the design and for maintenance include:

- adopt energy efficient and low carbon design solutions

- incorporate passive design solutions to optimise solar access, introduce daylight and maximise natural ventilation
- develop a low maintenance design
- ensure resilience to climate change
- include integration of renewable energy sources at stations and in the public domain where feasible
- provide water and energy efficient services
- include water sensitive urban design initiatives
- design refinement to decrease quantity of materials used
- opportunities to reduce operational greenhouse gas emissions must be investigated during detailed design. The sustainability initiatives identified must be implemented, reviewed and updated regularly throughout design development and construction, and annually during operation
- sustainability initiatives would be incorporated into the detailed design and construction of the project to support the achievement of the project sustainability objectives
- a best practice level of performance would be achieved using market leading sustainability rating tools during design and construction
- an iterative process of greenhouse gas assessments and design refinements would be carried out during detailed design and construction to identify opportunities to minimise greenhouse gas emissions
- performance would be measured in terms of a percentage reduction in greenhouse gas emissions from a defined reference footprint.

For details of sustainable design initiatives adopted for the Crows Nest Station project refer to the Crows Nest Environment and Sustainability Compliance Register which can be found in Appendix A of the Sustainability Management plan. For a summary of the climate change risks relevant to the SDPP identified during the climate change risk assessment, as well as the mitigation measures to be implemented to reduce the risk impacts, refer to the Climate Change Impact Assessment Report (SMCSWSCN-SMC-SCN-SU-REP-000002).

4.6. Community safety, amenity and privacy

Safety has been and will continue to be considered at all stages of design of the project, with the commitment to safety outlined in Section 1.6 of the Chatswood to Sydenham Design Guidelines. The Crows Nest station precinct will provide a safe and comfortable customer environment that contributes to the overall public safety throughout the day and night. Safety principles have been embedded in the design and include safety measures at the station (e.g. bollards at station entries), CCTV and the elimination of entrapment and concealed space opportunities. The station and precinct will provide comfort and amenity measures such as well-lit spaces and effective and appropriate microclimate comfort for all users.

The following table outlines the relevant design principles identified in the Chatswood to Sydenham Design Guidelines and how the design has responded to these to ensure that community safety, amenity and privacy is addressed:

Table 4-3 Response to Project Design Objectives and Principles

Design Principle	Design Response
An Easy Customer Experience	
Provide a comfortable customer environment that provides sufficient personal space and amenity and is well lit with effective and appropriate microclimate amenity for all users	Continuous pedestrian comfort and increased tree canopy cover are provided for weather protection and micro climate. More than 45 new street trees are to be planted across Hume Street, Pacific Highway, Oxley Street, Clarke Street and Clarke Lane, which will provide shade, visual amenity, wind amelioration and other environmental benefits. New awnings will provide continuous weather protection and a human scale to the precinct streets. The locations of street trees and heights/widths of awnings have been coordinated to ensure that the street trees can develop into mature trees with their canopy above awnings as is commonly found on many CBD streets. New seating will be provided across the precinct, and in close proximity to station entries and bus stops. Seating is to be located adjacent kerbs in line with trees to maintain clear paths of travel and in compliance with North Sydney Council's public domain guidelines.
Ensure stations and precincts provide a safe and secure environment for customers and also contribute to the overall public safety of urban places throughout the day and night.	A high level of amenity and security is provided in waiting areas. CPTED principles have been embedded in the design and include security bollards at station entries, CCTV and elimination of entrapment and concealed space opportunities. A security strategy has been adopted to consider the protection of the external station infrastructure against the threat of a vehicle borne attack. This has been achieved through a perimeter of crash rated bollards around the station buildings. Minimisation of pedestrian, cycle and vehicle conflicts has been achieved through route and traffic analysis and layout, suitable footpath widths and upgraded pedestrian crossings.
Ensure the stations and associated spaces are safe, efficient, universally accessible, legible and easy for customers and pedestrians	All service elements are to be assessed for DDA compliance. Paths of travel are obstacle and step free to maximise access. Street furniture including bike parking, bins and seating will be located in a furniture zone adjacent the kerb, with building lines kept unobstructed and all other visual and physical clutter kept to a minimum and consolidated where appropriate
Connectivity	

Design Principle	Design Response
Provide pedestrian connectivity between transport modes that is safe, efficient, accessible, legible and enjoyable. Provide pedestrian movement systems that clearly connect the stations with their surrounding locality. Ensure the vertical journey is a core element of the station architecture and provides step free access between the street and the platforms as it is integral to the station's design and has a major influence on the function and visual impact of the station environment	Uncluttered, comfortable and direct pedestrian routes are provided along all streets surrounding the station, with wide footpath widths aligned with predicted pedestrian volumes. A new signalised crossing is provided across Pacific Highway at the intersection with Oxley Street along with widened crossings at Pacific Highway and both Hume and Oxley Street intersections. New pedestrian crossings across Clarke and Hume streets are provided adjacent to the Clarke Street station entry. Clarke Lane between Hume Street and Oxley Street is to be converted into a shared–zone - Including new trees, the removal of kerbs and new paving and lighting, the upgraded Clarke Lane will slow traffic through the precinct and provide another option for pedestrian movement across the site

The following design principles were identified in the Chatswood to Sydenham Design Guidelines to ensure that the design provides community safety, amenity and privacy:

- Sydney Metro must provide safe interfaces between stations and the existing urban environment
- the safe movement of customers, staff and contractors through the station areas needs to be facilitated through many aspects of physical design, including the provision of adequate circulation space, clear routes, adequate lighting and minimising obstructions
- station and station precinct design will identify and reflect current architectural and engineering best practice with respect to safety
- the design must ensure stations and precincts provide a safe and secure environment and contribute to the overall public safety of urban places throughout the day and night
- safety issues are to be embedded in the design development process and optimised through the application of relevant CPTED principles and guidelines
- the design must provide a comfortable environment that provides sufficient personal space and amenity and is well lit with effective and appropriate microclimate amenity for all users
- station entry orientation and design are to minimise adverse micro climate effects, including wind tunnel impacts. The urban heat island effects should be minimised through light coloured finishes, roofs and pavements, green walls, roofs, plantings and shade trees
- customer weather protection outside Sydney Metro stations is to be provided to ensure good levels of comfort are maintained and to provide useable spaces at ground level
- a high level of amenity and security in waiting areas is to be provided

The following site-specific design principles and guidelines have also been identified to inform the development of the detailed design for Crows Nest Station:

- create safe, intuitive and uncluttered public realms with regard to crime prevention and public safety (CPTED) principles
- a security strategy has been adopted to consider the protection of the external station infrastructure against the threat of a vehicle borne attack. A balance is to be struck between security elements, access and minimising clutter in the public domain or along the building line. This has been achieved through crash rated bollards installed at station entries; and a perimeter defensive line of public domain elements on the kerbline to provide protection against both vehicle incursion and blast impact. Sustainable design and maintenance.

4.7. Minimising the project footprint

The following design principles were identified in the Chatswood to Sydenham Design Guidelines to ensure that the design minimises the project footprint:

Table 4-4 Response to Project Design Objectives and Principles

Design Principle	Design Response
The design must ensure that earthworks and engineered structures such as noise walls, retaining walls and portals are visually integrated into their urban or landscape setting as must as possible, keeping engineered structures to a minimum	Station services have been located to reduce visibility from main streets and avoid expanses of visible blank walls in the public domain. Air vents onto Pacific Highway are to be screened with an architectural façade to reduce their visual presence and better integrate the station buildings with the surrounding context. The size of the station building on Pacific Highway has been designed to allow for future ground level uses on Pacific Highway and Hume Street. Future OSD is subject to a separate relevant planning approvals and design process.
Provide integrated public art, lighting, signage and heritage interpretation to minimise the footprint.	Opportunities for artwork and heritage interpretation identified include walls and surface treatments that avoid additional elements in the public domain. Street furniture including bike parking, lighting, bins and seating will be located in a furniture zone adjacent the kerb, with building lines kept unobstructed and all other visual and physical clutter kept to a minimum and consolidated where appropriate. Lighting is provided to all streets, footpaths and paths of travel and integrated into the built form where possible to avoid clutter in the public domain. Wayfinding around the precinct will be limited to metro station signage at station entries, and directional signage to the secure bike parking. The station entries and layout have also been designed to intuitively direct passengers movement in combination with wayfinding signage. This strategy will provide clear and simple wayfinding for customers while minimising visual and physical clutter.

4.8. Relevant standards and guidelines

The following urban design and infrastructure standards and guidelines have been considered in developing the above design principles and the SDPP:

- Sydney Metro Chatswood to Sydenham Design guidelines
- Sydney Metro City & Southwest Sustainability Strategy
- Crime Prevention through Environmental Design
- North Sydney Development Control Plan 2013
- North Sydney Local Environmental Plan 2013
- Public Domain Style Manual and Design Codes (North Sydney Council)
- Sydney Metro Planning Study (North Sydney Council)
- St Leonards and Crows Nest 2036 Draft Plan (DPIE)
- Pacific Highway Road Network Plan Report (Transport for NSW, formerly Roads and Maritime Services)
- Crows Nest and North Sydney Metro Planning Study (North Sydney Council).

5. Design opportunities

5.1. Opportunities for landscaping and building design to mitigate visual impacts

A key principle of the Crows Nest Station precinct is ensuring there is a coordinated approach to landscaping and building design that respond to the opportunities to mitigate the visual impacts of rail infrastructure, local context, addresses customer experience needs and provides connectivity during operational requirements. The design of the public domain and built form is such that it reflects the existing character of the area, with new tree planting, upgraded public domain, active frontages and building entries to main streets and high quality built form contributing to a positive visual character.

An updated visual impact assessment was carried out for the project with the following outcomes relating to the project during operation (post-construction):

- there would be a minor benefit for three of the five key views, and negligible impact for the other two during operation of the project resulting in a minimum rating of negligible (refer to Figure 5-1). In particular, the views would be restored and somewhat improved at the corner of Hume and Clarke Street where the new station entry and streetscape upgrades would be seen.
- during operation at night, there would also be a negligible visual impact as the station and associated development would be visually absorbed into the surrounding brightly lit context.

Assessment of daytime visual impact

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

- Viewpoint 1: View east along the Pacific Highway
- Viewpoint 2: View south along Oxley Street
- Viewpoint 3: View west from Clarke Street
- Viewpoint 4: View northwest along Clarke Lane
- Viewpoint 5: View east from corner of Hume Street and Pacific Highway

The following sections summarise the daytime visual impact identified in the representative viewpoint assessment and site visit observations.

Viewpoint location
Building footprint at street level
Pedestrian plaza/ station lobby
Metro Station Entry
Taxi bays
Kiss & drop
Bus stop
Bike parking (Class B)
Cycle racks (Class C)
Bike path
Pedestrian crossing

Figure 5-1 Key viewpoints surrounding the Crows Nest Station

5.2. Opportunities for public art

A key design principle for the project is to ensure public art is integrated within the design of stations and other corridor structures to aid place-making, enhance local amenity and celebrate local character.

The CSW Metro Public Art Masterplan, (Masterplan) was prepared by Sydney Metro in 2017, to ensure high-quality, integrated, and robust art for the 18 stations along the City and Southwest Metro line. The program's vision is to' elevate the customer experience" and artworks are required to enhance; the experience of the station as a place, connection to surrounding precincts and be compatible with station's programs and functional requirements. The program is guided by a curatorial theme 'Storylines'.

The Masterplan sets out the program's Vision, Objectives, Principles and the process for selection and realisation of the artworks. Metro convenes Sydney Metro Public Art Working Group, (PAWG) which includes membership from Create NSW that oversees the art selection and realisation.

A two-step process was developed for artwork selection. Step 1 being a public Expression of Interest, (EOI) open to Australian Artists and run in collaboration with Create NSW, from which a panel of art experts listed the best 21 artists, three artists for each of the seven city stations. This occurred in 2018 and three artists were shortlisted for Crows Nest Station; Lindy Lee; Shireen Taweel and Esther Stewart.

Following, Metro prepared a Station specific Artwork Competition Brief, with input from the Station Architects. The 3 short-listed artists were invited to a briefing and site visit and to prepare a concept artwork for the Station Artwork Competition. Artists are paid for the competition and are given 5 weeks to develop the concept. A second panel comprising art and design experts from Sydney Metro and the Station Delivery team, plus stakeholders from North Sydney Council selected the best of the 3 artworks.

The artwork sites at Crows Nest station were the 2 entrances, at Pacific Highway and Clarke Street. These sites were selected to be visible from the public domain, to be easily experienced by all customers, and create an instantly recognisable identity for the station. The following excerpts from the Crows Nest Metro Art Competition Brief show the artwork location sites, artists were invited to consider. At each site there was the possibility of either a wall or ceiling artwork option. All 3 artists in competition chose to develop wall works.

