Transport
for NSW

Pacific Highway upgrade through Wyong Town Centre

Addendum review of environmental factors

February 2025

NSW GOVERNMENT

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Acknowledgement of Country

Transport for NSW acknowledges the traditional custodians of the land on which we work and live.

We pay our respects to Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.

Prepared by AECOM and Transport for NSW.

Executive summary

Background

The Pacific Highway Upgrade through Wyong Town Centre was initially assessed in the 2015 Project Review of Environmental Factors (Project REF) and further refined in the 2017 Addendum REF. Some early works began in 2020, including detailed heritage investigations and the demolition of some acquired properties as described in the Project REF. The proposed modification responds to new standards, updated community needs, and engineering advancements.

The purpose of this Addendum REF is to describe the proposed modification, to document and assess the likely impacts of the proposed modification on the environment, and to detail mitigation and management measures to be implemented.

The proposed modification

Transport for NSW (Transport) proposes to modify the Pacific Highway upgrade project through Wyong Town Centre to include design changes to the 2015 Concept Design (the proposed modification). Key features of the proposed modification would consist of:

- Updated road and bridge design
- Urban design and public amenity improvements
- Updated commuter car park design
- Changes to construction activities and staging
- Rail enabling works
- Other design refinements, including retaining walls and drainage infrastructure
- Minor adjustment of the construction footprint and proposal boundary
- Traffic management and longer-term traffic diversions for major construction stages.

These updates align the project with current standards and design improvements, incorporating changes to the road and bridge design, urban amenities, and construction activities. The proposed modification aims to enhance multimodal transport connections, placemaking, and long-term traffic solutions.

Need for the proposed modification

The proposed modification is needed to update the concept design to meet current safety, design, and functionality standards, accommodating increasing traffic demand while addressing community and environmental concerns.

Proposal objectives

The objectives of the proposed modification are:

- Provide safe and reliable intersection on the Pacific Highway between Johnson Drive and Cutler Drive for motorised vehicles
- Support future growth along the Pacific Highway associated with planned land use uplifts in the Tuggerah, Wyong and Warnervale areas
- Provide safe and connected cycleway infrastructure connecting to existing (and future) infrastructure within the Wyong CBD
- Provide consistent and reliable travel times on the Pacific Highway between Johnson Road and Cutler Drive for motorised vehicles
- Provide safe and connected public transport infrastructure that supports future growth of public transport services
- Provide a high-quality urban design outcome that considers social, heritage, commuter and business interactions.

The above project objectives are broadly consistent with those documented in the Project REF.

Options considered

The Addendum REF evaluated the following main options:

- **Option 1 – Do Nothing:** Retains the approved concept design, which fails to meet current standards or optimise costs.
- **Option 2 – Modify the Design:** Updates the design to align with modern standards, improve safety, and incorporate community feedback.

The preferred option is Option 2, incorporating further refinements to the commuter car park and incorporating previously approved rail enabling works.

Statutory and planning framework

This proposal is assessed under Part 5 of the *Environmental Planning and Assessment Act 1979*. The Addendum REF also considers Section 171(2) of the *Environmental Planning and Assessment Regulation 2000* and matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999*. *State Environmental Planning Policy (Transport and Infrastructure) 2021* applies to the proposed modification. Section 2.109 permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

Community and stakeholder consultation

The Project REF was publicly displayed for comment in 2015, and a Submissions Report was prepared, documenting the outcomes of this process. Since then, a range of consultation activities have been carried out with the community and relevant stakeholders.

Targeted consultation has occurred throughout the development of the proposed modification before publication of this Addendum REF. Transport prepared a Community Update and Concept Design Fact Sheet to display the refined concept design and highlight the changes since the previous 2015 design. The refined concept design was open for community and stakeholder feedback from Friday, 19 July, to Sunday, 11 August 2024.

The 120 submissions received from the community related both to the project as a whole as well as to specific details of the proposed modification. Transport's full responses to the comments received are documented in a separate Consultation Report, which is provided on the 'Pacific Highway upgrade through Wyong Town Centre' website: (https://www.transport.nsw.gov.au/projects/current-projects/pacific-highway-upgrade-through-wyong-town-centre).

Additional safeguards and management measures have been incorporated into this Addendum REF to address specific comments.

Environmental impacts

The main environmental impacts of the proposed modification are summarised below:

Socio-economic

The socio-economic impacts of the proposed modification remain consistent with those identified in the Project REF, with:

- Short-term disruptions during construction, including noise, traffic diversions, changes to parking arrangements, and amenity impacts such as dust, vibration, and visual disruption
- Moderate impacts to local businesses and residents during construction due to temporary parking loss and access changes, particularly on Howarth Street, parts of the Pacific Highway and surrounding areas
- Changes to commuter parking including retaining the existing Rose Street carpark with an expansion to replace commuter parking near the station, as an at-grade facility, allowing for future multistorey expansion if demand increases. This also includes the closure of the intersection of Rose and Howarth Street, which will allow for improved pedestrian connections between the station and carpark and a new carpark access off Howarth Street.

- Changes to on-street parking during construction and operation, and ongoing consultation with businesses and residents.
- Removal of the proposed angle parking and service lane in front of the town centre businesses, replaced with parallel parking similar to the existing and allowing for an extension of the existing footpath area in front of businesses with enhanced landscaping and access.

The socio-economic benefits of the proposed modification also remain consistent with those identified in the Project REF, including:

- Long-term benefits, including improved road safety, enhanced pedestrian and cycling infrastructure, greater connectivity, and reduced traffic congestion
- Improved amenity and sense of place during operation, with wider footpaths, additional landscaping, and upgraded pedestrian and cyclist facilities enhancing Wyong Town Centre.

Transport is committed to a new mitigation measure to develop a business impact strategy during detailed design to engage directly with businesses in Wyong and identify appropriate measures to minimise construction impacts. Transport has also identified the need for further consultation on construction staging with Wyong Race Club and Baker Park.

Traffic and transport

The Addendum REF assesses traffic impacts using updated traffic modelling and current traffic survey information. The proposed modification optimises the road layout, enhancing multimodal transport connectivity while aligning with current design standards. Long-term benefits noted in the Project REF include reduced congestion and improved safety for pedestrians and cyclists.

A number of key changes in the proposed modification, since the 2015 concept plan include;

- Changed pedestrian access to Wyong Town Centre by removing the extension of the station pedestrian bridge to the highway which led to a narrow verge with an unsignalised median refuge crossing. However, the proposed modification results in a safer outcome for pedestrians crossing the Pacific Highway which would occur at the Church Street signalised intersection instead of at an uncontrolled pedestrian refuge. In addition, the new pedestrian crossing location at Church Street provides access to bus stops which have been shifted to Church Street to provide a more convenient connection to Wyong railway station.

- Relocation of key town centre bus stops from the station to the highway at Church Street, where the entry plaza is upgraded and signals exist for crossing. These will have capacity for two buses to stop at once and be upgraded with premium facilities such as larger shelters, additional seating and enhanced safety and security features. Other stops will be available between Rose street and Anzac Ave.

- A change from a roundabout to traffic signals at McPherson Road and the Pacific Highway, which allows for improved pedestrian and cyclist safety and crossing. A small u-turn bay off south Tacoma road has been included to retain access for businesses south of the river.

- A change from a roundabout on Howarth Street near the rail overbridge to traffic signals, providing for improved safety for larger vehicles and trailers accessing the racecourse and eastern Wyong, improved crossing for pedestrians to the station and racecourse and additional space for commuter parking.

- Removal of the shared path along the highway after North Road, to reduce impacts on Apex Park, replaced with an upgraded shared zone in the park along the existing old Watanobbi road to Cutler Drive.Inclusion of a new dedicated off road cycle path on the eastern side of the highway from North Road through the town centre to connect to the existing off road cycleway along the Pacific Highway at Johnson Road through Tuggerah. This is in additional to the upgrade of existing and new pedestrian footpaths.

A number of additional safeguards and management measures have been recommended to optimise the outcomes for road users.

Biodiversity

The proposed modification would result in a minor increase in native vegetation clearing compared to the Project REF. However, with the implementation of updated safeguards and management measures, the impacts are not considered additional to those previously assessed.

The impacts on threatened species and ecological communities remain consistent with the Project REF, with no significant additional effects identified. The project will continue to include offsets for the loss of native vegetation communities and large native trees and has significant new landscaping and tree planting to offset loss of street and urban vegetation.

Soil and water quality

A Detailed Site Investigation (DSI) identified new contamination risks, including lead hotspots and carcinogenic polycyclic aromatic hydrocarbons, which require localised soil remediation and management during construction. These risks remain consistent with the Project REF but are now better defined.

The DSI also identified shallower groundwater depths (0.3 m) compared to the Project REF, increasing the likelihood of encountering groundwater during construction. This risk would be managed through additional management measures to be implemented in construction.

Landscape and visual

The proposed modification includes refinement of the urban design to further enhance the visual amenity of the upgrades and limit the impact on landscape character compared to the Project REF. Additional management measures are recommended for the detailed design phase to ensure opportunities for visual and amenity enhancement are developed for implementation.

As an update to the Project REF, the existing Canary Island Date Palms which were identified for relocation within the town centre in the 2015 concept plan would be replaced with other large street tree species (including alternative feature palms such as *Washingtonia* or *Livistona*, which are less disease prone) at key intersections within the Wyong Town Centre. Additionally, large street trees would be planted at intervals along the footpaths between the intersections in the proposed modification to improve shade and amenity.

Final options for replacement of the Canary island Palms would be further detailed in an update to the 2015 Heritage Assessment and Statement of Heritage Impact. Transport would continue to consult the Central Coast Council on the development of the planting plan and final landscape plan including species.

Noise and vibration

To update the approved Noise and Vibration Impact Assessment, the Addendum REF provides updated baseline noise levels, catchment areas and noise management levels for the construction phase of the proposal.

A detailed noise and vibration impact assessment (including operational road traffic noise) was undertaken for the 2015 project REF and is planned to be reviewed in the detailed design stage. Revised or new construction noise and vibration safeguards and management measures have been included in the Addendum REF to align with current guidelines.

Climate change and greenhouse gases

The proposed modification results in a minor increase in greenhouse gas emissions during construction due to extended timelines and material requirements. However, operational emissions are expected to decrease slightly compared to the Project REF, owing to improved traffic flow and enhanced active transport infrastructure. Compared to the Project REF, the modification better aligns with contemporary climate policies and enhances infrastructure resilience to future climate risks.

Other impacts

The proposed modification introduces no significant changes to the following impacts compared to the Project REF, including:

- Hydrology and flooding
- Non-Aboriginal heritage
- Aboriginal heritage
- Air quality
- Land use, property, and utilities
- Resource use and waste management.

Cumulative impacts

The cumulative impacts of the proposed modification have been assessed, considering interactions with other ongoing or planned infrastructure projects in the Wyong region. While construction-phase traffic, noise, and dust may overlap with nearby projects, these impacts would be mitigated through careful staging, community consultation, and coordinated traffic management.

Long-term cumulative benefits include improved regional connectivity, enhanced pedestrian and cycling infrastructure, and reduced traffic congestion.

Justification and conclusion

The Pacific Highway is a vital transport connection linking Wyong Town Centre with residential communities to the north, the industrial precinct, and the regional shopping centre to the south. Consistent with the objectives outlined in the Project REF, the proposed modification is designed to accommodate current and future traffic flows while enhancing pedestrian and cyclist safety through the provision of modern infrastructure. The proposed modification incorporates further improvements in constructability, cost efficiency, and environmental management.

The proposed modification balances environmental, social, and economic considerations. It aligns with strategic planning objectives, enhances community benefits, and integrates sustainable design principles. The proposed modification ensures the Pacific Highway upgrade through Wyong Town Centre meets current and future demands while minimising adverse impacts.

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1. Introduction

1.1 Proposed modification overview

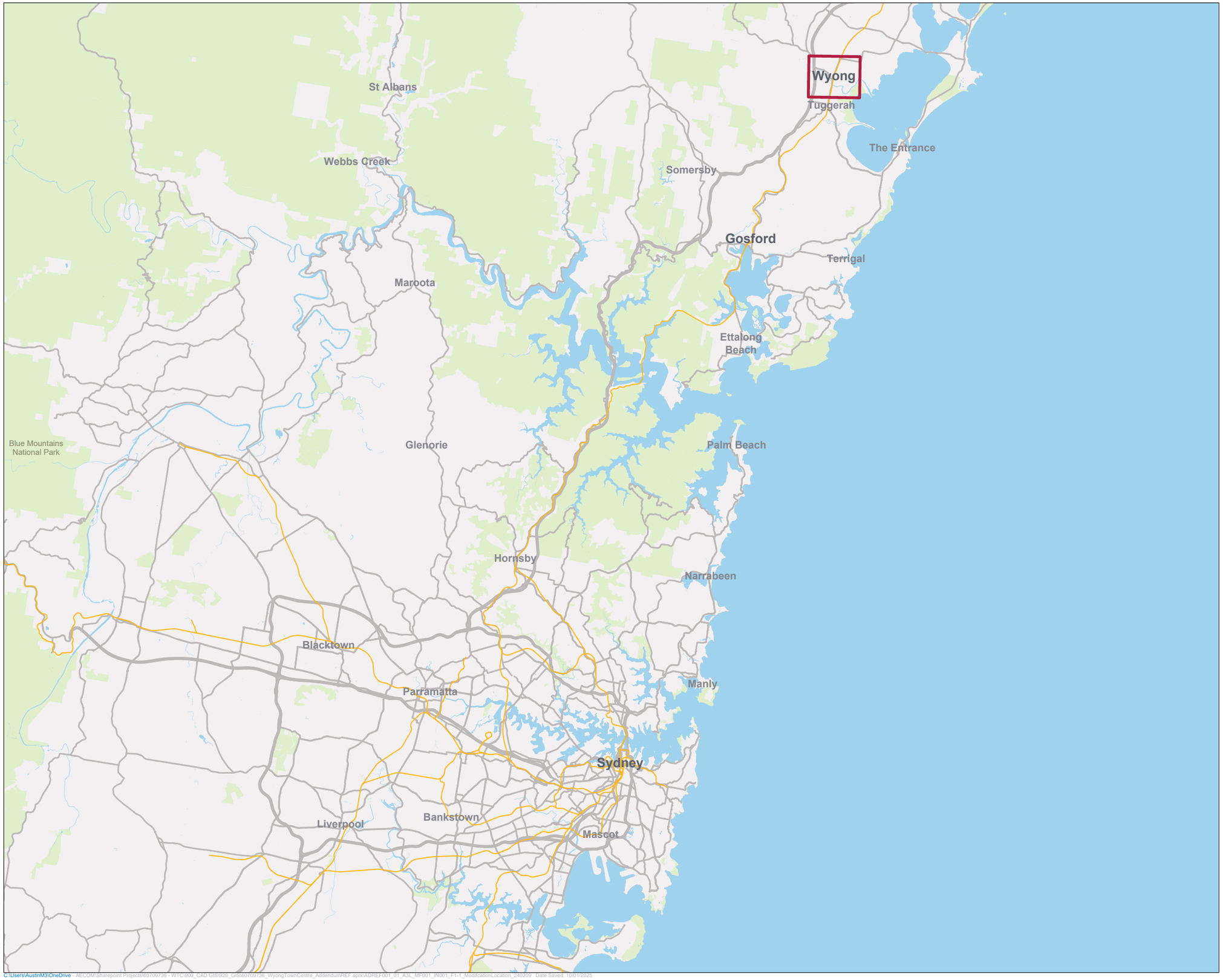
Transport for NSW (Transport) proposes to modify the Pacific Highway upgrade through Wyong Town Centre to include design changes to the 2015 Concept Design (the proposed modification). Key features of the proposed modification would consist of:

- Updated road and bridge design
- Urban design and public amenity improvements
- Updated commuter car park design
- Changes to construction activities and staging
- Rail enabling works
- Other design refinements, including retaining walls and drainage infrastructure
- Minor adjustment of the construction footprint and REF boundary
- Traffic management and longer-term traffic diversions for major construction stages.

The location of the proposed modification is shown in Figure 1-1 and Figure 1-2 shows the proposal area. Features of the proposal, including the proposed modification, are provided in Figure 1-3 to Figure 1-5. Section 3 describes the proposed modification in more detail, and Figure 3-1 to Figure 3-3 illustrate the key features of the proposed modification.

A Review of Environmental Factors (REF) was prepared for the Pacific Highway upgrade through Wyong Town Centre in 2015 (referred to in this Addendum REF as the 'Project REF') (NSW Roads & Maritime Services, 2015). The Project REF was placed on public display between 27 October 2015 and 27 November 2015 for community and stakeholder comment. A Submissions Report dated February 2016 was prepared to respond to issues raised (NSW Roads & Maritime Services, 2016). Some early works commenced in 2020 within the approved proposal area. These works included detailed heritage investigations and the demolition of some acquired properties as described in the Project REF.

Following further design development in 2017, an Addendum REF for the Pacific Highway upgrade through Wyong Town Centre was prepared (referred to in this Addendum REF as the '2017 Addendum REF') (NSW Roads & Maritime Services, 2017a).



AECOM

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0 250 500 m

DATE EXPORTED:
11/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway
- Motorway
- Main road
- National park/reserve
- Watercourse

FIGURE 1-1: LOCATION OF THE PROPOSED MODIFICATION

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

FIGURE 1-2:
PROPOSED MODIFICATION

Legend

- Proposal area
- Railway
- Motorway
- Main road
- Watercourse

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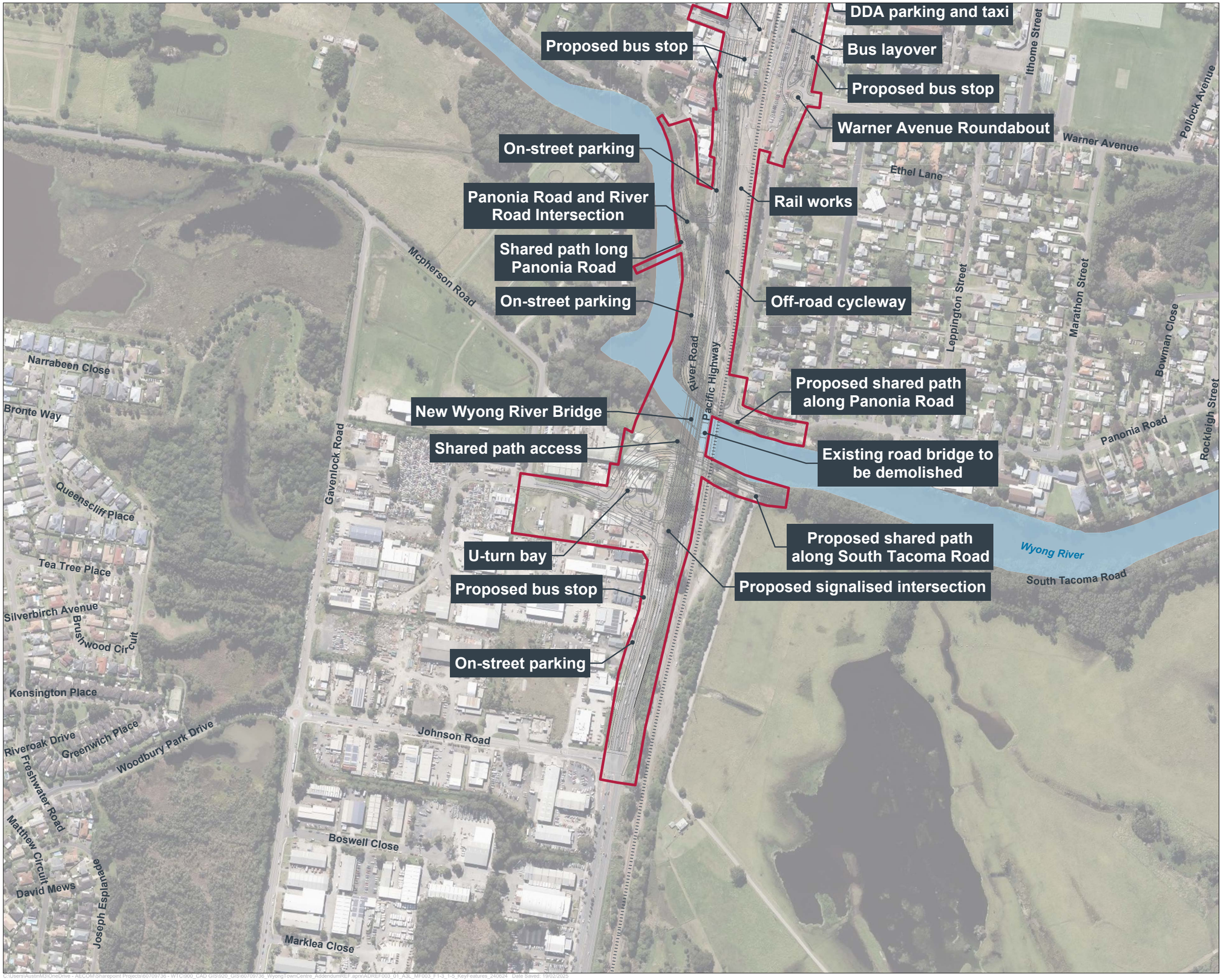
AECOM

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023



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DATE EXPORTED:
21/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Pacific Highway Upgrade
- Railway
- Watercourse

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FIGURE 1-3:
KEY FEATURES OF THE PROPOSAL AND THE PROPOSED MODIFICATION - SOUTH

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

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DATE EXPORTED:
21/02/2025

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AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Pacific Highway Upgrade
- Railway
- Watercourse

FIGURE 1-4:
KEY FEATURES OF THE PROPOSAL AND THE PROPOSED MODIFICATION - CENTRAL

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

AECOM

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DATE EXPORTED:
21/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Pacific Highway Upgrade
- Railway

FIGURE 1-5:
KEY FEATURES OF THE PROPOSAL AND THE PROPOSEDMODIFICATION - NORTH

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

1.2 Purpose of the report

This Addendum REF has been prepared by AECOM on behalf of Transport. For the purposes of this proposal, Transport is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Addendum REF is to be read in conjunction with the Project REF, Submissions Report and the 2017 Addendum REF for the proposal. The purpose of this Addendum REF is to describe the proposed modification, to document and assess the likely impacts of the proposed modification on the environment, and to detail mitigation and management measures to be implemented.

The description of the proposed work and assessment of associated environmental impacts has been undertaken in the context of Section 171 of the Environmental Planning and Assessment Regulation 2021, *Is an EIS Required? Best Practice Guidelines for Part 5 of the Environmental Planning and Assessment Act 1979* (Is an EIS Required? guidelines) (NSW Department of Urban Affairs and Planning, 1995/96), *Roads and Road Related Facilities EIS Guideline* (NSW Department of Urban Affairs and Planining , 1996), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the Addendum REF helps to fulfil the requirements of Section 5.5 of the EP&A Act, including that Transport for NSW examines and takes into account, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of this Addendum REF would be considered when assessing:

- Whether the proposed modification is likely to result in a significant impact on the environment and, therefore, the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in Section 1.7 of the EP&A Act and, therefore, the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The significance of any impact on nationally listed biodiversity matters under the EPBC Act, including whether there is a real possibility that the activity may threaten the long-term survival of these matters and whether offsets are required and able to be secured
- The potential for the proposed modification to significantly impact any other matters of national environmental significance or Commonwealth land and, therefore, the need to make a referral to the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) for a decision by the Australian Government Minister for the Environment on whether assessment and approval is required under the EPBC Act.

2. Need and options considered

2.1 Strategic need for the proposed modification

Section 2 of the Project REF addresses the strategic need for the proposal, the proposal objectives and the options that were considered. The proposed modification described and assessed in this Addendum REF is consistent with the strategic need for the proposal.

When the Project REF was written, it described and assessed impacts relating to the concept design of the Pacific Highway upgrade through Wyong Town Centre as it was in 2015. Since this work, the design for the Pacific Highway upgrade through Wyong Town Centre has been developed further.

The proposed modification is needed to update the concept design to current standards as well as incorporate improvements identified since the previous concept design. Updated standards have been developed to improve multimodal connections, improve road user allocation, and ensure designs are guided by movement and place principles. Key guiding documents that have influenced the design of the proposed modification include:

- *Road User Space Allocation Policy* (Transport for NSW, 2021a)
- *Road User Space Allocation Procedure* (Transport for NSW, 2021b)
- *Future Transport Strategy 2056* (Transport for NSW, 2020a)
- *NSW Movement and Place Framework (Draft)* (Transport for NSW, 2020b)
- *Design of Roads and Streets* (Transport for NSW, 2024a).

2.2 Proposal objectives and development criteria

The objectives of the proposed modification are:

- Provide safe and reliable intersection on the Pacific Highway between Johnson Drive and Cutler Drive for motorised vehicles
- Support future growth along the Pacific Highway associated with planned land use uplifts in the Tuggerah, Wyong and Warnervale areas
- Provide safe and connected cycleway infrastructure connecting to existing (and future) infrastructure within the Wyong CBD
- Provide consistent and reliable travel times on the Pacific Highway between Johnson Road and Cutler Drive for motorised vehicles
- Provide safe and connected public transport infrastructure that supports future growth of public transport services
- Provide a high-quality urban design outcome that considers social, heritage, commuter and business interactions.

The above project objectives are broadly consistent with those documented in Section 2.3 of the Project REF.

2.3 Alternatives and options considered

2.3.1 Methodology for selection of preferred option

The proposed modification involves a range of design and construction-related changes that have arisen during the updated concept design, which mostly did not require consideration of other options.

In this context, the process of option evaluation had two broad stages:

- A consideration of whether the proposal (as described in the Project REF and 2017 Addendum REF) could be justified (this is an evaluation of the 'do-nothing' option)

- An evaluation of the proposal (inclusive of the proposed modification) with reference to the proposal objectives and its respective impacts and benefits.

2.3.2 Identified options

An extensive options development process is documented in the Project REF. The following options have been considered in the preparation of this Addendum REF.

- Option 1 – Do nothing
- Option 2 – Modify the design.

2.3.3 Analysis of options

Option 1 – Do nothing

The 'do nothing' option would consist of the construction of the Pacific Highway upgrade through Wyong Town Centre, as it was described in the Project REF and 2017 Addendum REF. Progressing with the 'do nothing' option would forfeit the ability to revise the design to align with updated road user, pedestrian, cyclist and urban design standards and advancements in construction methods. It would also reduce the ability to incorporate cost-saving opportunities identified since the approved concept design, resulting in higher proposal costs. The do-nothing option would not allow design realignment with contemporary traffic and parking demand, or Council's aspirations for town centre development.

Option 2 – Modify the design

Option 2 involves updating the concept design in order to ensure:

- the design aligns with current standards and policies, particularly related to public and active transport modes
- the design caters for expected traffic growth, using the latest traffic data and modelling
- key stakeholder expectations are addressed, including transport operators and asset owners
- the project meets constructability requirements and delivers value for money

Identification and analysis of design modifications was carried out using two separate processes:

- Healthy Streets Assessment (Healthy Streets, 2023) was utilised to objectively assess the people and place benefits derived by the 2015 Concept Design and identify any residual deficits and opportunities to be considered as part of the revised concept design. The project was assessed against 19 metrics to measure and score the layout and activity of streets, intersections and crossings.
- Value Engineering was completed to ensure the project design provided the necessary functionality while minimising cost. This included assessment of options to improve constructability of the project, consider staging of the project and a review of the project scope.

The revised design would enhance safety by creating safer connections to Wyong station and upgraded intersections and by widening footpaths for all users. It would utilise existing footpaths more effectively, minimising impacts on businesses. Option 2 would optimise the road cross-section for active transport and offer greater opportunities for placemaking and urban design.

2.4 Preferred option

The preferred option is Option 2 – modify the design.

The preferred option addresses the identified needs and aids in achieving the proposal objectives.

Project Option 2 allows the design to be updated to align with current standards and enables constructability and cost improvements to be incorporated.

The proposed modification is described in detail in Section 3.

3. Description of the proposed modification

3.1 The proposed modification

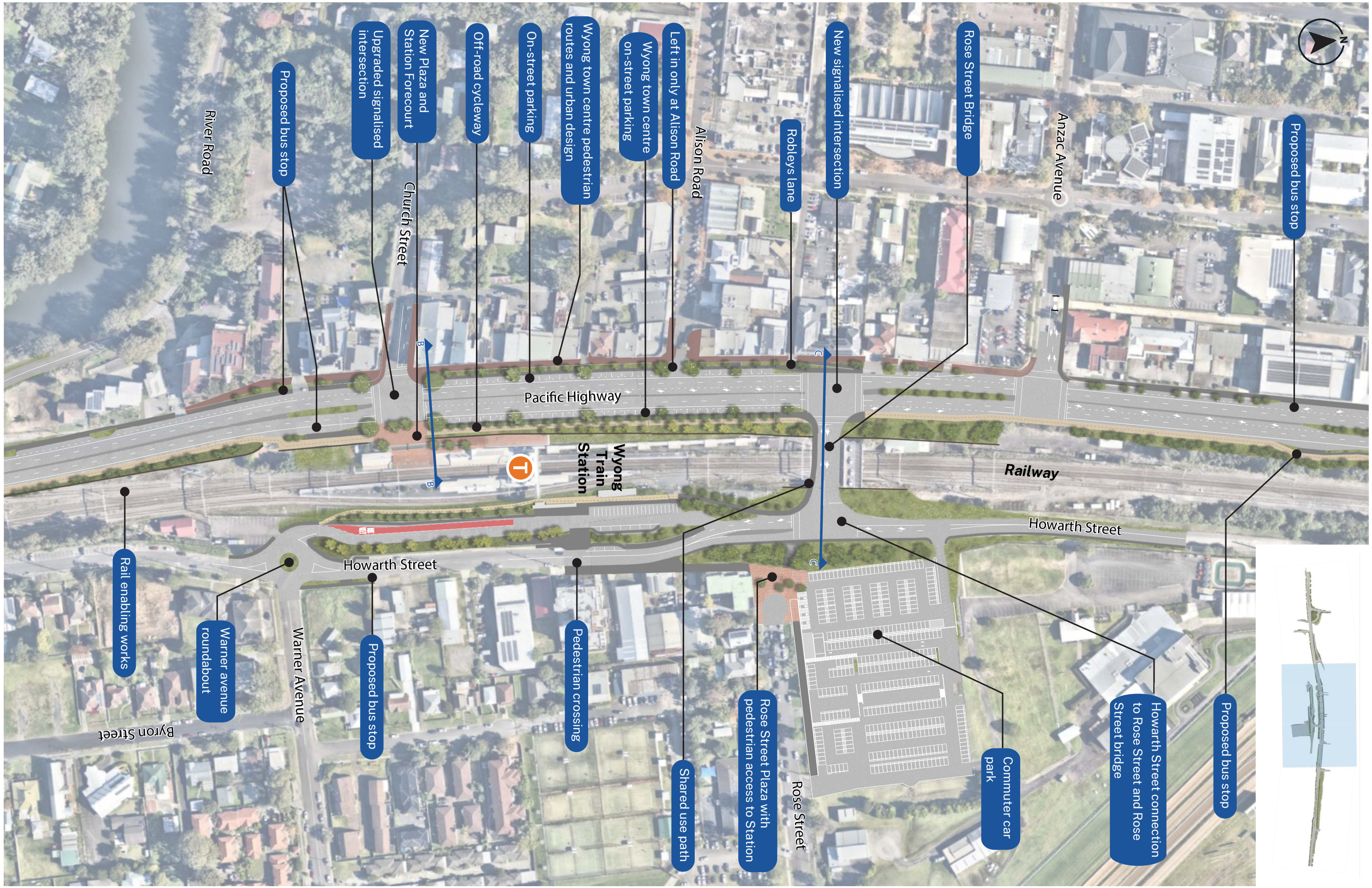
Transport proposes to modify the Pacific Highway upgrade through Wyong Town Centre to include design changes to the Concept Design. The key features of the proposed modification are shown in Figure 3-1 to Figure 3-3.

Key features of the proposed modification would include:

- Updated road and bridge design
- Urban design and public amenity improvements
- Updated commuter car park design
- Changes to construction activities and staging
- Rail enabling works
- Other design refinements, including retaining walls and drainage infrastructure
- Minor adjustment of the construction footprint and REF boundary
- Traffic management and longer-term traffic diversions for major construction stages.

These features are further described in Section 3.2.3.


TO WADALBA
Panonia Road and River Road intersection
Shared path along Panonia Road
Wyong Centennial Park
Wyong River
Panonia Road
Pacific Highway
Railway
Howarth Street
Off-road cycleway
Wyong River Bridge
New boardwalk structure
Shared path access
South Tacoma Rd
U-turn bay
McPherson Road
McPherson Road intersection
Proposed shared path along South Tacoma Road
Cycle access over new Wyong River Bridge
On-street parking
Railway
Central Coast Wetlands
Johnson Road
TO TUGGERAH



TO TUGGERAH

TO WADALBA

Owen Avenue

Cycleway connection

North Road

Cyclist and pedestrian access continues along Watanobbi Road

Ingram Street

Pacific Highway and Apex Park

Apex Park

Watanobbi Road

Cutler Drive

Proposed bus stop

Northcott Avenue

Watanobbi Road

Pacific Highway

Pacific Highway

D

D

Railway

Railway

Proposed bus stop

TO TUGGERAH

TO WADALBA

3.2 Design

3.2.1 Design criteria

Specific design criteria adopted for the proposed modification are summarised in Table 3-1 alongside those presented in the Project REF. The design criteria adopted for the proposed modification comply with current standards and guidelines, as listed below in priority order:

1. Professional Services Contract Concept Design Brief (Brief)
2. Transport publications
3. Austroads Guide to Road Design with Transport supplements
4. Australian standards
5. Standards Australia handbooks.

Table 3-1 Key design criteria for the main carriageway on the Pacific Highway

Design element	2015 design criteria	2024 design criteria
Posted speed - Johnson Road to south of River Link Road - North of River Link Road to Apex Park - Apex Park to northern limits of the proposal	 60 km/hr 50 km/hr 60 km/hr	 60 km/hr 50 km/hr 60 km/hr
Design speed - Johnson Road to south of River Link Road - North of River Link Road to Apex Park - Apex Park to northern limits of the proposal	 60 km/hr 60 km/hr 60 km/hr	 70 km/hr 60 km/hr 70 km/hr
Lane widths	3.3 m	3.3 m
Median width	1.2 m	Varies, 1.7 m (typical)
Nearside (outside) shoulder width (with cyclist provision)	1.5 m	Not applicable
Nearside (outside) shoulder width (desirable)		1.5 m
Offside (median) shoulder width	0.0 m	0.0 m
Left turn auxiliary lane widths		3.0 m (excluding gutter)
Right turn auxiliary lane widths		3.0 m
Off-road bi-directional cycleway width		3.5 m (desirable), 3.0 m (minimum)
Shared path width		2.5 m
Footpath		Varies, 1.2 m (min)

3.2.2 Engineering constraints

Engineering constraints that apply to the proposed modification are described in Section 3.2.2 of the Project REF (see Table 3-2) and are consistent with the proposed modification.

Table 3-2 Engineering constraints identified in the Project REF

Engineering constraints
• A narrow corridor for design and construction • A consistent design which accommodates the existing Sydney Trains infrastructure • Accommodate additional footprint requirements for future possible rail upgrades • Meet bridge design standards • Minimise impacts on built form in the Wyong Town Centre • Maintain access to existing businesses and facilities in the town centre, including the Wyong Railway Station, during construction • Assure the design does not increase flood levels within the wider catchment • Allow for relocation, protection and access to public and private utilities.

An additional engineering constraint adopted for the concept design considered under this Addendum REF is as follows:

- Minimise impacts to traffic during construction.

3.2.3 Main features of the modification

McPherson Road intersection

A signalised intersection is proposed for the intersection of McPherson Road and the Pacific Highway (refer to Figure 3-1). The new intersection would be located approximately 40 m south of the existing McPherson Road alignment. The previous concept design proposed a roundabout for the McPherson Road / Pacific Highway intersection. The signalised intersection aims to improve traffic performance. The intersection would also provide cyclists and pedestrians with safer and more efficient crossing points, providing safe access to the new off-road cycleway. A U-turn bay would be provided on South Tacoma Road to allow vehicles to turn around safely and travel in the opposite direction.

Wyong River bridge

The Project REF described two separate bridges for northbound and southbound traffic to cross the Wyong River. In the proposed modification, a single bridge would accommodate both northbound and southbound traffic (refer to Figure 3-1). The bridge height and length would be consistent with the previous concept design, with waterway clearance requirements consistent with that described in the Project REF. The width would be reduced from an overall width of 28.6 m (twin bridge layout) to 25.4 m (single bridge layout) while still maintaining four lanes of traffic. The bridge would have a cycleway on the eastern side and a shared path on the western side. The cycleway would be a prefabricated structure that would be attached to the eastern side of the bridge. At McPherson Road, the highway would be aligned to the west of the existing road and rail bridges, which would allow the new Wyong River Bridge to be constructed without impacting the existing bridge, allowing continued use by traffic during construction. This would result in improved constructability, streamlined construction timelines, and reduced proposal costs.

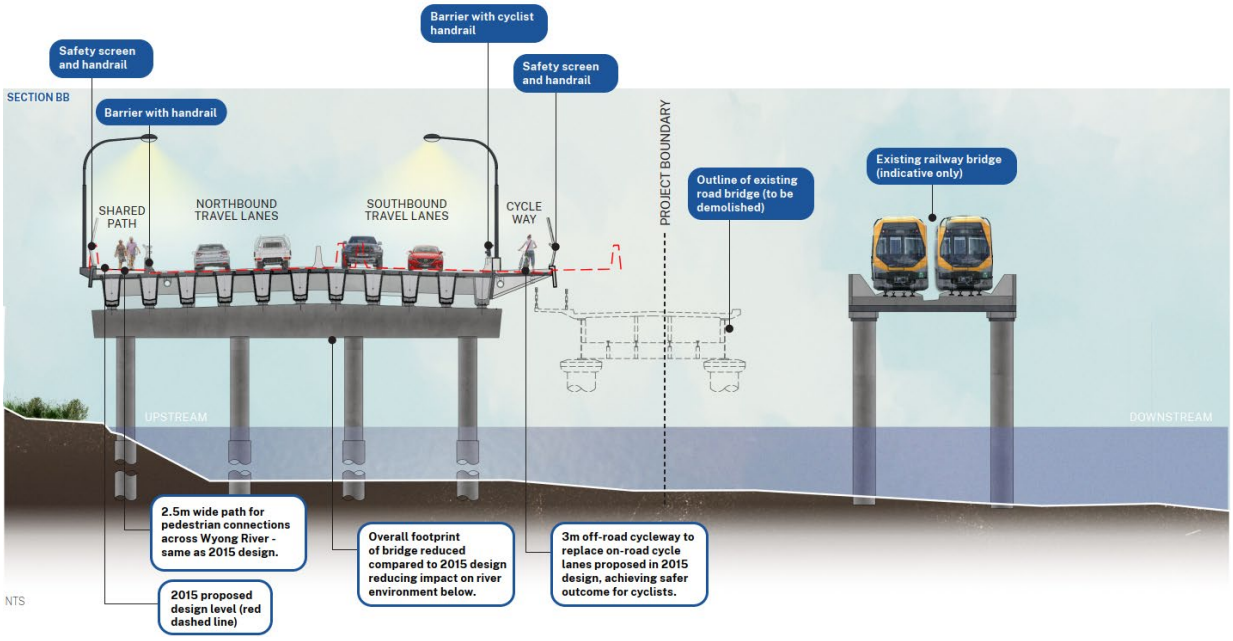


Figure 3-4 Wyong River bridge cross-section

Panonia Road, River Road and Pacific Highway intersection

The Project REF described a roundabout at the Panonia Road, River Road and Pacific Highway intersection. However, the proposed modification would remove this roundabout to accommodate turning paths for larger vehicles (up to a 12.5 m single-unit truck and 19 m semi-trailer). The Pacific Highway and River Road intersection has been moved 110 m north to suit the highway widening and is left-in left-out only. Stop lines would be used to control intersection priority at Panonia Road and River Road (refer to Figure 3-1). The removal of the roundabout as part of the proposed modification would also allow for a greater offset between temporary and permanent works and the Wyong River.

Wyong Town Centre pedestrian routes and urban design

The crossfall of the Pacific Highway would be adjusted to slope towards the southbound carriageway and rail corridor at Church Street (refer to Figure 3-5). The Project REF described the crossfall as sloping towards the west, away from the rail corridor. This adjustment would reduce the height of the retaining wall adjacent to the rail corridor, improve pedestrian connectivity from Church Street to the existing station access, and reduce overall proposal costs.

The existing footpath on the west side of the Pacific Highway through the town centre was proposed to be reconstructed in the Project REF. The proposed modification would retain the existing footpath and increase its width, eliminating the need to rebuild the path and the underlying water main. Retaining the existing footpath would be significantly less disruptive for businesses and pedestrians and would also help maintain the town's character.

The Project REF described an extension of the railway pedestrian bridge to connect directly to the Pacific Highway. The proposed modification would remove this pedestrian bridge extension, and pedestrians would continue to access the station at grade via an upgraded pedestrian plaza adjacent to the intersection and crossings at Church Street (refer to Figure 3-5). This change aims to reduce constraints on the highway widening, avoid conflict between pedestrians and cyclists, improve connectivity between rail and bus services, and lower proposal costs. Bus stops would be relocated to the southern side of the upgraded Church Street Plaza, reducing the walking distance for passengers changing travel modes (refer to Figure 3-2). It also avoids potential conflicts with future rail corridor improvements.

Aligned with removing the pedestrian bridge extension, the associated mid-block pedestrian refuge crossing proposed on the Pacific Highway would also be removed as part of the modification. A signalised pedestrian crossing is located at the Church Street intersection and would be upgraded. Focussing pedestrian activity at Church Street Plaza aims to improve safety and traffic flow.

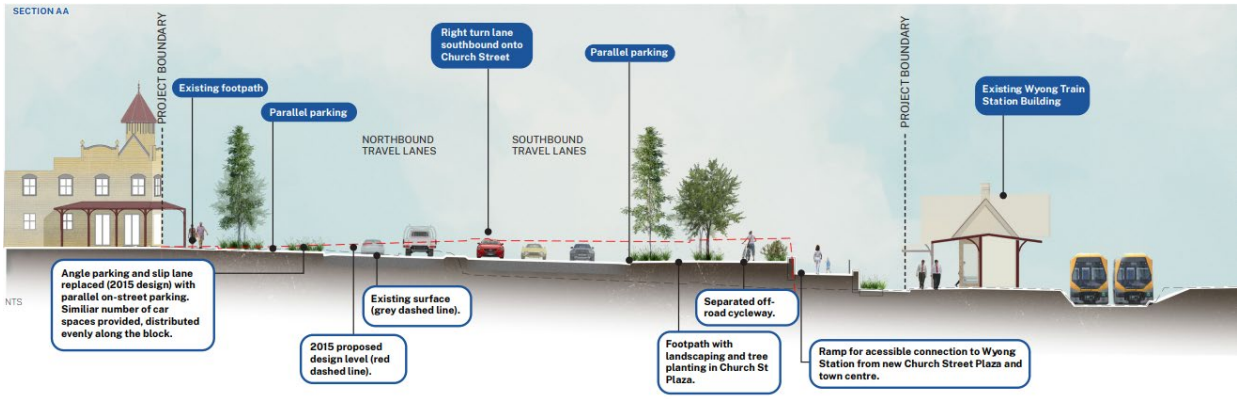


Figure 3-5 Wyong Town Centre cross-section

Wyong Town Centre on-street parking

The proposed modification would include parallel parking and removing the service lane between Church Street and Alison Road. In the Project REF, the concept design included angled parking with a service lane between Church Street and Alison Road for northbound traffic. This design adjustment would reduce on-street parking spaces from 84 to 65 (a reduction of 19 spaces) (further discussed in Section 6.2). However, despite the overall reduction the opportunities for short term parking on both sides of the highway in front of existing businesses in the main town centre would be retained.

However, the modification would allow for an increased area dedicated to pedestrian footpaths and landscaping while addressing safety concerns, such as potentially unsafe exits onto the highway (vehicles leaving the service lane) and conflicts with traffic near the Alison Road intersection. By implementing these adjustments, the proposed modification prioritises pedestrian safety, improves traffic flow, and enhances the overall functionality and aesthetics of the Wyong Town Centre.

Robleys Lane

The proposed modification entails closing vehicle access from Robleys Lane to the Pacific Highway (refer to Figure 3-2). The Project REF described a commercial driveway-style connection with the Pacific Highway, primarily to service the Grand Hotel Wyong. The proposed modification would remove the road crossing point for pedestrians and eliminate the proposed steep access from the Pacific Highway to Robleys Lane caused by the nearby Rose Street bridge interface. Access to the Royal Hotel Wyong would be maintained throughout the construction period, and ongoing access is available through Robleys Lane via Hely Street.

Rose Street bridge

The Project REF proposed building a new bridge on the same alignment as the existing bridge (currently called the 'Howarth Street Bridge'). The proposed modification would build the new bridge (Rose Street bridge) on an alignment south of the existing bridge (refer to Figure 3-2). The bridge would be narrower than that proposed in the Project REF, with narrower lanes and two westbound lanes rather than three. The proposed footpath on the bridge's northern side would also be removed. The offline construction of the new bridge provides construction efficiencies and reduces disruption to traffic.

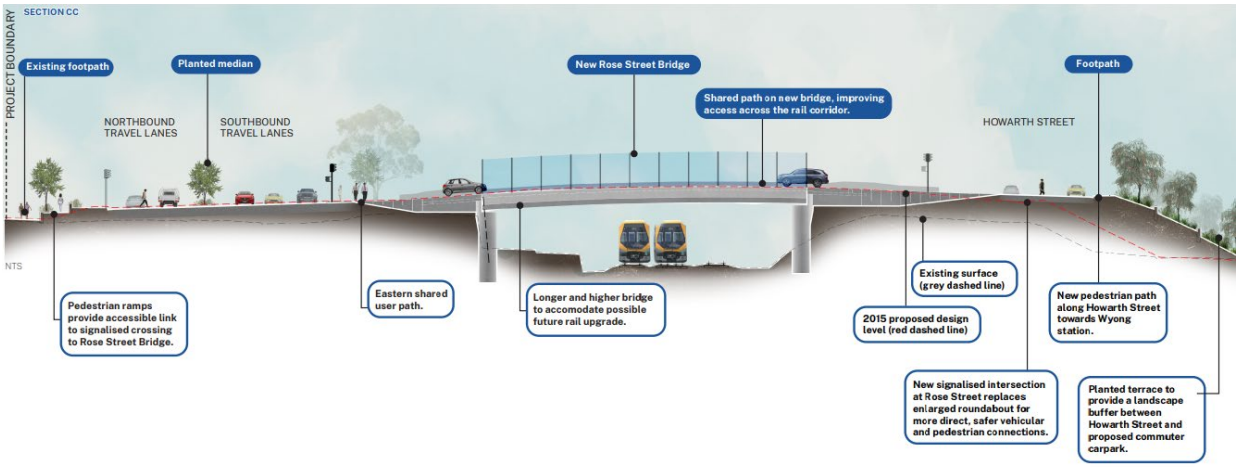


Figure 3-6 Howarth Street and Rose Street bridge cross-section

Howarth Street connection to Rose Street and Rose Street bridge

Rose Street is currently accessible directly from Howarth Street, and it was proposed that this intersection be retained in the Project REF. The modification proposes closing the Rose Street / Howarth Street intersection by making Rose Street a cul-de-sac and building a new signalised T-intersection in place of the previous Howarth Street / Rose Street roundabout that was shown in the earlier concept design (refer to Figure 3-2). These changes are driven by several factors:

- Increasing the available footprint for public access, pedestrian connectivity to and from the commuter car park to the station and car park improvements
- Removing through traffic on Rose Street, which is currently a 'rat-run' during peak traffic periods
- Improve pedestrian safety, particularly in proximity to the childcare centre and the sports precinct on Ithome Street
- Removing the risk of heavy vehicle roll-over on Howarth Street with its steep grade, including horse floats
- Increasing the available footprint for public access, including pedestrian connectivity with more direct paths and traffic lights for crossing and additional space for commuter car park improvements
- Improving intersection performance, including on weekends when community sporting events drive traffic patterns at Baker Park differing from weekday peaks.

Commuter car park

The existing car park at Rose Street would be reconfigured and expanded to offset the reduced existing long-term parking around the Wyong Railway Station, which has been acquired for the highway expansion (refer to Figure 3-2). The Project REF described a multistorey structure over the existing footprint, with 488 total parking spaces.

The proposed modification now includes expansion of the existing car park footprint at grade to the west and south, providing 380 spaces in total with provision for the expansion of the commuter car park in the future based on revised long-term parking demand. Additionally, removing the elongated roundabout at Howarth Street / Rose Street, which is part of this proposed modification, also provides more available space (than was in the Project REF), allowing for more spaces constructed at ground level than described in the project REF. This approach provides the opportunity to stage construction and costs to match current commuter parking demand and at grade construction simplifies the construction methodology and connections to the station.

Consistent with the access arrangements described in the Project REF, vehicle access to the commuter car park would still be via a new access directly to and from Howarth Street and retain the existing 'lower' access to and from Rose Street.

Cycle lanes

The modification proposes design changes to cycle lanes, which are shown in Table 3-3. These changes aim to improve cyclist safety, promote active forms of transport, and maintain the existing character of the town centre.

The proposed modification includes the removal of on-road cycle lanes, with a wider dedicated off-road cycleway being provided along the eastern side of the Pacific Highway. The off-road cycleway provides a safer way for cyclists of all abilities to traverse the area and extends the existing off-road cycleway on the Pacific Highway south of Johnson Road to the Wyong Town Centre and station.

Table 3-3 Cycle lanes and footpaths design changes

Item	Project REF	Proposed modification
Eastern side of the Pacific Highway	The Project REF described a shared path along the eastern side of the Pacific Highway from Johnson Road to North Road. The Project REF described on-road cycle lanes on the Pacific Highway along the length of the proposal in both directions.	The proposed modification removes the eastern shared path and on-road cycleway lanes from the design and proposes an off-road cycle path on the eastern side of the Pacific Highway between Johnson Road and North Road.
Western side of the Pacific Highway	The Project REF described a pedestrian footpath along the western side of the Pacific Highway from Johnson Road to North Road.	The proposed modification includes a 2.5 m wide shared-use path along the western side of the Pacific Highway from McPherson Road to River Road. The modification proposes retaining the existing western footpath between Church Street and the Rose Street bridge, which would be adjacent to a new 1.8 m wide footpath used for accessing parallel parking. Users of the eastern cycleway would cross at the new traffic lights at North Road and connect to Watanobbi Road on the western side of the Pacific Highway, which would be upgraded for shared cycle and pedestrian use up to the intersection with Cutler Drive.
Shared paths – side roads	The Project REF described a provision in the design for the future construction of a shared path along River Road and Panonia Road to connect with Central Coast Council's infrastructure to the north-west.	The proposed modification includes a shared path along the western side of Panonia Road / River Road, as well as the northern side of South Tacoma Road (adjacent to the Wyong River). A future connection between the shared path along River Road and Central Coast Council's infrastructure to the north-west would be investigated in consultation with council. Along the Rose Street bridge and Howarth Street, a shared path is proposed to provide a connection from the proposed cycleway on the Highway to the eastern side of Wyong Railway Station.

Pacific Highway and Apex Park

The Project REF described a left-in, left-out intersection at Apex Park to replace the Watanobbi Road intersection off North Road. The modification proposes design changes to the road width along the Pacific Highway adjacent to Apex Park, between North Road and Cutler Drive and would remove the previously proposed left-in, left-out access to Watanobbi Road from the Pacific Highway. Cyclists and pedestrians would be relocated onto Watanobbi Road, which would be upgraded for shared use and remain a closed-off street parallel to the Pacific Highway (refer to Figure 3-3). The drainage channel adjacent to the Pacific Highway has been moved to the east, which has allowed for more of the existing vegetation within Apex Park to be retained (Figure 3-7).

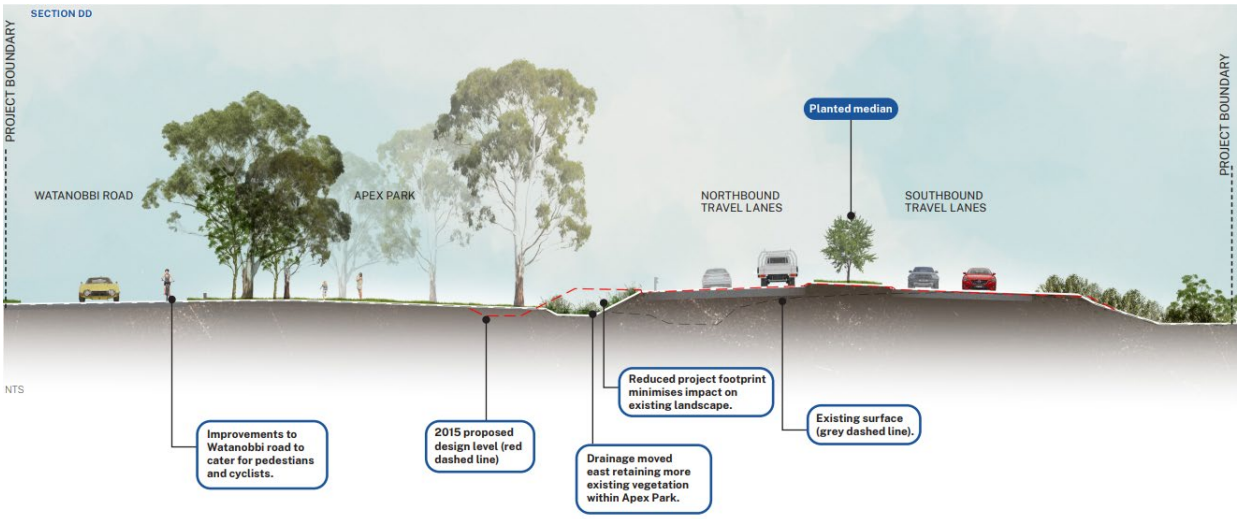


Figure 3-7 Watanobbi Road / Pacific Highway cross-section

Warner Avenue roundabout

The previous concept design accommodated a 12.5 m bus turning movement at the Warner Avenue roundabout. The proposed modification now enables this roundabout to accommodate a 14.5 m long rigid bus turning (refer to Figure 3-2), which is the type typically used for rail replacement services.

Bus stops and bus routes

Several modifications are proposed to bus stops along the Pacific Highway. The replacement of the roundabout with a signalised intersection at McPherson Street allows the retention of the existing bus stops at this location. A bus stop has been added to Howarth Street, and some bus stops have been relocated north to be closer to the Church Street Plaza entrance, improving connectivity with the Wyong Railway Station and the town centre. The existing bus stops on the Pacific Highway south of Rose Street bridge, and the bus interchange at the station would be removed, with new bus stops being located at Church Street, providing connection to the Wyong Railway Station via the Church Street Plaza. These stops would have capacity for two buses pull in at same time. Other changes include adjusting bus stop positioning to ensure safe manoeuvres for vehicles and slight alterations in main alignment chainage between the designs, maintaining consistency with the overall proposal concept.

Eastern bus layover

Consistent with the Project REF, the eastern car park at Wyong Railway Station is to be modified to accommodate a bus layover, which would include bus driver rest facilities south of the existing station pedestrian bridge. The connectivity to the bus layover would be enhanced by the provision of footpaths and shared paths (as described in Table 3-3). The layover area has been designed to accommodate 14.5 m regional coaches, which would use the area to receive passengers during rail shutdowns. A taxi rank and accessible parking would be provided to the north of the pedestrian bridge, with a bicycle storage facility that would be accessed via a shared use path that runs along the western edge of the bus layover area (as described in Table 3-3).

Retaining walls

As a result of updates to the civil design associated with the proposed modification, a number of retaining walls have been reconsidered, and several retaining walls have been removed from the design. These updates are provided in Table 3-4.

Table 3-4 Retaining wall design changes

2015 ID	Description	Change(s)
MW13	Retains the Pacific Highway southbound above the rail corridor and the drainage channel opposite Johnson Road	The retaining wall has been removed through the revised civil design.
MWB0	Retains the Pacific Highway southbound above the rail corridor and the drainage channel opposite McPherson Road	The retaining wall has been removed through the revised civil design.
MW3J	Retains the Pacific Highway northbound (Wyong River bridge northern embankment) above Panonia Road and connects to the Wyong River bridge northern abutment	The retaining wall has been adjusted to match the revised civil design and interface with the Wyong River Bridge.
MW10	Retains Pacific Highway southbound above rail corridor and connects to Wyong River bridge north abutment	The retaining wall has been removed through the revised civil design.
MW11	Retains rail corridor above realigned Pacific Highway southbound	Updates and shortening of the retaining wall details and alignment to suit the revised civil design.
MW12	It retains the southbound Pacific Highway above the rail corridor from Church Street to Anzac Avenue. It also incorporates the Rose Street bridge western abutment	The retaining wall has been adjusted / shortened to align with the revised civil design.
MWM9	Rose Street bridge eastern abutment wall retaining Howarth Street above the rail corridor	The retaining wall has been adjusted to align with the relocation of the Rose Street bridge.
MW1J	Retains the Pacific Highway southbound above the rail corridor near Cutler Drive	The retaining wall has been removed through the revised civil design.
MWB1	Retains the riverbank at Wyong River to support South Tacoma Road	The retaining walls have been removed through the revised civil design. A boardwalk structure would be provided to support the shared path along Panonia Road to the east of the Wyong River bridge.
MW31	Retains the Wyong River's northern bank to support Panonia Road	
MW32	Retains the Wyong River's northern bank to support River Road	
MWPJ	Retains parking above Howarth Street between Wyong Railway Station and Rose Street	The retaining wall has been removed through the revised civil design.
MW1C	Retaining walls to facilitate the commuter car park	The retaining wall designs have been changed to accommodate the revised commuter car park design.
MW2A		
MW2C		
No ID	Retains the western edge of the Pacific Highway through the town centre	The retaining walls have been removed through the revised civil design. To facilitate a new shared path ramp, a new retaining wall is proposed between Pacific Highway and the new footpath provided at the Rose Street intersection.
No ID		

Transverse drainage

The design of several culverts has been updated to suit the revised road design. This largely involves a reduction in the size of the culvert required. These changes have been summarised in Table 3-5 and the location of the changes is shown in Figure 3-8. The proposed modification also involves relocating the existing stormwater channel that is currently between the Pacific Highway and McPherson Road. A new culvert would be constructed to the west of the Pacific Highway and discharge to the Wyong River, west of the new Wyong River bridge.

Table 3-5 Culvert design changes

Culvert location (chainage (m))	Project REF	Proposed modification
Pacific Highway (1,690 m)	The Project REF described the replacement of this culvert. The culvert dimensions were 1 x 2.40 m wide x 0.90 m high	The modification maintains the proposed dimensions of the culvert as per the REF proposal and would reduce the length of this culvert by 1.3 m
Pacific Highway (1,800 m)	The Project REF described a new culvert at this location. The culvert dimensions were 2 x 2.10 m wide x 0.90 m high	The modification maintains the proposed dimensions of the culvert as per the REF proposal and would reduce the length of this culvert by 2.6 m
Apex Park Link (1,810 m)	The Project REF described a new culvert at this location. The culvert dimensions were 1 x 2.7 m x 0.75 m high	The modification proposes to remove this culvert as this intersection is no longer being provided
Pacific Highway (1,940 m)	The Project REF described the replacement of this culvert. The culvert dimensions were 3 x 3.60 m wide x 1.20 m high	The modification maintains the proposed dimensions of the culvert as per the REF proposal and would reduce the length of this culvert by 8 m
Pacific Highway (2,100 m)	The Project REF described a new culvert at this location. The culvert dimensions were 3 x 3.30 m wide x 0.90 m high	The modification maintains the proposed dimensions of the culvert as per the REF proposal and would reduce the length of this culvert by 0.5 m and realign the headwall to suit the table drain
Cutler Drive (2,110 m)	The Project REF described the replacement of this culvert. The culvert dimensions were 1 x 2.70 m wide x 0.75 m high	The modification maintains the proposed dimensions of the culvert as per the REF proposal and would extend the length of this culvert by 4.5 m and realign the headwall to suit the table drain

AECOM

N

0 25 50 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway
- Motorway
- Culvert modification location

FIGURE 3-8:
PROPOSED CULVERT MODIFICATIONS

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

Rail enabling works

As the new width of the upgraded section of the Pacific Highway would cut into the operational rail corridor and impact some rail corridor assets and an existing down refuge siding which curves away from the main line towards the highway, Transport has acquired a portion of land to relocate impacted infrastructure as described in the 2015 Project REF. An Environmental Impact Assessment Checklist completed for the Wyong Rail Enabling Works (NSW Roads & Maritime Services, 2017b) assessed impacts associated with the enabling works, including a potential up-siding electrification and perway siding extension to replace the down refuge siding, which is still periodically used for rail maintenance access and incident management.

The proposed modification now includes a new reduced scope for the rail enabling works, which is based on the retention of the Down Refuge siding within the current rail corridor with a straightening of its alignment towards the main rail line (Slewing). The new Down Refuge siding would include a new buffer stop, hi-rail access pad, slotted drain and speed board. It would also require a shift in the alignment of the nearby retaining wall along the highway, fence and access gates described in the Project REF between the rail and the new highway, allowing rail service vehicle access via a 3 m wide track beside the siding.

The rail enabling works are within the overall proposal area and disturbance limits and would be subject to other environmental management and planning processes for rail projects.

All other rail enabling scope associated with impacted rail assets, including the demolition of railway maintenance buildings and sheds and the changes to overhead rail electrical wiring at the Rose Street bridge and the relocation of existing 11kV and 66kV rail power supply lines on Howarth Street and the Pacific Highway northwards to Cutler Drive, remain the same as described in the 2015 Project REF and the 2017 EIA checklist and are all in or directly associated with the existing operational rail corridor.

No further assessment of these other works is necessary, as the disturbance area and access would remain the same as anticipated in the 2015 Project REF, and the assessment conducted by Transport within the rail projects Environmental Impact Assessment Checklist (NSW Roads & Maritime Services, 2017b).

Proposal boundary changes

A revised proposal area has been created for the Addendum REF. Figure 3-9 to Figure 3-11 shows the revised proposal area compared to the area shown in the Project REF and the 2017 Addendum REF. The revised proposal area has been extended to include the following components:

- The rail corridor from the southern extent of the proposal area to the north of the Rose Street bridge, to include the rail enabling works
- Lot 4 of DP 614523 at Ithome Street to provide a possible temporary car park during the construction of the commuter car park
- Additional boundary extensions are required for temporary and permanent works at the following locations:
  - South Tacoma Road
  - Howarth Street
  - North Road
  - Rose Street
  - Wyong Gateway development, No. 6-8 Pacific Highway (Lot 1 DP335938 and Lot 135 DP755245)
  - Wyong Ambulance Station, No. 128 Pacific Highway (Lot 2 DP203172)
  - LJ Hooker, No. 130-136 Pacific Highway (Lot 18 DP651480).

No additional property acquisition is required due to the proposed modification, see Section 3.6.