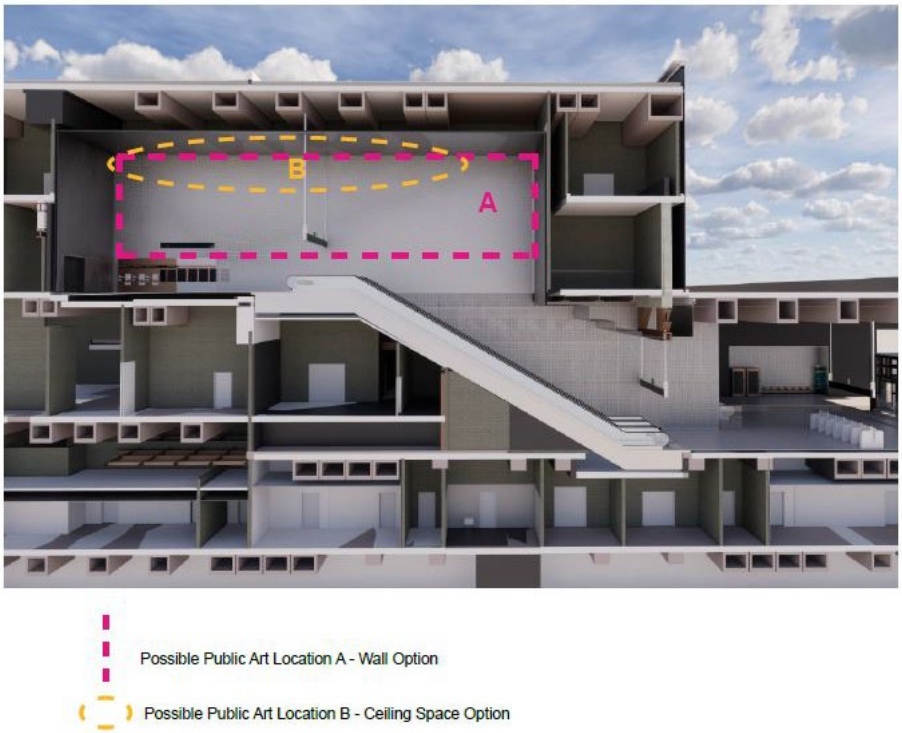


Figure 5-2 North Entrance, section, potential artwork locations.

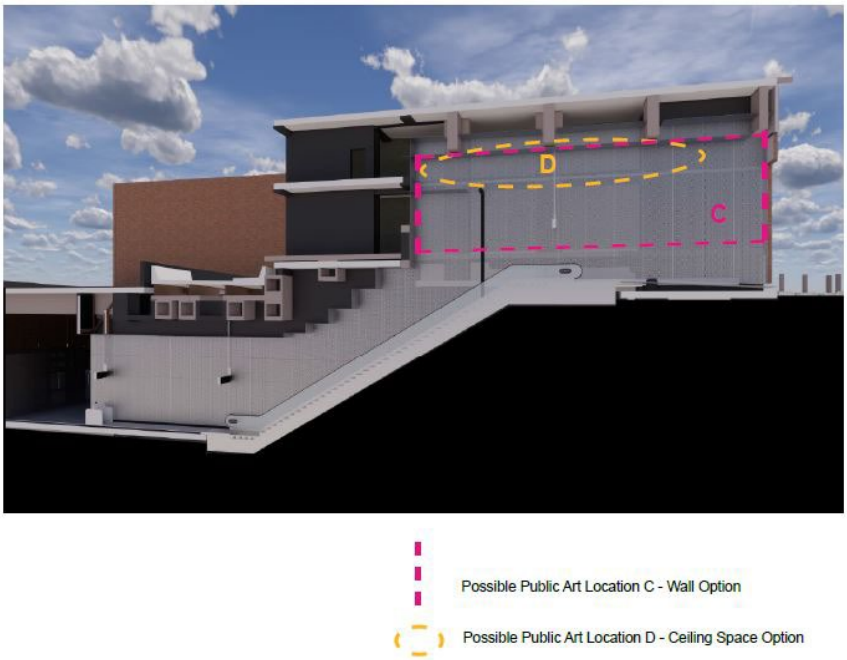


Figure 5-3 East Entrance, Clarke Street, Artwork locations.

Artist Esther Stewart's untitled ceramic wall work was selected unanimously. It comprised six large ceramic tile murals, three at each entrance, with individual panel sizes ranging between 13 sqm to 54 sqm.

The following is summarised from Stewart's concept submission, and describes the artwork concept.

Esther Stewart's proposal for the Crows Nest Metro Station public art project creates a vibrant new visual language that captures the identity of the place at this moment in time, in the form of a tiled installation that subverts the customer's expected experience of public infrastructure. This proposition offers a fresh perspective of the Crows Nest identity, marrying local iconography drawn from the built and natural environment across North Sydney with Stewart's unique approach to abstracting familiar domestic references into visually uplifting new representations.

Stewart is internationally recognised for her exploration of architecture, civic and domestic spaces through the dimension of abstraction. Using visual languages of repetition and composition through colour and line, she investigates the boundaries between non–representation and representation and the ideas of both contemporary and historic urbanism and domestication. Stewart's paintings, installations and experimental sculptural work replicate the lines of architecture and echoed the visual language of plans, maps and interior spaces, drawing heavily upon her surrounds, her experiences, and her observations. Exploring the interplay between functionality and ornamentation, and craftsmanship versus mass production, her work seeks to marry the differences between the past, the present and the future.

Stewart's proposal uses handcrafted ceramic tiles and the interplay of architecture, ornamentation and abstraction to express a propositional identity for Crows Nest that tells the story of place. Creating site-specific sculptural wall installations within the Station environment, the artworks reframe elements of both the civic and natural environment. , The intention of these artworks is to enhance and bring joy to the experience of engaging with functional public infrastructure, recasting Crows Nest's civic identity and heritage in a contemporary way.

Formed by collages of handcrafted ceramic tiles, produced by Australia's oldest ceramic producer Bendigo Pottery, the materiality celebrates North Sydney's once booming brick and tile industry and history of domestic craftsmanship. The handcrafted nature of the tiles combines the intricate and handmade with large-scale designs, and acknowledges valuable principles of sustainable design by keeping production local.

Responding to the urban context in which the Crows Nest Metro Station finds itself transforming, this artwork concept distinctly addresses Sydney Metro's public art objectives, particularly that of raising awareness of and pride in local histories and cultural diversity. Focusing on two key themes from Metro's 'Storylines' conceptual framework – respect for heritage, and addressing sustainability and ecology – Stewart's artwork considers how Metro customers and the people of North Sydney view the interplay of civic infrastructure, natural ecology and creative industry within their community identity.

Stewart's approach to abstraction, patternation and materiality enables the integration of art with architecture, and complements the architect's vision for the Station. Using extruded and high-relief ceramic tiles, the materiality provides a continuous thread throughout the Station and allows for dramatic expression and enhanced engagement at the pedestrian entrances. This strong visual presence marks the Metro with a fresh and engaging identity, scaled up along the Pacific Highway, and more intricate and domestic in its references at the Clarke Street entrance.

Stewart brings together a team of industry-leading experts to support her in the design, development, production and installation of her artwork concept, ensuring the art is integrated

with the architecture. This team includes architect Murray Barker, Event Engineering, and Bendigo Pottery.

Stewart's artwork concept proposal was endorsed by Sydney Metro Public Art Working Group in March 2020, and has been presented to Sydney Metro DRP where it was received positively.

Following contract finalisation, the selected concept artwork will be further refined in collaboration with the architectural and construction teams via regular meetings to ensure; the successful integration of the art into the architectural design; structural and security requirements are met and he artwork is visually coordinated with Wayfinding, Access and Heritage Interpretation elements. Following, the artist and technical team, will complete the construction documentation of the artwork components and for fabrication.

Images of the Concept Artwork have not been included as Sydney Metro policy is to not share images of artwork, outside of the project, the DRP and the governance structures, until is built to protect the artist's intellectual property and the final public reception.

5.3. Opportunities identified in the Heritage Interpretation Plan

A Heritage Interpretation Plan has been prepared for Crows Nest Station. This plan identifies the following opportunities for heritage interpretation.

It is proposed to incorporate various historical images and plans in select locations throughout the concourse and platform areas. Locations and extent of interpretation are to be determined and must consider functionality and station requirements as well as public art. It is noted that as the station is primarily a space that audiences will travel through, it is proposed to incorporate predominantly images and minimise text and signage.

Although the heritage interpretation for the station will be predominantly driver by images, text and signage, some construction elements have been incorporated from the HIP to reflect the areas historic past. For example, the platform finish is terrazzo, drawing reference to the heritage interpretation plan and providing a civic quality to the space.

The approach developed provides a unified, contemporary, architectural design approach drawing inspiration from the historic surrounding architecture, structures, local brick elements and detailed material treatment of the customer touch points.

As a transport node, the project site will host a number of audiences that may fall into the following categories:

- residential, commercial and retail occupants
- residential and commercial visitors to the precinct
- recreational / tourism (international, interstate, and metropolitan visitors)
- community / special event audiences (for particular events held in the public spaces in the vicinity of the site)
- general public, workers and residents of nearby suburbs

- special interest groups such as heritage, art and architecture enthusiasts and learning audiences
- commuters (pedestrian) / through traffic (pedestrian).

5.4. Opportunities for incorporating salvaged historic and artistic elements

It is proposed to interpret the former residential occupation of the site by reproducing/ reinterpreting the pattern of the remnant tessellated tile from the former 1894 dwelling at 495 Pacific Highway. It is proposed to interpret the pattern in a contemporary form and reproduce this in select locations within the station. This may be incorporated onto various materials and finishes (such as wall cladding, ground inlays etc.), subject to further detailed design with the project architects. Locations and extent of interpretation are to be determined and must consider functionality and station requirements and be well integrated with the overall station design, and other station elements such as art and signage and wayfinding elements.

Design studies of heritage interpretation proposals to date have typically been integrated into the architecture, for example forming a pattern in the architectural treatment proposed for the floor tiling solutions and wall treatments.

6. Details of the Station Design and Precinct Plan

6.1. Station design features

The Crows Nest Station and precinct design provides a customer experience that places the customer first, ensures the station is welcoming, with simple, uncluttered spaces and delivers a comfortable, enjoyable and safe experience. The design provides easy, safe and intuitive transfer to and from the metro station within the existing transport network and road environment, and maximises connectivity with the local urban structure.

The delivery of project objectives has been supported by several key strategies, including:

- generous spatial amenity: maximizing volume, headroom and circulation widths, where applicable
- integrated architecture, engineering and construction: synthesizing architecture with structure, services and construction
- visually connected spaces: optimizing view lines for intuitive wayfinding and increased security
- high quality finishes: allocating durable and maintainable high-quality finishes to maximize customer benefit within high use primary circulation zones
- consistent, concise and restrained use of materials: deploying materials to connect spaces together for improved circulation legibility.

These strategies underpin the metro vision for Crows Nest to be a gateway, a destination and a legacy for the community. Key architectural design objectives for the new Crows Nest Station include:

- a legible metro presence on Pacific Highway and Clarke Street/ Hume Street corner
- enhanced street level activation on Pacific Highway and Hume Street
- simple clear customer movement diagram with minimum decision points
- two runs of vertical travellators from street to platform
- a station development that extends the public domain, and contribute to the vibrancy of the precinct
- potential to connect to and extend the wider existing underground pedestrian network
- connections from two streets and adjacent development/ retail opportunities
- buses, taxis and kiss-n-ride at or near to the entry.

The Crows Nest station and over-station future built form is configured to integrate with the local block pattern and urban scale. The station above ground built form is subdivided across three sites; A, B and C as defined by the local streets Clarke, Hume and Oxley bound by the Pacific Highway. The station buildings have been consolidated within each site to two storeys with brickwork façade fenestration articulated to relate the Crows Nest village urban scale particularly referencing the Willoughby road streetscape rhythm to the east.

The station occurs between the St Leonards large scale podium and tower forms to the north and the low rise urban character to the southeast and west. This transition in scale along the Pacific Highway spine is reflected in the prescribed over station development massing across the three sites from a high point on Site A north stepping down to a mid scale on Site B and low scale on Site C. Further development of the future Sie A and B Over Station Developments will be required to articulate with the station buildings and within the development built form to ensure the overall composition and scale synthesises well within the urban context.

Figure 6-1 Exploded axonometric of the Station.

Figure 6-2 [1]Station entry artist's impression (Oxley Street and Pacific Highway built form)

Figure 6-3 [2]Station entry artist's impression (Site A Pacific Highway built form)

[1] Note: The proposed OSD envelope in grey is subject to a separate planning approval process.

[2] Note: The proposed OSD envelope in grey is subject to a separate planning approval process.

Hume St has been made a focus in terms of public realm improvements with significantly wider footpaths, street tree planting, street furniture and a new segregated cycleway connecting Clarke St with Nicholson St. The Site A and B OSD buildings will front onto Hume St and provide active frontages with retail and lobbies. Hume St provides a direct connection to Hume St Park which is proposed to be upgraded by Council.