AECOM

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0 100 200 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

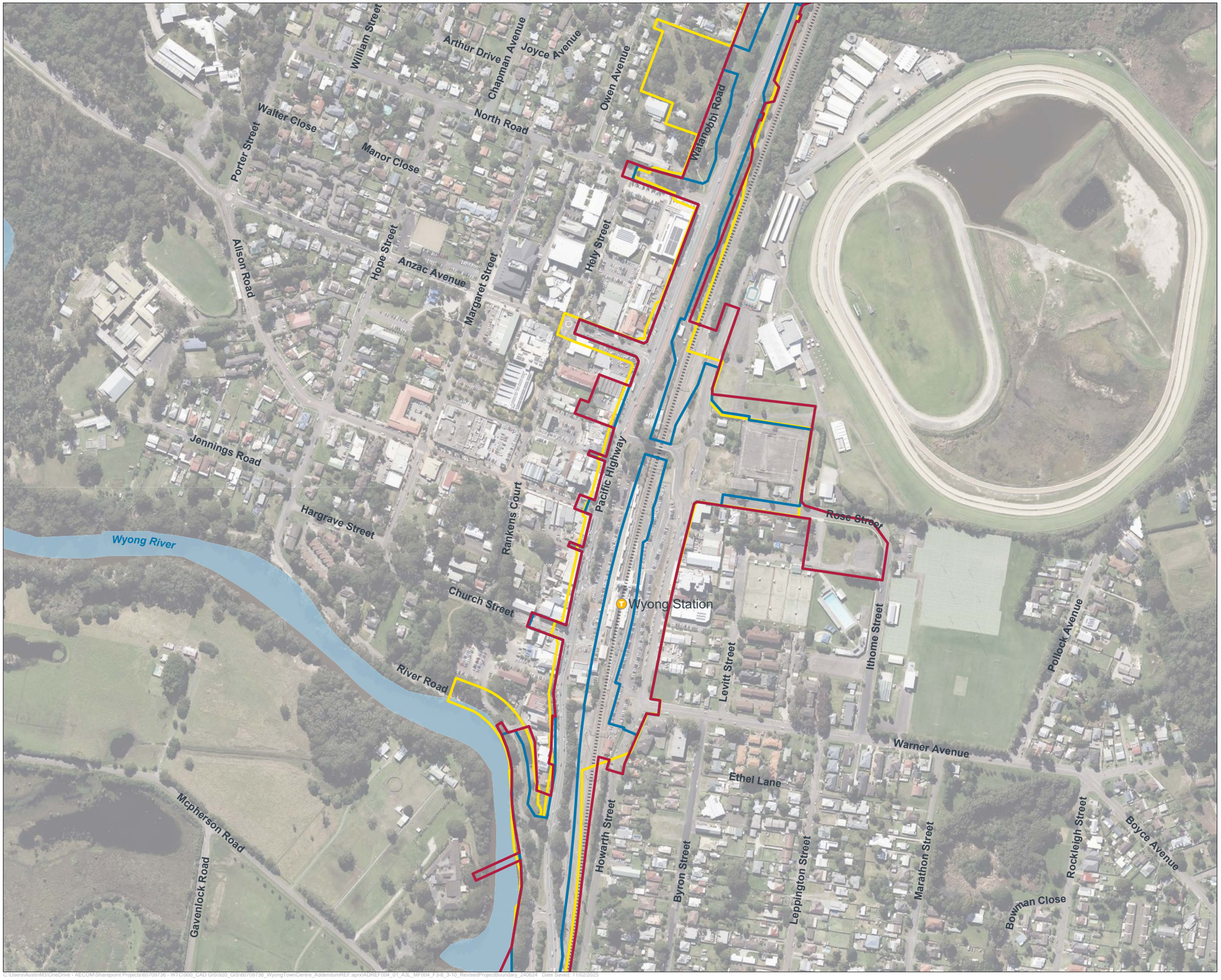
COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area (AREF #2 2024)
- Project Boundary (AREF #1 2017)
- Project Boundary (REF 2015)
- Railway
- Watercourse

FIGURE 3-9:
REVISED PROPOSAL AREA
- SOUTH

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023



AECOM

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0 100 200 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

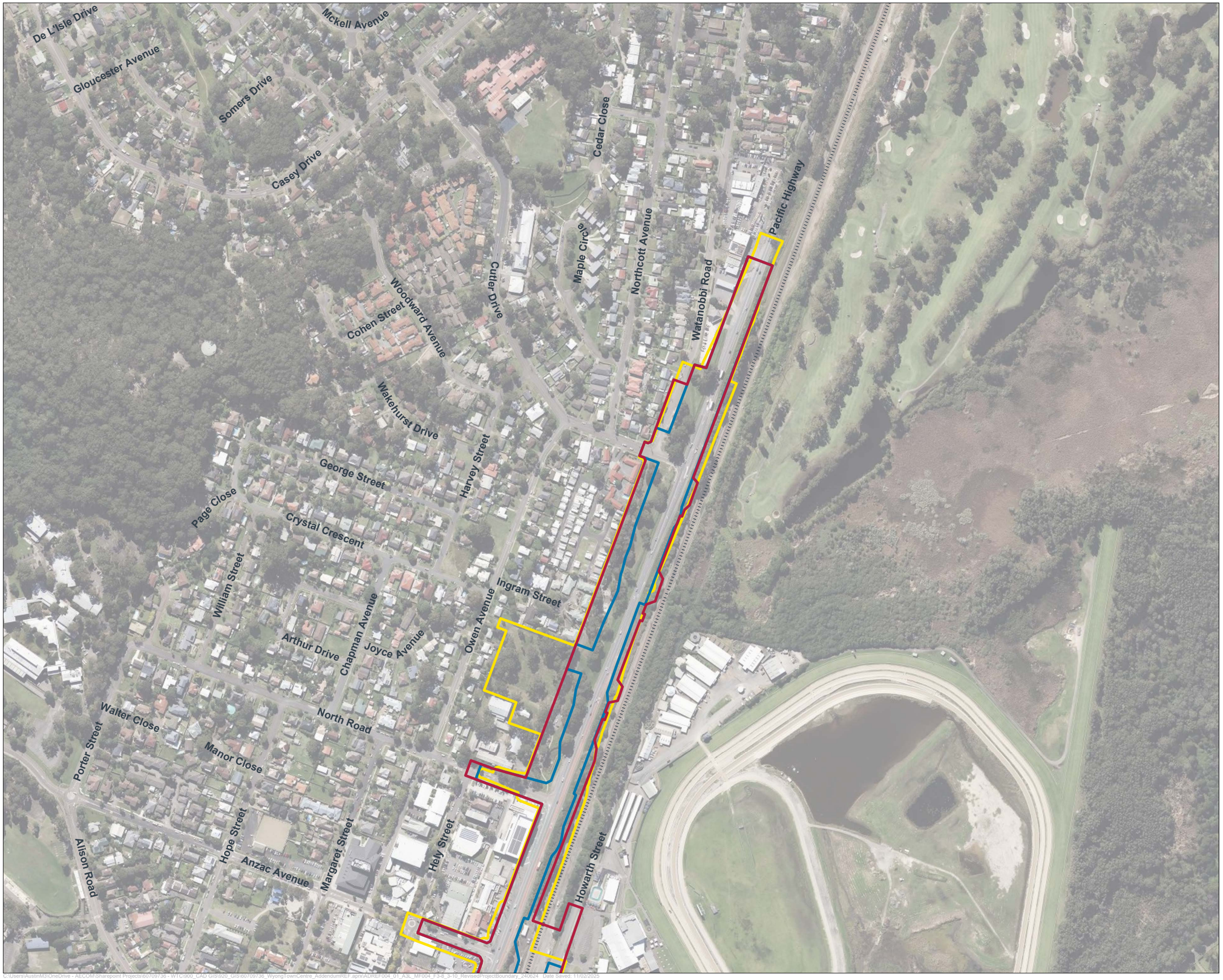
COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area (AREF #2 2024)
- Project Boundary (AREF #1 2017)
- Project Boundary (REF 2015)
- Railway
- Watercourse

FIGURE 3-10:
REVISED PROPOSAL AREA - CENTRAL

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023



AECOM

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0 100 200 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area (AREF #2 2024)
- Project Boundary (AREF #1 2017)
- Project Boundary (REF 2015)
- Railway

FIGURE 3-11:
REVISED PROPOSAL AREA
- NORTH

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

3.3 Construction activities

3.3.1 Work methodology

Given the extent of the proposal, the works have been divided into three construction zones, including:

- South zone - Pacific Highway from Johnson Road to the intersection between Panonia Road and River Road, including the Wyong River bridge
- Central zone - Pacific Highway from the intersection between Panonia Road and River Road to the intersection between Anzac Avenue and Pacific Highway, including the Rose Street bridge
- North zone - Pacific Highway from the intersection between Anzac Avenue and Pacific Highway to the intersection between Cutler Drive and Pacific Highway
- Rail corridor – Main North Railway from Wyong River to Wyong railway station

The indicative construction methodology associated with each zone is described in Table 3-6. A detailed construction methodology would be prepared by the successful construction contractor.

Table 3-6 Proposed construction methodology

Construction zone and stage	Proposed construction methodology
South Stage 1	• Conduct traffic configuration activities as nightworks • Site establishment • Demolish properties along McPherson Road / South Tacoma Road • Establish a project management compound on Transport-owned land on the southern side of the Wyong River, west of South Tacoma Road • Carry out clearing and offline works • Carry out riverbank adjustments • Realign South Tacoma Road and Panonia Road • Relocate utilities requiring potential weekend and nightworks (all stages) • Construct new stormwater infrastructure and pavement requiring potential weekend and nightworks (all stages) • Switch traffic to new South Tacoma Road, Panonia Road, and McPherson Road alignments as nightworks.
South Stage 2	• Conduct traffic configuration activities as nightworks • Commence bridge works, including: – Establishing working areas on both sides of the riverbank – Construction of temporary working platform in Wyong River – Conduct piling for all piers and abutments – Construction of approach slabs.
South Stage 3	• Conduct traffic configuration activities as nightworks • Demolish the existing Wyong River bridge – Install a catch net to the underside of the existing bridge to collect debris – Mill off existing asphalt – Remove barriers, fences, light poles etc. – Install mobile crane/s on the southbound lanes of the new bridge – Cut concrete deck into sections and lift sections with crane to trucks on southbound lanes of new bridge – Remove lead paint to the extent required for demolition. Apply sealing paint to remaining painted area – Cut steel components into sections and lift section with crane/s to trucks on southbound lanes of new bridge – Demolish piers. • Construct abutment extensions to new bridge • Install the prefabricated cycleway on the eastern side of the new bridge • Complete southbound Pacific Highway approaches earthworks, retaining walls and pavements • Open traffic to new Pacific Highway alignment.

Construction zone and stage	Proposed construction methodology
Central Stage 1	• Construct temporary offset commuter car park (if required) • Demolish buildings • Relocate utilities requiring potential weekend and nightworks (all stages) • Commence construction of the new commuter car park and partially commission • Construct the new bus layover area within the existing commuter car park east of the Wyong Railway Station and commission • Construct Howarth Street roundabout • Construct temporary Howarth Street alignment on the north-eastern side of the existing Howarth Street / Rose Street roundabout • Construct new stormwater infrastructure and pavement requiring potential weekend and night work (all stages) • Carry out rail infrastructure adjustments for bridge works as OOHW during scheduled rail shutdowns.
Central Stage 2	• Conduct traffic configuration activities as nightworks • Construct new Rose Street bridge – Establish sites on the eastern and western side of the railway line at rail level – Demolish / clear existing rail infrastructure either side of the existing bridge – Carry out rail adjustments as OOHW during scheduled rail shutdowns. – Conduct bridge construction activities. • Construct retaining walls • Construct new southbound Pacific Highway alignment through existing commuter car park area • Construct Howarth Street south of Rose Street bridge • Remove the Howarth Street / Rose Street roundabout • Switch Rose Street traffic to new Rose Street bridge as nightworks.
Central Stage 3	• Conduct traffic configuration activities as nightworks • Demolish existing Rose Street bridge • Construct the northbound Pacific Highway pavement requiring potential weekend and nightworks • Open traffic to new Pacific Highway alignment • Complete construction of the Howarth Street and Rose Street intersection • Open traffic to new Howarth Street and Rose Street intersection.
North Stage 1	• Conduct traffic configuration activities as nightworks – Pacific Highway traffic between existing Rose Street bridge and North Road is switched to shoulder and northbound lane • Relocate utilities requiring potential weekend and nightworks (all stages) • Construct drainage swales and culverts • Construct southbound Pacific Highway
North Stage 2	• Conduct traffic configuration activities as nightworks – Pacific Highway traffic switched to new southbound lanes from north of new Rose Street bridge • Upgrade existing highway along northbound side • Complete culverts commenced in Stage 1 • Construct connecting streets pavement and upgrade Watanobbi Road as shared use facility.
North Stage 3	• Complete works including remaining permanent signs and road furniture • Switch traffic to final four lane alignment as nightworks • Switch on Cutler Street traffic lights as nightworks.
Rail corridor	• Slew existing siding south of Wyong Railway Station to the east, including: – Construct retaining walls – Relocate utilities requiring potential weekend and nightworks – Construct new siding, including track, overhead wiring and signalling as required

3.3.2 Construction hours and duration

Construction activities are anticipated to last four years (weather permitting). Subject to project approval and funding availability, construction is expected to commence late 2026 or early 2027, with early work such as property demolitions expected to occur in late 2025.

Most works required for the proposal would be undertaken during standard construction hours as follows:

- 7:00 am to 6:00 pm Monday to Friday
- 8:00 am to 1:00 pm Saturdays
- No work on Sundays or public holidays.

Out of hours works (OOHW) would be required to enable completion of a large number of activities within the rail corridor. This includes rail enabling works, utility crossings and bridge works. These would be undertaken during scheduled rail shutdowns (rail possession) which typically occur either over several days on a weekend or a series of nights.

In addition, OOHW would be required for road tie in construction activities on Church Street, Anzac Avenue and Alison Road and existing footpaths from time to time on the highway within the central zone to limit the potential impact on businesses and pedestrians. OOHW would also be required for utility relocation work, as outlined in the Project REF.

The OOHW that would be required for the proposed modification are generally consistent with those described in Section 3.4.2 of the Project REF. Extended work hours and out of normal hours would include:

Extended work hours

- 6:00 am to 8:00 pm Monday to Friday
- 7:00 am to 5:00 pm Saturdays
- No work on Sundays or public holidays.

Out of normal hours

- 8:00 pm to 6:00 am Monday to Sunday
- No work on public holidays, excluding scheduled rail shutdowns which are booked by rail operators for public holiday weekends and holiday periods.

Activities undertaken at night would reduce road safety risks, minimise disruption to daytime regional and local traffic flows, minimise impacts on commuter rail services and reduce potential disturbance to businesses in the town centre. Night works would also be used to minimise disruptions to pedestrian and commuter movements around the town centre and railway station during daytime and peak periods. OOHW may also be necessary to facilitate constructability and to aid construction programming.

3.3.3 Plant and equipment

The plant and equipment required for the construction of the proposed modification are consistent with those identified in Section 3.4.3 of the Project REF.

3.3.4 Earthworks

The proposed modification has required a re-evaluation of the earthworks required to achieve the new levels. An updated list of cut and fill materials is provided in Table 3-7.

Table 3-7 Summary of earthworks

Material	Cut/Fill	2015 concept design volume (m^3)	2024 concept design volume (m^3)
Topsoil	Cut	9,000	6,700
General earthworks	Cut	28,000	60,000
	Fill	90,000	66,000
Selected material imported from beyond works area	Fill	13,000	11,800
Selected material imported for upper zone formation imported beyond the works area	Fill	8,000	15,400
Unsuitable material	Cut	2,700	2,400
Selected material imported for unsuitable replacement	Fill	2,700	2,400

In addition to the earthworks provided above, Table 3-8 provides estimates for earthworks excavation activities associated with drainage, utilities, car park, landscaping and local roads. These estimates were not provided in the Project REF but have been detailed below to determine the proposal's need for an Environmental Protection Licence (further discussed in Section 4.2).

Table 3-8 Additional earthworks

Excavation requirement	Cut (m^3)	Fill (m^3)
Drainage		
Excavation for Open Drains	1,848	
Excavation for Pipe Culverts	19,215	
Excavation for Box Culverts	1,192	
Excavation for Other Drainage Structures	1,355	
Inadequate Foundation Material under Drainage Structures and Open Drains	500	
Utilities		
Utilities (total cut)	10,483	
Utilities – materials reused as fill (cut to fill)		8,974
Utilities – Imported select fill (bedding and material around conduits)		1,769
Spoil	1,781	
Commuter car park		
Commuter car park	2,300	1,300

3.3.5 Source and quantity of materials

Materials required for the proposed modification are generally consistent with those described in the Project REF. An updated list of imported materials and quantities is provided in Table 3-9. The potential sources of major raw materials that would be required for the proposed modification would be similar to those described in Section 3.4.5 of the Project REF.

Table 3-9 Major raw materials to be imported

Product	Imported materials	2015 concept design quantity	2024 concept design quantity
Concrete sub-base	Aggregate Sand Cement	370 m^3	300 m^3
Concrete base	Aggregate Sand Cement	570 m^3	3,400 m^3
Concrete in situ (non-pavement)	Aggregate Sand Cement	Not provided	16,100 m^3
Concrete (Precast)	Aggregate Sand Cement	Not provided	2,900 m^3
Steel reinforcement	Steel	Not provided	3,100 t
Steel other	Steel	Not provided	1,300 t
Asphalt	Dense graded asphalt	6,060 m^3	7,000 m^3
Granular pavement	Aggregate	Not provided	9,600 m^3
Heavily bound base	Blast or steel furnace slag or fly-ash Fly-ash Hydrated lime Aggregate	7,030 m^3	11,500 m^3
Coarse aggregates excluding pavements	Aggregate	Not provided	36,700 m^3

3.3.6 Traffic management and access

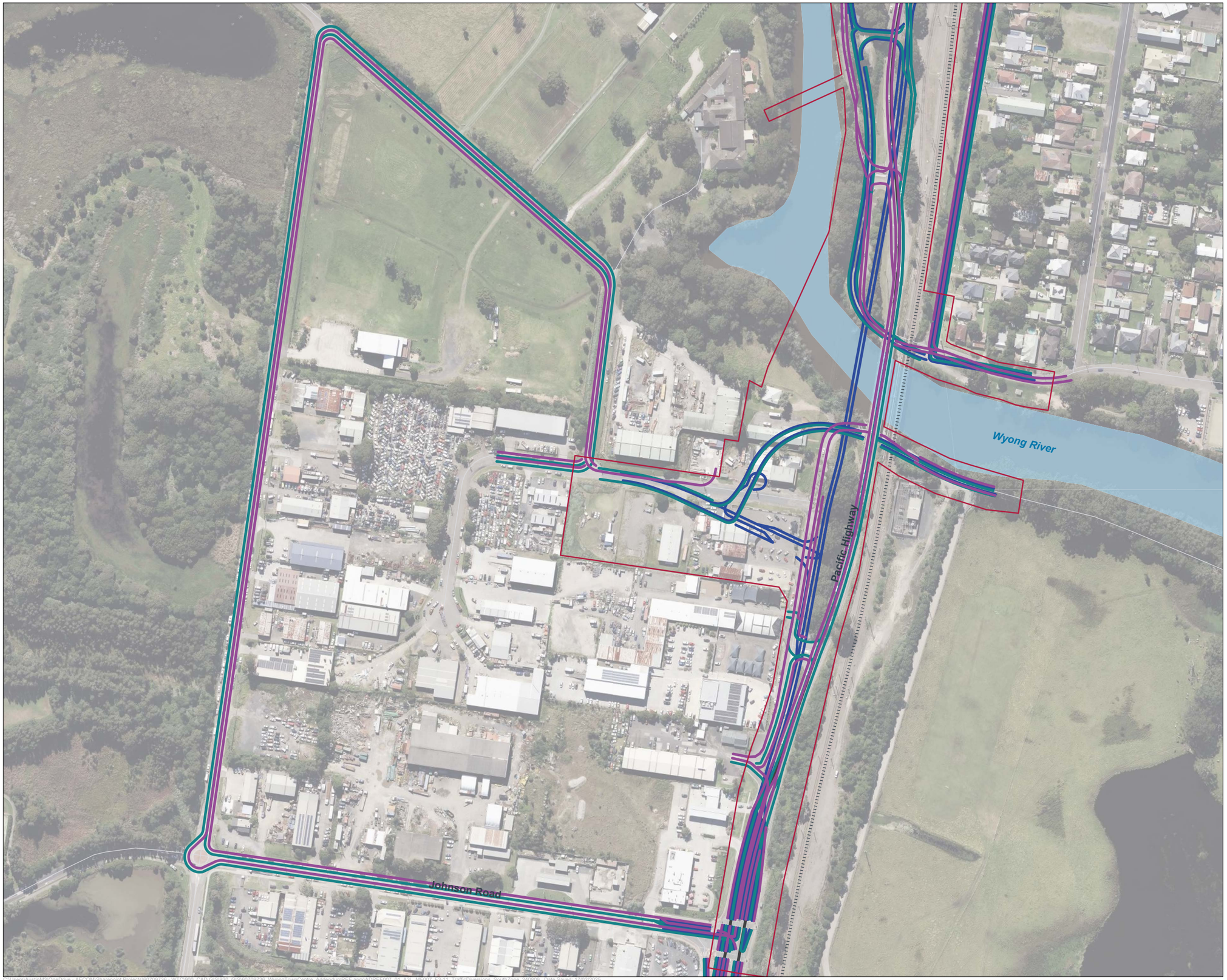
Consistent with the Project REF, maintaining traffic flow during construction is a key consideration for construction traffic planning for the proposed modification. As is described in the Project REF, construction traffic would generally use the highway carriageway under construction to haul materials for short distances. However, haulage would also be required on local roads such as South Tacoma Road for the associated road upgrades and Howarth Street and Rose Street for the construction of the commuter car park and the Rose Street bridge.

Temporary road closures would be required during the McPherson Road and Pacific Highway intersection construction, the commuter car park, and the Howarth Street and Rose Street bridge intersection, subject to final construction staging and council agreement. These works would occur under an approved Road Occupancy Licence (ROL) conditions with appropriate traffic diversions implemented. Traffic diversions are further assessed in Section 6.2.

The McPherson Road and Pacific Highway intersection would require different iterations of a diversion during the different stages of construction (refer to Figure 3-12). Stage 1 would require closing McPherson Road from its intersection with the Pacific Highway to its intersection with Bluegum Close. Access would be maintained via a detour route along Gavenlock Road. Stage 2 would involve the realignment of South Tacoma Road, necessitating closing Pacific Highway access from South Tacoma Road. Access would be maintained via a detour route along Gavenlock Road and Johnson Road. The upgraded intersection of McPherson Road and Pacific Highway would be operational during stage 3.

During the construction of the commuter car park upgrades and intersection upgrades at Howarth Street and Rose Street bridge, a road closure would be required along Howarth Street from the existing Howarth Street bridge to approximately 115 m north. Access to the existing commuter car park and the northern end of Howarth Street (including Wyong Racecourse) would be maintained via a detour route along Warner Avenue, Ithome Street, Rose Street and an access road to the north of the existing commuter car park. The proposed traffic diversion is shown in Figure 3-13, subject to further consultation with affected stakeholders.

As described in Section 6.2.4 of the Project REF (and reproduced in Section 7), the construction contractor would be responsible for developing a detailed staging plan and a construction traffic management plan (CTMP), which would form part of the Construction Environmental Management Plan (CEMP). Pedestrian and cyclist safety and access would be considered when developing the CTMP and implementing temporary traffic arrangements. Further, the CTMP would consider the Project's relationship with other developments in the wider area that could also be under construction and affect key haulage routes outside of the Pacific Highway.



AECOM

N

0 50 100 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

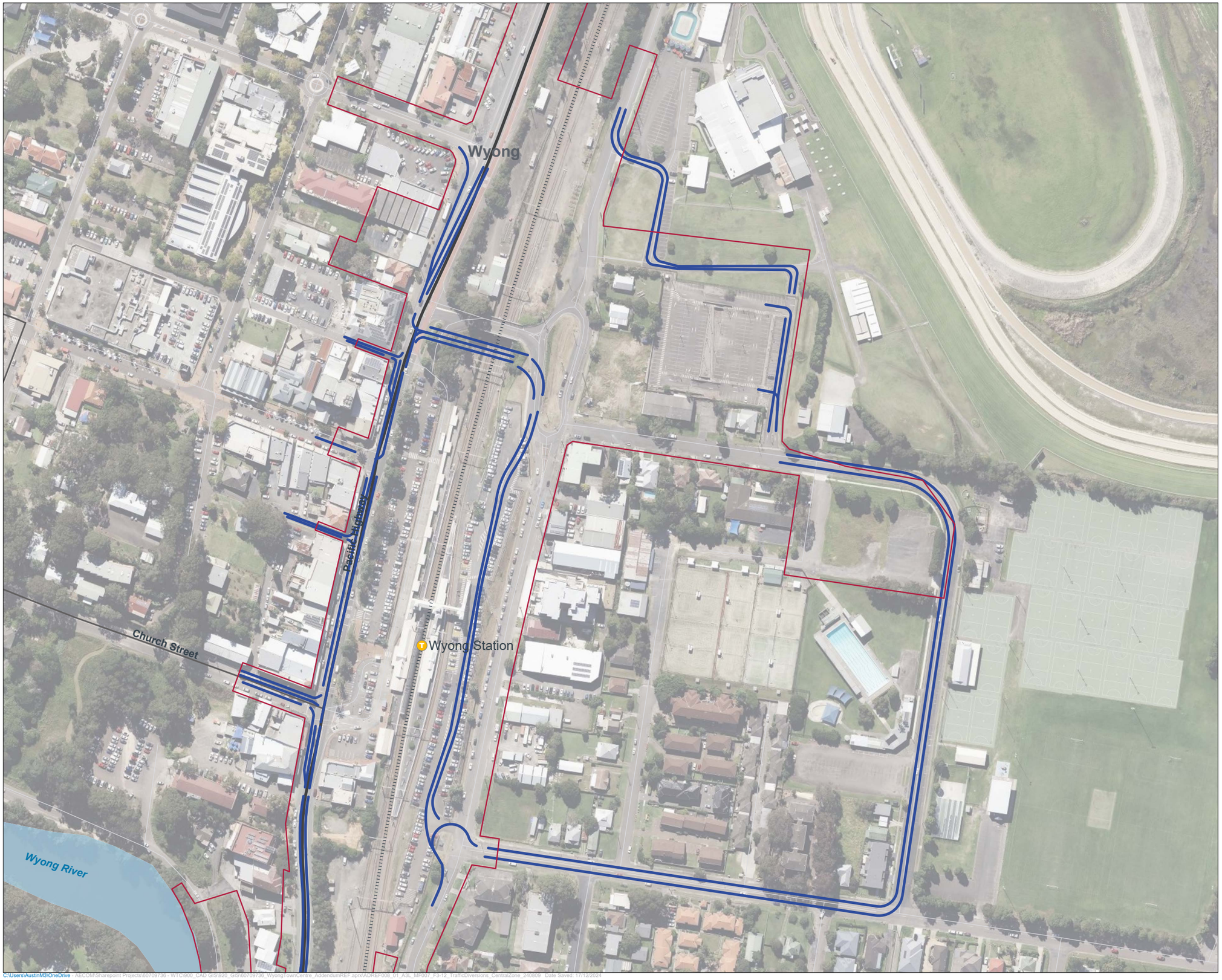
- Proposal area
- Railway
- Motorway
- Watercourse

Traffic Diversions

- Stage 1
- Stage 2
- Stage 3

FIGURE 3-12:
TRAFFIC DIVERSIONS - SOUTH ZONE

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023



AECOM

N

0 25 50 m

DATE EXPORTED:
20/12/2024

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway
- Motorway
- Main road
- Watercourse

Traffic Diversions

- Stage 3

FIGURE 3-13:
TRAFFIC DIVERSIONS - CENTRAL ZONE

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

3.4 Ancillary facilities

No additional ancillary facilities are proposed as part of the modification. The proposed modification would require the use of the following ancillary sites, which were proposed in the Project REF (section 3.5 of the Project REF):

- McPherson Road
- South Tacoma Road
- Former maintenance yard near Rose Street bridge.

The ancillary sites at Johnson Road and the former Wyong Grover Public School are no longer suitable for use for the construction of the proposed modification. The proposal boundary has been amended to remove these sites.

3.5 Public utility adjustment

Consistent with the Project REF, the proposed modification would require significant utility adjustments throughout the proposal area. Affected utilities would include water mains, sewer, gas, electrical, and telecommunications. Utility adjustments would be finalised during detailed design, and consistent with the mitigation measures described in Section 6.6.3 of the Project REF, utility providers would be consulted with through detailed design to ensure satisfactory protection of assets is achieved.

Utility works are often required to be undertaken during night or weekend (OOHW) periods, particularly for cutovers from old to new infrastructure requiring low demand periods and for road crossings and works in high pedestrian use areas. Work hours are generally set by utility owners and not Transport.

3.6 Property acquisition

Transport has completed all acquisitions noted in Section 3.7 of the Project REF. No additional property acquisition is required for the proposed modification.

4. Statutory and planning framework

4.1 Environmental Planning and Assessment Act 1979

The EP&A Act establishes the environmental planning and assessment system in NSW. This proposal is subject to the environmental impact assessment and planning approval requirements of Division 5.1 of the EP&A Act. This division specifies the environment impact assessment requirements for activities undertaken by public authorities such as Transport, which are permissible without development consent.

In accordance with Section 5.5 of the EP&A Act, Transport, as the proponent and determining authority, must examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposal. Section 171 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) defines the factors that must be considered when determining if an activity assessed under Division 5.1 of the EP&A Act significantly impacts the environment.

Section 6 of this Addendum REF provides an environmental impact assessment of the proposed modification in accordance with Section 171 of the EP&A Regulation. Appendix A specifically responds to the factors for consideration under Section 171.

4.1.1 State Environmental Planning Policies

State Environmental Planning Policy (Transport and Infrastructure) 2021

Chapter 2 (Infrastructure) of SEPP (Transport and Infrastructure) aims to facilitate the effective delivery of infrastructure across the State.

Section 2.109 of SEPP (Transport and Infrastructure) permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

As the proposed modification is for a road and is to be carried out Transport, it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not require development consent or approval under:

- State Environmental Planning Policy (Resilience and Hazards) 2021
- State Environmental Planning Policy (Planning Systems) 2021
- State Environmental Planning Policy (Precincts – Central River City)
- State Environmental Planning Policy (Precincts – Eastern Harbour City)
- State Environmental Planning Policy (Precincts – Regional) 2021
- State Environmental Planning Policy (Precincts – Western Parkland City) 2021.

Section 2.10 to 2.15 of SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development.

Consultation, including consultation as required by SEPP (Transport and Infrastructure), is discussed in Section 5 of this Addendum REF.

State Environmental Planning Policy (Resilience and Hazards) 2021

The State Environmental Planning Policy No. 14 - Coastal Wetlands and State Environmental Planning Policy No. 71 - Coastal Protection have been repealed since publication of the Project REF and replaced by the State Environmental Planning Policy (Resilience and Hazards) 2021 (SEPP (Resilience and Hazards)).

Chapter 2 (Coastal Management) of the SEPP (Resilience and Hazards) aims to guide decision-making in land use planning by establishing a framework for managing development in a coastal zone. Section 5 of the *Coastal Management Act 2016 No 20* provides that the coastal zone means the area of land comprised of the following coastal management areas—

(a) the coastal wetlands and littoral rainforests area,

(b) the coastal vulnerability area,

(c) the coastal environment area,

(d) the coastal use area.

Areas of the proposal area that are within approximately 250 m either side of the Wyong River are mapped as 'coastal use area' and 'coastal environment area'. In addition, the north of the proposal area is located adjacent to a proximity area for coastal wetlands. However, as the Addendum REF does not require development consent, clause 2.8 (Development on land in proximity to coastal wetlands or littoral rainforest), clause 2.10 (Development on land within the coastal environment area) and clause 2.11 (Development on land within the coastal use area) do not apply. Notwithstanding, potential indirect impacts from the proposed modification on these areas has still been considered as part of this Addendum REF.

4.1.2 Central Coast Local Environmental Plan 2022

The proposed modification is located within the Central Coast Council local government area (LGA). The Project REF describes the proposal as being within the Wyong Shire LGA. However, this was prior to the amalgamation of the Gosford City Council and Wyong Shire Council. As such, the *Central Coast Council Local Environment Plan* (LEP) applies to the proposed modification.

As described in 4.1.1, Section 2.109 of SEPP (Transport and Infrastructure) permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

4.2 Other relevant NSW legislation

4.2.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) aims to reduce pollution and manage waste storage, treatment and disposal within NSW. The POEO Act also introduces the requirement for environmental protection licences (EPL) to be obtained for scheduled activities of a nature and scale that can potentially cause environmental pollution.

Part 1 of Schedule 1 of the POEO Act details the triggers for an EPL for 'premises-based activities'. Clause 35 of Schedule 1 details the triggers for road construction activities, and states that:

(3) The activity to which this clause applies is declared to be a scheduled activity if the activity results in one or more of the following—

(a) the extraction or processing (over the life of the construction) of more than—

(i) 50,000 tonnes of materials in the case of premises in the regulated area or in the local government areas of Bega Valley, Eurobodalla, Goulburn Mulwaree, Queanbeyan-Palerang Regional or Snowy Monaro Regional, or

(ii) 150,000 tonnes of material in any other case,

(b) the existence of 4 or more traffic lanes (other than bicycle lanes or lanes used for entry or exit) for a continuous length of at least—

(i) 1 kilometre—where the road is in a metropolitan area and is classified, or proposed to be classified, as a freeway or tollway under the Roads Act 1993, or

(ii) 3 kilometres—where the road is in a metropolitan area and is classified, or proposed to be classified, as a main road (but not a freeway or tollway) under the Roads Act 1993, or

(iii) 5 kilometres—where the road is not in a metropolitan area and is classified, or proposed to be classified, as a main road, freeway or tollway under the Roads Act 1993.

The proposed modification would not result in four or more traffic lanes for a continuous length of 5 km. However, the location of the proposed modification is within a regulated area and the proposed modification is likely to require the extraction of more than 50,000 tonnes of materials (as described in Section 3.3.4). As a result, it is anticipated that an EPL would be required for the proposed modification.

4.2.2 Biodiversity Conservation Act 2016

The Project REF considered the *Threatened Species Conservation Act 1995,* which has now been repealed and replaced by the BC Act.

The BC Act seeks to conserve biological diversity and promote ecologically sustainable development, prevent extinction and recovery of threatened species, populations, and ecological communities, and protect areas of outstanding biodiversity value.

The BC Act provides a listing of threatened species, populations and ecological communities, areas of outstanding biodiversity value, and key threatening processes.

Section 6.3provides an assessment of direct and indirect impacts to threatened species listed under the BC Act. The evaluation found that the proposed modification is not expected to significantly impact threatened species, ecological communities or their habitats. Therefore, the preparation of a Biodiversity Development Assessment Report (BDAR) is not required. Nevertheless, environmental safeguards to manage and minimise potential biodiversity impacts are outlined in Section 7.2.

4.2.3 Water Management Act 2000

The application of the *Water Management Act* (WM Act) to the proposed modification is consistent with the Project REF. Elements of the proposed modification would meet the requirements for needing 'controlled activity' approval, given that there would be works occurring on and surrounding waterfront land. However, under Section 38 of the *Water Management (General) Regulation 2011*, Transport is exempt from obtaining a 'controlled activity' approval.

If groundwater extraction is required for the proposed modification, an aquifer interference approval would be necessary for the work under clause 91F of the WM Act.

4.2.4 Fisheries Management Act 1994

The FM Act provides for the identification, conservation and recovery of threatened fish, aquatic invertebrates and marine vegetation. One of the key objectives of the FM Act is to conserve fish stocks and key fish habitats (KFH).

The Project REF described the following requirements under the FM Act:

- The requirement to notify the Minister of dredging and reclamation work in accordance with Section 199 of the FM Act
- If fish passage is to be temporarily blocked, a permit to block fish passage under Section 220(1) of the FM Act before any works occur would be required
- If the proposal is likely to harm marine vegetation, a Part 7 permit to harm marine vegetation is required.

Consistent with the Project REF, the proposed modification involves dredging and reclamation work, and there is potential to block fish passage temporarily. As such, these requirements remain applicable to the proposed modification. Previous surveys conducted for the Project REF had not identified the presence of any marine vegetation that would require a permit for removal. However, if the requirement to remove seaweed, seagrass, saltmarsh or mangroves is identified, a permit under the FM Act may be required.

The Wyong River is mapped as KFH. Given the proposed modification comprises design changes in, and in the vicinity of the Wyong River (including Wyong River bridge and walkways adjacent to the river), an assessment of potential impacts against those described in the Project REF has been conducted in Section 6.3.

4.2.5 Noxious Weeds Act 1993

The *Noxious Weeds Act 1993* provides for a coordinated approach to removing and controlling scheduled noxious weeds across NSW. Consistent with the Project REF, no permits or approvals are required for the proposed modification under this Act. However, it is the responsibility of Transport to provide for the removal and proper disposal of any listed weeds found within the proposal site.

4.2.6 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) is the primary statutory control for Aboriginal cultural heritage in NSW. Items of Aboriginal heritage (Aboriginal objects) or Aboriginal places (declared under Section 84) are protected and regulated under the NPW Act.

No additional Aboriginal heritage items or places have been identified within the proposal area since the determination of the Project REF. Further discussion on Aboriginal heritage is provided in Section 6.8.

4.2.7 Heritage Act 1977

The *Heritage Act 1977* is designed to protect both known heritage items (such as standing structures) and items that may not be immediately obvious (such as potential archaeological remains or 'relics').

The Project REF and 2017 Addendum REF described the known heritage items in the proposal area and discussed potential impacts on these items. Since the determination of the 2017 Addendum REF, no additional heritage items have been listed on the following heritage registers:

- Transport (including legacy Roads and Maritime) Section 170 register
- NSW Heritage database
- Commonwealth EPBC heritage list
- Australian Heritage Places Inventory
- Central Coast LEP 2022 heritage items.

Notice to Central Coast Council and Sydney Trains would be required to advise of the intention to demolish local and Section 170 heritage items. The Project REF stated that an excavation permit may be required for work adjacent to the southern abutment of the Wyong River bridge. However, the Maritime Archaeological Statement of Heritage Impact found that an excavation permit would not be required, as the works are not likely to impact on any known or potential historical archaeological remains (Mountains Heritage, 2024). Non-Aboriginal heritage is discussed in Section 6.4 and Section 6.1 of the Project REF and 2017 Addendum REF, respectively.

Section 6.8 of this Addendum REF provides further details on non-Aboriginal heritage related to the proposed modification.

4.2.8 Roads Act 1993

The *Roads Act 1993* (Roads Act) sets out the rights of members of the public to pass along public roads, establishes procedures for opening and closing a public road and provides for the classification of roads. It also provides for the declaration of Transport and other public authorities as roads authorities for both classified and unclassified roads and confers certain functions (in particular, the function of carrying out roadwork) on Transport and other roads authorities.

A road occupancy licence may be required and obtained under Section 138 of the Roads Act in order to perform works for the proposed modification. Where works are required that would impact on local roads, ongoing consultation with Central Coast Council would occur, as required.

Consistent with the Project REF, Transport has the power to construct bridges across navigable waters under Section 78 of the Roads Act. The Roads Act provides that such bridges are lawful under obstructions of navigable waters.

As described in the Project REF, Section 79, Section 80 and Section 81 of the Roads Act provide for Transport to carry out public consultation for a proposed bridge across navigable waters. Those Sections set out a process for providing notice to the public and provide a process for submissions to be made by the public and considered by Transport. The notice must indicate where and when the plans of the proposed bridge may be inspected by members of the public and must state that any person is entitled to make submissions to Transport with respect to the proposal within 28 days from the date of the notice. Transport must then consider any submissions received before deciding whether or not to proceed.

4.2.9 Marine Safety Act 1998

The Project REF considered the *Maritime Services Act 1935*, which has now been repealed and replaced by the *Marine Safety Act 1998* (Marine Safety Act).

The Marine Safety Act provides for the safe operation of vessels in ports and other waterways and promotes the responsible operation of vessels. As the proposed modification would involve being in the Wyong River (a navigable waterway under the terms of the Marine Safety Act) and would restrict its use by the public, it is subject to licencing under the terms of Section 97 of the *Marine Safety Regulation 2016*.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act, a referral is required to the Australian Government for *proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land'*.

A referral is not required for proposed road actions that may affect nationally listed threatened species, endangered ecological communities and migratory species. This is because requirements for considering impacts to these biodiversity matters are the subject of a strategic assessment approval granted under the EPBC Act by the Australian Government in September 2015.

The assessment of the proposed modification's impact on matters of national environmental significance (MNES) and the environment of Commonwealth land found that there would be no change to the findings of the determined activity and would be unlikely to cause a significant impact on matters of national environmental significance or the environment of Commonwealth land. A referral to the Australian Department of Climate Change, Energy, the Environment and Water is not required.

Potential impacts to MNES are considered as part of Section 6.3 and Appendix A.

4.4 Confirmation of statutory position

The proposed modification is categorised as development for the purpose of a road and road infrastructure facilities and is being carried out by or on behalf of a public authority. Under Section 2.108 of SEPP (Transport and Infrastructure) the proposed modification is permissible without consent. The proposed modification is not State significant infrastructure or State significant development. The proposed modification can be assessed under Division 5.1 of the EP&A Act. Consent from Council is not required.

5. Consultation

5.1 Consultation strategy

The Project REF was publicly displayed for comment between 27 October and 27 November 2015. A total of 43 written submissions were received in response to the public display of the REF. Submissions were mostly neutral or supportive of the upgrade proposal. A Submissions Report was prepared, documenting the outcomes of this process (NSW Roads & Maritime Services, 2016). All submissions made during the display period have been addressed and responded to in the report that was published in February 2016.

A range of consultation activities have been carried out with the community and relevant stakeholders since the Project REF and Submissions Report. Transport has consulted with affected residents, property owners, businesses, Central Coast Council, relevant State Government agencies, and the wider community.

Targeted consultation has occurred throughout the development of the proposed modification before publication of this Addendum REF. Transport prepared a Community Update and Concept Design Fact Sheet to display the refined concept design and highlight the changes since the previous 2015 design. The refined concept design was open for feedback from Friday, 19 July to Sunday, 11 August 2024. Community members were encouraged to provide their feedback, leave comments and make submissions at the interactive web portal, information sessions or via mail, email or phone contact with the project team.

The public exhibition consisted of the following:

- A **community update** was delivered to 5,649 residents around Wyong, Tuggerah, Tacoma, Tacoma South and Watanobbi on Tuesday, 23 July and sent via email on Friday, 19 July, to 230 key stakeholders, including local business owners, bus operators, council, and local MPs.
- An i**nteractive web portal** was developed to showcase the refined concept design and capture feedback. The web portal included the latest community update, a concept design fact sheet, and a virtual engagement room that featured design drawings and other key information about the proposal.
- **Community drop-in sessions** were held at Wyong Race Club on Tuesday, 30 July, between 1 pm and 4 pm, and Thursday, 01 August, between 4 pm and 7 pm. The sessions provided a chance for the community to meet the project team and get answers to their questions. Approximately 50 community members visited these staffed drop-in sessions.
- **Social media posts** were published via two Facebook posts during the consultation period. The first post went live between 22 and 28 July and the second between 01 and 08 August. The posts reached over 36,000 people, received 166 likes, 233 comments and 58 shares.
- A **media release** announcing the public display and inviting comments from the community was issued on 19 July 2024.

In addition to the formal display of the refined concept design, Transport also consulted key stakeholders throughout the development of the refined concept design, including:

- Local government
  - Central Coast Council
- Transport operators
  - Bus operators – CDC, Busways and Redbus
  - Rail operators – Sydney Trains and NSW Trainlink
  - Central Coast Community Transport
- Darkinjung Local Aboriginal Land Council
- Local businesses
  - Village Central Wyong
  - Wyong Race Club

  - Grand Hotel Wyong
- Business Wyong
- Nearby residents and businesses who requested a meeting with Transport
- Central Coast Wetlands
- Utility authorities
  - Jemena
  - Ausgrid
  - Central Coast Council
  - Telstra
  - Sydney Trains
- Other NSW and Australian Government agencies
  - NSW environmental regulators
  - High-Speed Rail Authority.

5.2 Consultation outcomes

5.2.1 Community update

Transport received 120 submissions from the community. Comments received from the community related both to the proposal as a whole as well as to specific details of the proposed modification. Transport's full responses to the comments received are documented in a separate Consultation Report, which is provided on the 'Pacific Highway upgrade through Wyong Town Centre' website: (https://www.transport.nsw.gov.au/projects/current-projects/pacific-highway-upgrade-through-wyong-town-centre).

Table 5-1 provides an abridged summary of the community comments, Transport's responses and where further information can be found. Additional safeguards and management measures to address specific comments have been incorporated into this Addendum REF and are noted in the table below.

Table 5-1 Summary of community comments

Category	Issue raised	Transport for NSW response	Where addressed in the Addendum REF
General comment and clarifications	Support for the proposal.	The supporting comments are noted.	
	Timing of the proposal.	The proposal is expected to begin procurement for a delivery partner in 2025, which is the next key milestone. The delivery partner would be responsible for completing the detailed design and construction of the proposal. More information about the timing of construction would be available once a delivery partner is identified.	
	Impacts of access changes, road modifications, and safety features.	Detailed clarifications on intersection designs, safety upgrades, and traffic management plans are provided in the Consultation Report. Further details on the proposed modification are provided in the Addendum REF.	Section 3.2.3
	Issues relating to public security and safety.	The following management measure has been incorporated into the Addendum REF to address specific concerns: • Transport would undertake a security and safety assessment during detailed design to identify locations for CCTV cameras, lighting and help points.	Section 6.1.
Traffic and transport	Issues relating to traffic access changes, intersection performance and potential congestion	The proposal would provide additional traffic lanes and optimised intersections to address capacity and congestion issues. The Traffic and Transport Impact Assessment prepared as part of this Addendum REF has assessed the refined concept design.	Section 6.2 Appendix D – Traffic and Transport Impact Assessment
	Construction-related impacts on cyclists	A construction traffic management plan (CTMP) would be prepared prior to construction and would identify traffic management requirements during construction, including provision for cyclists and pedestrians.	Section 6.2
Public and active transport	Suggestions for enhanced bicycle storage, clearer cycleway access, and improved pedestrian pathways.	Detailed clarifications on cycleways and associated facilities are provided in the Consultation Report. Further details on the proposed modification are provided in the Addendum REF.	Section 3.2.3

Category	Issue raised	Transport for NSW response	Where addressed in the Addendum REF
	Concerns about the placement and functionality of bus stops and layovers, including safety and accessibility.	Detailed clarifications on the bus interchange and bus stops are provided in the Consultation Report. The proposal design incorporates additional measures to mitigate the impact of slightly longer walking distances, including: • A new plaza opposite Church Street with seating and shade to improve amenity for bus and rail passengers • The new bus stops on Church Street have been identified as "premium bus stops" and would include larger shelters, additional seating, lighting and information on bus and rail services. • The traffic signals at Church Street would be upgraded and pedestrian wait-times would be monitored to ensure pedestrian access across the Pacific Highway is appropriately prioritised. Additional measures such as pedestrian count-down timers and a raised platform intersection would be investigated during detailed design. The following management measure has been incorporated into the Addendum REF to address specific concerns: • Transport would undertake a security and safety assessment during detailed design to identify locations for CCTV cameras, lighting and help points.	Section 3.2.3 Section 6.1 Section 6.5
	Concern about pedestrian movement, including pedestrian crossings and amenities.	Detailed clarifications on the urban design are provided in the Consultation Report. Further urban design would be carried out at the detailed design stage and would consider impacts on cyclist and pedestrian safety. The following management measure has been incorporated into the Addendum REF to address specific concerns: • Opportunities for the inclusion of weather relief structures between Rose Street commuter car park and Wyong Railway Station would be considered at detailed design as part of the urban design. Lighting would be upgraded to improve amenity and safety.	Section 3.2.3 Section 6.1 Appendix F – Landscape Character and Visual Impact Assessment Appendix D – Traffic and Transport Impact Assessment

Category	Issue raised	Transport for NSW response	Where addressed in the Addendum REF
Proposal need and justification	Comments relating to the strategic context of the proposal	Traffic volumes and congestion in Wyong are expected to continue to grow, despite changes in working patterns. Wyong is situated in the Northern Growth Corridor of the Central Coast. Within the corridor, Wyong has been identified as an important area of focus for increasing densification to accommodate this growth in the Central Coast. The proposal has been designed to cater for this expected growth. Without the proposal, traffic congestion, delays and safety matters would continue to be an issue.	Section 6.2 Appendix D – Traffic and Transport Impact Assessment Appendix D – Traffic and Transport Impact Assessment
	Comments referring to the extent of the proposal and concerns that traffic congestion would shift to where the proposal ends.	The proposal is located between Johnson Road, Tuggerah and about 150 metres north of Cutler Drive, Wyong. Widening of the Pacific Highway north of Cutler Drive is outside the scope of this proposal and would be a separate proposal subject to funding. Traffic studies confirm that traffic volumes are lower north of Wyong and Watanobbi, resulting in the higher priority section of the Pacific Highway being through Wyong Town Centre.	Section 6.2 Appendix D – Traffic and Transport Impact Assessment
Environment	Comments raised issues relating to the visual impact and the impact on the landscape.	A Landscape Character and Visual Impact Assessment has been completed to inform the Addendum REF. Final urban design and landscape treatments would be confirmed during detailed design, in consultation with key stakeholders and Central Coast Council. Landscape planting would be included along Rose Street adjacent to the expanded commuter car park and plantings and urban design features are proposed at the approaches to town and within the town centre for shade, screening and amenity around footpaths and parking.	Section 6.5 Appendix F – Landscape Character and Visual Impact Assessment
	Issues relating to potential impacts on heritage buildings	Impacts to Non-Aboriginal Heritage were assessed and considered as part of the Project REF. A heritage interpretation strategy for the proposal is currently under development and would be finalised in detailed design.	Section 6.8
	Concerns that the proposal would increase traffic and noise levels in Wyong in operation	A noise and vibration assessment has been carried out which identifies expected changes to noise levels as part of the proposal (refer to Appendix L of the Project REF). Updated noise monitoring was undertaken in 2024. During the detailed design stage of the proposal, further investigations of all feasibility and reasonable noise mitigation options would be undertaken in the following order of priority: • Road design and traffic management • Quieter pavement surfaces • At-property treatments.	Section 6.6 Appendix G – Noise and Vibration Impact Assessment

Category	Issue raised	Transport for NSW response	Where addressed in the Addendum REF
	Issues relating to historic flooding and the proposals potential to increase flood risk	Detailed clarifications on the drainage design are provided in the Consultation Report. Further information can be found in the Addendum REF.	Section 3.2.3
Socio-economic	Issues relating to the impacts of altered access and parking arrangements on local businesses.	Detailed responses to comments are provided in the Consultation Report. Further details relating to the proposed modification can be found in the Addendum REF. The following management measure has been incorporated into the REF to address specific concerns: • Transport would develop a business impact strategy during detailed design to engage directly with businesses in Wyong and identify appropriate measures to minimise impacts during construction.	Section 3.3.6 Section 6.1
Placemaking	Suggestions relating to alternative arrangements for Church Street Plaza.	Detailed responses to comments are provided in the Consultation Report. Further details relating to the urban design can be found in the Addendum REF.	Section 3.2.3 Section 6.5 Appendix F – Landscape Character and Visual Impact Assessment
Parking	Issues relating to: • on-street parking on the Pacific Highway. • on-street parking off the Pacific Highway • the commuter car park design, its proposed location and capacity • the provision of Kiss and Ride parking	Detailed responses to comments are provided in the Consultation Report. Further details relating to the proposed modification can be found in the Addendum REF, including an assessment of parking allocations associated with the refined concept design. The following management measures have been incorporated into the REF to address specific concerns • A review of on-street parking would be carried out during detailed design, in consultation with Central Coast Council, including consideration to a separate Kiss and Ride location on the Pacific Highway southbound. • A security and safety assessment would be undertaken during detailed design to identify locations for CCTV cameras, lighting and help points. • Opportunities for the inclusion of shelter structures between Rose Street commuter car park and Wyong Railway Station would also be considered at detailed design as part of the urban design. Lighting would be upgraded to improve amenity and safety.	Section 3.2.3 Section 6.2

5.2.2 Central Coast Council

Transport consulted the Central Coast Council directly on the proposal throughout the development of the refined concept design via quarterly meetings and targeted workshops on design elements. Central Coast Council provided feedback during the display of the refined concept design. Council's feedback has been incorporated into the final concept design, and additional safeguards and management measures identified through this consultation have been incorporated into the Addendum REF.

5.2.3 Darkinjung Local Aboriginal Land Council

Transport consulted with Darkinjung LALC twice in 2024 to discuss the project and any concerns or opportunities.

5.3 Ongoing or future consultation

As the proposal progresses, Transport plans to conduct additional consultation with emergency services, local businesses, and local schools, as well as directly impacted residents. Further consultation requirements are identified for the detailed design and construction stages of the proposal in Section 7.

6. Environmental assessment

This section of the Addendum REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposed modification of the Pacific Highway upgrades through Wyong Town Centre. All aspects of the environment potentially impacted upon by the proposed modification are considered. This includes consideration of the *Roads and Related Facilities EIS Guideline* (NSW Department of Urban Affairs and Planining , 1996)) and *Is an EIS required?* (NSW Department of Urban Affairs and Planning, 1995/96) the factors specified in Section 171 of the *Environmental Planning and Assessment Regulation 2021*. The factors specified in Section 171(2) of the *Environmental Planning and Assessment Regulation 2021* are also considered in Appendix A.

Changes to safeguards and management measures identified in this Addendum REF are identified as follows:

- Deleted text is shown as ~~strikethrough~~
- New text is underlined.

Site-specific safeguards and management measures are provided to ameliorate the identified potential impacts

6.1 Socio-economic

A Socio-economic Impact Assessment (SEIA) was conducted for the Project REF in 2015 (Hill PDA, 2015) (Appendix F of the Project REF). A new SEIA prepared by AECOM in 2024 evaluated the socio-economic impacts of the proposed modification (the 2024 SEIA). The 2024 SEIA:

- Provides an update of the social and demographic profile for the proposal area
- Identifies and assesses the changed or additional social and economic impacts of the proposed modification
- Recommends management and mitigation measures to address or reduce the identified impacts and optimise the proposal's benefits.

The following section summarises the findings of the 2024 SEIA in relation to in the findings of the Project REF. The 2024 SEIA is attached as Appendix C.

6.1.1 Methodology

The 2024 SEIA follows the guidelines of Transport's *Environmental Assessment Practice Note – Socio-Economic Assessment* (EIA-N05) and was informed by:

- 2015 SEIA
- 2016 and 2021 Census data from the Australian Bureau of Statistics (ABS)
- Desktop research on surrounding social facilities and infrastructure
- Other technical assessments, including
  - Landscape Character and Visual Impacts Assessment (LCVIA)
  - Traffic and Transport Impact Assessment (TTIA)
  - Construction Noise and Vibration Impact Assessment (CNVIA)
- Outcomes of consultation undertaken during the preparation of this Addendum REF.

Consistent with the 2015 SEIA, a 'moderate level' assessment was undertaken for the proposed modification.

The significance of impacts was evaluated based on sensitivity and magnitude, using a matrix to determine the level of significance for both construction and operation. Only negative impacts were assigned a level of significance.

6.1.2 Existing environment

Land use and ownership

Wyong Town Centre is located in the central portion of the proposal area. Land within Wyong Town Centre is zoned E2 – Commercial Centre under the Central Coast LEP 2022, comprising health and service facilities, real estate agencies, supermarkets, bakeries, cafes and restaurants, among other retail properties. The Main North Railway Line runs parallel to the east of the Pacific Highway and through Wyong Town Centre. Wyong Railway Station and commuter car parking (i.e. along Howarth Street and Rose Street) are also situated in this central section of the proposal area, immediately east of the Pacific Highway and Wyong Town Centre. Transport links associated with Wyong Railway Station comprise a taxi stand and bus interchange.

Land to the west of the Pacific Highway and south of the Wyong River within the proposal area is zoned E4 – General Industrial and E3 – Productivity Support under the Central Coast LEP 2022. Businesses operating in this zone include car dealerships and an aged care facility. The Central Coast Wetlands are located south of the Wyong River and adjacent to the eastern side of the Pacific Highway. The wetlands are zoned C2 – Environmental Conservation and C3 – Environmental Management under the Central Coast LEP 2022.

Land use to the north of the Wyong River and east of the Pacific Highway includes low and medium-density residential housing (i.e. R2 – Low Density Residential and R3 – Medium Density Residential under the Central Coast LEP 2022), and public recreation (i.e. RE1 – Public Recreation). The RE1 zoned land comprises local sporting facilities (including a squash centre, tennis courts and a swimming pool) as well as Wyong Preschool. Land use in the northeast of the proposal area is predominantly zoned RE2 – Private Recreation and includes the Wyong Racecourse and Showground facilities.

Population and demography

The population of the Central Coast LGA was 345,596 in the 2021 Census, with the population of the suburb of Wyong recorded to be 4,530 (ABS, 2021). The annual average population growth in the suburb of Wyong during this period was 24.5 per cent, higher than the corresponding growth rates for the Central Coast LGA, the Wyong LGA and the state of NSW.

The working age population (15–64 years) accounts for 61.6 per cent of the suburb of Wyong population, increasing at a rate of 1.9 per cent between 2016 and 2021. In contrast, the proportion of children and young adolescents (under 15 years) and the older population (65 years and older) within the suburb of Wyong have experienced a decline over the same period.

Family households, account for almost 60 per cent of households in 2021. This proportion of family households has declined since 2016, whilst the proportion of lone households and group households within the suburb of Wyong increased between 2016 and 2021.

In 2021, the majority of dwellings in the suburb of Wyong were detached, although the proportion of attached dwellings and apartments in the suburb exceeded that of the Wyong LGA and Central Coast LGA.

Population forecasts for the Central Coast LGA predict an annualised average growth rate of 0.8 per cent over the next 20 years, with the population forecast to be 408,390 in 2041 (NSW Government, 2024). This is a slower annualised growth rate than the last ten years.

Local economy

The top three industries for employment within the suburb of Wyong in 2021 were health care and social assistance (18.8 per cent), retail trade (11.0 per cent) and construction (9.4 per cent). In 2021, the occupation type accounting for the highest proportion of people within the suburb of Wyong was professionals (14.9 per cent), followed by community and personal service workers (14.4 per cent) and labourers (13.6 per cent). The suburb of Wyong also has a higher proportion of blue-collar workers in 2021 than either the Central Coast LGA or the state of NSW.

Participation in the labour force within the suburb of Wyong in 2021 was 47.1 percent, compared to 54.6 per cent and 55.7 per cent in the Wyong LGA and the Central Coast LGA, respectively (ABS, 2021).

In 2021, the median personal income in the suburb of Wyong was $608 per week, lower than the Wyong LGA ($692 per week) and the Central Coast LGA ($727 per week). Additionally, residents in Wyong in 2021 earned an average of $205 per week less than residents of NSW.

The Socio-Economic Index for Areas (SEIFA), prepared by the ABS based on Census data, presents a measure of socio-economic disadvantage. Based on the SEIFA scores for 2021, Wyong is ranked in the lowest seven per cent nationally (five per cent in NSW) for socio-economic disadvantage, placing the suburb within the seven per cent most disadvantaged suburbs and

localities in Australia. The suburb of Wyong ranks in the lowest 14 per cent of the nation for the education and occupation index, suggesting that overall educational and skills attainment is relatively low. The scores in the indices of economic resources and relative socio-economic advantage and disadvantage were also in the nation's lowest six and fourteen per cent, respectively.

Local retail industry

The largest shopping centre in the Central Coast Region is Erina Fair, located in Erina, approximately 17 km south of the proposal area. Erina Fair opened in 1987 and has over 110,000 square metres of total retail floor area, making it the largest single-level shopping centre in the Southern Hemisphere. In 2022, 10.83 million people shopped at Erina Fair; the average spend was $69.99 per visit (Central Coast Business Review, 2023).

Shopper surveys undertaken in 2006 showed that most household expenditure from Wyong and Watanobbi was in Tuggerah, where the Tuggerah Shopping Centre is the dominant regional centre. The retail role of Wyong Town Centre has eroded because of its proximity to the Tuggerah Shopping Centre, which is less than 3 km south of Wyong Town Centre. As such, the focus of Wyong Town Centre has shifted toward service delivery. This trend is supported by almost half the occupied floorspace within Wyong Town Centre being occupied by non-retail uses (Wyong Shire Retail Centres Strategy, 2013).

Wyong Town Centre's commercial and retail core can be broadly defined by the Pacific Highway and the Main North Railway Line to the east, Church Street to the south, Margaret Street to the west and Anzac Avenue to the north. Within this area, the predominant sources of retailing and commercial activity include:

- Central Coast Council offices
- Village Central Wyong indoor shopping centre
- A retail precinct centred on the western side of the Pacific Highway
- Wyong Railway Station.

Village Central Wyong is a comparatively small shopping centre located on the northern side of Alison Road, about 40 m west of the Pacific Highway. The centre is anchored by tenants Coles Supermarket and Smart Dollar, and exhibits 35 specialty stores, including a pharmacy, medical centre, newsagency, butcher, baker, hairdresser, florist and liquor.

Aside from the Village Central Wyong, retailing and commercial activity is concentrated to the west of the Pacific Highway between Anzac Avenue and Church Street, with this strip functioning largely for convenience shopping. Wyong Town Centre also accommodates both State Government and community-based activities, along with a limited range of entertainment facilities and gallery spaces.

A summary of the businesses along the Pacific Highway within Wyong Town Centre is provided in Table 6-1.

Table 6-1 Businesses along the Pacific Highway within Wyong Town Centre.

Location	Description of businesses
Johnson Road to South Tacoma Road	Automotive car yards, takeaway outlets, and a health and fitness centre.
River Road to Church Street	Hotel and bottle shop, financial and professional Services, real estate agents, solicitors, accountants and engineers, and the Wyong Community Health Centre.
Church Street to Alison Road	Retail and commercial businesses, including a bank, tobacco shops, pawn shop, tattoo studio, bakery, accountant, hairdresser, restaurant, chemist, St Vincent de Paul, optometrist, butcher, pathology lab, health and fitness centres, employment services, real estate agents and vacant shops.
Alison Road to Anzac Avenue	Takeaway food outlets, retail, pub, restaurant, ambulance station, car dealership, real estate agency, hairdresser and massage therapists.
Anzac Avenue to North Road	Petrol station, automotive services, The Salvation Army and an ALDI.

The only business beyond North Road and within the proposal area is the Wyong Musical Theatre Company. A small local centre containing several businesses and offices is located north of the proposal area. Howarth Street, on the eastern side of the Wyong Railway Station, also exhibits a number of businesses, including urban support services and light industrial, commercial, and commuter retail services. There are additional commercial businesses on the corner of Rose Street and Howarth Street.

Parking

The *Central Coast Parking Strategy* was conducted by the Central Coast Council in 2019. The surveys found that the main purpose for people travelling to Wyong Town Centre was to commute elsewhere (48 per cent), followed by shopping (40 per cent) and employment (35 per cent). Results also depicted the key issue with parking in Wyong Town Centre was a lack of all-day parking options (66 per cent of respondents).

The proposal area has parking areas around Wyong Railway Station for locals who commute to work via train or bus or visit Wyong Town Centre. All-day parking is provided at Wyong Railway Station (179 spaces in the western section and 212 spaces in the eastern section), along Howarth Street (101 spaces) and at Rose Street commuter car park (211 spaces). Timed parking is available around the town centre in small parking lots. Along the Pacific Highway, timed parking is typically for a 15-minute duration.

Existing parking arrangements are also discussed in Section 6.2.2.

Social infrastructure

Given the urban nature of the proposal area and the presence of Wyong Town Centre in the central section, social infrastructure is numerous. Social infrastructure within a 1 km radius of the proposal area is shown in Figure 6-1 and includes:

- Educational facilities (schools, TAFE)
- Heath and medical facilities (hospital and medical practices)
- Childcare centres
- Aged care centres
- Community centres and libraries
- Places of worship
- Recreational areas.

Access and connectivity

The key transport networks connecting the proposal area and surrounding areas locally and regionally include the Pacific Highway, which links to the M1 Motorway providing a connection to Sydney and Newcastle. The Main North Rail Line provides express services to Sydney Central.

Three bus operators, Red Bus, Busways and Coastal Liner, service the area, providing links between Wyong Railway Station and surrounding suburbs such as Tuggerah, The Entrance, and Gosford. Taxi and ride-share services are accommodated via a taxi rank at Wyong Railway Station.

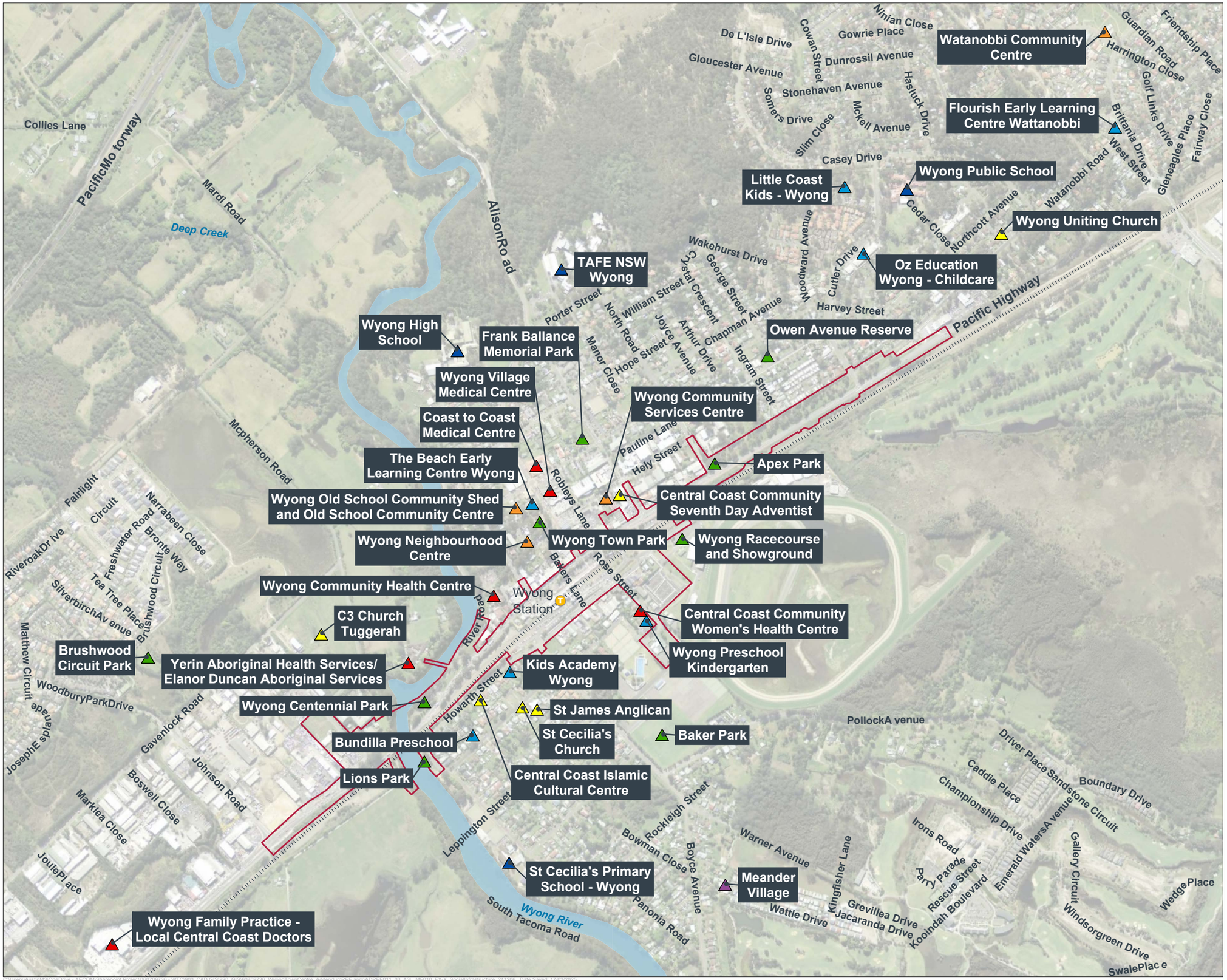
The proposal area is highly dependent on private motor vehicles, with the proportion of residents in the suburb of Wyong owning two or more motor vehicles being slightly above the NSW state average (ABS, 2021).

While active transport paths exist within the proposal area, they are generally discontinuous and lack a connection between suburbs, Wyong Town Centre and public transport.

Community values

The *Wyong District Place Plan* was undertaken by Central Coast Council in 2023, to guide improvements and planning within the Wyong and Tuggerah town centres and surrounding suburbs. Stage 1 of the plan was a consultation report that engaged approximately 600 people from February to March 2023. The consultation report identified that the local community valued the "*access to nature*" and "*close proximity to services*" throughout the Wyong area. Respondents also stated the importance of Wyong being "*safe and connected*" and a "*community hub for families and visitors*" when considering planning for the future and expressed a desire for *"long-standing traffic issues to be addressed"* and for *"safety within the town centre and train stations to be addressed"*.

The community and relevant stakeholders were informed of the proposed modification, as discussed in Section 5.



AECOM

0 100 200 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Aged Care Facility
- Child Care Centre
- Community Centre
- Health/Medical Facility
- Open Space/Rec. Facility
- Place of Worship
- School

FIGURE 6-1:
SOCIAL INFRASTRUCTURE

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

6.1.3 Potential impacts

Construction

Business and economic

The proposed modification would not increase the required workforce to deliver the proposal and is unlikely to significantly change the makeup of workers required to construct the proposal when compared to the 2015 SEIA. Therefore, consistent with the Project REF, retailers within the proposal area would likely benefit from increased trade from construction workers, and the proposed modification would not change this impact.

The impact of the construction workforce on the local population was not assessed in the 2015 SEIA. The 2024 SEIA estimated that the peak construction workforce would be 150 onsite per day, with the average construction workforce being 100. The assessment concluded that, based on a worst-case scenario that all construction workers would be sourced from outside the local area, there would not be a significant influx of workers, and it is unlikely that there would be a change in the town's demographics. However, given the high percentage of renters in the area, construction workers sourced from outside and requiring accommodation may place added pressure on the local rental market. This is considered a moderate impact.

Consultation with the Darkinjung LALC indicated they have members that could participate in local employment opportunities on this proposal. Given the peak and average construction workforce required for the proposal, there would not be a significant influx of workers, and it is unlikely that there would be a change in the demographics of the town. Transport would encourage the construction contractor to provide opportunities for local workers in the contract for this proposal through contractual targets and incentives.

Consistent with the Project REF, impacts along the Pacific Highway include removing car parking spaces, detours and road closures. The proposed modification would result in diversions and parking changes at Howarth Street. This may reduce access to businesses on this street and Rose Street, and employees may experience inconvenience as they look for alternate parking. Businesses that may experience impacts on Howarth Street and Rose Street include urban support services and light industrial, commercial, and commuter rail services. Given the small number of businesses on Howarth Street and Rose Street, and available parking within the area, the proposed modification would not have a significant impact and would be temporary.