Figure 6-4 [3]Hume Street elevation (Site C built form)

Figure 6-5 [4]Hume Street elevation showing below ground station (Site A & C built form)

[3] Note: The proposed OSD envelope is subject to a separate planning approval process.

[4] Note: The proposed OSD envelope is subject to a separate planning approval process.

Figure 6-5 [5]Station entry artist's impression (Site C Clarke Street and Hume Street built form)

Figure 6-6 [6]Station entry artist's impression (Site C Hume Street and Clarke Lane built form)

[5] Note: The proposed OSD envelope in grey is subject to a separate planning approval process.

[6] Note: The proposed OSD envelope in grey is subject to a separate planning approval process.

Figure 6-7 Concourse artist's impression showing proposed finishes

Passenger flow and intuitive wayfinding are a key focus for the development of a new metro station. Beyond the entries are the concourses, vertical circulation, station amenities and platforms. Each spatial component of the new station is legibly and seamlessly connected to each other, with readily identifiable elements at the interfaces between key spaces.

The portal entry point and canopies along Pacific Highway and clear signage strategy give the station a "front door" that faces the key northern Sydney artery. The combination of historic and high-tech architecture effectively produces a new placemaking brandmark to anchor the new station at the centre of further redevelopment of this part of northern Sydney.

The Clarke Street entrance, at the OSD, with external canopy, leads directly down the escalators into the spacious concourse below ground, a space designed to provide direct visual connection to escalators and lifts providing vertical connection to the platforms and the potential future pedestrian link on the western wall of the concourse. Visibility is equally balanced towards the ticket vending machines and amenities, with careful consideration of structural integration to best enable clear visibility through the concourse.

The structure has been rationalized and minimized throughout to provide the maximum open space and deliver an uncluttered and generous public/civic space as well as a functional concourse for decision making and onward movement.

The metro station's multi-level connectivity, materiality, and fine detail is contemporary, but draws inspiration from the local community architecture.

The metro platform is accessed via two banks of two escalators, which ensure that operational continuity can be maintained with one up and one down escalator even during planned or unplanned maintenance. Full height platform screen doors (PSDs) designed and installed by specialist contractors are provided for the length of both platform faces.

Figure 6-8 Artist's impression showing platform level view to vertical circulation

Two escape routes at each end of the platform lead to a scissor stair to ensure that one route is visible at the end of up and down platforms and that the scissor stair arrangement provides a clear and unambiguous route of escape.

The proposed platform finish is terrazzo referencing the heritage interpretation plan and providing a civic quality to the space. The vertical space through which the escalators ascend is a critical part of the metro experience, as it allows the passenger to travel alongside the finely articulated metal panel feature wall on either side of the escalator void to platform level.

The approach developed provides a unified, contemporary, architectural design approach drawing inspiration from the historic surrounding architecture, structures, local brick elements and detailed material treatment of the customer touch points.

Throughout the station a hierarchy of finishes and materials including expressive structural elements is applied to demarcate primary vertical transitions from street level to the concourse and then on to the platforms, reinforcing the intuitive wayfinding strategy with the intent to minimize signage.

Circulation

The design provides a network of simple and intuitive customer flows through the careful positioning of customer interaction points, vertical circulation, clear site lines, material hierarchy and the inclusion of simple lighting strategies. Significant orientation spaces have been provided at key nodes and thresholds, in particular the two main entries, the large concourse and the touch points on the platforms, creating generous, calm spaces for customers to orient themselves and creating clear legibility of the key circulation routes.

Materiality

A simple palette of durable, self-finished materials of civic character has been assembled which is influenced by the local materiality of the adjacent Crows Nest village and community.

The use of brick complements the surrounding area and provides the passengers with a relatable scale of materiality and spatial hierarchy. The new metro station is intended to be purposeful, functional, sculpturally rich and synthesized with the historic qualities of Crows Nest. This materiality establishes the design in its local context and provides a civic quality to the new station works.

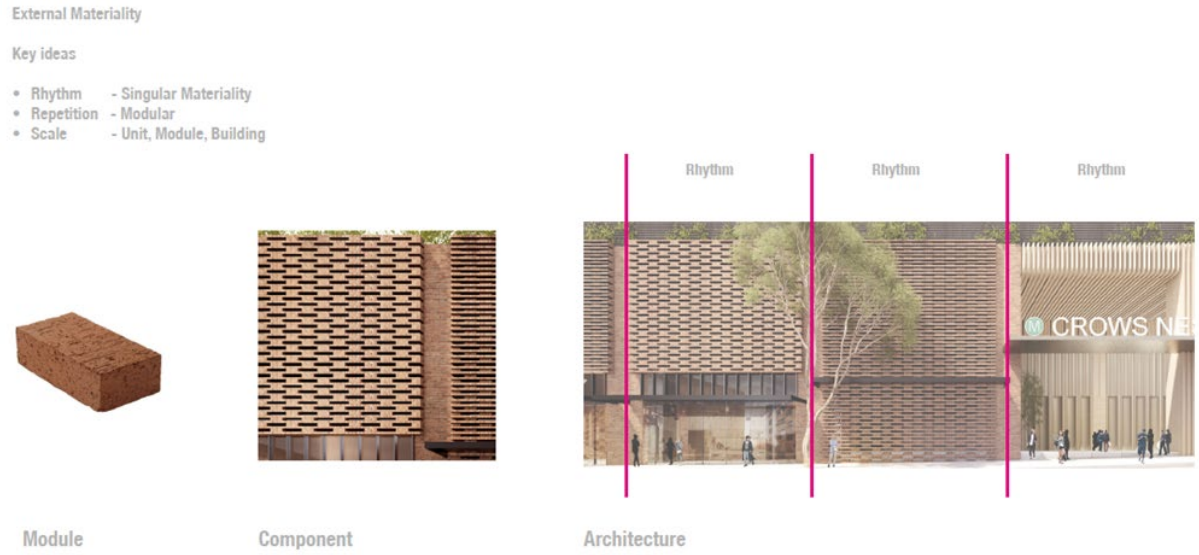


Figure 6-9 Diagrams illustrating façade materiality and design

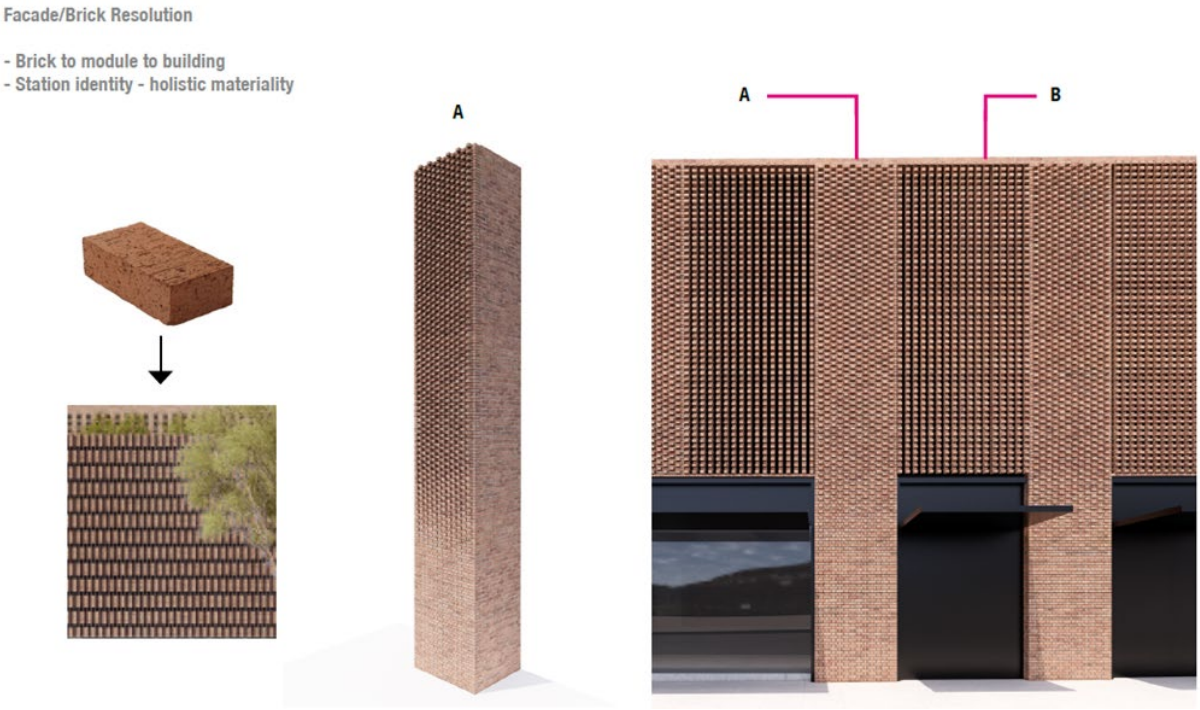


Figure 6-10 Diagrams illustrating façade design detail

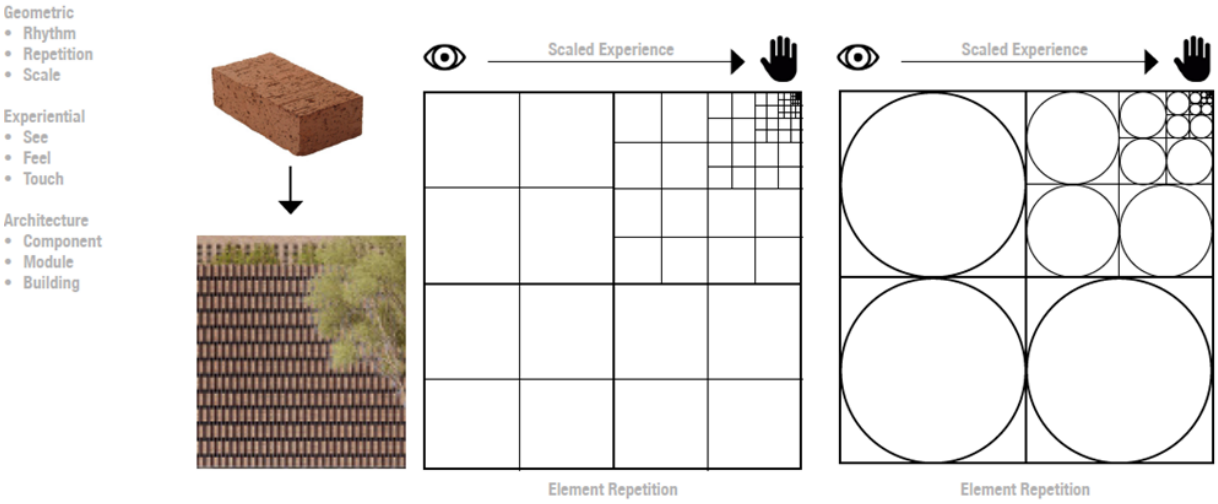


Figure 6-11 Diagrams illustrating façade design d–tail - Geometry

A palette and hierarchy of materials has been developed, comprising terrazzo floors, feature brick-faced panelling, exposed concrete soffits and wall and soffit panels of prefinished patterned panelised metal claddings. Key expressive elements and materials are used at key thresholds or points of transition to reinforce an intuitive, legible wayfinding strategy to support overt signage messaging.

Geometry

The design of the new station is perceived as a family of related simple forms, based on a north-south and east-west series of squares and vertical transportation points which helps to create a harmonious composition where new and existing elements of the precinct are distinct, but respectful of the community's character.

Daylight and orientation

The design seeks to maximize the use of natural light, particularly at the entry spaces to the station, to enhance the user experience. All key thresholds have elements of natural light introduced to assist orientation and intuitive wayfinding around the station. The natural and artificial lighting design also seeks to highlight architectural features such as the textured walls, further enhancing the environment for customers of the station. In general, daylighting of the station interiors has been maximized within constraints and the practicalities of the project such as the orientation of existing buildings, and operational and safety considerations, among others.

Spatial hierarchy

A spatial hierarchy and sequence for elements in the publicly accessible, front of-house areas of the station is utilised at Crows Nest Station. Spatial elements for Crows Nest Station in their order of precedence, with the most important elements first in the list would include circulation, runoffs, waiting zones, sight lines, daylight and furniture, station wayfinding and signage, public art and heritage interpretation, Retail and advertising spatial elements would be considered, where appropriate at the station.

Signage and wayfinding

Signage and wayfinding locations have been established in principle and tested during design customer engagements as part of the required Customer Centred Design activities. To maintain uncluttered environments, signage has been integrated into the architecture (for example, integrated into wall finishes or suspended from the ceilings).

6.2. Precinct (public realm) plan

The Precinct Plan has considered interaction with the fine grain of the precinct. The wider precinct connections including Oxley St and Hume St as east-west connections and Pacific Highway, Clarke Lane and Clarke St as north-south connections have been considered in the public realm design with streetscape upgrades to the station frontages including Pacific Highway, Hume St, Oxley St, Clarke Lane and Clarke St. The public realm design, particularly at the Clarke St station entry, facilitates access to Hume St Park and the pedestrian link being provided by Council between the park and Willoughby Rd.

The public domain works at Crows Nest include streetscape works to Pacific Highway, Hume Street, Oxley Street, Clarke Street and Clarke Lane. The station development will be fully integrated into the surrounding urban fabric and does not include any new plazas or landscaping elements outside of the streetscape designs.

Hume St has been made a focus in terms of public realm improvements with significantly wider footpaths, street tree planting, street furniture and a new segregated cycleway connecting Clarke St with Nicholson St. The Site A and B OSD buildings will front onto Hume St and provide active frontages with retail and lobbies. Hume St provides a direct connection to Hume St Park which is proposed to be upgraded by Council.

The existing footpaths along the Pacific Highway will be significantly widened to provide more width for pedestrians between the station entry and Oxley St to the north and Hume St to the south. These wider footpaths also address the scale of the Highway and the station building. The provision of street tree planting and furniture along the edge of the Highway creates a greater sense of separation and safety between pedestrians and vehicles.

Clarke Lane needs to provide a service function, however, given the limited number of commercial premises and service vehicle movements, it will still be able to provide a pedestrian friendly environment and greater activation. The laneway has been designed as a pedestrian friendly, low vehicle speed environment with the section between Hume St and Oxley St proposed as a 10km/hr shared zone. This is reinforced in the design of the lane through the paving treatment, along with street tree planting. Nearly 15 new trees are proposed along the length of the laneway with tree positions located to maintain access and loading to the Site A and B buildings. Tree locations take account of vehicle swept paths with a raised kerb and in some cases bollards provided around them for further protection.

Figure 6-12 outlines the key elements and proposed works across the public domain.

Extent of Works by Sydney Metro

Figure 6-12 Public domain works

1. Upgraded Oxley Street intersection with new northern pedestrian crossing and widened crossings on east and south sides for increased pedestrian capacity
2. Oxley Street street–cape - wider footpaths and street furniture
3. Pacific Highway bus stops relocated to provide easy access to Metro Station
4. Pacific Highway street–cape - increased tree planting, wider footpaths and street furniture. Removal of parking bays between Oxley Street and Hume Street
5. Pacific Highway station entry
6. Clarke Lane shared zone
7. Future upgrades Hume Street Park (to be delivered by North Sydney Council)
8. Pedestrian connection (delivered by North Sydney Council)

9. Changed traffic configuration on Hume Street from a two-way operation to a one-way westbound operation on Hume Street between Pacific Highway and Clarke Street to minimise circulating precinct traffic and enable future placemaking opportunities

10. Clarke Street station entry

11. New pedestrian crossings and widened footpaths on Clarke Street and Hume Street

12. Future over station development lobby and potential retail (not included in the scope of works by Sydney Metro)

13. Hume Street streetscape with increased tree planting, wider footpaths and street furniture. Removal of parking bays

14. Hume Street separated cycleway on both side. Removal of parking bays on Hume Street between the Pacific Highway and Clarke Street.

15. Upgraded Hume Street intersection with cycle crossing and widened pedestrian crossings for increased pedestrian capacity

16. Bike parking facility

17. Clark Lane south.

Crows Nest Station will be a significant transport interchange. The public domain elements facilitating this include:

- relocation of bus stops on Pacific Highway from south of Hume Street to North of Hume Street and increasing the length of the bus zone to 40-m to cater for increased demand
- footpath widening to minimise obstructions in the public domain and to cater to increased pedestrian movements
- improved pedestrian crossings at intersections of Oxley Street, Pacific Highway, Hume Street and Clarke Street in line with future pedestrian access projections
- new cycle links and bike parking to facilitate new intermodal connections
- kiss and ride parking bays and taxi rank, located on Clarke Street and Oxley Street to avoid conflict with public transport and traffic flows along Pacific Highway.

Figure 6-13 Transport infrastructure

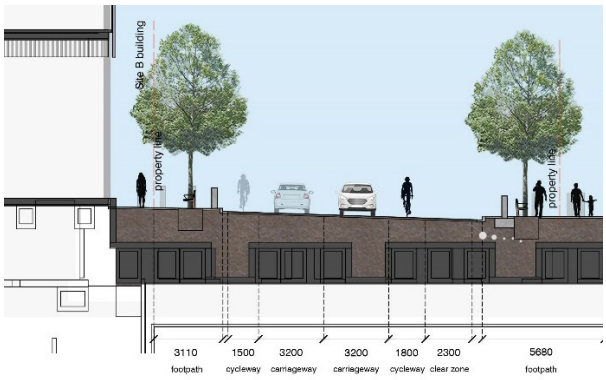


Figure 6-14 Hume Street (South)

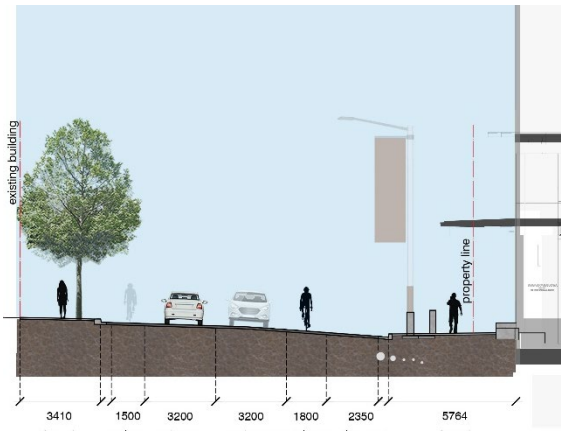


Figure 6-15 Hume Street (North)

Figure 6-16 Clarke Street

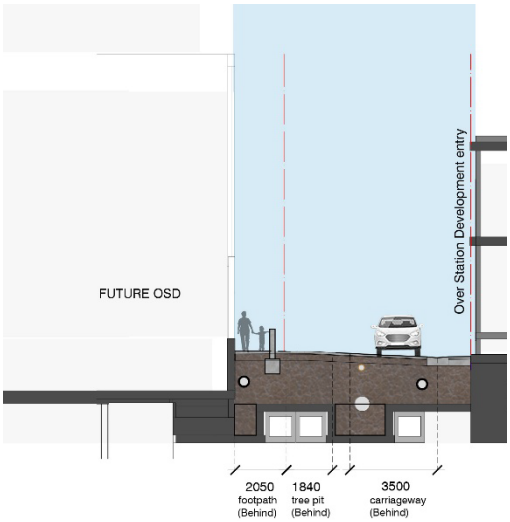


Figure 6-17 Clarke Lane

Figure 6-18 Pacific Highway

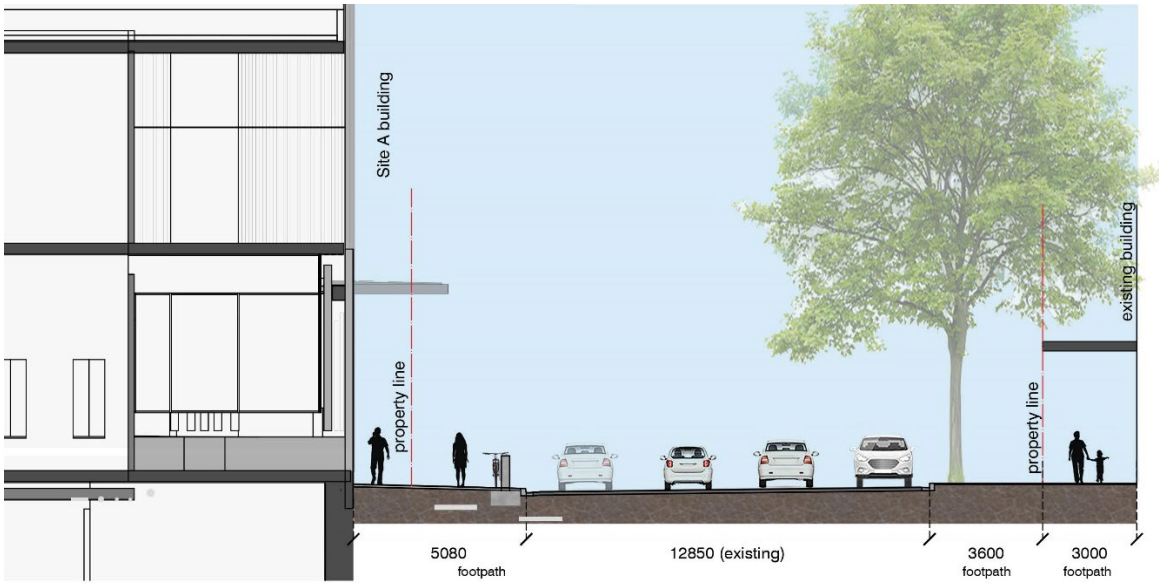


Figure 6-19 Oxley Street

A high level of public amenity is provided across the project, with streetscape elements including:

- more than 45 new street trees
- awnings at the station along Pacific Highway and Hume Street
- approximately 13 new seats.

Materials and finishes across the public domain are aligned with the North Sydney Public Domain Style Manual and Design Codes, with the exception around station entries, whereby a complimentary set of materials has been introduced to provide a site specific response highlighting these important public thresholds.

The station precinct crosses over two different palettes outlined in the North Sydney Public Domain Style Manual and Design Codes, namely the 'Special–Area - St Leonards' palette north of and including Hume Street, and the 'Village Centre / Activity Strips' palette south of Hume Street.

Features covered by the Style Manual include paving selection and layout and street furniture selection and layout. Surface treatments specific to intersections, thresholds and shared zones are also covered and have been adopted across the precinct.

Council pavers are a shotblast precast concrete paver that was not considered appropriate to use inside the station entry for durability reasons. Instead, for the paving outside the station entries, the charcoal coloured paver of the St Leonards Special Area pallete has been selected without the cream banding. This paving is similar in tone to the dark grey granite paver used inside the station entries at ground level to provide a seamless and inviting interface that ties into the architectural character and materiality. The paving sizes were coordinated so the joints in the internal paving and external paving will align, further creating a smooth transition.

Figure 6-20 Materials and Finishes

Public domain lighting will be integrated into the built form through canopy lighting, providing a consistent lighting approach to the surrounding footpaths.

The station entries will be lit internally to highlight architectural finishes, wayfinding and artworks and provide natural wayfinding and clear visibility for pedestrian circulation. Lighting adjacent to the entries is to be secondary to the entry lighting and not detract from the station entrance zone.

Street lighting will be a combination of retained existing lighting and new street lights. Road lighting will meet AS/NZS1158 categories V and P and to Authority Requirements.

Additional lighting considerations include:

- road lighting and urban lighting luminaires to be selected from Authority approved luminaire suite
- lighting has been selected and located to reduce any adverse effects such as light pollution
- Sydney Metro requirements for associated carparks is 200% > P6 which may also extend to kiss & ride areas subject to clarification
- road lighting / urban lighting to co-ordinate and integrate with wayfinding features
- all new lighting is to be energy efficient (LED) and where possible incorporate appropriate sensors and timers to reduce energy consumption.

The perimeter lighting outside the station has been designed to comply with the requirements of AS4282, with respect to control of obtrusive effects of lighting. In reference to table 2.1 of AS4282, it recommends the maximum vertical illuminance in commercial areas or at the boundary of commercial and residential areas to not exceed 25 lux (during pre-curfew hours). In reference to section 3.1.2.7, the lighting design has been developed to achieve vertical illuminance of 12 lux around the perimeter of the station. Considering that all the neighboring buildings are separated from the station by roads and foot paths, the light spill on adjoining properties due to the perimeter lighting of the station shall be within the recommended limits of AS4282.

New street tree planting includes *Platanus x acerifolia* (London Plane) trees along the Pacific Highway, Clarke Street and Oxley Street. These trees are consistent with the existing plane trees used throughout the area and generate distinctive green avenues and frame the streetscape. They provide deep shade in summer and light in winter due to their deciduous nature.

Smaller trees have been selected for Hume Street due to site constraints including bollard footings and underground services. These trees, namely *Tristaniopsis laurina* (Watergum), are a locally endemic evergreen tree species that will provide shade to the footpaths. Along Clarke Lane, *Elaeocarpus eumundi* (Eumundi Quandong), a small native evergreen tree, is proposed due to their relatively narrow width. This species has also been used further along Clarke Lane so its selection is consistent. All of the proposed tree species have been approved by Council and Sydney Roads where applicable.

The existing trees along Clarke Street will remain. These include *Tristaniopsis laurina* (Watergum) on the park side and *Eucalyptus citriodora* (Lemon Scented Gum) on the station side.

Platanus x acerifolia (London Plane) trees will typically be installed at sizes of 600L along Clarke and Oxley Streets and 200L along the Pacific Highway due to site constraints of bollard footings and underground services. *Tristaniopsis laurina* (Watergum) and *Elaeocarpus eumundi* (Eumundi Quandong) trees will typically be installed at 600L size. Some specific trees will need to be installed at smaller sizes due to existing services. All trees will be installed as per the North Sydney Council Technical Specifications and Guidelines.