Parking

Consistent with the Project REF, the proposed modification would directly impact parking. On-street parking, including that adjacent to businesses along the Pacific Highway and Howarth Street, would be affected at various times to allow for construction. The change to construction of the Rose Street commuter car park (as detailed in Section 3.2.3) as an at-grade structure means it can be constructed in tiers and potentially keep more sections open and this would allow the car park to be constructed to meet some of the existing demand. However, construction staging may still lead to temporary parking shortfalls. Lot 4 of DP 614523 at Ithome Street could be used to provide temporary parking locations if required.

Property acquisition and land use

The property acquisition required for the proposal is complete, and the proposed modification would not require any further property acquisition. Property adjustments would continue to be developed for private accesses, utility connections, and some building elements like fences, awnings etc as design progresses and following further consultation with directly impacted stakeholders.

Social infrastructure

Consistent with the Project REF, impacts on social infrastructure include changes to access arrangements, temporary traffic delays and temporary increases in noise, vibration and air pollution.

Local amenity

The proposed modification would not result in any additional construction amenity impacts to that assessed in section 6.1.3 of the Project REF.

Community health and safety

The proposed modification would not result in any additional community health and safety impacts compared to that assessed in Section 6.1.3 of the Project REF.

Access and connectivity

The proposed modification would not result in any additional access and connectivity impacts to that assessed in Section 6.1.3 of the Project REF.

Operation

Business and economic

During operation, the proposed modification is not anticipated to impact local employment, incomes, local or regional business, or industrial operations. There is also no expectation of any change to local or regional economics as a result of the operation of the proposal, beyond any increased business activity that could flow indirectly from the proposal benefits such as improved town centre access and less highway congestion

Overall, the proposed modification is unlikely to have a greater impact than assessed in the Project REF. Some inconvenience may be experienced initially, but this is unlikely to result in business impacts from an economic perspective.

Parking

The proposed modification would result in a reduction of 30 on-street parking spaces and 211 commuter parking spaces. This may inconvenience users; however, given that there would be alternate parking spaces near and around the Pacific Highway including in nearby streets, it is unlikely that business viability would be impacted. It is noted that the reduction of 30 on-street parking spaces would occur primarily to the north and south of the CBD. On-street parking is retained as much as possible in priority areas such as in front of businesses and distributed along the Pacific Highway to minimise impacts on residents and businesses.

The existing Rose Street commuter car park is currently under-utilised and this car park would be expanded to provide 380 spaces to ensure that current demand for long term parking is met. The proposed modification also allows for a future expansion of the Rose Street commuter car park and a multi-storey structure could be provided if commuter parking demand increases further and additional funding is made available.

Parking impacts are further discussed in Section 6.2.

Property and land use

It is unlikely there would be any further operational property impacts as a result of the proposed modification.

Social infrastructure

Consistent with the Project REF, the proposed modification includes improved pedestrian and cyclist facilities. The proposed modification has been designed to minimise tree removal at Apex Park and upgrade access to the park for pedestrians and cyclists. As such, it would positively impact the access to open space and encourage active transport use.

Wyong Preschool Kindergarten Association Inc (Wyong Preschool) is a non-profit community-based preschool located at 9-13 Rose Street. Vehicle access from Howarth Street to Wyong Preschool would be removed due to the proposed modification, however access would be retained via Ithome Street. This change would be unlikely to generate more traffic at preschool pick-up and drop-off times as on-street parking on Rose Street would remain and parents/guardians would still be able to park on Howarth Street and use the footpath to the preschool.

Local amenity

The Project REF assessed potential impacts on local amenity as a result of new and larger built elements. The proposed modification would result in the removal of reverse angle parking and the provision of parallel parking along the Pacific Highway within Wyong Town Centre. This would allow for wider footpaths and additional space for landscape planting. The 2024 LCVIA identified that increased tree and shrub planting along the Pacific Highway would soften the view looking southeast from Wyong Town Centre (refer to Section 6.5).

Consistent with the Project REF, the proposed modification would also create improvements to local amenity, including improved cycling and walking facilities, creating a more pleasant and safer environment for cyclists and pedestrians.

Community health and safety

Consistent with the Project REF, shared paths, pedestrian pathways and recreational areas adjoining the Wyong River have the potential to positively contribute to community health by encouraging walking, cycling and public recreation.

The proposed modification would enhance cyclist facilities across the proposal area and beyond (refer to Section 3.2.3). Operation of the off-road cycleway connecting the Pacific Highway to existing cyclist facilities along the Pacific Highway south of Johnson Road would provide a safer route for cyclists within Wyong Town Centre. In addition, the proposed modification involves the widening of footpaths along the western portion of the Pacific Highway, which is expected to enhance pedestrian safety within the Wyong Town Centre.

Access and connectivity

Consistent with the Project REF, the proposed modification is expected to improve access and connectivity due to improved capacity, traffic flow, and safer operating conditions. This would result in more efficient travel times.

The proposed modification would change pedestrian access to Wyong Town Centre by removing the extension of the pedestrian bridge and altering crossing points. However, the proposed modification includes a new plaza and station forecourt at Church Street with facilities for pedestrians at the Church Street traffic signals (refer to Section 3.2.3). This would positively impact pedestrian access throughout the town centre and improve safety compared to the 2015 concept design. As noted above, the off-road cycleway proposed as part of the modification would also provide a safe route and increase connectivity of the town centre for cyclists.

The proposed modification results in the following traffic changes which may affect properties and businesses in proximity to:

- Robley's Lane: road to be closed from the Pacific Highway, with access to be retained from Hely Street
- Howarth Street: changed access due to access closure via Rose Street from East Wyong.

These changed access conditions are considered unlikely to have a greater impact than what was assessed in the Project REF. Property owners and customers may initially experience some inconvenience until they get accustomed to access changes.

Community values (heritage)

The Project REF noted the relocation of the historic Canary Palm Trees. However, relocation is no longer being proposed as part of the proposed modification. This is further discussed in Section 6.8, and the change would result in an impact on community values.

The proposed modification would not impact items of environmental value or sense of place of the locality in a way that is different to the impacts identified in the Project REF. The proposed modification would include urban design changes such as wider footpaths, active transport paths forming connections between places, and additional space for landscape planting and other areas of urban amenity improvements, all of which would positively impact the sense of place within Wyong Town Centre.

6.1.4 Safeguards and management measures

Mitigation and management measures would be implemented to avoid, minimise or manage potential socio-economic impacts. These mitigation and management measures are detailed in Table 6-2 and incorporated in the environmental management measures in Section 7.2 of this Addendum REF.

Table 6-2 Socio-economic safeguards and management measures

Impact	Environmental safeguards and management measures	Responsibility	Timing
Construction related disruption	• A Communications Strategy would be prepared for the proposal to detail ongoing communication and notification procedures and processes throughout construction. • The Communications Strategy would include a complaint handling procedure and register and a 24-hour contact number.	Contractor	Construction
Construction related disruption	• Affected residents and businesses would be notified of the progress of the works and advised in advance (e.g. by letterbox drop, meetings with individuals) of any anticipated changes in noise emissions or access arrangements prior to each construction stage.	Contractor	Construction
Construction related disruption	• Where temporary changes to access arrangements for residents and businesses are necessary, the contractor would advise owners and tenants and consult with them in advance with regard to alternative access arrangements. • ~~Construction staging related to the Rose Street bridge would be planned in consultation with the Wyong Race Club and Baker Park management.~~ • Construction staging with potential direct and indirect impacts on the Wyong Race Club and Baker Park would be planned in consultation with the management of these facilities.	Contractor	Pre-construction Construction
Property acquisition	• Early and ongoing communication and consultation would be undertaken with property owners, business owners and residents regarding the property acquisition process.	Transport	Detailed design
Property acquisition	• All property valuations and acquisitions would be carried out in accordance with ~~the *Land Acquisition Information Guide* (Roads and Maritime Services, 2014)~~ *A Guide to Property Acquisition in NSW* (NSW Government, 2022) and the *Land Acquisition (Just Terms Compensation)* Act 1991.	Transport	Detailed design
Impacts to local businesses	• A business impact strategy would be developed during detailed design to engage directly with businesses in Wyong and identify appropriate measures to minimise impacts during construction. The strategy would identify construction management requirements, mitigation measures for localised disruption and opportunities to promote awareness of Wyong as a place to visit and stay during construction disruption.	Transport	Detailed design
Construction workforce	• Transport would encourage the construction contractor to provide opportunities for local workers in the contract for this proposal.	Transport	Pre-construction Construction

6.2 Traffic and transport

A Traffic and Transport Impact Assessment (TTIA) was conducted for the Project REF in 2015 (Appendix M of the Project REF) (SMEC Australia, 2015). A new TTIA prepared in 2024 evaluated the traffic and transport impacts of the proposed modification, analysing both existing and future impacts (the 2024 TTIA). The following section summarises the findings in relation to those outlined in the Project REF. The 2024 TTIA is attached as Appendix D.

6.2.1 Methodology

The method for evaluating the traffic and transport impacts of the proposed modification has been revised from the approach described in the Project REF. The following guidelines are referenced for the assessment:

- *Traffic Modelling Guideline, Version 1* (NSW Roads & Maritime Services, 2013a)
- *Transport Technical Direction (TTD 2017/001) Traffic Modelling, Operational modelling reporting structure*, (Transport for NSW, 2017)
- *Transport Technical Directions (TTD 2018/002) Traffic Modelling Traffic Signals in Microsimulation Modelling*, (Transport for NSW, 2018).

The approach adopted for this assessment provides the current and future conditions for the proposed modification and the surrounding local road network by generating vehicle volumes and assessing operational performance using the latest available traffic count data and modelling software.

The baseline data for the traffic models used pedestrian and traffic surveys undertaken in November 2022 and March 2023 using the following methods:

- Midblock counts at eight locations
- Intersection turning movement counts for 20 intersections
- Intersection queue lengths for intersections at night
- Travel time survey on the Pacific Highway
- Origin-destination surveys
- Pedestrian surveys for six locations.

A detailed traffic simulation model was used to study traffic flow calibrated to current traffic conditions along a 4.5 km section of the Pacific Highway from Anzac Road to Britannia Drive. This section is larger than the main proposal (2.4 km), allowing the model to capture nearby traffic congestion. Growth rates were applied to base-year volumes to estimate future-year intersection volumes. The model was used to assess three future years:

- 2031 (opening year)
- 2041 (ten years after opening)
- 2051 (twenty years after opening)

For each future year, two peak periods were assessed:

- AM peak 8 am to 9 am
- PM peak 4 pm to 5 pm.

The SIDRA model was used to model the performance of the following intersections:

- Pacific Highway / Rose Street bridge
- Rose Street bridge / Howarth Street
- Howarth Street / commuter car park access
- Howarth Street / Warner Avenue
- Warner Avenue / Ithome Street

- Rose Street / commuter car park access.

Appendix D contains the detailed methodology for the TTIA.

6.2.2 Existing environment

The Pacific Highway is the main route through Wyong Town Centre and is a major urban arterial road connecting the northern suburbs of the Central Coast. There is currently a single lane through Wyong in each direction. Due to sustained urban growth across the Central Coast region, Wyong and surrounding suburbs have experienced a large increase in traffic volume in recent years. The road network in the proposal area remains generally as described in the Project REF. The following section describes the existing traffic and transport environment relevant to the proposed modification.

Route environment

Key features of the Pacific Highway through Wyong Town Centre include:

- Within the study area, the Pacific Highway connects Wyong's growing residential, commercial, and industrial precincts and provides direct access to Wyong Station.
- The Pacific Highway is generally an undivided two-lane road, with on-street parking provisions near the Town Centre and Wyong Station.
- The Main North Railway line runs parallel to the highway immediately to the east of the proposal. At the southern end of the proposal area, the highway is surrounded by light industry to the west before crossing the Wyong River.
- The town centre has numerous heritage buildings, including a heritage conservation area around the Wyong Railway Station. The railway station is located east of the Pacific Highway and contains a bus interchange and provisions for car parking. The railway station is an important transport hub for upper Central Coast residents, particularly for weekday commuters travelling to Sydney and Newcastle.
- North of the railway station, the Rose Street bridge across the railway line provides the primary access to the Wyong Racecourse and Wyong Regional Sports Complex.
- A bus lane is provided southbound on the Pacific Highway between Cutler Drive and Robleys Lane (about 500 metres).

Speed environment

Within the proposal area, the Pacific Highway has posted speed limits varying from 50 to 70 km/h as follows:

- Cutler Drive to North Road - 70 km/h
- North Road to River Road - 50 km/h
- River Road to Mildon Road - 60 km/h.

For Howarth Street, Rose Street, Anzac Avenue, Church Road, and local roads posted speed limits are 50 km/h.

Travel times and speeds

Table 6-3 displays surveyed travel time and travel speed on the Pacific Highway between Anzac Road and Brittania Drive. Travel times are presented for the southbound peak traffic direction during the AM peak and the northbound peak traffic during the PM peak.

Table 6-3 Existing travel time and travel speed on Pacific Highway

Peak period	Average travel time (min)	Average travel speed (km/h)
AM peak	10.6	25
PM peak	7.3	37

Source: VISSIM model.

These speeds (25 to 37 km/h) are much lower than the posted speed limits of 50 to 70 km/h, suggesting that the Pacific Highway is at capacity through Wyong Town Centre during peak times, leading to slower travel speeds.

Freight and access routes

The Pacific Highway through the Wyong Town Centre is a B-double route (up to 25 m) with a maximum vehicle height clearance of 2.6 m. Access from Church Street to the north is restricted to before 7 am and after 5:30 pm. It is also an approved route for Oversize Overmass Load Carrying Vehicles (OSOM) with travel conditions.

South Tacoma Road under the Wyong River Bridge (southern side of the river) has a low clearance of 3.4 m - 3.6 m, and Panonia Road has a low clearance of 3.6 m, where it crosses under the Pacific Highway.

Historical traffic counts on the Pacific Highway south of Church Street show that heavy vehicle traffic increased by about 0.5% per annum on average weekdays between 2011 and 2022.

Parking

Commuter parking

There are commuter car parking provisions within the proposal area servicing Wyong Railway Station. Unrestricted on street parking is also available near the railway station along sections of Howarth Street and Rose Street.

On street parking

There is restricted on street public parking provided along the Pacific Highway, Church Street, Alison Road, Rankens Circuit, Howarth Street and Anzac Avenue, ranging from 15 minutes to 2 hours.

Informal car parking has been observed on some sections of the Pacific Highway outside the formal restricted parking areas.

Unrestricted parking is available on street on South Tacoma Road, between the Pacific Highway and River Road, Panonia Road, Rose Street, on the corner of the Pacific Highway and North Road, Cutler Drive and Watanobbi Road.

Off street parking

Off street parking is provided for several retail properties which are accessed via the Pacific Highway, and for Apex Park which is accessed via North Road.

Modes of travel

Public transport, including networks and services

The proposal area is serviced by 17 bus routes operated by Busways, Red Bus Services and Coastal Liner. There are 11 bus stops along the Pacific Highway between Cutler Drive and Mildon Road, which includes the transport interchange at Wyong Station. Signalised pedestrian crossings are provided at bus stops on the Pacific Highway at Alison Street, Church Street, and Johnson Road intersections. However, pedestrian refuges are not provided for other bus stops, such as those near Cutler Drive, North Road, and Mildon Road.

Wyong Station is the main rail station accessed by the Pacific Highway in the proposal area. Tuggerah Station is located south of the proposal. Wyong Station and Tuggerah Station are part of the Central Coast and Newcastle Line, which provides access to key centres throughout the Central Coast and Newcastle, as well as Sydney via direct links to Hornsby, Strathfield and Central.

Walking and cycling, including networks and facilities

Footpaths are provided on at least one side of the Pacific Highway between North Road and Mildon Road. Footpath widths vary between 1 m and 3 m. Signalised pedestrian crossings are on the Pacific Highway at Alison Road, Church Street and Johnson Road intersections. Pedestrian surveys revealed high crossing movements on the Pacific Highway, with peak activity occurring between 1pm and 4 pm.

Bicycle paths are provided between Mildon Road and Johnson Road on the Pacific Highway. Cyclists use the road or road shoulder between Johnson Road and Cutler Drive to travel on the Pacific Highway.

Traffic volumes and patterns

On an average weekday, the Pacific Highway through the Wyong Town Centre carried up to 36,500 vehicles. About 2,000 heavy vehicles used this section on an average weekday, representing about 5 - 8% of total traffic.

During peak hours, the Pacific Highway accommodated up to 1,500 vehicles per hour in the peak direction, varying by location. In the AM peak, traffic volumes were higher in the southbound direction towards Tuggerah. In the PM peak, the northbound direction towards Watanobbi experienced greater traffic volumes.

Intersection performance

Table 6-4 shows existing delays and level of service assessed for nine key intersections with the Pacific Highway between Cutler Drive and Johnson Road. Level of Service (LoS) categorises the average delay into bands A to F, with LoS A representing the best operation and LoS F representing the worst operation.

The model data indicates an LoS F for six key intersections with a delay of between 71 seconds and 272 seconds. The Pacific Highway intersections with Church Street, Alison Road, and Johnson Road are the only intersections with a LoS above F in both peak times.

Table 6-4 Existing Intersection performance of proposal intersection due AM and PM peak times

Intersection	AM peak		PM peak	
	Delay (sec)	LoS	Delay (sec)	LoS
Pacific Highway / Cutler Drive	71	F	28	B
Pacific Highway / North Road	128	F	151	F
Pacific Highway / Anzac Avenue	113	F	59	E
Pacific Highway / Rose Street bridge	207	F	125	F
Pacific Highway / Alison Road	5	A	8	A
Pacific Highway / Church Street	21	B	25	B
Pacific Highway / River Road / Panonia Road	177	F	161	F
Pacific Highway / South Tacoma Road / McPherson Road	130	F	272	F
Pacific Highway / Johnson Road	16	B	24	B

These findings highlight congestion impacting traffic flow and intersection performance due to several factors at the following intersections:

- Pacific Highway / Rose Street bridge: This critical intersection provides access to the commuter car park and Wyong Station. It has a single lane in each direction and experiences significant delays due to heavy left-turning traffic (200 to 400 vehicles per hour) from the Rose Street bridge onto the highway.
- Congestion from the Rose Street bridge intersection also affects the Pacific Highway intersections at Anzac Avenue, North Road, and Cutler Drive, resulting in poor service levels.
- Pacific Highway / River Road / Panonia Road: This intersection has a single lane in each direction and is subject to delays from northbound and southbound traffic.
- Pacific Highway / South Tacoma Road / McPherson Road: Similar to the River Road intersection, this area experiences delays for left and right turns due to heavy traffic.

The single-lane setup on the Pacific Highway leads to significant congestion and overflow queuing at key intersections:

- AM Peak: Southbound queues start at Church Street and extend about 1 km north of Cutler Drive, blocking traffic from the Rose Street bridge. Northbound queues begin at Church Street and reach about 500 meters to South Tacoma Road.
- PM Peak: Southbound queues extend about 500 meters from Church Street to North Road, while northbound queues stretch from Church Street to the Wyong River bridge.

Crash analysis

Crash statistics for the period between 2017 and 2021 identified 40 crashes on the Pacific Highway between Culter Drive and Johnson Road, 21 of which caused injuries and no fatalities. However, on 3 December 2023 a crash occurred at the intersection of Cutler Drive and Pacific Highway, resulting in one fatality. Analysis of the 2017 to 2021 crash statistics indicates:

- Rear-end crashes were the most common at 55% of total incidents with incidents at intersections accounting for 31 % (including adjacent approaches and head-on collisions)
- Crashes frequently occur at uncontrolled intersections, including:
  - Rose Street
  - River Road
  - Culter Drive
  - South Tacoma Road
- Higher crash rates were observed at
  - Church Street
  - Alison Road
  - Johnson Road, primarily due to traffic congestion on the Pacific Highway.

6.2.3 Potential impacts

Construction

Construction vehicles

The volume and type of construction vehicle movements would vary depending on the stage of construction. It is estimated that during peak construction periods the proposed modification is expected to generate on average 120 to 300 light vehicle movements and 40 to 80 truck movements per day.

Based on updated traffic surveys conducted on the Pacific Highway corridor in November 2022, the existing average daily traffic volumes are about 26,000 to 36,500 vehicles, including about 2,000 heavy vehicles. As shown in Table 6-5, construction vehicles would increase traffic on Pacific Highway by less than two per cent which is considered minor and would not impact the operational performance of the Pacific Highway.

Table 6-5 Impacts of construction traffic on Pacific Highway

Existing average weekday traffic on Pacific Highway	Daily construction vehicle movements on Pacific Highway	Percent increase on Pacific Highway (%)
26,000 to 36,500	160 to 380	0.6 to 1.5

Consistent with the Project REF, the potential impacts caused by construction vehicle traffic would include:

- Increased travel times due to reduced speed limits around construction sites
- Increased travel times due to increased truck and construction machinery movements
- Increased travel times due to temporary partial or complete closure of roads
- Altered property accesses during construction.

Access

Similar to the Project REF, changes to access arrangements on local roads and to private properties would be required during some stages. Off-peak times for lane closures would be utilised to reduce overall traffic impacts, avoid where possible access disruption for businesses and impacts on pedestrian access to the town centre and station. Property owners impacted by

access issues would be notified prior to construction. Where intermittent local road closures are required, particularly for the demolition and construction of the bridge over Wyong River, appropriate alternative routes would be identified in consultation with affected residents and stakeholders.

The Project REF identified that the Rose Street overbridge would be kept open to traffic to the greatest extent possible, to ensure emergency access to the eastern side of the railway line is maintained, as the overbridge provides the only flood free access and the most direct route to the eastern side of the railway line from the town centre. The proposed modification includes moving the new replacement overbridge on an alignment south of the existing bridge (refer to Section 3.2.3). This would allow for more construction activities to be undertaken while leaving the current bridge open for ongoing access throughout construction. Consistent with the Project REF, some periodic short-term closures could be required during construction for bridge girder lifts and large plant movements. Access for emergency vehicles would be maintained at all times during construction with appropriate detours.

Pedestrians and cyclists

The Project REF did not describe the specific pedestrian and cyclist impacts associated with construction, however the impacts as a result of the proposed modification are considered to be consistent with those that would occur as a result of the project.

Consistent with the Project REF, safe pedestrian access would be maintained throughout construction. Temporary alternative access arrangements may be required, as construction areas shift during different stages. This applies to access to the station, businesses and the commuter carpark.

Where alternate access arrangements are required, consultation with council and advance notification to the broader community would be carried out. Temporary paths have potential to create short-term safety risks if not sufficiently lit and where obstructions to visibility may occur from construction. These risks would be mitigated by the development of the Traffic Guidance Scheme (TGS).

On-road cyclists would be impacted by the construction works. Cyclists would be considered when implementing temporary traffic arrangements, ensuring lane widths and shoulder widths minimise potential conflicts between cyclists and vehicles.

Public transport

Consistent with the Project REF, there would be changes to bus operations and bus stops during construction, including temporary bus stop relocations for various stages of construction (refer to Section 3.2.3 for changes since the Project REF). Temporary bus stops may have reduced waiting areas and less shelter, however these impacts would be short term. All temporary bus stops would be within acceptable walking distance of the existing bus stops and those in the central zone (town centre) and passengers would be able to access suitable safe crossing points across the Pacific Highway and links to Wyong Station.

The presence of traffic management may cause minor delays due to reduced speed limits in the construction area. Local timetables may need to be adjusted due to construction traffic management and changes to bus stop locations, though these would still likely be minor given the current congestion in the area and the short distance of the proposal area. This would be similar to potential impacts from the Project REF.

Parking

Consistent with the Project REF, there would be the temporary loss of on-street parking adjacent to the Pacific Highway. The Project REF identified available capacity in the retail precinct along Alison Road, Rankens Circuit and Hely Street. It is anticipated that there would also be impacts to on-street parking along Howarth Street as a result of the disruption to commuter parking. Alternative parking arrangements would include the provision of accessible parking where required. It is anticipated these impacts to on street parking would be temporary and parking would be reinstated after construction is complete. Consultation with Central Coast Council would occur prior to construction to discuss options for implementing temporary daytime parking restrictions.

The Project REF described the provision of temporary parking at the site of the former Station Master's Cottage (refer to Safeguard 45, Section 7 of the Project REF). This temporary parking is no longer feasible and not part of the updated construction staging for the proposed modification, as this area would be part of the main road works. Temporary parking would be provided (if necessary and subject to council agreement) on the eastern side of the station.

Existing commuter car parks at Wyong Railway Station would be fully closed on the western side and mostly closed on the eastern side throughout different stages of construction. Consistent with the Project REF, long-term parking would be relocated to the car park at Rose Street or other overflow parking on Howarth Street south of Warner Avenue.

As detailed in Section 3.2.3, the existing car park at Rose Street would be reconfigured and expanded to offset the reduced existing long-term parking around the station. This work has been identified in the proposed modification as an early package of work, to provide additional parking spaces to reduce the impacts of the closure of station car parking.

Operation

Intersection performance

Table 6-6 summarises the result of the intersection performance assessment carried out for the 2024 TTIA for four key intersections and compares the results for the same intersections from the Project REF. Intersection performance without the proposal is also shown.

The proposed modification would improve the Level of Service (LoS) at Pacific Highway intersections in 2031, 2041, and 2051 when comparing results to 'no upgrade' (i.e. the proposal is not constructed). LoS categorises the average delay into bands from A to F, with LoS A representing the best operation and LoS F representing the worst operation. The LoS for the intersections generally remain the same as those assessed in the Project REF, however some reduce by one level. All intersections still operate at a LoS of D or better for all future years.

Consistent with the Project REF, the proposal, including the proposed modification, would mitigate projected annual vehicle growth expected along Pacific Highway and associated intersections.

Table 6-6 Comparison of future intersection performance between the Project REF and this Addendum REF

Intersection	Control type	2031						2041					
		AM LoS			PM LoS			AM LoS			PM LoS		
		No upgrade	2015 TTIA	2024 TTIA	No upgrade	2015 TTIA	2024 TTIA	No upgrade	2015 TTIA	2024 TTIA	No upgrade	2015 TTIA	2024 TTIA
Pacific Highway / North Road	New traffic signal	F	B	B	F	B	A	F	B	B	F	B	B
Pacific Highway / Anzac Avenue	New traffic signal	F	B	B	F	B	B	F	B	C	F	B	D
Pacific Highway / Rose Street bridge	New traffic signal	F	B	C	F	B	C	F	B	C	F	B	C
Pacific Highway / Church Street	Traffic signal	B	B	B	C	B	B	C	B	B	C	B	C

Travel speed and times

Travel time savings on the Pacific Highway are shown in Table 6-7 for the base case (without proposal) and the project case (with proposal) in 2031, 2041, and 2051. Travel times on the Pacific Highway from Anzac Road to Brittania Drive are shown for the southbound peak traffic direction in the AM peak and northbound peak traffic direction in the PM peak.

In 2031, the project would reduce journey time on the Pacific Highway by up to 10.6 minutes during the AM peak period. Similarly, in 2041 and 2051, travel time savings by the project are estimated to be up to 13.8 and 13.4 minutes respectively during the AM peak period.

In 2031 and 2041, the project as assessed in the Project REF, was assessed as reducing journey time on the Pacific Highway to 8.7 minutes and 13.8 minutes respectively during the PM peak period. The Project REF did not assess travel time savings in the Year 2051.

Table 6-7 Travel time (minutes) with and without the proposal

	2031		2041		2051	
Scenario	AM	PM	AM	PM	AM	PM
Base case (without proposal)	18.1	11.7	21.8	16.2	23.1	20.1
Project case (with proposal)	7.5	8.7	8.0	10.6	9.8	12.2
Travel time savings	10.6	3.0	13.8	5.6	13.4	7.8

Local access

The proposed modification includes changes to the Rose Street bridge as described in Section 3.2.3. Traffic modelling results, detailed in Sections 5.2 and 5.3 of the 2024 TTIA, indicate that the reduction to lane configuration on the Rose Street bridge would not adversely impact traffic flow and performance at new signalised intersections with Pacific Highway and Howarth Street. The turn lane lengths in the current design are sufficient to accommodate the modelled vehicle queues at the new intersections.

Compared to the Project REF, the proposed modification would change access to local roads, including:

- Changed intersection treatment at Pacific Highway and McPherson Road from a roundabout to a signalised intersection
- Closure of Robley lane from Pacific Highway
- Changed intersection treatment at Howarth Street and Rose Street from a roundabout to a signalised intersection
- Closure of Rose Street from Howarth Street
- Changed intersection treatment at Panonia Road / River Road and the Pacific Highway from a roundabout to a sign-controlled intersection
- Reduced access from the Pacific Highway to Watanobbi Road through Apex Park, north of North Road.

The expanded Rose Street commuter car park (as detailed in Section 3.2.3 and discussed below) provides an additional entry and exit directly onto Howarth Street, which is expected to reduce reliance on Ithome Street for access to the Baker Park precinct parking facilities. The proposed closure of Rose Street at Howarth Street is anticipated to have minimal impact on traffic movement to and from the Rose Street commuter car park accessed via Ithome Street and Warner Avenue. The expanded Rose Street commuter car park is estimated to result in a minor increase in traffic volumes on the Ithome Street / Warner Avenue intersection, with an additional 20 to 30 vehicles during peak hours.

Local traffic movement changes detailed in Table 6-6 of the Project REF remain consistent with those described in Table 5-5 of the 2024 TTIA. However, one alternate access route nominated in the Project REF has been modified as part of the proposed modification being:

- Left turn in via U-turn at Pacific Highway McPherson Road roundabout.

This alternate access route has been modified to be via a dedicated U-turn at McPherson Road. A signalised intersection is now proposed at the Pacific Highway / McPherson Road intersection as part of the modification, replacing the previously proposed roundabout.

Local road closures are expected to result in minor traffic redistribution within the town centre, with no significant changes in traffic volumes or patterns on local roads anticipated. This is considered to be consistent with the Project REF.

Parking

Consistent with the Project REF, the proposed modification would change commuter parking arrangements around Wyong Railway Station by reducing the existing eastern car park, closing the western car park and extending the Rose Street commuter car park. The Project REF proposed a total of 488 parking spaces at the Rose Street commuter car park. The proposed modification provides a demand driven approach with current concept design providing 380 spaces and provision for a possible future expansion with additional parking spaces if demand warrants. The parking allocation of the proposed modification is less than that of existing off-street parking facilities currently available. However, the proposed modification would provide sufficient parking which meets the observed demand for off-street parking facilities based on parking surveys carried out by Transport in August 2024 (refer to Section 5.6.4 of the 2024 TTIA).

The current walking distances from the existing Rose Street commuter car park to Wyong railway station are about 360 to 420 metres. The Project REF assessed a reduction in walking distance from Rose Street commuter car park of up to 150 metres. The proposed modification would result in a reduction in walking distance from Rose Street commuter car park of up to 180 metres as a result of further upgraded pedestrian facilities which provide improved access and connectivity (as shown on Figure 6-2). Commuters would be required to walk between 180 and 380 meters depending on the parking space chosen.

Figure 6-2 Expanded Rose Street commuter car park and pedestrian facilities

The Project REF assessed an overall net loss of 23 on street parking spaces. The 2024 TTIA assessed an overall net loss of 30 on-street parking spaces. Despite this small reduction in on-street parking spaces, parking is retained near shops in the town centre, and distributed along the Pacific Highway to minimise impacts on residents and businesses.

Public transport

Consistent with the Project REF, there would be changes to bus stops and bus operations. Changes to the McPherson Street intersection allows the retention of the existing bus stops at this location (refer to Section 3.2.3). A bus stop has been added to Howarth Street, and some bus stops have been relocated north to be closer to the Church Street Plaza entrance, improving connectivity with the Wyong Railway Station and the town centre. Other changes include adjusting bus stop positioning to ensure safe manoeuvring of vehicles.

Consistent with the Project REF, passengers changing modes between rail and bus would have a slightly longer walking distance than now. The design for the proposed modification has focused on including measures to reduce the impact of slightly longer walking distances, including improved safety and amenity for pedestrians, as detailed in Section 5.6.3.2 of the 2024 TTIA.

Pedestrians and cyclists

Consistent with the Project REF, there would be significant improvements to facilities for pedestrians and cyclists, by providing new and upgraded facilities such as a cycleways, shared paths and footpaths.

Changes to cycle lanes and footpaths between the Project REF and proposed modification are detailed in Table 3-3. These changes aim to improve cyclist and pedestrian safety, promote active forms of transport, and maintain the existing character of the town centre.

The proposed modification includes the removal of on-road cycle provisions identified in the project REF with a wider dedicated off-road cycleway being provided along the eastern side of the Pacific Highway. The off-road cycleway provides a safer way for cyclists of all abilities to traverse the area and extends the existing off-road cycleway on the Pacific Highway south of Johnson Road to the Wyong Town Centre and station.

The proposed modification would introduce a change in how pedestrians cross the Pacific Highway and connect with Wyong Railway Station from the town centre. This change results in slightly longer walking distances compared to existing, and the Project REF. However, the proposed modification results in a safer outcome for pedestrians crossing the Pacific Highway which would occur at the Church Street signalised intersection instead of at an uncontrolled pedestrian refuge. In addition, the new pedestrian crossing location at Church Street provides access to bus stops which have been shifted to Church Street to provide a more convenient connection to Wyong railway station.

As noted above, the design for the proposed modification has focused on including measures to reduce the impact of slightly longer walking distances, including improved safety and amenity for pedestrians.

Freight transport

An updated impact to freight transport was not assessed as part of the 2024 TTIA. The proposed modification would remain consistent with the operational impact on freight transport stated in Section 6.2.3 of the Project REF.