The following new street trees are proposed: Pacific Highway 14no, Hume Street 8no, Oxley Street 6no, Clarke Street 6no, and Clarke Lane 13no, totalling 47no new trees.

In addition, new hedge planting is being provided along the Pacific Highway in front of Site A from the northern end of the bus zone to close to the intersection with Oxley Street. This

planting will add amenity, provide a physical separation between pedestrians and the inside lane, and discourage illegal drop off from vehicles on the Pacific Highway.

Figure 6-21 Street trees

Figure 6-22 Platanus x acerifolia, Elaeocarpus Eumundi, and Tristaniopsis laurina

Public domain security elements include crash rated bollards installed around the perimeter of the station sites that provide protection against both vehicle incursion and blast impact. The crash rated bollards comply with the North Sydney Council Guidelines.

Sydney Metro will be leading and coordinating the Crows Nest Public Art Strategy; refer to Section 5.2 for details.

Heritage interpretation will also be integrated into the design of the station. A heritage interpretation plan is being developed which will define the opportunities for heritage interpretation. These are likely to be focused at station entries and concourse areas.

6.3. Interchange Access Plan

The Interchange Access Plan (IAP) has been developed by applying broad transport and access standards, guidelines, principles and strategies to the specific physical and operating environment of the interchange. It consolidates the requirements and aspirations for good customer transfer and identifies potential barriers or risks to achieving them, considering anticipated patronage and movement patterns once metro services are in operation.

The IAP sets out areas that are likely to require attention, either as part of the metro development or subsequently, and identifies the agency or stakeholder responsible for delivering improvements. Some improvements to infrastructure and operations will be made as a direct result of constructing the metro stations and associated works. Any future proposed improvements would be informed by further detailed assessment of infrastructure design, capacity and condition, guided by the IAP.

The Interchange Access Plan has been prepared to:

- respond to the requirements of the Sydney Metro City & Southwest – Chatswood to Sydenham conditions of approval
- provide detailed interchange deliverables
- inform the interchange design of transport and access facilities, including footpaths, cycle paths and bike parking, bus stops, and car parking
- identify customer amenities, shelter, and road and traffic management required to ensure easy, accessible, safe and efficient customer transfer
- provide a list of actions for delivery partners and other stakeholders to enable the implementation of an easy customer transfer which supports the project objectives.

The Interchange Access Plan is provided to inform planning and investment decisions. This document will be updated in response to station design as required.

6.4. Statement of integrated urban design and place making outcome

Crows Nest Station will integrate and enhance the public domain through the numerous interventions outlined in this report, including tying into the local materials palette, providing new transport interchanges and connections, reflecting the existing character and scale in new built form, providing a high level of pedestrian amenity and integrating art and heritage interpretation to name a few.

The Sydney Metro City & Southwest Chatswood to Sydenham Design Guidelines (June 2017), clearly outline principles and actions for creating a positive customer experience and a thoroughly integrated urban design and place making outcome, organised around the three core People, Place and Transport interchange strategies: Customer Experience, Identity and Connectivity. By actively addressing these strategies, the design for Crows Nest Station will present an integrated urban design response with a strong sense of place.

Refer to Sections 4.2 to 4.6 for a breakdown of how the precinct design responds to these principles.

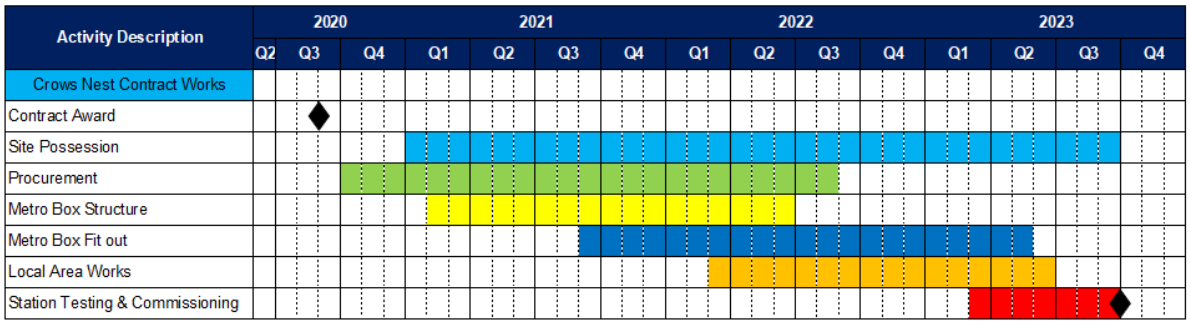
7. Implementation

7.1. Timing

Condition E101 states that the:

> *…Elements covered by the SDPP(s) must be complete no later than the commencement of operation of the Sydney Metro to paid services, unless otherwise agreed with the Secretary*.

The scope of works for Crows Nest Station to be undertaken by Sydney Metro will provide the initial station entries, with over station development (subject to relevant planning approval and associated design process) to be completed at a later date. This presents two areas of public domain that will be subject to change over time, including the OSD development on the corner of Pacific Highway and Hume Street, and the intersection configuration of Hume Street and Clarke Street.



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7.2. Monitoring and maintenance of landscaping

The landscaping has been designed to optimise long-term maintenance. Irrigation shall be provided on an ongoing basis at primary and secondary plazas of stations.

Landscape maintenance would be continuous throughout operation of the project. The operator would be responsible for maintaining the landscaping in their licenced maintenance area to a high standard of health and appearance.

The following horticultural practices shall be carried out to ensure plants are maintained in a vigorous condition.

- Watering: generally ensure that all planting is receiving sufficient water to ensure vigorous growth and maintained in a healthy condition
- Weed and pest control: eradicate all grass, weeds and pests from within planted area manually or with approved weedicides and insecticides and remove from site and use measures to prevent reinfestation
- Monitoring all plants and trees for pest and disease on a monthly basis
- Fertilising as appropriate to the species
- Replacement of plants: treat or replace damaged plants and replace unhealthy or stolen plants to ensure minimum planting densities maintained

- Re-mulch as necessary to maintain mulched areas to the specified depths
- Litter and debris: ensure that the site is kept clean, free of litter, and general debris at all times
- Pruning of vegetation for safety with regards to operations of rail line and safety of public domain.

Full details of landscape maintenance are included in Section 14 Maintenance of the Crows Nest Station Construction Specification – Landscape, including in 14.13 a Maintenance Scope of Works.

8. Visual impact assessment

A visual impact assessment was undertaken for the Chatswood to Sydenham project as part of the Environmental Impact Statement (EIS) and associated modification reports. This assessment was based on the concept design for the project. Condition E102 requires the SDPP to achieve a minimum visual impact rating of at least 'minor beneficial, as defined in the EIS, for all design elements of the project where feasible and reasonable. Where it can be demonstrated, to the DRP's satisfaction, that a 'minor beneficial' rating is not achievable, then a 'negligible' visual impact rating must be achieved as a minimum.

The Environmental Impact Statement / Modification Report identified a minimum visual impact rating of negligible from all viewpoints for the scope elements of the design considered in this SDPP. An update to the visual impact assessment of the design provided in this SDPP has been undertaken in accordance with the methodology identified in the EIS. Viewpoints and the visual impact are provided at Table 8-1. Please refer to Appendix B for the updated Visual Impact Assessment.

Table 8-1 Day time Visual Impact Assessment

			Construction		Operations	
No	Location	Sensitivity	Modification	Impact	Modification	Impact
1	View southeast along the Pacific Highway	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
2	View south along Oxley Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
3	View southwest from Clarke Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
4	View northwest along Clarke Lane	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible
5	View east from corner of Hume Street and Pacific Highway	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible

Table 8-2 Night time Visual Impact Assessment

			Construction		Operations	
No	Location	Sensitivity	Modification	Impact	Modification	Impact
1	Project site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible

Appendix A How feedback from consultation has been addressed

The following table details how the feedback received during consultation with the stakeholders and the community has been addressed in the SDPP.

Item	Stakeholder	Date	Key Themes/Issues Raised	How addressed in the plan
1	Design Review Panel	27.09.2016	Planning and Passenger Movement	Comments minuted and addressed in the detailed design which is informed in this SDPP in Section 6. Details in Appendix D
		09.04.2019	Planning and Passenger Movement	
		17.09.2019	Planning and Passenger Movement & OSD built form	
		31.12.2019	Materiality, Finishes & Site C built form	
		31.03.2020	Planning - Passenger Movement, Materiality & Finishes	
		19.05.2020	Site C built form	
		02.06.2020	Planning and Passenger Movement	
		15.12.2020	Design Excellence	
		07.06.2021	Design Excellence	
		16.12.2021	Visual Impact Assessment	
2	Community Engagement by Customer Centred Design (CCD) team	28.10.2019 & 29.10.2019 (10am - 02:30pm)	CCD activity establishing how customers navigate to and from key destinations on site	Comments minuted and addressed in the detailed design which is informed in this SDPP in Section 6.
		31.10.2019 & 01.11.2019 (10am - 02:30pm)		
3	NSW Heritage Council	09.01.2020	Heritage Interpretation Plan	No impact to the SDPP
4	North Sydney Council	03.09.2020	Station Design and Precinct Plan	Comments minuted and addressed in the detailed design which is informed in this SDPP in Appendix E
5	Wollstonecraft Precinct Committee	03.09.2020	Station Design and Precinct Plan	No comments were received
6	Lane Cove Council	03.09.2020	Station Design and Precinct Plan	No comments were received
7	Bike North	03.09.2020	Station Design and Precinct Plan	No comments were received
8	Community Consultation	03.09.2020	Station Design and Precinct Plan	No comments were received

Appendix B Crows Nest Station Visual Impact Assessment

Visual Impact Assessment

Crows Nest Station Design Stage 3

Prepared for Sydney Metro

DRAFT REV E 12/08/2020

Crows Nest Design Consortium

Robert Bird Group
Member of the Surbana Jurong Group
WOODS BAGOT
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Norman Disney & Young
BCA Logic
BÜRO NORTH

Revision History

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
A	04/09/2019	S. Bond	K. Stead	--
B	23/12/2019	S. Bond	K. Stead	--
C	31/07/2020	S. Bond	K. Stead	--
D	10/08/2020	S. Bond	K. Stead	--
E	12/08/2020	S. Bond	K. Stead	--

Introduction

A visual impact assessment was undertaken for the Chatswood to Sydenham project as part of the Environmental Impact Statement (EIS) and associated modification reports. This assessment was based on the concept design for the project.

The Environmental Impact Statement / Modification Report identified a minimum visual impact rating of negligible from all viewpoints for the scope elements of the design considered in this SDPP.

This report provides an updated visual impact assessment of the Crows Nest Station based on the EIS, using the same methodology and views and focusing on the impacts of any design changes that have arisen since the EIS.

Note that the content of this report assumes the accuracy of the previous visual impact assessment and duplicates the content from this previous report where no change has occured in the design of the station precinct.

This report presents a comparison between the proposed works and the pre-construction visual condition of the site (as per the original EIS), noting that the existing appearance of the site at the time of this report being produced varies from that of the EIS given the station works had commenced.

The assessment of the views during 'construction' is identical to the EIS as these assumptions have not changed.

This assessment concludes that the SDPP continues to achieve a minimum visual impact rating during operations of negligible for the Crows Nest Metro Station from all viewpoints.

Assessment of daytime visual impact

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

- Viewpoint 1: View east along the Pacific Highway
- Viewpoint 2: View south along Oxley Street
- Viewpoint 3: View west from Clarke Street
- Viewpoint 4: View northwest along Clarke Lane
- Viewpoint 5: View east from corner of Hume Street and Pacific Highway

The following sections summarise the daytime visual impact identified in the representative viewpoint assessment and site visit observations.

Viewpoint location
Building footprint at street level
Pedestrian plaza/ station lobby
Metro Station Entry
Taxi bays
Kiss & drop
Bus stop
Temporary lock up bike parking (Class B)
Cycle racks (Class C)
Bike path
Pedestrian crossing

Viewpoint 1: View east along the Pacific Highway

This viewpoint provides a direct view to the site in context with the Pacific Highway, a busy six-lane road linking to the North and Central Sydney CBDs. From this point, the heritage listed, 5 storey brutalist style concrete 'St Leonards Centre' (a local landmark) is a prominent feature seen beyond the project site, at the corner of Oxley and Clarke Streets. Beyond this building, the shed-like North Sydney Indoor Sports Centre, is also visible. On the site, in the centre of the view, is a surface car park, raised above a wall which retains an underground car park level, accessed via Clarke Lane, and adjacent 2-3 storey showroom developments which diverge from the predominant building line seen on the Highway further to the south. Mature London plane trees line the Pacific Highway and Oxley Street, softening this view and providing a unifying element in an otherwise eclectic and architecturally disjointed urban streetscape.

This view is representative of views that would be seen from elevated residential apartments to the south and northeast of this location.

Construction: The removal of buildings between Oxley and Hume Street and mature street trees on Oxley Street and the Pacific Highway would be seen. An acoustic enclosure would be established on the site to the south of the intersection (right of view), rising approximately 15m (five storeys).

Construction vehicles would be seen on the Highway and Oxley Street. The construction site comprising much of the middle ground of this view would create a noticeable reduction in the visual amenity of this view, which is of local visual sensitivity, resulting in a minor adverse visual impact during construction.

Operation: A station entry would be created on the Pacific Highway midway between Oxley Street and Hume Street.

The station would comprise a street level structure which is broad, light and open.

Active frontages would be seen addressing the Pacific Highway and on the corner of Oxley and Pacific Highway.

01 Pre-construction view east along the Pacific Highway

01A Artist's impression showing building during operation. White massing above represents indicative building envelope for future Over Station Development.

The predominant alignment of the existing facades would be restored along the Highway, and street trees reinstated. It is expected that the project would create a noticeable improvement in the amenity of this view, resulting in a minor beneficial visual impact during operation.

Viewpoint 2: View south along Oxley Street

This view illustrates the extent of the project site along Oxley Street. The site is framed by the heritage listed, brutalist style concrete 'St Leonards Centre' whose distinctive form creates a prominent local visual feature at the corner of Oxley and Clarke Streets. The site itself includes an underground parking level with a surface car park above. Beyond this, the 4-5 storey glazed and stepped residential apartment building can be seen.

Construction: In this view, the removal of the existing block-work walls and fencing, basement car parking, and street trees along Oxley Street would be seen. An acoustic enclosure would be established on the site, to the south (left of view) and construction vehicles would be seen along Oxley Street and entering Clarke Lane. This activity would be seen in the context of several high-rise apartment building construction sites. It is expected that the project would create a noticeable reduction in the amenity of this view, which is of local visual sensitivity, resulting in a minor adverse visual impact.

Operation: Retail frontage would be visible at the corner of Oxley Street and the Pacific Highway. Over station development entry/lobby and retail frontage would be visible along Oxley Street. The built form would restore the former alignment of buildings along Oxley Street, enclosing Clarke Lane; and street trees would be reinstated. The project would therefore result in a noticeable improvement in the amenity of this view, which is of local sensitivity, resulting in a minor beneficial visual impact during operation.

02 Pre-construction view south along Oxley Street

02a Artist's impression showing building during operation. White massing above represents indicative building envelope for future Over Station Development.

Viewpoint 3: View west along Hume Street from Clarke Street

In this view the site is framed by a seven storey commercial buildings with retail street frontages to the south, and six storey office block to the north. The site itself sits prominently on the corner of Hume and Clarke Streets, and is currently occupied by a light industrial land use (Beaurepaires) with associated vehicle circulation areas and single storey commercial frontage. This built form steps down sharply from the surrounding predominant building height of 6-7 storeys.

Clarke and Hume streets are visually softened by an informal mix of mature street trees of different ages and species. In the background of this view, the site can be seen extending across Clarke Lane to the Highway as two storey retail showrooms.

Construction: A large extent of this view would change as buildings along the northern side of Hume Street, between Clarke Lane and the Pacific Highway (including the visually prominent Beaurepaires site) are demolished. A number of streets adjacent to the project site on Clarke and Hume Streets would also be removed. Construction traffic would be seen on Clarke Street and at times using Hume Street. The temporary closure and diversion of Hume Street would also be prominent in this view. An acoustic enclosure would be established on the site adjacent to the Pacific Highway, and may be visible to the north west in the background (right of view).

Site perimeter hoarding and fencing would be seen enclosing the remainder of the site.

It is expected that the project would create a noticeable reduction in the visual amenity of this view, which is of local visual sensitivity, resulting in a minor adverse visual impact during construction.

Operation: This view would be transformed as a station entry is created on the corner of Hume and Clarke Streets in the centre of the view. The station would comprise a street level structure which is broad, light and open.

03 Pre-construction view west from Clarke Street

03a Artist's impression showing building during operation. White massing represents indicative building envelope for future Over Station Development.

Footpaths and street trees on Clarke and Hume Streets would be reinstated, creating a refreshed public realm and softening the view. Beyond the station entry, Clarke Lane would be reinstated and active frontages established between the lane and the Pacific Highway. This would restore the predominant alignment of the existing buildings, and restore the visual enclosure of Clarke Lane.

The project would result in a noticeable improvement in the amenity of this view resulting in a minor beneficial visual impact during operation.

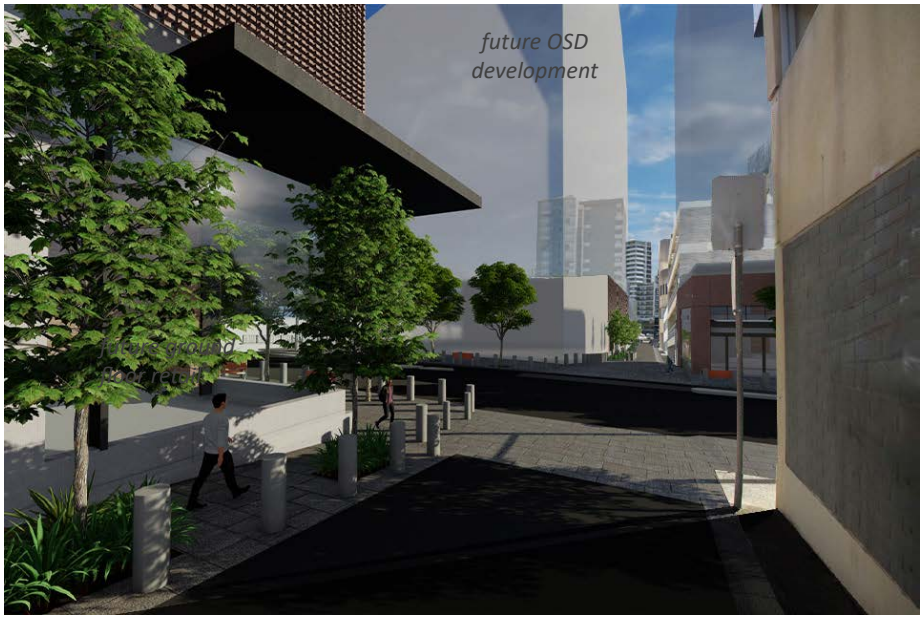
Viewpoint 4: View northwest along Clarke Lane

This view along Clarke Lane has a 'back-of-house' character with tall blank walls in the foreground, and a mix of service entries in the background of the view. Clarke Lane is a narrow one-way vehicular laneway, without street trees or defined footpath. Buildings step up from single storey light industrial and two storey showrooms and retail buildings on Hume Street, to high-rise developments in the background, creating a strong sense of visual enclosure to the lane. In the middle ground of the view, the lane is traversed by Hume Street, which includes a mix of street trees, that soften this otherwise highly urban view.

Construction: This view would change considerably due to the removal of an entire block of buildings stretching along Clarke Lane, between Hume Street and Oxley Lane, as well as the Crows Nest post office building, to the west of this view. Trees on Hume Street would be removed. Trenching work for the power upgrade would be seen in Clarke Lane. Construction vehicles would be seen on Clarke Lane and Hume Street visible in the foreground of this view. The site of the Post Office would be replaced with an acoustic enclosure. To the north of the view, between the Pacific Highway and Clarke Lane a second enclosure would be visible rising above the site in the background of the view. Hoarding, fencing and traffic management activities would also be seen across much of this view.

It is expected that the project would create a considerable reduction in the amenity of this view, which is of

04 Pre-construction view northwest along Clarke Lane



04a Artist's impression showing building during operation. White massing represents indicative building envelope for future Over Station Development.

local visual sensitivity, resulting in a moderate adverse visual impact during construction.

Operation: Clarke Lane would be reinstated with the addition of new street trees. The design would incorporate active frontages between the lane and the Pacific Highway, reinstating the predominant alignment of the existing buildings, and creating a sense of enclosure to Clarke Lane. The footpaths on Hume Street and street trees would be reinstated, creating a refreshed public realm and softening the view.

The project would therefore not result in a perceived change in the amenity of this view during operation, resulting in a negligible visual impact.

Viewpoint 5: View northeast from corner of Hume Street and Pacific Highway

This view illustrates the single and double storey commercial buildings, apartment blocks and modern showroom development typical along the Pacific Highway, south of Oxley Street. In the centre of the view is the Crows Nest post office, a low-rise brick and stained glass building. The architecture in this view is unified by a consistent building line with similar building heights, stepping down the sloping highway. This view captures the strong influence of the Pacific Highway on the streetscape; it is a heavily trafficked sixlane road that separates activities on either side of the street. Mature London plane trees line the Pacific Highway, and street trees on Hume Street soften this urban view.

Construction: Buildings stretching along the Pacific Highway, between Hume Street and Oxley Lane, including the Crows Nest post office building would be demolished, as would number of street trees adjacent to the project site. An acoustic enclosure would be established on the site of the post office, extending along the Pacific Highway (right of view). Construction traffic would be seen on the Highway and at times using Hume Street. The temporary closure and diversion of Hume Street would be prominent in this view. Site perimeter hoarding and fencing, would be seen across much of this view.

05 Pre-construction view east from corner of the Pacific Highway and Hume Street

05a Artist's impression showing building during operation. White massing represents indicative building envelope for future Over Station Development.

It is expected that the project would create a considerable reduction in the visual amenity of this view, which is of local visual sensitivity, resulting in a moderate adverse visual impact during construction.

Operation: Active street frontage would be seen along the Pacific Highway, restoring the predominant alignment of the existing facades, and street trees would be reinstated.

Despite the removal of the visually distinctive post office building, it is expected that the project would not create a perceived change in the amenity of this view, resulting in a negligible visual impact during operation.

Assessment of night time visual impact

The setting of the Crows Nest Station is considered to be an area of E4: High district brightness. This is due to its brightly lit location on the Pacific Highway, where there is 24 hour activity and lighting from surrounding buildings and streets creating both direct light sources and a general skyglow around the project site.

Construction: It is likely that there would be night works required at this location during construction, including 24 hour deliveries and spoil haulage accompanied by traffic control crews with lit truck mounted crash attenuator vehicles and lighting. This would result in the site, as well as adjacent areas extending along Hume and Oxley Streets, being more brightly lit than the existing setting.

This lighting would create a noticeable reduction in the amenity of views in this area of high district brightness, from surrounding streets and potentially from adjacent residential towers on Oxley Street and the Pacific Highway. It is therefore expected that the project would result in a negligible visual impact during evening hours.

Operation: The station entry on the corner of Clarke and Hume Streets would be brightly lit 24 hours a day to accommodate station activities and for security after hours. This lighting would be consistent with the surrounding high district brightness environment.

It is expected that during operation the lighting of the project would not create a perceived change in visual amenity, resulting in a negligible visual impact for this area during evening hours.

Summary of visual impact

The overall visual impact is the same as identified in the original EIS document, as follows:

There would be a range of adverse visual impact created by the project duringconstruction including minor and moderate adverse visual impact. These impact are primarily due to the extent of demolition works, and the scale of the acoustic enclosures and construction sites. The range of impact levels reflect the scale and proximity of the works to the viewing location. Generally impact are more substantial in the vicinity of Hume Street where the construction site works would be more complex and have a larger footprint.

There would be a negligible visual impact experienced in views to the site during operation of the project. In particular, the views would be restored and somewhat improved at the corner of Hume and Clarke Street where the new station entry and streetscape upgrades would be seen.

At night there would be negligible visual impact during construction due to the context of E4: High district brightness area.

During operation there would also be a negligible visual impact as the station and associated development would be visually absorbed into the surrounding brightly lit context.

Day time visual impact

			Construction		Operations	
No	Location	**Sensitivity**	**Modification**	**Impact**	**Modification**	**Impact**
1	View southeast along the Pacific Highway	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
2	View south along Oxley Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
3	View southwest from Clarke Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
4	View northwest along Clarke Lane	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible
5	View east from corner of Hume Street and Pacific Highway	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible

Night time visual impact

			Construction		Operations	
No	Location	**Sensitivity**	**Modification**	**Impact**	**Modification**	**Impact**
1	Project site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible

Appendix C CV's of competent authors

Keith Stead
Associate Director

OCULUS

Keith Stead is a Landscape Architect with over 25 years experience in Australia, New Zealand, the UK and Singapore. Keith has a broad range of expertise encompassing urban design, landscape design, landscape planning, and masterplanning. He has extensive experience in a wide range of projects from urban and suburban to rural contexts, and also has the ability to work adeptly across a variety of scales.

An Associate Director of OCULUS, Keith is responsible for leading the direction of major urban design projects. His expertise lies in managing complex landscape projects from conception to completion and he has extensive experience in the areas of project management and coordination, stakeholder and community engagement, design and documentation.