Road safety

The proposed modification would improve road safety for road users, pedestrians and cyclists along the Pacific Highway, consistent with the Project REF. Additional key increases to road safety resulting from the proposed modification include:

- A signalised intersection at McPherson Road and the Pacific Highway replacing the previously proposed roundabout which did not appropriately cater for pedestrians and cyclists
- Upgrading the signalised pedestrian crossing at the Church Street intersection to focus pedestrian activity at Church Street Plaza, instead of an uncontrolled pedestrian refuge near Bakers Lane.
- Parallel parking and removal of the service lane between Church Street and Alison Road which removes the risk of potentially unsafe exits onto the highway (vehicles leaving the service lane)
- A wider dedicated off-road cycleway along the eastern side of the Pacific Highway which relocates cyclists from the road shoulder.

6.2.4 Safeguards and management measures

The safeguards provided in Section 6.2.4 of the Project REF remain generally relevant for the proposed modification. Updates and additional safeguards have been developed for the proposed modification and provided in Table 6-8.

Table 6-8 Traffic and transport safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Construction traffic impacts	• A construction traffic management plan (CTMP) would be prepared prior to construction and would be included in the Construction Environmental Management Plan. • The CTMP would: – Identify the traffic management requirements during construction, including night work safety management – Describe the general approach and procedures to be adopted when producing specific traffic control plans – Determine temporary speed restrictions to ensure safe driving environment around work zones – Provide for access to local roads and properties, including the use of temporary turnaround bays and temporary alternate access arrangements where appropriate – Include methods for implementing the traffic management plan and minimising road user delays – Provide for appropriate warning and advisory signposting – Provide measures for consulting and informing the local community and other stakeholders (i.e. emergency services, bus operators, local businesses) of impacts on the local road network – Consider other developments in the wider area that may also be under construction, to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic.	Contractor	Detailed design
Construction traffic impacts	• For each stage of construction, detailed ~~Traffic Management Plans (TMPs)~~ Traffic Guidance Schemes (TGSs) would be developed and implemented. These would be prepared in accordance with the ~~Traffic Control and Work Sites, version 4.0 (Roads and Maritime, June 2010)~~ *Traffic Control at Work Sites version 6* (Transport for NSW, 2022a) (Transport for NSW, 2022a) and QA Specification G10 Control and Traffic (Transport for NSW, 2020) • Provision for emergency services passage through construction zones would be considered in all ~~Traffic Management Plans~~ TGSs.	Contractor	Construction
Change to property access	• Owners of properties impacted during construction road closures would be notified prior to the commencement of construction adjacent to or in the vicinity of their property and would be advised to use alternative routes during the construction period. Property owners would also be consulted regarding temporary access arrangements to their properties.	Contractor	Detailed design Operation
Change to bus stops and services	• Bus operators would be consulted regarding relocated or removed bus stops and changed interchange and access arrangements ten days prior to changes. • A community engagement plan would be implemented to keep the community, including public transport operators, informed of any upcoming activities that may affect public transport operations.	Contractor	Construction
Pedestrian and cyclist access	• Pedestrian and cyclist access (including crossing facilities) would be maintained where possible and separated from work areas at all times. • Safe pedestrian access to the Rose Street commuter car park would be provided for all stages of construction.	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Wayfinding - construction	• Appropriate signage and wayfinding strategy for pedestrian and cyclist access during construction would be developed and implemented. • Temporary lighting on paths would be investigated and provided where current road lighting is insufficient. • ~~A signage strategy would be developed to guide road users to the new commuter car park facilities and transport interchange.~~	Contractor	Construction
Wayfinding - operation	• A wayfinding and signage strategy would be developed, including identifying appropriate signage to advise road users of changed access to Wyong Town Centre, parking and other facilities and points of interest.	Transport	Detailed design
Cyclist safety	• Cyclists would be considered when implementing temporary traffic arrangements, particularly at night.	Contractor	Construction
Short term closure of Rose Street bridge	• Any short-term closure of Rose Street bridge would be planned in advance for appropriate times by consultation with the community, Sydney Trains and ~~Wyong Shire~~ Central Coast Council • Diversions via Panonia Road and Pollock Avenue would be established during any short-term closure to maintain access to Baker Park	Contractor	Construction
Damage to roads from construction traffic	• Dilapidation surveys of local roads around the proposal would be undertaken before and after construction. • Damage to local roads beyond standard wear and tear as a result of construction traffic would be repaired.	Contractor	Construction
Traffic management	• During the initial operation phase, traffic signals and other traffic management measures would be actively monitored and adjusted as needed to ensure optimal performance and address any unforeseen traffic issues.	Transport	Operation
On-street parking	• A review of on-street parking would be carried out during detailed design, in consultation with Central Coast Council, including consideration to a separate Kiss and Ride location on the Pacific Highway.	Transport	Detailed design
Public safety and security	• A safety and security assessment would be undertaken during detailed design to identify locations for CCTV camera's, lighting and help points.	Transport	Detailed design
Pedestrian crossings	• To enhance pedestrian safety the traffic signals at Church Street, additional measures such as pedestrian count-down timers and a raised platform intersection would be investigated during detailed design.	Transport	Detailed design
On-street parking	• Consultation with Central Coast Council would occur prior to construction to discuss options for implementing temporary daytime parking restrictions.	Transport	Pre-construction

6.3 Biodiversity

A Biodiversity Assessment Report (BAR) was previously prepared for the Project REF (SMEC Australia, 2015). While the proposed modification has a proposal area largely the same as that described in the Project REF, a search of contemporary baseline data is needed to review threatened species recorded since the earlier BAR so that additional potential impacts can be assessed in this Addendum REF.

6.3.1 Methodology

The methodology for the biodiversity assessment in this Addendum REF involved the following:

- A desktop review of flora and fauna databases to identify threatened species that may have been recorded since the development of the approved BAR in 2015, including:
  - NSW DPHI BioNet Database within a 10x10 km area centred on the proposal area (NSW Department of Climate Change, Energy, the Environment & Water, 2024a)
  - Protected Matters Report that documents all Matters of National Environmental Significance (MNES) within a 1 km radius of the proposal area (Department of Climate Change, Energy, The Environment & Water, 2024b)
  - Sharing and Enabling Environmental Data (SEED) Portal (NSW Government, 2024b)
- An assessment of impacts on Threatened Ecological Communities (TECs), threatened species and threatened species habitat identified since 2015.
- A review of the existing safeguards presented in the Project REF and 2017 Addendum REF, with particular attention to any potential new impacts identified by the desktop review.

6.3.2 Existing environment

The existing environment is consistent with what is described in Section 3 of the BAR and Section 6.7.1 of the Project REF. However, desktop searches have confirmed additional threatened species sightings in the vicinity of the proposal area since the approval of the Project REF in 2015.

Threatened species – BioNet sightings

A search of the NSW DPHI BioNet Database was completed on 12 February 2024. A summary of the results is provided in Appendix I. An additional 28 threatened species have been recorded within a 10 km radius of the proposal area since the 2015 BAR. An assessment of species' 'likelihood of occurrence' was conducted to determine the likelihood of species occurring in the proposal area. The assessment considered the number of sightings, the location of the nearest sighting, and the likelihood of species habitat occurring within the proposal area. These results are shown in Table 6-9.

Table 6-9 Threatened species recorded on NSW DPHI BioNet Database since 2015

Scientific name	Common name	Sightings	Nearest sighting	Likelihood of occurrence
Arctocephalus forsteri	Long-nosed Fur Seal	1	9.9 km southeast	Nil - marine species
Arctocephalus pusillus doriferus	Australian Fur Seal	1	9.9 km southeast	Nil - marine species
Calyptorhynchus lathami lathami	Glossy Black Cockatoo	13	2 km southwest	Unlikely - lack of suitable habitat
Caretta caretta	Loggerhead Sea Turtle	11	400 m northwest	Unlikely - lack of suitable habitat
Chelonia mydas	Green Sea Turtle	1	9.5 km east	Nil - marine species
Corybas dowlingii	Red Helmet Orchid	2	8.5 km north	Unlikely - lack of suitable habitat

Scientific name	Common name	Sightings	Nearest sighting	Likelihood of occurrence
Crinia tinnula	Wallum Froglet	12	3 km north	Unlikely - lack of suitable habitat
Haematopus longirostris	Pied Oystercatcher	1	8.8 km southeast	Unlikely - lack of suitable habitat
Heleioporus australiacus	Giant Burrowing Frog	6	5.3 km east	Unlikely - lack of suitable habitat
Hoplocephalus stephensii	Stephens' Banded Snake	1	6 km west	Unlikely - lack of suitable habitat
Macadamia integrifolia	Macadamia Nut Tree	2	3 km west	Unlikely - lack of suitable habitat
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	61	300 m east, 300 m west	Possible
Miniopterus orianae oceanensis	Large Bent-winged Bat	53	275 m east	Possible
Petauroides volans	Greater Glider	1	5.3 km northwest	Unlikely - lack of suitable habitat
Petroica boodang	Scarlet Robin	1	3.25 km east	Unlikely - lack of suitable habitat
Phascogale tapoatafa	Brush-tailed Phascogale	1	5 km north	Unlikely - lack of suitable habitat
Phoniscus papuensis	Golden-tipped bat	1	7 km west	Unlikely - lack of suitable habitat
Potorous tridactylus	Long-footed Potoroo	3	4.4 km south	Unlikely - lack of suitable habitat
Pseudophryne australis	Red-crowned toadlet	10	9 km west	Unlikely - lack of suitable habitat
Rhodamnia rubescens	Scrub Turpentine	66	1.25 km east	Unlikely - lack of suitable habitat
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	13	2.5 km east	Possible
Scoteanax rueppellii	Rüppell's broad-nosed bat	37	1.8 km northwest	Possible
Sternula albifrons	Little Tern	5	8.7 km southeast	Unlikely - lack of suitable habitat
Stictonetta naevosa	Freckled Duck	1	4 km southeast	Unlikely - lack of suitable habitat
Thylogale stigmatica	Red-legged Pademelon	3	550 m north	Unlikely - lack of suitable habitat
Uperoleia mahonyi	Mahony's Toadlet	1	4.3 km south	Unlikely - lack of suitable habitat
Vespadelus troughtoni	Eastern Cave Bat	23	1.7 km east	Unlikely - lack of suitable habitat

As is evident in Table 6-9, the proposal area lacks suitable habitat for the majority of the threatened species that have been recorded in BioNet since the approval of the Project REF in 2015. However, the following four threatened species, potentially have habitat near the proposal, as shown in Table 6-10.

Table 6-10 Threatened species likely to occur within the proposal area

Scientific name	Common name	Sightings	Nearest sighting
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	61	300 m east, 300 m west
Miniopterus orianae oceanensis	Large Bent-winged Bat	53	275 m east
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	13	2.5 km east
Scoteanax rueppellii	Rüppell's broad-nosed bat	37	1.8 km north-west

Threatened species – Protected Matters search results

A search of Protected Matters was conducted on 12 June 2024 to identify additional nationally listed threatened species that are likely to occur within the proposal area. The updated Protected Matters report is attached in Appendix I. A comparison of the updated Protected Matters search results against the earlier Protected Matters search results from the 2015 BAR is provided in Table 6-11.

Table 6-11 Comparison of Protected Matters search results

MNES	2015 search results	2024 search results
World Heritage Properties	0	0
National Heritage Places	0	0
Wetlands of International Importance (Ramsar Wetlands)	0	0
Great Barrier Reef Marine Park	0	0
Commonwealth Marine Area	0	0
Listed Threatened Ecological Communities	0	3
Listed Threatened Species	52	87
Listed Migratory Species	55	61

The updated Protected Matters search revealed that three Threatened Ecological Communities (TECs) are listed as likely to occur within the proposal area. The 2015 BAR identified equivalent Endangered Ecological Communities (EECs) that were listed at a State level under the *Threatened Species Conservation Act 1995* (TSC Act). As such, potential impact to these TECs has been previously assessed in the Project REF, and there is no additional impact as a result of the TECs being identified in the updated Protected Matters search. Table 6-12 provides the nationally listed TECs and their equivalent State listed EECs.

Table 6-12 Threatened Ecological Communities

Endangered Ecological Community (identified in the 2015 BAR under the TSC Act)	Threatened Ecological Community (identified in the 2024 Protected Matters search under the EPBC Act)
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	River-Flat Eucalypt Forest on Coastal Floodplains of Southern New South Wales and Eastern Victoria
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and Southeast Queensland ecological community

The Project REF noted that the River-Flat Eucalypt Forest present in the study area has understorey similarities with the Swamp Sclerophyll Forest EEC and that these are often difficult to distinguish when assessing disturbed sites. The Project REF stated that due to the dominance of a mixed *Eucalyptus* and *Angophora* canopy, the lower abundance of *Casuarina* and *Melaleuca* species and the absence of *Eucalyptus robusta*, the vegetation is closer to the definition of River-Flat Eucalypt Forest. As such, there has been no further assessment of potential impacts to the Coastal Swamp Sclerophyll Forest of New South Wales and Southeast Queensland TEC.

In addition to the TECs provided in Table 6-12, the 2015 BAR identified the Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions EEC under the TSC Act. This EEC has not been identified in the updated Protected Matters search but remains listed as an EEC under the BC Act. As such, additional potential impacts have been identified in Section 6.3.3 for this EEC.

An initial comparison of the Protected Matters search results would suggest that an additional 35 threatened species and six migratory species have been listed as potentially occurring within the proposal area. However, it is important to note that several species have also been removed from Commonwealth threatened and migratory lists during this period. As such, the updated search revealed that 39 threatened species and 15 migratory species were not assessed in the BAR and could occur within the proposal area. Despite not being recorded in the 2015 Protected Matters search, a number of species that were identified in the updated search had been previously assessed as a result of being identified in other database searches or field surveys conducted for the Project REF. The proposed modification is not expected to change the previous assessment, and as such, these species have not been considered further in the Addendum REF. Table 6-13 and Table 6-14 comprise a list of threatened and migratory species that were not assessed in the Project REF or BAR. The refined presence likelihood has been derived from desktop research on each species.

Table 6-13 Threatened species not assessed in the Project REF or BAR

Common name	Scientific name	Threatened category	Protected Matters - Presence likelihood	Presence likelihood - refined
Blue-winged Parrot	*Neophema chrysostoma*	Vulnerable	Species or species habitat may occur within area	Species or species habitat may occur within area
Brown Treecreeper (south-eastern)	*Climacteris picumnus victoriae*	Vulnerable	Species or species habitat likely to occur within area	Species or species habitat may occur within area’
Common Greenshank, Greenshank	*Tringa nebularia*	Endangered	Species or species habitat known to occur within area	Unlikely – lack of suitable habitat
Diamond Firetail	*Stagonopleura guttata*	Vulnerable	Species or species habitat known to occur within area	Unlikely – lack of suitable habitat
Euphrasia arguta	*Euphrasia arguta*	Critically endangered	Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat
Fairy Prion (southern)	*Pachyptila turtur subantarctica*	Vulnerable	Species or species habitat may occur within area	Unlikely – lack of suitable habitat
Greater Glider (southern and central)	*Petauroides volans*	Endangered	Species or species habitat likely to occur within area	Unlikely – lack of connectivity and suitable habitat
Greater Sand Plover, Large Sand Plover	*Charadrius leschenaultii*	Vulnerable	Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat
Grey Falcon	*Falco hypoleuco*	Vulnerable	Species or species habitat may occur within area	Unlikely – lack of suitable habitat
Knotweed, Tall Knotweed	*Persicaria elatior*	Vulnerable	Species or species habitat may occur within area	Unlikely – lack of suitable habitat
Native Guava	*Rhodomyrtus psidioides*	Vulnerable	Species or species habitat known to occur within area	Unlikely – lack of suitable habitat

Common name	Scientific name	Threatened category	Protected Matters - Presence likelihood	Presence likelihood - refined
Parma Wallaby	*Notamacropus parm*	Vulnerable	Species or species habitat likely to occur within area	Unlikely – lack of connectivity and suitable habitat
Pilotbird	*Pycnoptilus floccosus*	Vulnerable	Species or species habitat may occur within area	Unlikely – lack of suitable habitat
Red Goshawk	*Erythrotriorchis radiatus*	Endangered	Species or species habitat may occur within area	Unlikely – lack of suitable habitat
Scalloped Hammerhead	*Sphyrna lewini*	Conservation Dependent	Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat
Scrub Turpentine, Brown Malletwood	*Rhodamnia rubescens*	Critically Endangered	Species or species habitat known to occur within area	Unlikely – lack of suitable habitat
Sooty Shearwater	*Ardenna grisea*	Vulnerable	Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat
South-eastern Hooded Robin	*Melanodryas cucullata cucullata*	Endangered	Species or species habitat may occur within area	Unlikely – lack of suitable habitat
White-flowered Wax Plant	*Cynanchum elegans*	Endangered	Species or species habitat likely to occur within area	Species or species habitat may occur within area

Table 6-14 Migratory species not assessed in the Project REF or BAR

Common name	Scientific name	Threatened category	Protected Matters - presence likelihood	Presence likelihood – screening assessment
Common Greenshank, Greenshank	*Tringa nebularia*	Endangered	Species or species habitat known to occur within area	Unlikely – lack of suitable habitat
Common Noddy	*Anous stolidus*		Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat
Great Frigatebird, Greater Frigatebird	*Fregata minor*		Species or species habitat known to occur within area	Unlikely – lack of suitable habitat
Greater Sand Plover, Large Sand Plover	*Charadrius leschenaultii*	Vulnerable	Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat
Lesser Frigatebird, Least Frigatebird	*Fregata ariel*		Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat
Oriental Cuckoo, Horsfield's Cuckoo	*Cuculus optatus*		Species or species habitat may occur within area	Consistent with Protected Matters
Reef Manta Ray, Coastal Manta Ray	*Mobula alfredi*		Species or species habitat may occur within area	Unlikely – lack of suitable habitat
Sooty Shearwater	*Ardenna grisea*	Vulnerable	Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat

Common name	Scientific name	Threatened category	Protected Matters - presence likelihood	Presence likelihood – screening assessment
White-tailed Tropicbird	*Phaethon lepturus*		Species or species habitat may occur within area	Unlikely – lack of suitable habitat
Yellow Wagtail	*Motacilla flava*		Species or species habitat likely to occur within area	Unlikely – lack of suitable habitat

Based on the screening assessment completed in Table 6-13 and Table 6-14 for presence likelihood of threatened and migratory species and species habitat occurring within the proposal area, the following species were deemed to require further assessment to determine presence likelihood:

- Blue-winged Parrot - *Neophema chrysostoma*
- Brown Treecreeper (south-eastern) - *Climacteris picumnus victoriae*
- White-flowered Wax Plant - *Cynanchum elegans*
- Oriental Cuckoo - *Cuculus optatus.*

Blue-winged Parrot

The Blue-winged Parrot breeds south of the Great Dividing Range in southern Victoria, and sometimes in the far south-east of South Australia, and the north-western, central and eastern parts of Tasmania (Department of Climate Change, Energy, the Environment & Water, 2023). During the non-breeding period, from autumn to early spring, birds are recorded from northern Victoria, eastern South Australia, south-western Queensland and western New South Wales, with some birds reaching south-eastern New South Wales and eastern Victoria, particularly on the southern migration (Department of Climate Change, Energy, the Environment & Water, 2023). The nearest recorded sighting is approximately 86 km south of the proposal area (BioNet, 2024). The Blue-winged Parrot can be found in a broad range of habitats in coastal, sub-coastal and inland areas right through to semi-arid zones, including grasslands, grassy woodlands, semi-arid chenopod shrubland with native and introduced grasses, herbs and shrubs, and wetlands (both coastal and semi-arid) (Department of Climate Change, Energy, the Environment & Water, 2023). Given there have been no recorded sightings within 85 km of the proposal area, and the limited availability of suitable habitat within the proposal area, the presence likelihood is considered consistent with the Protected Matters result, that being 'Species or species habitat may occur within area'.

Brown Treecreeper (south-eastern)

The NSW OEH threatened species profile states that the Brown Treecreeper (south-eastern) is known to occur within the Wyong IBRA sub-region. However, NSW OEH also provides a list of PCTs that the Brown Treecreeper (south-eastern) is known to be associated with in this region. Of the five PCTs identified by the BAR to be in the proposal area, none are associated with the Brown Treecreeper (south-eastern). As such, it is deemed that there is a lack of suitable habitat within the proposal area, and the presence likelihood has been refined to 'Species or species habitat may occur within area'.

White-flowered Wax Plant

Similarly, the White-flowered Wax Plant threatened species profile on the NSW OEH database states that the White-flowered Wax Plant is known to occur within the Wyong IBRA sub-region. However, NSW OEH provides a list of PCTs with which this species is known to be associated in this region. Of the five PCTs identified by the BAR to be in the proposal area, none are associated with the White-flowered Wax Plant. As such, it is deemed that there is a lack of suitable habitat within the proposal area, and the presence likelihood has been refined to 'Species or species habitat may occur within area'.

Oriental Cuckoo

The Oriental Cuckoo uses a range of vegetated habitats such as monsoon rainforest, wet sclerophyll forest, and open woodlands. It often appears along the edges of forests or ecotones between forest types (Department of Climate Change, Energy, The Environment & Water, 2015). There are three BioNet records of this species on the NSW Central Coast. However, these sightings were between 1989 and 2005 and were in areas of dense vegetation. Given the lack of suitable habitat in the proposal area, the presence likelihood for the Oriental Cuckoo is considered consistent with the Protected Matters result, that being 'Species or species habitat may occur within area'.

6.3.3 Potential impacts

This Addendum REF has considered potential impacts due to the proposed modification to the additional threatened species and EECs identified in Section 6.3.2.

Loss of vegetation and habitat

As a result of boundary adjustments, it is anticipated that vegetation clearing requirements would be altered for the proposed modification. Table 6-15 provides TEC clearing estimates for the Project REF and the proposed modification.

Table 6-15 Summary of TEC vegetation clearing

Vegetation	Area to be cleared (Project REF)	Clearing adjustments (as a result of the proposed modification)	Total area to be cleared
Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.	1.7 ha	0.08 ha	1.78 ha
River Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner Bioregions.	0.4 ha	0.004 ha	0.404 ha
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.	0.14 ha	0.03 ha	0.17 ha
Total	**2.24 ha**	**0.114 ha**	**2.35 ha**

As shown in Table 6-15, 2.24 ha of TEC would be cleared to construct the proposal as it was described in the Project REF. It is noted that boundary adjustments were undertaken for the 2017 Addendum REF, however, it was determined that impacts to biodiversity as a result of the 2017 proposed modification were negligible. As such, clearing requirements have been compared against the Project REF estimates.

Due to the boundary adjustments described in Section 3.2.3, the proposed modification would increase the total area of TEC vegetation clearing in combination with the Project REF by 0.114 ha from 2.24 ha to 2.35 ha. Figure 6-3 to Figure 6-8 show where additional TEC clearing would be required, and where TEC would be retained, as a result of the boundary adjustments. To derive this estimate, Geographic Information System (GIS) data from the 2015 BAR was used to understand where TECs are likely to be present. Specifically, additional vegetation within the extended boundary that is adjacent to previously mapped TECs has been assumed to be of equivalent ecological significance. This means that if the new boundary encroaches upon areas of vegetation that are next to TECs previously identified in the Project REF, it has been assumed that this new vegetation is of equal significance and as such, has been included in the total TEC clearing estimate. These calculations would be verified during detailed design, with survey as required.

The additional proposed clearing has the potential to result in the loss or degradation of habitat for the Wallum Froglet and Green and Golden Bell Frog. The Project REF described the potential loss of habitat, which included a small wetland, between the Pacific Highway and the Wyong railway line, at the northern end of the proposal area. Given the boundary is being extended into this area, there is potential for the clearing of this land to result in additional habitat loss or degradation. It is estimated that, as a result of the boundary extensions, an additional 0.03 ha of potential Wallum Froglet and Green and Golden Bell Frog habitat (Freshwater Wetland) could be cleared (refer to Figure 6-4). As shown in Table 6-15, this would result in 0.17 ha of Freshwater Wetland vegetation being cleared for the Project and proposed modification. While the assessment assumes that the land would require clearing, it is important to note that the boundary extension into the Freshwater Wetland area is intended to facilitate access and modifications to existing infrastructure within the rail corridor. This area may primarily experience disturbance rather than complete clearing.

The Project REF estimated the total area of Freshwater Wetland vegetation within a 10 km radius of the proposal area to be approximately 171 ha, meaning the total amount of Freshwater Wetland vegetation that would require clearing (0.17 ha) is approximately 0.1% of total Freshwater Wetland vegetation within a 10 km radius of the proposal area. As such, it is concluded that the impact of the Project and proposed modification on potential habitat for the Wallum Froglet and Green and Golden

Bell Frog would be minor, with the impacts determined not to be significant. This finding is consistent with the assessments of significance conducted for the Project REF.

The proposed modification would also increase clearing requirements of Swamp Oak Floodplain Forest of the NSW North Coast (0.08 ha), River Flat Eucalypt Forest on Coastal Floodplains (0.004 ha). The Project REF estimated the total area of Swamp Oak Floodplain Forest of the NSW North Coast TEC within a 10 km radius of the proposal area to be approximately 320 ha, meaning the total amount of Swamp Oak Floodplain Forest vegetation that would require clearing (0.08 ha) is approximately 0.025% of total Swamp Oak Floodplain Forest vegetation within a 10 km radius of the proposal area. The Project REF estimated the total area of River Flat Eucalypt Forest on Coastal Floodplains TEC within a 10 km radius of the proposal area to be approximately 1,329 ha, meaning the total amount of River Flat Eucalypt Forest vegetation that would require clearing (0.004 ha) is approximately 0.0003% of total River Flat Eucalypt Forest vegetation within a 10 km radius of the proposal area. As such, it is concluded that the impact of the Project and proposed modification on the TECs identified in Table 6-15 would not be significant. This finding is consistent with the assessments of significance conducted for the Project REF.

The proposed modification would result in a different bridge configuration across Wyong River and a new boardwalk on the northern side of the Wyong River. Works associated with the removal of the existing Wyong River bridge were considered in the Section 6.7.1 of the Project REF and remain consistent with the proposed modification. As a result of the addition of the boardwalk, approximately 0.029 ha of riparian vegetation and grassland would require removal. Other potential construction impacts are considered consistent and are described in Section 6.7.3 of the Project REF. Similarly, the proposed realignment of the piers for the new Wyong River bridge would result in impacts consistent with those described in Section 6.7.3 of the Project REF.

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DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway

Threatened Ecological Communities (TECs)

- River Flat Eucalypt Forest on Coastal Floodplains
- Swamp Oak Floodplain Forest
- TEC to be retained
- Additional TEC

FIGURE 6-3:
TEC CLEARING - SHEET 1

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

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DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway

Threatened Ecological Communities (TECs)

- Freshwater Wetlands on Coastal Floodplains
- River Flat Eucalypt Forest on Coastal Floodplains
- Swamp Oak Floodplain Forest
- TEC to be retained
- Additional TEC

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FIGURE 6-4:
TEC CLEARING - SHEET 2

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

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DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway

Threatened Ecological Communities (TECs)

- Swamp Oak Floodplain Forest
- TEC to be retained

FIGURE 6-5:
TEC CLEARING - SHEET 3

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

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DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway
- Watercourse

Threatened Ecological Communities (TECs)

- Swamp Oak Floodplain Forest

FIGURE 6-6:
TEC CLEARING - SHEET 4

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

AECOM

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DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway
- Watercourse

Threatened Ecological Communities (TECs)

- River Flat Eucalypt Forest on Coastal Floodplains
- Swamp Oak Floodplain Forest
- TEC to be retained
- Additional TEC

FIGURE 6-7:
TEC CLEARING - SHEET 5

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

AECOM

N

0 25 50 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway

Threatened Ecological Communities (TECs)

- Swamp Oak Floodplain Forest
- TEC to be retained

FIGURE 6-8:
TEC CLEARING - SHEET 6

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

Threatened species

As discussed in Section 6.3.2, an additional four microbat species have been recorded in the vicinity of the proposal area since the development of the BAR. The potential impact of the proposal on a number of different microbat species was previously assessed in the Project REF, specifically as a result of removing the existing Wyong River bridge. Given the demolition and construction scope is generally consistent with the details outlined in the Project REF, and considering the similarities between the newly identified microbat species and their habitat with those previously assessed, the safeguards proposed in the Project REF are valid for the additional species identified. As such, no further assessment is proposed.

Given that construction activities are generally consistent with those described in the Project REF, the remaining potential impacts are consistent with those described in Section 6.7.3 of the Project REF. These impact categories include:

- Wildlife connectivity and habitat fragmentation
- Aquatic habitat
- Injury and mortality
- Weed spread
- Pests and pathogens
- Key threatening processes.

Conclusion on significance of impacts

The modification in combination with the approved proposal is not likely to significantly impact threatened species, populations or ecological communities or their habitats within the meaning of the BC Act or FM Act, and therefore, a Species Impact Statement is not required.

The modification in combination with the approved proposal is not likely to significantly impact threatened species, populations, ecological communities or migratory species within the meaning of the EPBC Act.

6.3.4 Safeguards and management measures

The safeguards provided in Section 6.7.4 of the Project REF are largely adequate for the proposed modification. Table 6-16 provides the existing safeguards from the Project REF and details additional safeguards required to manage and mitigate potential additional impacts.

An additional safeguard has been developed to manage potential impacts to mature and hollow bearing trees. The 2015 BAR noted the presence of two hollow bearing trees on the western side of the proposal area between the Pacific Highway and South Tacoma Road, however, mature trees were not adequately identified to inform biodiversity offsets. As such, a survey for mature and hollow bearing trees would be required to be conducted during detailed design, to inform the proposal's biodiversity offset strategy using Transport's *Tree and Hollow Replacement Guidelines* (Transport for NSW, 2023a).

Table 6-16 Biodiversity safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
General construction impacts on flora and fauna	• Prepare a Construction Flora and Fauna Management Plan, including weed management, and ensure that it is integrated with the landscape plan for the proposal. • Limit of work temporary fencing is to be established. • Pre-clearing processes are to be undertaken in accordance with the ~~Roads and Maritime Biodiversity Guidelines: Guide 4 - Clearing of vegetation and removal of bushrock (Roads and Traffic Authority, 2011)~~ *Transport Biodiversity Management Guideline: Guide 4 – Clearing of vegetation and removal of bushrock* (Transport for NSW, 2024). • Construction access tracks, compound facilities and construction areas along the road verge are to be located in previously cleared or disturbed areas wherever possible.	Contractor	Pre-construction
Risk to threatened species habitat	• Implement a Construction Erosion and Sediment Control Plan or Soil and Water Management Plan, in accordance with *the Blue Book* (Landcom, 2004). • Manage stormwater to ensure that the existing hydrology of wetlands within and adjoining the proposal area is maintained, including periodic drying to prevent colonisation by *Gambusia holbrookii*. • Where possible, habitat trees and hollow bearing trees are to be retained throughout the proposal area. • A microbat management plan would be developed and implemented prior to commencement of construction. • Options for providing microbat roosting habitat would be investigated during detailed design.	Transport	Pre-construction
Mature and hollow bearing trees	Conduct an updated survey for mature and hollow bearing trees outside of identified EEC during detailed design, to inform the proposal's biodiversity offset requirements using mitigation measures outlined in Transport's *Tree and Hollow Replacement Guidelines* (Transport for NSW, 2023a).	Transport	Detailed design
Minimise impacts of the proposal on Endangered Ecological Communities (EECs) and ~~State Environmental Planning Policy no. 14 wetlands~~ Coastal Wetlands	• Where possible, retain vegetation that contains EECs present in the proposal area and adjacent sites. • Offsetting for impacts on EEC vegetation would be investigated using the NSW Biodiversity Offsets Scheme in accordance with the ~~Roads and Maritime Guideline for Biodiversity Offsets (Roads and Maritime, 2011)~~ Transport's *Biodiversity Policy* (Transport for NSW, 2024)and the *Biodiversity Assessment Method* (NSW Department of Planning, Industry & Environment, 2020).	Transport Contractor	Pre-construction
Site specific environmental induction	• All staff working on site are to undertake a site-specific environmental induction. The induction is to include items such as: - sensitivity of surrounding vegetation (particularly EECs, remnant and riparian vegetation) - site environmental procedures (vegetation management, sediment and erosion control protective fencing and noxious weeds)	Contractor Transport	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
	- what to do in case of emergency (chemical spills, fire or fauna encountered) - key contact in case of environmental incident - details of threatened flora species and risk of myrtle rust.		
Minimise risk of establishment and spread of invasive species and disease due to the proposed development activities	• The use of pesticides in weed control is to be minimised to reduce threat to fauna species. • Inspection and maintenance procedures are to be implemented to reduce the carriage of weed material on machinery. • Install no-go zones to control the movement of vehicles, and human traffic, around areas of native vegetation. • All pathogens (e.g. Chytrid, Myrtle Rust and Phytophthora) are to be managed in accordance with the ~~Roads and Maritime~~ *Biodiversity Management Guidelines~~s~~ - Guide 7 (Pathogen Management)* (Transport for NSW, 2024), *Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi (for Phytophthora)* (NSW Department of Environment & Climate Change, 2008), and *Myrtle rust response 2011: Preventing spread of Myrtle Rust in bushland and OEH Interim management plan for Myrtle rust in bushland* (NSW Office of Environment and Heritage, 2011). • Declared noxious weeds are to be managed according to requirements under the *Noxious Weeds Act 1993* and *Guide 6 (Weed Management)* of the ~~Roads and Maritime Biodiversity Guidelines (2011)~~ *Biodiversity Management Guidelines* (Transport for NSW, 2024).	Contractor	Construction
Flora and fauna encountered	• If unexpected, threatened fauna or flora species are discovered, stop works immediately and follow the Unexpected Threatened Species Finds Procedure in the ~~Roads and Maritime Biodiversity Guidelines~~ *Biodiversity Management Guidelines - Guide 1 (Pre-clearing process)* (Transport for NSW, 2024). • WIRES is to be consulted if any injured fauna are encountered as outlined in site specific environmental inductions. • Fauna handling must be carried out in accordance with the requirements the ~~Roads and Maritime Biodiversity Guidelines~~ *Biodiversity Management Guidelines - Guide 9 (Fauna Handling)* (Transport for NSW, 2024).	Contractor	Construction
Re-establishment of any native vegetation disturbed or removed by the proposal	• Revegetate or replant disturbed areas progressively to minimise erosion activity. • Revegetation and replanting are to be carried out in accordance with the ~~Roads and Maritime Biodiversity Guidelines~~ *Biodiversity Management Guidelines* (Transport for NSW, 2024).	Contractor	Pre-construction Construction
Impacts on aquatic habitat	• Consideration of operational water quality controls, particularly south of Cutler Drive, would be undertaken during detailed design, in accordance with the *Policy and guidelines for fish habitat conservation and management* (NSW Department of Primary Industries, 2013).	Transport	Detailed design Construction

Impact	Environmental safeguards	Responsibility	Timing
	• Establish erosion and sediment control measures, including in-stream control structures, prior to works commencing in the vicinity, and retain them until the ground is stable or turbidity levels match adjoining river water. • Temporary limit of work fencing is to be established for riparian vegetation to limit the clearing as much as possible. • Measures to manage fish passage on the Wyong River during construction would be included in the Construction Environmental Management Plan (CEMP). • If blockage of fish passage on the Wyong River is required, a permit in accordance with Section 220 of the Fisheries Management Act 1994 must be obtained. • Progressive revegetation of the riparian zone would incorporate plantings of locally indigenous mature trees, bushes and grasses where possible. • Appropriate bank protection would be installed on the Wyong River underneath the new bridges where revegetation is unlikely to be suitable.		

6.4 Soil and water quality

A Soil and Water Quality Technical Study was prepared for the Project REF (Appendix J of the Project REF) (SMEC Australia, 2015). The study described the existing soil and water environment, identified the potential impacts that the proposal may have on soil and water environments, and identified the management measures that would be appropriate to mitigate the potential impacts. The existing environment and potential impacts described in the Soil and Water Quality Technical Study are generally consistent with the Project REF. However, a Detailed Site Investigation (DSI) has been prepared for the proposed modification to identify contamination risks and inform design and construction remediation and management options (AECOM Australia, 2024). This section summarises the findings of the DSI, which is included in Appendix E.

6.4.1 Methodology

The methodology is provided in Section 6 of the DSI. In summary, the methodology for the DSI comprised:

- Logging and collection of soil samples from 52 boreholes, 18 test pits, five hand augers and two pavement cores
- Installation and development of 15 new groundwater monitoring wells
- Sampling of 15 new and two existing groundwater monitoring wells
- Installation, leak testing and sampling of four soil vapour monitoring wells
- Collection of 23 coal tar samples from asphalt cores.

The investigation works were conducted in general accordance with the following key documents:

- *Amended Assessment Site Contamination National Environmental Protection Measure* (National Environmental Protection Council, 2013)
- *Consultants reporting on contaminated land: Contaminated Land Guidelines* (NSW Environment Protection Authority, 2020)
- *Sampling Design Guidelines* (NSW Environment Protection Authority, 2022)
- *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (NSW Environment Protection Authority, 2015)
- *Guidelines for the Site Auditor Scheme*, 3rd Edition (NSW Environment Protection Authority, 2020)
- *Guidelines for the Assessment and Management of Groundwater Contamination* (NSW Environmental Protection Authority, 2007)
- *Vapour Intrusion: Technical Practice Note* (NSW Department of Environment Climate Change & Water, 2010)
- *Technical Report No.23 – Petroleum Hydrocarbon Vapour Intrusion Assessment Australian Guidance* (crcCARE, 2013)
- *PFAS National Environmental Management Plan 2.0* (Heads of Environment Protection Authority, 2020)
- *Guidelines for Managing Risks in Recreational Water* (National Health & Medical Research Council, 2008)
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Australian & New Zealand Governments, 2018).

6.4.2 Existing environment

Soil landscape

The soil landscape remains consistent with the environment described in the Project REF. The *1:100,000 Soil Landscapes Sheet of Gosford-Lake Macquarie* (Murphy, 1993) indicates that most of the proposal area to the south of Wyong River is underlain by the Wyong Soil Landscape (Alluvial). The soil landscapes then transition to the Woodbury's Bridge Soil Landscape (Residual) within the central area near Wyong Railway Station and the Gorokan Soil Landscape (Erosional) at the northern end. A section of Disturbed Terrain is also present at the Wyong Racecourse adjacent to the northern section of the proposal area.

Contaminated soils

The Project REF notes several sites (including car yards, service stations and underground storage tanks) as potential volatile chemical sources. Volatile chemicals have the potential to partition into the air in the soil pore spaces and can move into buildings, ambient air, confined spaces or excavations on a site.

The Project REF also notes that construction activities carried out in the area before 1986 led to the potential for asbestos-containing materials to be present. It identified an asbestos water main on the western side of the Pacific Highway, with the potential for asbestos to also be present in other telecommunications pits, conduits and water mains within the proposal area.

No asbestos was detected in the soil samples analysed from the DSI. However, asbestos fragments were found on the soil surface on South Tacoma Road during the investigations. Consistent with the Project REF, it is concluded that asbestos is likely present in the soil of the proposal area due to the use of asbestos-containing materials in underground services, such as conduits and service pits. Furthermore, some areas of fill were found to contain demolition waste, including potential traces of asbestos, which may be encountered during construction in affected areas, including:

- Near the intersection of Bluegum Close and McPherson Road
- The reserve between the River Road and Pacific Highway
- The road reserve on the northern side of Cutler Drive
- The west side of the existing Howarth Street bridge.

Previous investigations identified potential coal tars (based on visual and olfactory observations) in the following locations on the Pacific Highway:

- North of Anzac Avenue
- Approximately 50 m south of the Church Street intersection
- Between Johnson Road and Bluegum Drive.

However, coal tar testing of pavement samples completed for the DSI did not detect coal tar.

The Project REF identified concentrations of carcinogenic polycyclic aromatic hydrocarbons (PAH) in the soil directly beneath the road pavement on the Pacific Highway adjacent to a service station and commercial property between Anzac Avenue and North Road. The DSI reported that the investigation results identified the contamination is localised and not widespread.

The Project REF highlighted soil vapour as a risk at locations between North Road and Anzac Avenue. Results from targeted monitoring wells during the DSI found soil vapour at concentrations lower than the adopted assessment criteria in the two wells sampled. Total recoverable hydrocarbon (TRH) and volatile organic compounds (VOC) contamination were not detected.

The risk of vapour intrusion within the proposal area is therefore considered low. The proposal area has two operational service stations, meaning there is an ongoing risk of TRH and VOC contamination associated with these facilities.

The Project REF described the rail corridor as a highly disturbed environment that potentially contains waste, such as:

- Disused rail infrastructure and equipment
- Ash and coal residue from steam train locomotive activity
- Herbicide residues from weed control
- Windblown litter and illegally dumped materials
- Asbestos, lead-based paints and polychlorinated biphenyls (PCBs).

The DSI identified asbestos on the ground surface and a single lead hotspot in shallow soil south of Wyong Railway Station.

Acid sulfate soils

Acid sulfate soils (ASS) presence is generally consistent with that described in the Project REF. Areas of ASS are located mainly within and south of the Wyong River and would be classified as potential acid sulfate soils (PASS) requiring disposal per the *Waste Classification Guidelines, Part 4 Acid Sulfate Soils* (NSW Environment Protection Authority, 2014).

Surface water

Surface water across most of the proposal area is inferred to flow southeast per the general topography of the catchments within the Wyong River and Racecourse Swamp as described in the Project REF.

Racecourse Swamp is mapped as a coastal wetland under the *State Environmental Planning Policy (Resilience and Hazards) 2021.* The wetland is connected to flows from the proposal area via a culvert under the railway line adjacent to the proposal area. While the proposal area is not directly within Racecourse Swamp, surface flows from the culvert would originate from the proposal area.

Groundwater

The Project REF identified six registered wells within 1 km of the proposal area where groundwater may be encountered within alluvial sediments at about 3 metres below ground level (mbgl).

Groundwater was encountered at depths ranging between 0.3 mbgl and 10 mbgl. No sheen or non-aqueous phase liquids (NAPL) were observed in the groundwater wells sampled. All groundwater and soil vapour results were less than the adopted human health-based assessment criteria. Groundwater results exceeded the adopted ecological screening criteria for heavy metals (cadmium, chromium, copper, nickel and zinc) across the proposal area and perfluorooctanesulfonic acid (PFOS) in the wells closest to the fire station.

6.4.3 Potential impacts

Construction

Erosion, sedimentation and water quality

The Project REF identifies construction activities that have the potential to impact soil and water quality and summarises the outcomes of a Preliminary Erosion and Sedimentation Risk Assessment. It flags particular risks associated with the Wyong River catchment and Racecourse Swamp.

The Project REF also identifies instream and overwater construction activities associated with the demolition and construction of the Wyong River bridge that pose an elevated risk to water quality in the Wyong River and downstream environments.

The proposed modification does not add, remove or alter any activities that would change the assessed impact. The safeguards and management measures proposed in the REF remain valid for the proposed modification, provided contemporary guidelines are followed.

Groundwater

The Project REF concluded that due to recorded depths of groundwater below 3 mbgl, it is unlikely that groundwater would be directly intercepted during construction. However, the DSI recorded groundwater at shallower depths (0.3 mbgl), meaning that the risk of construction activities encountering shallow groundwater is likely higher than previously assessed, particularly in low-lying areas or where deep earthworks are required. Groundwater extracted during dewatering activities during construction would require testing and assessment against discharge criteria or be disposed of at an appropriately liquid cement facility. Additional safeguards and management measures have been added to Section 6.4.4 to manage this risk.

Risks associated with construction activities that have the potential to adversely impact groundwater quality remain as assessed by the Project REF and would be managed during construction via the safeguard and management measures proposed in the Project REF.

Contaminated soils

Construction works for the proposed modification present potential risks to human and environmental health should there be exposure to contaminants. The DSI refined the risk profile for the proposed modification, including identifying a lead hotspot within the rail corridor and clarifying the risk associated with a known area impacted by carcinogenic PAHs between Anzac Avenue and North Road on the Pacific Highway. Localised soil remediation or management would be required during construction at both of these locations. While the DSI results indicate some potential health environmental impacts, the concentrations are not considered to impede the proposed works, and the human health and environmental risks remain consistent with the Project REF and can be managed with the development of a Contaminated Land Management Plan (CLMP) as proposed in the Project REF.

Where impacted soils are to be excavated as part of bulk excavation and disposed off-site to an appropriately licensed waste facility, a Remediation Action Plan (RAP) would not be required. However, if the soils surrounding the impacted area are proposed to be reused within the proposal area, a RAP and validation report would be required to demonstrate that unsuitable soils have been delineated and removed.

An asbestos management plan (AMP) would be required to manage the removal of asbestos conduits and pits as well as areas where asbestos-impacted fill or surface soils are encountered.

An unexpected finds protocol (UFP) should also be prepared for construction to manage potential previously unidentified contamination encountered during construction.

Additional safeguards and management measures have been added to Section 6.4.4 to manage the updated risk profile.

Acid sulphate soils

The potential for ASS to be encountered during construction remains consistent with the Project REF, with the area around Wyong River and south of the river considered a higher risk. The potential impacts associated with disturbing ASS are consistent with those presented in the Project REF.

Operation

This Addendum REF has considered the potential for the proposed modification to introduce new or altered impacts to those previously assessed in the Project REF, covering the following aspects:

- Erosion, sedimentation and water quality
- Groundwater
- Contaminated soils
- Acid sulfate soils

Considering each of these aspects, the proposed modification would not result in new or additional impacts on soil and water quality to those already assessed by the Project REF.

6.4.4 Safeguards and management measures

The safeguards provided in the Project REF remain generally relevant for the proposed modification. Updates and additional safeguards have been developed for the proposed modification and provided in Table 6-17.

Table 6-17 Soil and water quality safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Erosion generated by the new ~~bridges~~ bridge over the Wyong River	Detailed design would consider options to minimise potential erosion and scour impacts associated with the bridge construction and operation.	~~Detailed design~~ Transport Construction contractor	Detailed design Construction
Erosion and sedimentation	• A Soil and Water Management Plan (SWMP) would be prepared for the proposal in accordance with the principles and practices detailed in *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) (the Blue Book). • The SWMP would be developed by a ~~Roads and Maritime~~ Transport registered soil conservationist or a certified practitioner in erosion control in accordance with the principles and practises detailed in *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) and in consultation with relevant government agencies and Central Coast Council. • The SWMP would form part of the CEMP and would be supported by a qualified and experienced soil conservationist.	Construction contractor	Pre-construction
Erosion and sedimentation	• The SWMP would contain as a minimum the following elements: - Site-specific Erosion and Sedimentation Control Plans (ESCPs), including detailed consideration of staging and management at ancillary sites, in accordance with the Blue Book. - Identification of site conditions or construction activities that could potentially result in erosion and associated sediment runoff. - Methods to minimise potential adverse impacts of construction activities on the water quality within surrounding waterways. - Details of measures to minimise any adverse impacts of sedimentation on the surrounding environment. - Details of measures to minimise soil erosion caused by all construction works, including clearing, grubbing and earthworks. - Details of measures to make site personnel aware of the requirements of the SWMP by providing information within induction, toolbox and training sessions. - Details of the roles and responsibilities of personnel responsible for implementing the SWMP. - Details of measures for the inspection and maintenance of construction phase water treatment devices and structures.	Construction contractor	Pre-construction
Groundwater	• A Groundwater Management Plan (GMP) would be prepared for the proposal in accordance with the *Groundwater Assessment Guideline* (Transport for NSW, 2024) and the *Guideline for assessing the impacts of treated water discharge from licenced construction sites* (Transport for NSW, 2022). • Any dewatering activities would be undertaken in accordance with the guidelines in a manner that prevents pollution of waters.	Construction contractor	Pre-construction Construction

Impact	Environmental safeguards	Responsibility	Timing
Interaction between Acid Sulfate Soils (ASS) and new bridge structures	• Detailed design would consider the presence of ASS and the potential impact on the new bridge structures over the Wyong River. • The SWMP would include a procedure to manage Potential ASS (PASS)/ASS in accordance with the *Acid Sulfate Soils Assessment Guidelines* (Acid Sulfate Soils Management Advisory Committee, 1988).	Detailed design Transport Construction contractor	Detailed design Construction
Impacts on construction water quality	• Water quality control measures are to be used to prevent any materials (e.g. concrete, grout, sediment, etc.) entering drain inlets. • Spills of oil, fuel, chemicals, etc., are to be contained and cleaned up immediately in accordance with spill response procedures. • Construction plant is not to be washed down or cleaned outside of formal containment structures (e.g. wash bay). • No stockpiles of materials or storage of fuels or chemicals would be located within the 20-year ARI flood zone, and where located within the 100-year ARI flood zone, they are to be protected by an appropriate secondary control measure. • Environmental incidents, such as pollution spills and unauthorised vegetation clearing, would be reported and managed in accordance with the Roads and Maritime Environmental Incident Classification and Reporting Procedure (Roads and Maritime, 2018 *Environmental Incident Procedure* (Transport for NSW, 2021c).	Construction contractor	Construction
Impacts on operation water quality	• The proposed operational water quality treatment measures would be further refined during detailed design. • All operational water quality treatment designs would be forwarded to the Roads and Maritime Transport Environment Officer for comment and approval prior to the commencement of construction.	Roads and Maritime Transport	Detailed design

Impact	Environmental safeguards	Responsibility	Timing
Disturbance of contaminated land	• A Contaminated Land Management Plan (CLMP) would be developed to comply with the *Contaminated Land Management Act 1997* and relevant EPA guidelines in relation to disturbance or treatment of potentially contaminated land. • The CLMP would detail the following: - Contaminated land legislation and guidelines including any relevant licences and approvals to be obtained. - Identification of locations of known or potential contamination and preparation of a map showing these locations. - Procedure for identifying contamination by monitoring for: o Discolouration or staining of soil. o Bare soil patches both on-site, and off-site adjacent to site boundary. o Visible signs of plant stress. o Presence of drums or other waste material. o Presence of stockpiles or fill material. o Soil vapour risk assessments o Odours. - Unexpected Finds Procedure to address the management of potentially contaminated material if encountered during works. - Include measures to identify and manage acid sulphate soils. - Protect the environment by implementing control measures to divert surface runoff away from the contaminated land. - Capture and manage any surface runoff contaminated by exposure to the contaminated land. - Manage the remediation and subsequent validation of the contaminated land, including any certification required. - A process for reviewing and updating the plan. - Additional investigations to confirm potential presence of contamination on proposed ancillary sites would be undertaken prior to construction commencing. - Where contaminated soils are identified and disturbed by construction activities as part of bulk excavation, and disposed off-site to an appropriately licensed waste facility, a Remediation Action Plan (RAP) would not be required. If soils from potentially contaminated areas are proposed to be reused within the proposal area, a RAP and validation report would be required to demonstrate that potential contamination has been delineated and removed.	Construction contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Disturbance of asbestos bearing materials	• The CLMP would include an Asbestos Management Plan, to be developed in accordance with ~~the *Roads and Maritime Services Asbestos Management Plan* (2013)~~ Transport's *Asbestos in Soils Management Procedure (December 2024)* and *s429 of the Workplace Health and Safety Regulation 2017 (NSW).* • If previously unidentified asbestos contamination is discovered during construction, work in the affected area would cease immediately, and an investigation must be undertaken and report prepared to determine the nature, extent and degree of the asbestos contamination. Reporting must be in accordance with the relevant EPA and WorkCover Guidelines and include the proposed methodology for the remediation of the asbestos contamination. • Remediation activities must not take place until receipt of the investigation report by an occupational health professional. • Works may only recommence upon receipt of a validation report from a suitably qualified contamination specialist that the remediation activities have been undertaken in accordance with the investigation report and remediation methodology.	Construction contractor	Construction
Potential soil vapour risk	• An assessment would be undertaken during detailed design to assess soil vapour risk in relation to the proposed construction works occurring between North Road and Anzac Avenue. The assessment would consider disturbance of potentially contaminated soils impacted from underground petroleum storage structures located on the western side of the proposal upgrade.	~~Roads and Maritime~~ Transport	~~Detailed design~~ Concept design
Contamination	• Localised soil remediation in areas expected to be impact by excavation for the proposal, should be carried out in the lead hotspot within the railway corridor south of the station and the area impacted by Poly Aromatic Hydrocarbons (PAHs) adjacent to the former service station (now redeveloped) south of the North Road intersection on the Pacific Highway.	Construction contractor	Construction
Management of contaminated waste	• Additional assessment is to be undertaken for soils requiring off-site disposal to ensure the correct waste classification is determined. Excavated material that is not suitable for on-site reuse or recycling, such as contaminated material should be transported to a site legally able to accept that material. • A classification system should be used to control the excavation, stockpiling and disposal of all potentially contaminated materials. Soils should be classified (where possible) in-situ prior to excavation or when stockpiled during excavation, depending on available time and room for stockpile areas. Any unexpected finds should follow the same procedures. • If groundwater is encountered during construction, it would be managed and disposed of in accordance with legislation.	Construction contractor	Construction
Risk of spills and leaks	• Vehicles and machinery should be properly maintained to minimise the risk of fuel/oil leaks. Routine inspections of all construction vehicles and equipment should be undertaken for evidence of fuel/oil leaks. • All fuels, chemicals and hazardous liquids should be stored within an impervious bunded area in accordance with Australian standards and EPA guidelines. • Any on-site refuelling would occur in a designated area with impervious surfaces.	Construction contractor	Construction

6.5 Landscape and visual

An Urban Design, Landscape Character and Visual Impact Assessment (UDLCVIA) was carried out for the Project REF (Appendix N of the Project REF) (Jackson Teece, 2015). An Addendum Landscape Character and Visual Impact Assessment (LCVIA) has been prepared to assess design changes in the proposed modification to the 2015 concept design as they relate to landscape character, views and visual amenity, and to detail mitigation and management measures to be implemented. The Addendum LCVIA is attached as Appendix F.

6.5.1 Methodology

The methodology to assess the proposal's impact on landscape character and views for the 2015 UDLCVIA was taken from the *Environmental Impact Assessment Practice Note: Guidelines for Landscape Character and Visual Impact Assessment* (NSW Roads & Maritime Services, 2013)(further described in Section 6.2 of the 2015 UDLCVIA).

The Addendum LCVIA has been prepared in accordance with the most recent version of Transport's *Guideline for Landscape Character and Visual Impact Assessment EIA-N04* (Transport for NSW, 2023)The Addendum LCVIA considers information collected within the 2015 UDLCVIA, as well as the Urban Design Summary Report prepared for the proposed modification (AECOM, 2024).

To compare the potential landscape character and visual impacts of the proposed modification against those described in the Project REF, the Addendum LCVIA rated the sensitivity and determined the magnitude of change for each Landscape Character Zone (LCZ) and viewpoint (LCZs and viewpoints are further described in Section 6.5.2). The combined assessment of the sensitivity and magnitude provides the rating for the impact, as per Table 6-18.

Table 6-18 Landscape character and visual amenity assessment grading matrix

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High to moderate	Moderate	Negligible
	Moderate	High to moderate	Moderate	Moderate to low	Negligible
	Low	Moderate	Moderate to low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

6.5.2 Existing environment

For the purposes of the Addendum LCVIA, the existing environment is generally consistent with that described in Section 6.9.2 of the Project REF. As per the 2015 UDLCVIA, five LCZs have been used to assess the landscape character impact. Since the study area used in the 2015 UDLCVIA does not align with the proposal area, the LCZs have been slightly adjusted where necessary. The five LCZs include:

- LCZ 1: Southern approach
- LCZ 2: Riverside
- LCZ 3: Highway commercial
- LCZ 4: Eastern railway
- LCZ 5: Northern approach.

The LCZs are displayed on Figure 6-9.

The visibility of the 2015 concept design is illustrated in Figure 6.21 of the 2015 UDLCVIA. The visual envelope of the proposal has not changed in response to the proposed modification; therefore, no new viewpoints have been added to the assessment. Due to the similarity of the 2015 concept design to the proposed modification at the northern end of the proposed modification boundary, the existing Viewpoint 10 in the 2015 UDLCVIA has been shifted slightly south and realigned to look north along the Pacific Highway to capture the proposed modification changes more clearly.

The viewpoints are shown in Figure 6-10 and include:

- Viewpoint 1: Looking northeast from west of South Tacoma Road
- Viewpoint 2: Looking north from the north of Wyong River
- Viewpoint 3: Looking north from the Pacific Highway / Church Street intersection
- Viewpoint 4: Looking northwest from the Pacific Highway in front of the railway station
- Viewpoint 5: Looking southeast from the Pacific Highway / Alison Road intersection
- Viewpoint 6: Looking south from the south of the Rose Street bridge
- Viewpoint 7: Looking east along Rose Street from the Pacific Highway
- Viewpoint 8: Looking northeast from the stairs to the railway station pedestrian bridge
- Viewpoint 9: Looking west from Rose Street (adjacent to the commuter car park)
- Viewpoint 10: Looking north along the Pacific Highway from near North Road.

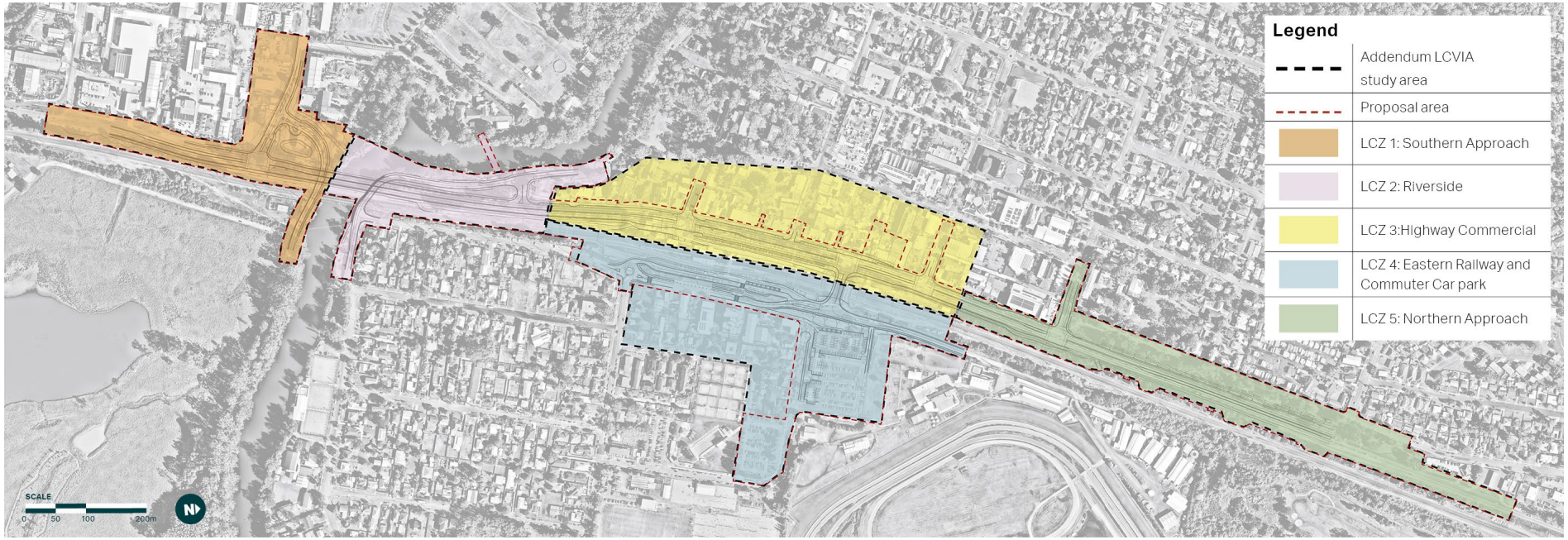


Figure 6-9 Landscape character zones

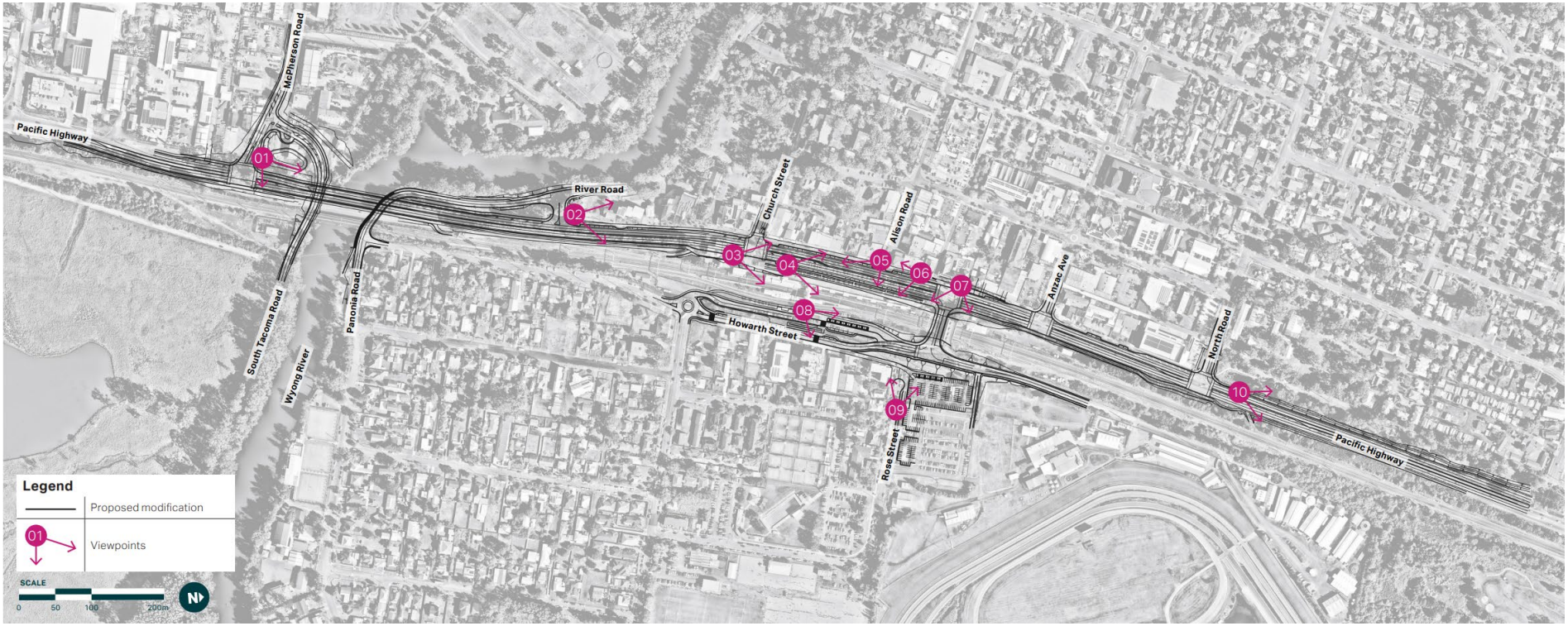


Figure 6-10 Viewpoints

6.5.3 Potential Impacts

This section describes the landscape character and visual impacts that may occur as a result of the proposed modification. It is noted that landscape character and visual impacts associated with the construction of the proposed modification would be consistent with those identified in Section 6.9.3 of the Project REF.

Landscape character

LCZ 1: Southern approach

The 2015 UDLCVIA describes the character of this LCZ as:

- Flat landform in all directions, with long views terminating in forested hillsides
- A wide, upgraded section of the Pacific Highway is bounded to the east by the rail line and to the west by commercial and light industrial development
- The road narrows as it approaches the Wyong River, with a band of mature eucalypt trees visually prominent on the western side of the highway.

Sensitivity

The sensitivity of LCZ 1 has been rated as moderate due to the commercial/industrial character of the transport corridor resulting in low scenic quality.

Comparison of the 2015 concept design and proposed modification

The predominant changes between the 2015 concept design and the proposed modification within LCZ 1 that would affect landscape character include:

- The proposed modification includes a signalised T-intersection at McPherson Road rather than the roundabout described in the Project REF. This reduces the overall width of the road at this location and provides more opportunities to replace the native tree planting that mimics the existing environment.
- The proposed modification provides individual access to commercial/ industrial properties on the Pacific Highway, removing the need for the slip road east of the Pacific Highway, south of McPherson Road. This also reduces the width of the hardstand area of the Pacific Highway, providing more native tree planting fringing the road corridor.

Magnitude

The 2015 UDLCVIA listed the magnitude of change as moderate in the short term, reducing to low as the proposed planting matures. The 2015 UDLCVIA notes that the character of the proposed widened highway would match the existing upgraded section of the road to the south of Wyong River, with the widened road providing a visually starker outcome than the existing environment until the proposed tree planting matured and softened the visual character, buildings removed due to the upgrade were replaced and viewers 'would become more familiar with the look of the new highway'.

The proposed modification would not alter the magnitude of change from that assessed in the 2015 UDLCVIA. While the changes to the design outlined above would be likely to preserve the character of the LCZ to a greater extent than the 2015 concept design due to the provision of higher numbers of roadside native trees on both sides of the corridor, there would still be a change to the landscape character within the narrow LCZ, including:

- The overall widening of the road
- The realignment of the bridge
- The Pacific Highway frontage of properties that were formerly accessed from South Tacoma Road.

The likely replacement of removed buildings and the increase of familiarity of visual receptors to the changes are not considered relevant to the assessment of landscape character impact.

Overall impact on landscape character

The 2015 UDLCVIA listed the impact on landscape character as moderate to low. While it is noted that the proposed modification would be more likely to characteristically 'fit' within this LCZ than the 2015 concept design, the sensitivity and magnitude of change is still considered to be low, resulting in no change to this rating due to the proposed modification.

LCZ 2: Riverside

The 2015 UDLCVIA describes the character of this LCZ as:

- Dominated by the riparian corridor vegetation and views to the Wyong River, albeit in an urbanised context
- Vegetation is prevalent, with native trees such as Casuarinas and Eucalypts lining the riverside on each side near the existing road bridge
- The railway bridge and the existing road bridge create an infrastructure character that dominates this area of the river
- A narrow strip of land separates the highway carriageway and railway corridor to the east, with patches of dense vegetation such as Casuarinas creating a green boundary to the railway.

Sensitivity

The sensitivity of this LCZ has been rated as high due to the overall dominance of the natural environmental character, including the river, Wyong Centennial Park and the high amount of native vegetation within the landscape.

Comparison of the 2015 concept design and proposed modification

The predominant changes between the 2015 concept design and the proposed modification within LCZ 2 include:

- The Wyong River edges of both the 2015 concept design and proposed modification list rehabilitation of vegetation, although the proposed modification includes a boardwalk on the northern riverbank along Panonia Road.
- The proposed modification locates the bridge over Wyong River further to the east, providing more of an opportunity for planting between the Pacific Highway and the rail corridor. This also increases the gap between the Pacific Highway and the existing rail bridge to the east.
- The roundabout at the intersection of River Road and Panonia Road has been removed from the 2015 concept design in the proposed modification.

Magnitude

The 2015 UDLCVIA listed the magnitude of change as moderate. The 2015 UDLCVIA notes that this rating is largely due to the removal of some existing vegetation near the river, the closer proximity of the highway to Wyong Centennial Park, and the widening of the highway footprint.