Registrations/Affiliations
AILA Registered Landscape Architect #001564

The Landscape Institute (MLI) Member #14026

Education
BA Landscape Architecture (Hons) - 1st Class , Heriot-Watt University, Edinburgh, UK

Professional Experience
OCULUS
Associate Director
Landscape Architect/Urban Designer
2001 – Present

Ian White Associates
Stirling, Scotland
Senior Landscape Architect
2000 - 2001

ACLA
Singapore
Senior Landscape Architect
1999 – 1999

Clouston
Sydney, NSW
Landscape Architect
1998 – 1999

Ian White Associates
Stirling, Scotland
Landscape Architect
1993 - 1998

Selected Experience

Education
- Chatswood Educational Precinct, Chatswood NSW
- Darlington Terraces Student Accommodation, Darlington NSW
- Faculty of Arts and Social Sciences Building, University of Sydney, Camperdown NSW
- F23 Administration & F07 LEES1 Buildings, University of Sydney, Camperdown NSW
- Marsden Park & The Forest High Schools & Westmead Public Schools, Sydney NSW
- North Sydney Education Precinct Public Domain Masterplan, North Sydney NSW
- Sydney Regiment Building Redevelopment, University of Sydney NSW
- Unitec Urban Strategy, Auckland New Zealand
- Western Sydney University - Westmead Campus, Westmead NSW

Mixed Use
- Anselmi Ridge Masterplan, Pukekohe, New Zealand
- Dairy Road Masterplan, Fyshwick, ACT
- Drury Town Centre Masterplan, Auckland, New Zealand
- Gosford CBD & Landing Masterplans, Gosford, NSW
- Hall Farm Vision & Masterplan, Auckland, New Zealand
- NewActon Precinct, Canberra, ACT
- Marrangaroo Masterplan and DCP, Lithgow NSW
- One Central Park, Chippendale, NSW
- Rotokauri Masterplan, Auckland, New Zealand
- St Leonards South Landscape Masterplan, St Leonards NSW
- The New Rouse Hill Regional & Town Centre, Rouse Hill, NSW

Public Realm / Parks
- Brett Whiteley Place, North Sydney, NSW
- John Whitton Bridge Open Space, Rhodes NSW
- Lawson Crown Land Concept Study, Blue Mountains, NSW
- North Granville Public Domain Master Plan, Granville, NSW

Health
- Chris O'Brien Lifehouse - RPA Hospital, Camperdown NSW
- Royal North Shore Hospital, St Leonards NSW
- Prince of Wales Cancer Centre, Randwick NSW
- Sir Moses Montefiore Jewish Home, Randwick NSW
- Southern Cross Aged Care Village, Turramurra NSW
- Cardinal Freeman Village, Ashfield NSW

Infrastructure
- Crows Nest Metro Station Precinct, NSW
- Hills Showground Station Precinct, Castle Hill NSW
- Randwick Urban Activation Precinct, Sydney, NSW
- Round Island Route, Singapore

Appendix D DRP Actions and Advice

ITEM #	GEOGRAPHIC LOCATION	THEME	RAISED ON	DOCUMENT REVIEWED	ACTION / ADVICE	TEAM TO RESPOND	RESPONSE	STATUS
2.01	OSD	Planning and Passanger Movement	27/09/2016	Group GSA Crows Nest OSD Design Review Presentation 27/09/2016	**Car parking** Panel does not support the amount of car parking proposed above the station and would like the current provision significantly reduced. TfNSW should take the lead on reducing parking near stations. Opportunity to adopt car sharing within development. If there must be car parking, the panel support floor heights of 3.6m so parking could be converted into commercial/ residential in future. (Item 2.7.6 on minutes)	Design Team	Car spaces on the site have been reduced to now reflect 1 car space per 2 units (total 170 spaces). Car park levels are flexible and can be converted to units/commercial if needed. (Item 6.3 on minutes) Panel supported the reduction in car spaces, introduction of hotel use, integration of transport around the station, the proposed scale of the built form and disposition of elements. (Item 6.5 on minutes)	Closed
12.01	OSD	Planning and Passanger Movement	9/04/2019	DRP Presentation 1	**Commercial development strategy** The Panel notes and supports the various benefits from a potential change from residential use on the northern site to a commercial use. These include wider city-shaping opportunities, improved place outcomes, simplified entry requirements, reduced demand for parking, improved constructability above the station. Residential use on the southern site requires further study of planning layout and built form to ensure design integration with context. The design should continue to explore floor plates that offer synergies with the station structure and maintain floor-plate flexibility(internal structure)	Design Team	The Project team have presented updates on commercial strategy in earlier meetings, prior to creation of this Tracker.	Closed
12.02	Precinct/ Public Domain	Planning and Passanger Movement	9/04/2019	DRP Presentation 1	**Design considerations** Areas for design focus are: Overall scale of the development at street level and in the wider, emerging precinct context of tall towers. - Hume Street entry experience and new place opportunities - Pacific Hwy frontage improvements and scale - Interaction with the fine grain of the precinct - Precedent studies on materiality - Opportunities for Clarke Lane acknowledging the service needs associated with proposed commercial uses.	Design Team	- Overall scale of the development at street level and in the wider, emerging precinct context of tall towers. The Crows Nest station and over-station future built form is configured to integrate with the local block pattern and urban scale. The station above ground built form is subdivided across three sites; A, B and C as defined by the local streets Clarke, Hume and Oxley bound by the Pacific Highway. The station buildings have been consolidated within each site to two storeys with brickwork façade fenestration articulated to relate the Crows Nest village urban scale particularly referencing the Willoughby road streetscape rhythm to the east. The station occurs between the St Leonards large scale podium and tower forms to the north and the low rise urban character to the southeast and west. This transition in scale along the pacific Highway spine is reflected in the prescribed over station development massing across the three sites from a high point on site A north stepping down to a mid scale on site B and low scale on site C. Future development will be required to articulate with the station buildings and within the development built form to ensure the overall composition and scale synthesises well within the urban context. - Hume Street entry experience and new place opportunities Hume St has been made a focus in terms of public realm improvements with significantly wider footpaths, street tree planting, street furniture and a new segregated cycleway connecting Clarke St with Nicholson St. The Site A and B OSD buildings will front onto Hume St and provide active frontages with retail and lobbies. Hume St provides a direct connection to Hume St Park which is proposed to be upgraded by Council. - Pacific Hwy frontage improvements and scale The existing footpaths along the Pacific Highway will be significantly widened to provide more width for pedestrians between the station entry and Oxley St to the north and Hume St to the south. These wider footpaths also address the scale of the Highway and the station building. The provision of street tree planting and furniture along the edge of the Highway creates a greater sense of separation and safety between pedestrians and vehicles. - Interaction with the fine grain of the precinct The wider precinct connections including Oxley St and Hume St as east-west connections and Pacific Highway, Clarke Lane and Clarke St as north-south connections have been considered in the public realm design with streetscape upgrades to the station frontages including Pacific Highway, Hume St, Oxley St, Clarke Lane and Clarke St. The public realm design, particularly at the Clarke St station entry, facilitates access to Hume St Park and the pedestrian link being provided by Council between the park and Willoughby Rd. - Precedent studies on materiality The approach to materiality was discussed at subsequent DRPs with the Council's palette of public domain materials used externally with a transition to the internal station entry materials. - Opportunities for Clarke Lane acknowledging the service needs associated with proposed commercial uses. Clarke Lane needs to provide a service function, however, given the limited number of commercial premises and service vehicle movements, it will still be able to provide a pedestrian friendly environment and greater activation. The laneway has been designed as a pedestrian friendly, low vehicle speed environment with the section between Hume St and Oxley St proposed as a 10km/hr shared zone. This is reinforced in the design of the lane through the paving treatment, along with street tree planting.	Open
13.01	Site C	Planning and Passanger Movement	17/09/2019	DRP Presentation 2	**Future uses (Site C)** The Panel supports with qualifications the future uses of Site C: The Panel recommends the Design Team presents in more detail the merits of potential future uses to the Panel.	Design Team		Closed
13.02	Station		17/09/2019	DRP Presentation 2	The Panel supports the approach to the station design as presented.	noted		Closed
13.03	OSD	Built form	17/09/2019	DRP Presentation 2	The Panel requests that the DA envelope for Site A & B be presented to the Panel before formal submission to DPIE.	Design Team	The envelope review is ongoing - will be addressed in 2021 OSD design excellence presentations.	Closed
14.01	Precinct/ Public Domain	Materiality and Finishes	3/12/2019	DRP Presentation 3	The Panel recommends the nexus between public domain and station paving be reviewed. The public domain palette should be drawn into the station entrance for continuity of experience. This is in keeping with other Metro projects where the public domain paving is carried through to the top of the escalators.	Design Team	The Council pavers are a shotblast precast concrete paver that was not considered appropriate to use inside the station entry (not durable enough to meet the high pedestrian demands). Instead we are using the Charcoal Council paver immediately in front of the entries as being similar in tone to the dark grey granite paver used inside the entry. The aim was to transition from Council's standard 'chequerboard' pattern to the internal station paving. The paving sizes were coordinated so the joints in the internal paving and external paving will align, further creating a smooth transition.	Open
14.02	Precinct/ Public Domain	Materiality and Finishes	3/12/2019	DRP Presentation 3	The Panel is concerned with the extent of the 2 broad palettes from the North Sydney Public Domain Style Guide and the limitation of the integration of the two systems to the site boundaries as being restrictive. The rationale behind the integration should be logically related to the broader public domain of the precinct.	Design Team	The Crows Nest Station Precinct is situated at the meeting point of North Sydney Council's Crows Nest palette of public domain materials to the south and the St Leonards palette to the north. Hume St forms the delineation between these two palettes as per the Public Domain Style Manual. An interface between these two palettes is required on the Pacific Highway, Clarke Street and to a lesser extent Clarke Lane. The Crows Nest Station project has tried to adopt the most logical transition point between the two palettes as possible within the precinct. Hume St adopts the St Leonards palette on both sides of the street so one consistent palette of materials is used throughout. The change to the Crows Nest palette is made south of Hume St on the Pacific Highway and Clarke St. On Clarke Lane, as the section north of Hume St is a shared zone whilst that to the south remains as a laneway, the different paving materiality is a logical expression of the slightly different street typologies.	Open
14.03	Precinct/ Public Domain	Materiality and Finishes	3/12/2019	DRP Presentation 3	The Panel would like to see further development of the character of Clarke Lane considering all elevations as well as path and street. There is concern that the current planting scheme may not survive the vehicle and loading dock access off the lanes. An integrated art strategy could be considered in parallel with some judiciously placed tree planting to ensure a high-quality development of this lane.	Design Team	Clarke Lane has been designed in accordance with Council's Public Domain Manual with a shared pedestrian/vehicle treatment encouraging low vehicle speeds and a pedestrian friendly environment. Nearly 20 new trees are proposed along the length of the laneway with tree positions located to maintain access and loading to the Site A and B buildings. Tree locations take account of vehicle swept paths with a raised kerb and in some cases bollards provided around them for further protection.	Open
14.04	Station	Materiality and Finishes	3/12/2019	DRP Presentation 3	The Panel supports the two-storey brick base to anchor station buildings and considers this a strong element of the design.	noted		closed
14.05	Station Entry B	Materiality and Finishes	3/12/2019	DRP Presentation 3	The Panel supports the design teams aesthetic aim to keep rigor in the public domain suite of buildings by retaining the brick type, patterns and building design	noted		closed
14.06	Site C	Built form	3/12/2019	DRP Presentation 3	The Panel does not support the use of performance glass as an approach to the sun orientation of the building. The design team should further their aspiration for an operable façade to the east, with appropriate sun shading devices.	Design Team	The Panel accepts that improvements have been made to reduce quantity of glazing facing east.	Closed
14.07	Site C	Built form	3/12/2019	DRP Presentation 3	The Panel recommends further design development should be undertaken of the brick pillars into the façade above the podium.	Design Team	The Panel supports the presented design changes made to the façade and form that provide a stronger tectonic clarity for the use of brick and commends the team for their investigations.	Closed
14.08	Site C	Built form	3/12/2019	DRP Presentation 3	Should the Youth Hub prevail over 2 floors or more, the Panel recommend these floors be articulated as a community building distinct from the commercial uses on the site and any integration with view to the park should be optimised.	Design Team	The Panel accepts that the entire buildingn is to be commercial tenancy per client request.	Closed
14.09	Site C	Built form	3/12/2019	DRP Presentation 3	Whilst the Panel accepts there may be a future development to the north of Site C, the panel recommends articulation of the north façade be considered. If this is expected to be a blank wall in the interim it needs to be considered.	Design Team	The Panel accepts that additional detail has been added to the north façade through brick cladding to the top 5m and articulation of brick pilasters.	Closed

ITEM #	GEOGRAPHIC LOCATION	THEME	RAISED ON	DOCUMENT REVIEWED	ACTION / ADVICE	TEAM TO RESPOND	RESPONSE	STATUS
14.10	**Site C**	Built form	3/12/2019	DRP Presentation 3	The Panel commends the incorporation of community uses on Site C. The relationship of the community uses to the street via a proposed staircase is supported.	Design Team		Closed
14.11	**Site C**	Materiality and Finishes	3/12/2019	DRP Presentation 3	Given the inaccessible space, adjacent the plant/mechanic zones, the Panel accepts that the planting at roof level only needs to respond to heat island effect. The planting of large trees may need to be reviewed.	Design Team	Please see Item 16.02 - The Panel notes further detailed design work is required on the planter boxes at both roof level and above the projecting windows to enable accessibility and maintenance. The Panel encourages the team to resolve this item to ensure the planting remains in the design.	Closed
15.01	**Site C**	Planning and Passanger Movement	31/03/2020	DRP Presentation 4	The Panel recommends the café + retail design be reconsidered to maximise its opportunity as a contribution to the streetscape and wider community rather than simply a tenancy with volume of the station entry. The Panel further recommends that detailed design of the café space be undertaken to prevent future installation an un-sympathetic fit out.	Design Team	The Panel supports a café layout that enables the café to feel like a space within its own right, and not simply part of the large volume of the station entry to encourage broader community use. The Panel also supports a design that enables the proposed artwork in the station to be visible from Hume Street (south). The Panel suggests further exploring Option 1 and 2: o Option 1 – consider extending the external awnings into the internal space to lower the ceiling and create a more intimate volume. o Option 2 - further detailed design to ensure visual connection is maintained through screen to the artwork.	Closed
15.02	**Site C**	Planning and Passanger Movement	31/03/2020	DRP Presentation 4	The Panel accepts that Sydney Metro is not concerned about reducing the station entry width in order to separate the café from the larger space.	Noted	N/A	Closed
15.03	**Site C**	Planning and Passanger Movement	31/03/2020	DRP Presentation 4	The Panel supports the 'small' floorplates as positive element of the commercial building as they encourage a diversity of tenants.	Noted	N/A	Closed
15.04	**Site C**	Materiality and Finishes	31/03/2020	DRP Presentation 4	The Panel expresses concern that the building lacks tectonic clarity -the thin-ness of the brick clad columns above podium lack connection and strength of the materiality of brick, combined with the lack of definition/framing of the brick columns at their top, contributes to the perception of the brick above podium simply as a veneer. The Panel suggests increased rigour is required to define the building's architectural identity. Further concern was raised that what is visually communicated as a light/transparent glass building will likely be dark reflective glass. The Panel suggests that there may be an opportunity to create a brick building with glass windows rather than a glass building on a brick base with clad brick columns.	Design Team	The Panel supports the presented design changes made to the façade and form that provide a stronger tectonic clarity for the use of brick and commends the team for their investigations.	Closed
15.05	**Site C**	Materiality and Finishes	31/03/2020	DRP Presentation 4	The Panel understands the desire to maximise views to Hume Street Park, however expresses concern regarding the eastern façade heat load and suggests an independent façade analysis be undertaken.	Design Team	The Panel accepts that a section J analysis of the building has been undertaken and meets all accreditation requirements.	Closed
16.01	**Site C**	Built form	19/05/2020	DRP Presentation 5	The Panel notes the 3d images were not consistent with the revised elevations, and the proportion of brick columns and the brick core wall on the east and west elevations is correct.	Noted		Closed
16.02	**Site C**	Built form	19/05/2020	DRP Presentation 5	The Panel notes further detailed design work is required on the planter boxes at both roof level and above the projecting windows to enable accessibility and maintenance. The Panel encourages the team to resolve this item to ensure the planting remains in the design.	Design Team	The Panel does not accept the proposed maintenance solution to planters as it will promote infrequent maintenance, such as only when windows are cleaned. The Panel recommends façade design review to enable planter servicing from within the building. The Panel remain concerned that the maintenance of planters will not occur regularly and therefore recommend that a maintenance regime be included as part of the conditions of planning.	Closed
17.01	**Precinct/ Public Domain**	Planning and Passanger Movement	2/06/2020	DRP Presentation 6	**Underground connection** The Panel supports the future safeguarding of an underground connection to the station below the Pacific Hwy.	Design Team	Sydney Metro acknowledges the requirement of an underground tunnel and are currently looking into a few design options for a soft wall that would safeguard a future underground pedestrian tunnel. Refer attached slide indicating the options being currently looked into.	Open
17.02	**Precinct/ Public Domain**	Planning and Passanger Movement	2/06/2020	DRP Presentation 6	**Pacific Highway Speed Limit** The Panel would support future implementation of a 40km/h speed limit to the Pacific Highway, ideally from St Leonards Station to Shirley Road, but particularly from Oxley Street to Shirley Road	Design Team	Pacific Highway is classified as a state arterial road under the care and control of TfNSW. The carriageway is three (3) lanes in each direction and is a heavy vehicle access route. The existing carriageway configuration is not proposed to change. There are no plans to change the existing speed limit (60km/h) along Pacific Highway. This item has been raised in the TIPCG (Transport Integration Prograp Control Group) and TfNSW is to lead the resolution and response in regards to the regulation of speed limits on classified state arterial roads.	Open
17.03	**Precinct/ Public Domain**	Planning and Passanger Movement	2/06/2020	DRP Presentation 6	**Precinct Speed Limit** The Panel also encourages further collaboration with the local council to pursue implementation of a broader 40km/hr speed limit in surrounding local streets, to support walking and cycling around the station precinct as it increases in patronage and density.	Design Team	Sydney Metro supports the reduction in speed limits in surrounding local streets, to support walking and cycling around the station precinct as it increases in patronage and density. This item has been raised in the TIPCG (Transport Integration Prograp Control Group) and TfNSW is to lead the resolution and response and liasion with Local Council in the regulation of speed limits on classified local roads.	Open
18.01	**Site A, B, C OSDs**	Design Excellence	15/12/2020	DRP Presentation 7	**Design Excellence Strategy** The Panel requests that Sydney Metro issue the Design Excellence Strategy, along with the benchmark project exemplars for review and comment prior to finalising the strategy with DPIE	Sydney Metro	To be presented to DRP seperately.	Closed
18.02	**Site A, B, C OSD**	Design Excellence	15/12/2020	DRP Presentation 7	**Design Guideline Prinicples** The Panel recommends the application of Design Guideline principles be reviewed on a merit rather than prescriptive basis.	Noted		Closed
18.03	**Site A, B OSD**	Design Excellence	15/12/2020	DRP Presentation 7	**Design Excellence Evaluation Panel** The Panel recommends the Design Excellence Evaluation Panel (DEEP) for Sites A and B be formed from a quorum of Panel members to maintain continuity across the project	Noted		Closed
19.01	**OSD Site C**	Design Excellence	7/06/2021	Out of Session	**Condition A21(b) - Design Excellence Strategy** The DRP endorses the Design Excellence Strategy for Site C, and confirm that design quality benchmarks are not applicable in this circumstance, as the design process has progressed beyond the need for benchmarking.	N/A		Closed

Appendix E North Sydney Council Consultation

North Sydney Council Consultation

No.	Comment	Sydney Metro Response
1	**Lack of consideration to current transport initiatives and plans** Lack of consideration to current transport initiatives and plans that aim to re-balance place and movement functions of the Pac Hwy, and that identify projects to achieve this; e.g. dedicated right tum lane from the southbound Pacific Highway into Oxley Street (south) and the reopening of Nicholson Street south of Oxley Street to minimise non-destination traffic on roads surrounding the Metro site	Pacific Highway is managed by Transport for NSW (TfNSW). The carriageway is three lanes in each direction and is a heavy vehicle access route. As it is not part of the scope of the project to undertake changes to the traffic lane configuration, this has been referred to TfNSW.
2	**Fencing** Pedestrian kerb & median fencing on Pac Hwy not supported by Council as it effectively increases vehicle speed and evidence of its effectiveness or need isn't compelling	The Pacific Highway fences are required for Safety and network resilience reasons – the provision of the median and kerbside fence will physically discourage potential jay-walking by pedestrians and non-compliant kerbside activity, improving safety and reducing the risk of vehicle-vehicle and pedestrian-vehicle conflict. For the kerb side fence, Sydney Metro is currently working with relevant TfNSW departments in reviewing alternate design options that retain the safety and obstruction intent of the fencing, but will provide alternative barriers to potentially unsafe movements.
3	**Signalisation of Hume & Clarke St Intersection** Signalisation of Hume & Clarke St Intersection strongly objected to by Council; Council believe it would be a retrograde step for the area	The Hume & Clarke St. intersection is not a signalised intersection in the design. Sydney Metro are working with relevant TfNSW departments on exploring an overall network management approach that could include restricting vehicle movements from the Pacific Highway into Hume Street.
4	**Re-location of Kiss-&-Ride zones** Re-location of Kiss-&-Ride zones has potential implications to current cycle-way in Oxley St	Sydney Metro proposed relocating kiss and ride parking bays to Oxley Street east bound between Pacific Highway and Clarke Lane to reduce traffic demand on Clarke Street. This location will not have implications to the existing cycleway on Oxley Street as there is existing 1P parking. The location for one accessible parking bay and two taxi parking bays will remain on Clarke Street. Sydney Metro met with NSC representatives on 25.Aug.2021 and it was agreed that Oxley street is the best option for the kiss & ride zones.
5	**Cycling Considerations** 1. Cycle vs vehicle conflicts at intersection * Conflict between cycle and vehicle swept paths at Hume St and Clarke St; Council have requested a copy of the RSA and confirmation of how conflicts are addressed in the design 2. Cycleway location * Cycleway on Oxley St rather than Hume St for better network connectivity and safety outcomes	A cycleway along Hume Street is consistent with the Sydney Metro Chatswood to Sydenham EIS and CSSI and best facilitates the safe movement and access to the station entry for cyclists.

6	**Drainage** 1. New piped drainage down Oxley Street preferred by Council rather than kerb & channel as currently designed 2. Trench drains in gutters at Pac Hwy intersections not supported by Council due to issues over ownership and maintenance demarcation between Council and TfNSW	Sydney Metro has removed the trench drains from the design and have replaced with the kerb and gutter to provide road side drainage keeping it consistent with the current drainage network in the area.
7	**Clarke Lane Design** Set-back area in front of the new substations in Clarke Lane present an unwanted opportunity for use as an informal parking/ loading zone; Council prefer a design solution that eliminates this opportunity	That set-back area is to ensure sufficient turning space for the traffic and also for maintainance of the substation.
8	**Streetlighting** Multi-purpose streetlighting poles and undergrounding of LV on either side of Pacific Highway rather than only the Station side preferred by Council	The western/ northbound side of Pacific Highway is beyond of the scope of Sydney Metro Crows Nest Station works.
9	**Paving Selection** Selection of different paving at entries to the Station not favoured by Council Consistency of paving materials requested, as is the case everywhere else in the St Leonnards area Concerns over 'look and feel', maintenance, spares for replacement, public authorities	Paving is consistent with NSC Public Domain Manual, with the exception of omitting the contrasting banding in cream paver at the station entrances. This has been discussed and agreed to with the NS Council.
10	**HVM Bollards** Concerns over plethora of bollards around the site; different streetscape items suggested as replacements for bollards as per other public areas in Sydney	Bollards are required to seperate pedestrians and streetscape elements from errant vehicle intrusion in accordance with security and threat protection requirements.
11	**Maintenance Responsibilities** Request for clarity on maintenance responsibilities for newly installed streetscape items to be 'handed back' to Council; HVM bollards for example are expensive to maintain An agreement needs to be in place defining maintenance responsibilities upon Station completion	Sydney Metro confirms that the bollards will be maintained by the Crows Nest station operator. A maintenance agreement will be finalized in consultation with North Sydney Council.

Department of Planning, Housing and Infrastructure

Our ref: SSI-7400-PA-501

Fill Cerone
Director of Sustainability, Environment and Planning
Sydney Metro
PO Box K659
Haymarket, NSW, 1240

Attention: Sam Fard –Senior Environment Manager

19/04/2024

Subject: Sydney Metro City & Southwest - Chatswood to Sydenham - Crows Nest Station Design and Precinct Plan

Dear Mr Cerone

Thank you for submitting the Crows Nest Station Design and Precinct Plan (SDPP), Rev J, dated February 2024. Thank you also for your response to our request for additional information.

I note that the SDPP:

- Has been prepared with review from the Design Review Panel.
- Has been prepared by Sydney Metro and no issues have been raised with the Department.

Accordingly, as nominee of the Planning Secretary, I approve the SDPP under condition E101 of SSI-7400

If there are any inconsistencies between the document and the conditions of approval, the conditions prevail.

Please make the document and the letter publicly available on the project website as soon as possible.

If you wish to discuss the matter further, please contact Lincoln de Haas at Lincoln.deHaas@dpie.nsw.gov.au

Yours sincerely,

Grant Rokobauer
Team Leader – Rail
Infrastructure Management

As nominee of the Planning Secretary