There would be no change to the landscape character of this LCZ due to the proposed modification. The elements of the 2015 concept design that were listed as influencing the change in landscape character would be similar in the proposed modification, particularly the removal of trees along the river and the closer proximity of the Pacific Highway to Wyong Centennial Park. While the proposed modification would increase the tree planting along the eastern side of the Pacific Highway with the slight shift in alignment, this would not influence the character of the more dominant characteristic elements of the LCZ, namely the river and associated vegetation. The inclusion of a boardwalk along the river in the proposed modification, while a new element within the landscape, would be characteristically consistent with the provision of recreational elements provided by the river within the LCZ (for example, the picnic huts and paths within the existing Wyong Centennial Park).

Overall impact on landscape character

The 2015 UDLCVIA listed the impact on landscape character as high to moderate. The sensitivity and magnitude of change due to the proposed modification are still considered to be moderate, resulting in no change to this rating.

LCZ 3: Highway commercial

The 2015 UDLCVIA describes this LCZ as 'defined for the purposes of this proposal as the main commercial centre and bounding residential areas, extending from just north of Wyong River, east to the Pacific Highway, west to Margaret Street and north to North Road'. Characteristic elements of this LCZ include:

- The strip of two to three storey commercial buildings fringing the Pacific Highway to the west, including some heritage items.
- The landform of the town centre, falling from a high point to the west eastwards, with the station positioned below the level of the Pacific Highway and its fringing western development.

- Street trees on the Pacific Highway, including the visually distinct Canary Island Date Palms positioned near the station entrance and smaller exotic species to the north and south of the palms.

Sensitivity

This LCZ's sensitivity has been rated high due to its important social and business role within the regional centre.

Comparison of the 2015 concept design and proposed modification

The predominant changes between the 2015 concept design and the proposed modification within LCZ 3 include:

- The Church Street Plaza included in the proposed modification, would provide direct access to the station, a forecourt, planting and seating steps. This has removed the proposed station entry opposite Bakers Lane in the 2015 concept plan.
- The angled parking proposed in the 2015 concept design has been replaced with parallel parking in the proposed modification, which also includes a strip of planting and street trees between the road corridor and the active street frontage on the western side of the Pacific Highway. This results in a greater offset between pedestrians and traffic.
- The eastern pedestrian edge of the Pacific Highway has been designed to include an off-road cycleway and support additional landscape planting, both on the road verge and on the slopes falling towards the station and rail line in the proposed modification.
- The 2015 concept design identified the avenue of Canary Island Date Palms for retention in a widened median. The proposed modification has resulted in the narrowing of this median with no palms to accommodate additional lengths of turning lane at Church Street and Rose Street, and to accommodate the footpath and dedicated cycle path, with tree plantings on the eastern verge. In addition, the Canary Island Palms have been identified by an arborist as unsuitable for retention within the proposal area due to some fungal disease and trunk damage (refer to Section 6.8). Existing Canary Island Date Palms which were identified for relocation within the town centre in the 2015 concept plan would be replaced with similar palm species at key intersections within the Wyong Town Centre. Additionally, another large street tree (such as Bull Bay Magnolia) would be planted between the intersections in the proposed modification to improve shade and amenity.
- The covered pedestrian walkway and large feature wall in the 2015 concept design have been removed or modified in the proposed modification.

Magnitude

The 2015 UDLCVIA listed the magnitude of change as moderate. Elements of the proposed modification that would result in change to the landscape character of the LCZ include:

- The shifting of the main station entry to the new Church Street Plaza, and removal of the previously proposed pedestrian overbridge extension at Wyong Railway Station to more closely align with the existing context
- The replacement of the existing Canary Island Date Palms with a similar species, but only at the intersections, with a larger street tree (such as Bull Bay Magnolia) in between intersections, resulting in a reduction of the characteristic palms seen along the Pacific Highway within the town centre
- The removal of the proposed 2015 concept design station entry to the north of Church Street.

However, other elements of the proposed modification would reduce the amount of potential change in landscape character, including:

- The replacement of angled parking and associated access lane proposed in the 2015 concept design to parallel parking in the proposed modification, which would reduce the amount of widening of hard road pavement of the Pacific Highway and result in widened footpath space for pedestrians and businesses
- The removal of the proposed covered walkway and shifting and reduction of the height of the feature wall in the 2015 concept design. It is noted that the covered walkway was initially included in the 2015 concept design to provide an active retail area to the east but subsequent changes made that infrastructure redundant
- The proposed station entry plaza would be more 'at grade' with the station platform than the 2015 concept design. This is as a result of the removal of the proposed covered walkway and shifting and reduction of the height of the feature retaining wall in the 2015 concept design.

The above-listed elements would balance out the amount of overall change experienced within the LCZ, resulting in no change to the moderate magnitude rating based on the proposed modification. The removal of the covered walkway structure from

the design and the shifting of the entry to a more similar position to the existing entry would also help retain the characteristic open views from this LCZ towards the east within the LCZ.

Overall impact on landscape character

The 2015 UDLCVIA listed the impact on landscape character as high to moderate. There would be no change to this rating due to the proposed modification. Some of the changes between the 2015 concept design and the proposed modification are considered to have a beneficial impact on the landscape character within this LCZ, particularly the additional provision of tree and shrub planting, the formalisation of an entry plaza linking the station to the highway, and the decrease in the road infrastructure. The reduction in characteristic palm trees within the LCZ would result in a change in the character within the LCZ. However, the inclusion of larger street trees which would partially enclose the widened road corridor would mitigate the extent of this change.

LCZ 4: Eastern railway

The 2015 UDLCVIA describes the character of this LCZ as 'dominated by the linear rail infrastructure along the corridor, and the mostly older style commercial buildings that line the opposite side of Howarth Street and some surrounding residential'. This LCZ includes the Rose Street bridge, rail infrastructure, car parking areas, and Howarth Street.

Sensitivity

The sensitivity of this LCZ has been rated as low due to a highly urban environment with a 'poor and bare appearance', characterised by aging commercial buildings and a 'poor character of the built environment'. While the lack of visibility of this area from the Pacific Highway and trains is considered within this rating, views are typically not included in the criteria for landscape sensitivity.

Comparison of the 2015 concept design and proposed modification

The predominant changes between the 2015 concept design and the proposed modification within LCZ 4 include:

- The reconfiguration of the eastern Howarth Street access to the Rose Street bridge, with the elongated circular road proposed in the 2015 concept design replaced with a more simplified 'T' intersection and planted embankment in the proposed modification.
- The retaining structures within the proposed modification would be taller than that of the 2015 concept design within this LCZ.
- The western end of Rose Street would be changed to a cul-de-sac in the proposed modification to include the Rose Street Plaza, which would provide a pedestrian connection between the commuter car park and the station/town centre.

These key changes would result in taller retaining structures but softened by large areas of soft landscaping and the provision of more street trees due to the reduction of road infrastructure and the simplification of road alignments. While these changes would also result in a change to the layout of the commuter car park, this is unlikely to comprise a change that would affect landscape character as much as the other elements described above.

Magnitude

The 2015 UDLCVIA listed the magnitude of change as low. The proposed modification includes changes that would potentially align the eastern side of the rail corridor more closely to the more pedestrian-oriented western edge with the inclusion of larger soft landscaped areas and the Rose Street Plaza. While the retaining wall in the proposed modification is higher than that of the 2015 concept design, the provision of a substantial number of trees would soften the built form and hard paved surfaces within the LCZ, which was described as 'bare' and of 'poor character' within the approved description in the 2015 UDLCVIA. Therefore, the proposed modification would result in more of a change to landscape character within this LCZ, raising the magnitude of change to moderate.

Overall impact on landscape character

The proposed modification is considered to raise the 2015 UDLCVIA impact rating from low to moderate. However, while there would be an increase in impact on landscape character, the change would more closely align the character of the Eastern Railway LCZ with that of LCZ 3 (Highway Commercial), creating a more unified character surrounding the railway station. This includes the incorporation of plaza spaces for pedestrian connectivity and tree and shrub plantings that would soften the character to the east of the rail corridor.

LCZ 5: Northern approach

The 2015 UDLCVIA lists the characteristic elements of this LCZ to include the flat topography, the straight stretch of the Pacific Highway flanked to the east by the raised rail line, and the semi-natural appearance of the area due to the mature trees and informal planting within the linear Apex Park and along the rail corridor.

Sensitivity

The sensitivity of this LCZ has been rated moderate due to the relatively low scenic quality of the highway and rail corridor softened by Apex Park with its mature native trees, which improves the landscape character.

Comparison of the 2015 concept design and proposed modification

The predominant changes between the 2015 concept design and the proposed modification within LCZ 5 include:

- The provision of a wider pedestrian path and tree planting to the eastern side of the Pacific Highway in the proposed modification
- The provision of bus shelters at bus stops on both sides of the Pacific Highway
- Removal of the intersection encroachment into Apex Park, resulting in more retained park area
- Removal of the bike lanes resulting in a reduction in road width and encroachment into Apex Park, also resulting in more retained park area

Magnitude

The 2015 UDLCVIA listed the magnitude of change as low. The changes listed within the 2015 UDLCVIA as having an impact on landscape character include the widening of the Pacific Highway road corridor, the narrowing of Apex Park, the removal of trees, and the construction of a new drainage channel within Apex Park. All of these elements remain similar in the proposed modification, resulting in no change to the magnitude rating.

Overall impact on landscape character

The 2015 UDLCVIA listed the impact on landscape character as moderate to low. There would be no change to this rating due to the proposed modification.

Summary of impact to Landscape Character Zones

The impact of the 2015 concept design and the proposed modification are shown in Table 6-19. The sensitivity of all LCZs remains unchanged from the 2015 LCVIA. The magnitude of change due to the proposed modification would be higher within LCZ 4, but would result in a beneficial impact, with the simplification of vehicular access to Howarth Street and Rose Street, prioritisation of pedestrian activity between the station and the commuter car park, and the increase in tree planting along the road corridors and car parking areas softening the existing more open, 'bare' character of the LCZ.

Table 6-19 Summary of impact to LCZs

LCZ	Sensitivity	2015 UDLCVIA magnitude	2015 UDLCVIA rating	Proposed modification magnitude	Proposed modification rating	Comments
LCZ 1: Southern Approach	Moderate	Low	Moderate - low	Low	Moderate - low	No change to landscape character rating.
LCZ 2: Riverside	High	Moderate	High - moderate	Moderate	High - moderate	No change to landscape character rating.
LCZ 3: Highway Commercial	High	Moderate	High - moderate	Moderate	High - moderate	No change to landscape character rating.
LCV 4: Eastern Railway	Low	Low	Low	Moderate	Moderate - low	The impact of the proposed modification would be greater than the 2015 concept design, however, the proposed modification would align the eastern side of the rail corridor with the western side, creating more of a unified 'station precinct' that is better suited to pedestrian activity and visually softened with increased tree and shrub planting.
LCV 5: Northern Approach	Moderate	Low	Moderate - low	Low	Moderate - low	No change to the landscape character rating.

Visual

The impact of the proposed modification based on the selected viewpoints is summarised in Table 6-20. While no changes to visual impact were recorded comparing the 2015 concept design to the proposed modification, a number of beneficial visual outcomes were noted in response to the proposed modification, including:

- The Church Street Plaza, which would visually link the station to the Pacific Highway using level changes and planting.
- The reduction in the paved width of the Pacific Highway due to the replacement of angled parking and an access lane in the 2015 concept design with parallel parking in the proposed modification. This change allows additional planting on the western side of the road, visually softening views along the corridor from both directions.
- The provision of more planting (particularly of trees) within the entire proposed modification boundary.
- The redesign of the eastern end of Rose Street and the Rose Street Plaza, which would offer a visually softer, more pedestrian-friendly outcome to the northern end of the station, visually tying this area in with the station interface on the west (with the introduction of the Church Street Plaza) and creating a more visually unified station precinct.

Table 6-20 Summary of impact to viewpoints

Viewpoint name	2015 UDLCVIA rating	Proposed modification rating	Comment
Viewpoint 1- Looking north-east from west of South Tacoma Road	High - moderate	High - moderate	The 2015 UDLCVIA listed this change as positive due to the new bridge and landscaped areas. The proposed modification would result in a similar view, with minor changes due to detailed design.
Viewpoint 2 - Looking north from the north side of the river	High - moderate	High - moderate	The 2015 UDLCVIA listed this change as largely positive due to new roadside planting. There would be minimal detailed design changes due to the proposed modification.
Viewpoint 3 - Looking north from the Church Street intersection	Moderate	Moderate	The 2015 UDLCVIA listed the impact as largely positive due to the opening up of the highway commercial precinct, relocated palm trees, the provision of a walkway defining the built edge to the east and the railway station entrance and forecourt. As presented in Figure 6-11 and Figure 6-12 , the proposed modification would have additional beneficial changes related to the increased planting and reduced hard-paved area of the Pacific Highway due to the changes in parking arrangement. The removal of the large feature wall in the 2015 concept design would also open up views to the station and landscape beyond.
Viewpoint 4 - Looking northwest from the highway in front of the railway station	Moderate	Moderate	The 2015 UDLCVIA listed the impact as largely positive due to the reasons listed for Viewpoint 3. The proposed modification has additional beneficial changes related to the increased planting and reduced hard-paved area of the Pacific Highway due to the changes in parking arrangement.
Viewpoint 5 - Looking southeast from the Alison Road intersection	Moderate	Moderate	The 2015 UDLCVIA listed the impact as changing the existing character of the view. In comparison, the increased planting and decreased number of built structures (the covered walkway) maximise the beneficial changes of the proposed modification

Viewpoint name	2015 UDLCVIA rating	Proposed modification rating	Comment
Viewpoint 6 - Looking south from the south of the Rose Street bridge	Moderate	Moderate	The 2015 UDLCVIA listed the impact as largely positive due to the widening of the highway corridor and planned relocation of the Canary Island Palms. The proposed modification would further soften the view with the reduction in large built structures, the increased planting on both sides of the highway and the replacement of angled parking and an access lane with parallel parking as presented in Figure 6-15 and Figure 6-16.
Viewpoint 7 - Looking east along Rose Street from the highway	Moderate	Moderate	The 2015 UDLCVIA reported the change as largely positive due to the new bridge with better pedestrian access, the covered walkway, frontage being book-ended to the north by the reinstated Memorial Garden and creating an entry statement to the highway commercial precinct. With the exception of the covered walkway, these elements would all be similar to that of the proposed modification.
Viewpoint 8 - Looking north-east from the stairs to the railway station pedestrian bridge	Moderate	Moderate	There would be a substantial visual softening to the western railway edge and the northern end of Howarth Street, which would comprise beneficial changes to the view with the proposed modification.
Viewpoint 9 - Looking west from Rose Street adjacent to the commuter car park	Moderate	Moderate	The 2015 UDLCVIA listed the impact as changing the existing character of the view, partly due to the demolition of the buildings on the northern side of Rose Street. As these buildings have already been removed, this element of the change would not now affect the view from this location as presented in Figure 6-17 and Figure 6-18. However, the changes to the western end of Rose Street, including the closure of the street and the construction of a plaza space, would be additional changes within the view.
Viewpoint 10 - Looking south from the highway at Cutler Drive	Moderate	Moderate	The 2015 UDLCVIA reports that the negative impact of the widening of the road corridor on Apex Park is mitigated by the better-defined road corridor and new median planting. The proposed modification would have a similar outcome.

Figure 6-11: Viewpoint 3 - existing view

Figure 6-12: Viewpoint 3 - proposed modification view

Figure 6-13: Viewpoint 5 - existing view

Figure 6-14: Viewpoint 5 – proposed modification view

Figure 6-15: Viewpoint 6 - existing view

Figure 6-16: Viewpoint 6 - proposed modification view

Figure 6-17: Viewpoint 9 - existing view

Figure 6-18: Viewpoint 9 - proposed modification view

6.5.4 Safeguards and management measures

The safeguards provided in Section 6.9.4 of the Project REF remain relevant for the proposed modification. Additional safeguards have been developed for the proposed modification. Existing and additional safeguards have been provided in Table 6-21.

Table 6-21 Safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Introduction of new built elements	• Opportunities for the inclusion of more planting in the large open areas of car parking would be considered during detailed design in order to improve visual amenity, and lighting to ensure user safety. • Options for the finish of the railway station retaining wall and the Rose Street commuter car park would be investigated during detailed design to achieve an outcome that discourages graffiti, avoids reflective glare and reduces the overall visual impact of the structures. A planting zone would be provided at the base of the wall to provide visual screening. • During detailed design, opportunities to further improve the visual appearance of the bridges over Wyong River would be explored. Road barriers and bridge parapet designs would also be addressed to minimise visual impacts. • The design of the bridges over Wyong River would be further developed during detailed design to consider the integration of the design of the headstocks and piers due to the high visibility from nearby local road. • The walkway and railway station entrance design would be well considered and designed as an architectural landmark aligning with the character of the town centre. • The lighting design along the Pacific Highway and lighting on the proposal in general would be developed in detailed design to consider suitable furniture types and placement. • During detailed design opportunities to minimise the visual impacts from the drainage works in Apex Park would be explored. • Opportunities for the inclusion of weather relief structures between Rose Street commuter car park and Wyong Railway Station would be considered at detailed design as part of the urban design to compensate for longer walking distances. Lighting would be upgraded to improve amenity and safety. • Where feasible, large walls should be set back to provide landscaped edges to visually soften their height, with tall shrubs breaking up the visual expanse of the walls. In locations where there is a pedestrian interface, wall treatments which provide interest and support the non-Aboriginal heritage and Aboriginal cultural themes of the Wyong area should be implemented. • The gradients of engineered slopes would be designed with reduced grades or benches to encourage the establishment of vegetation and allow for ongoing maintenance during operation (for example, to the batter at the eastern side of the Rose Street bridge to the commuter car park)	Transport	Detailed design

Impact	Environmental safeguards	Responsibility	Timing

Landscape character and visual impact	• A detailed landscape plan would be prepared for the proposal. The landscape plan would build on the findings of the UDLVIA (AECOM, 2024)and would include detailed set out, species and planting guides.
	• ~~The final landscape plan would include as many mature Canary Island Date Palms as possible within the upgraded town centre.~~
	• The final landscape plan would select tree species for placemaking characteristics, including:
	  ○ using some deciduous species to allow light to pedestrian spaces in winter and shade in summer
	  ○ potentially planting a similar feature palm species to the existing Canary Island Date Palms at the Church Street intersection and station forecourt to replace the existing characteristic palms within the town centre.
	  ○ the inclusion of a larger street tree along verges between the intersections along the Pacific Highway in the business centre. This tree species should be low maintenance and able to provide shade and amenity for the footpaths and parking areas once established.
	• Proposed formal plantings within central Wyong Town Centre (between Church Street and the Rose Street bridge) would consider using feature shrubs that provide seasonal interest to public open spaces.
	• Proposed trees and shrubs removed for the works would be replaced where space permits, in open space areas away from the business centre (at the northern and southern approaches) and planted in a scattered pattern to mimic the natural setting.
	• The final landscape plan would include appropriate measures for the reinstatement of the historic milestone marker.
	• Transport would continue to consult Central Coast Council on the development of the final landscape plan including suitable species for use in street plantings.
		~~Construction contractor~~ Transport	~~Pre-construction~~ Detailed design

Reduction of landscape character and visual amenity	• Landscape screening would be created where feasible; particularly to screen views of the railway, retaining wall structures and boundary fences. • Revegetation by planting or seeding of the median would be undertaken where median widths permit. Species should be endemic and frangible.	Construction contractor	Pre-construction / construction
Landscape character and visual impact	• Existing healthy mature trees, particularly north and south of the business centre would be retained and protected and shown as such on construction drawings, where reasonable and feasible, with particular care to protect trees directly adjacent or just within the proposal boundary or works ~~Vegetation clearing along the proposal corridor would be minimised where possible,~~ This includes areas along the Wyong River banks and established trees within Riverside Park and Apex Park or areas where temporary works and laydowns and construction areas for permanent works are located.	Construction contractor	Construction
Construction visual impacts	• The visual impact of construction site areas would be minimised through the careful planning and positioning of temporary offices, other plant and material laydown areas. • Specific management of lighting and potential for light spill within the identified construction site compounds. • All construction generated litter/waste would be disposed of at an appropriate waste bin/facility.	Construction contractor	Construction

6.6 Noise and vibration

This section of the Addendum REF describes the potential noise impacts of the proposed modification. It summarises the results of the Addendum Construction Noise and Vibration Impact Assessment (Addendum CNVIA) (AECOM Australia , 2024) for the proposed modification provided in Appendix G.

6.6.1 Methodology

The Addendum CNVIA aims to refresh outdated data and provide essential guidance for the development of construction methodologies. A strategic approach has been adopted, whereby an update to the 2015 detailed noise and vibration impact assessment (including operational road traffic noise) is planned to be undertaken in the detailed design process. This phased approach aims to ensure proactive management of noise and vibration concerns while allowing flexibility to adapt to evolving project requirements. As such, no impact assessment is provided in the Addendum CNVIA or in this section of the Addendum REF. In summary, the scope of the Addendum CNVIA includes:

- Updated noise catchment areas (NCAs)
- Baseline noise survey (to update rating background levels (RBLs))
- Updated noise management levels (NMLs)
- Revised or new construction noise and vibration safeguards, where required.

The policies and guidelines listed below have been considered in the preparation of the Addendum CNVIA:

- *Interim Construction Noise Guideline* (NSW Department of Environment & Climate Change, 2009) (ICNG)
- *Assessing Vibration: A Technical Guideline* (NSW Department of Environment & Conservation, 2006)(AVTG)
- *NSW Road Noise Policy* (NSW Department of Environment, Climate Change & Water, 2011)(RNP)
- *Australian Standard AS 2436-2010: Guide to noise and vibration control on construction, demolition and maintenance sites*
- *British Standard 5228: Part 1 2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites Part 1: Noise*, 2009, including Amendment 1, 2014
- *DIN Standard 4150: Part 3 2016 Vibration in Buildings - Effects on Structures 1999*
- *British Standard 7385: Part 2 1993 Evaluation and Measurement of Vibration in Buildings 1993*
- *British Standard 6472: Evaluation of human exposure to vibration in buildings (1-80 Hz) 1992*
- *NSW Noise Policy for Industry* (NSW Environment Protection Authority, 2017).

Updated unattended noise monitoring

Unattended noise monitoring was undertaken at four locations between 17 June and 1 July 2024. The locations of the unattended noise loggers were determined by examining aerial photographs after determining appropriate NCAs. Attended noise measurements were also undertaken to determine the nature of the local noise environment. Photos of the noise loggers and the noise logging results are provided in Appendix A of the Addendum CNVIA (Appendix G).

A noise logger measures the noise level over a 15-minute sample period and then determines L_{A1}, L_{A10}, L_{A90}, L_{Amax} and L_{Aeq} levels of the noise environment. The L_{A1}, L_{A10} and L_{A90} levels are the levels exceeded for 1 %, 10 % and 90 % of the sample period, respectively. The L_{Amax} level is the maximum noise level due to individual noise events. The L_{A90} level is taken as the background noise level. The L_{Aeq} level is the energy averaged noise level over the 15-minute period.

The results of the noise monitoring have been processed in accordance with the procedures contained in the *Road Noise Policy* (RNP) and the *Noise Policy for Industry*. Weather data recorded during the noise monitoring survey periods was obtained from the Bureau of Meteorology weather station located at Cooranbong (ID061412). Periods that were affected by noise from extraneous wind and rain were omitted from the results, as indicated in Appendix A of the Addendum CNVIA (Appendix G).

Attended noise monitoring

Attended noise measurements were conducted at the unattended noise monitoring locations on 17 June 2024 during the daytime and 19 June 2024 during the nighttime. The measurements were conducted over a 15-minute period. Weather conditions were partly cloudy on the days of monitoring, with light winds.

The attended noise measurements were conducted using a Brüel & Kjær Type 2270 (S/N: 3009330) sound level meter. The sound level meter used is designated as a Class 1 instrument and has accuracy suitable for laboratory and field use. It was compliant with the requirements of *AS IEC 61672.1-2019 Electroacoustics – Sound level meters Specifications*. It was within the current National Association of Testing Authorities, Australia (NATA) certified in-calibration period (i.e. calibration in the last two years). Measurements were conducted in accordance with the EPA's *Approved Methods for Measurement and Analysis of Environmental Noise in NSW*, 2022. The sound level meter was also calibrated before and after the measurements with no drift in calibration exceeding ±0.5 dB(A).

6.6.2 Existing environment

Noise sensitive receivers

The existing acoustic environment is largely defined by existing road traffic noise along the Pacific Highway. The proposal area directly adjoins commercial land uses through the town centre of Wyong, in addition to some residential receivers. The proposal area also includes the Central Coast and Newcastle railway line and Wyong station to the east.

In addition to the residential receivers in the area, several non-residential sensitive receivers that could potentially be affected by the proposed modification have also been identified as follows:

- Watanobbi Community Centre
- Flourish Early Learning Centre
- Little Coast Kids – Wyong
- TAFE NSW – Wyong
- Wyong Musical Theatre Company
- Central Coast Community Seventh-day Adventist Church
- Wyong Community Services Centre
- Uniting Burnside Doorways Housing Connectors Central Coast
- Wyong Preschool Kindergarten
- Wyong High School
- Central Coast Youth Health Service
- Central Coast Islamic Cultural Centre
- Bundilla Preschool
- The Beach Early Learning Centre
- Coast to Coast Medical Centre
- Wyong Court House
- C3 Church Tuggerah.

Updated noise catchment areas

To assist in determining noise criteria for the receivers surrounding the proposal area, five NCAs were identified. The noise environment at each residential receiver within each NCA is considered to be similar. The NCAs are shown in Figure 6-19. NCA 1, NCA 2 and NCA 3 represent receivers located close to the Pacific Highway, where road traffic noise is considered to be dominant, whilst NCA 4 and NCA 5 represent receivers located further away from the Pacific Highway and proposal area, located in a suburban environment. Due to the similar setbacks from the Pacific Highway and similar noise environments, NCA 4 and NCA 5 were assigned the same background noise levels for setting construction noise criteria using a noise logger located in NCA 4.

Updated unattended noise monitoring

The unattended noise monitoring locations are shown in Figure 6-19.

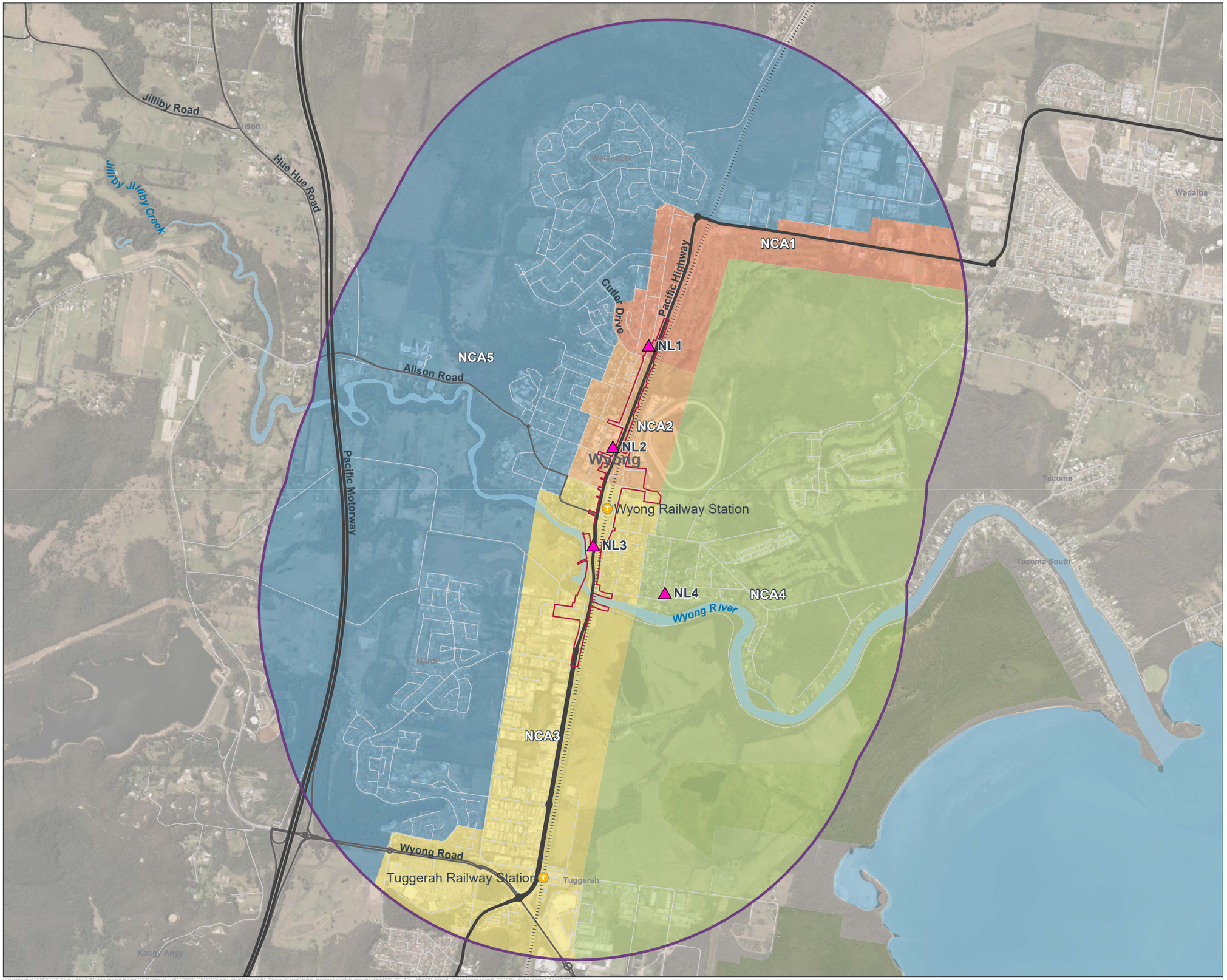
The background noise level is defined by the EPA as '*the underlying level of noise present in ambient noise… when extraneous noise is removed*'. It can include sounds that are normal features of a location and may include birds, traffic, insects, etc. The background noise level is represented by the L_{A90} descriptor. The noise levels measured provide a single rating background level (RBL) for each day, evening, and night period in accordance with the EPA's *Noise Policy for Industry* for each monitoring location. The RBL is established by determining the lowest tenth percentile level of the L_{A90} noise data acquired over each period of interest. A summary of the measurement data is presented in Table 6-22.

Table 6-22 Existing background (L_{A90}) and ambient (L_{Aeq}) noise levels

Logger ID	NCA	Noise monitoring location	L_{Aeq} ambient noise levels, dB(A)			L_{A90} background noise levels, dB(A)		
			Day[1]	Evening[1]	Night[1]	Day[1]	Evening[1]	Night[1]
NL1	1	6 Watanobbi Road, Watanobbi	61	57	55	52	45	35
NL2	2	3/142 Pacific Highway, Wyong	65	62	60	54	45	36
NL3	3	10 Pacific Highway Wyong	70	67	65	61	50	37
NL4	4 and 5	3 Marathon Street, Wyong	58	55	50	40	40(42)[2]	37

Notes:

1. *Day is defined as 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays.*
   Evening is defined as 6pm to 10pm Monday to Sunday and Public Holidays.
   Night is defined as 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.
2. *Application notes to the Noise Policy for Industry indicate that the community generally expects a greater control of noise during the evening and night as compared to the daytime. Therefore, the RBL for the nighttime is set to no more than that for the evening. Measured RBL noted in brackets.*



AECOM

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0 250 500 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- 2km project buffer
- Watercourse
- Railway
- Motorway
- Main road
- Noise logger location

Noise Catchment Areas

- NCA1
- NCA2
- NCA3
- NCA4
- NCA5

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FIGURE 6-19:
NOISE CATCHMENT AREAS AND NOISE LOGGER LOCATIONS

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

Attended noise monitoring

The results of the 15-minute attended noise monitoring are presented in Table 6-23. It is evident that the predominant sources of noise are primarily attributed to road traffic and passing trains.

Table 6-23 Attended noise measurements

Location	Date	Time	L_{Aeq} dB(A)	L_{A90} dB(A)	Comments
NL1 – 6 Watanobbi Road, Watanobbi	17/06/2024	11:38	60	52	Noise environment is dominated by road traffic on the Pacific Highway and trains Other sources included: Street chatter Birds
NL2 – 3/142 Pacific Highway, Wyong	17/06/2024	12:21	63	52	Noise environment dominated by road traffic on the Pacific Highway and trains: Consistent traffic noise from cars and trucks passing along Pacific Highway, around 65 dB(A)
NL3 – 10 Pacific Highway Wyong	17/06/2024	13:17	70	58	Noise environment is dominated by road traffic on the Pacific Highway, passing cars and trucks 60-70 dB(A), and passing freight and passenger trains 77 dB(A). Other noise sources included: Birds
NL4 – 3 Marathon Street, Wyong	17/06/2024	15:24	60	46	Noise environment is dominated by trucks and school buses passing 70-75 dB(A), or cars passing 60-70 dB(A). Other noise sources included: Birds Distant traffic School pick up activity
NL1 – 6 Watanobbi Road, Watanobbi	19/06/2024	23:05	55	42	2 diesel locos (no wagons) 70 dB(A) southbound. Occasional road traffic noise 55-57dB(A)
NL2 – 3/142 Pacific Highway, Wyong	19/06/2024	22:47	59	40	Occasional road traffic in small clusters or individual cars. 63 dB(A). Southbound passenger train 64 dB(A). Northbound passenger train accelerating 73 dB(A)
NL3 – 10 Pacific Highway Wyong	19/06/2024	22:30	64	47	Occasional road traffic 65-70 dB(A) individual pass by. Northbound passenger train decelerating into station 62-63 dB(A)
NL4 – 3 Marathon Street, Wyong	19/06/2024	22:11	51	40	Distant road traffic noise on Pacific Highway 40 dB(A). Car on Panonia Road 50-57 dB(A). Car on Marathon Street 68 dB(A). Passenger train 50-51 dB(A)

6.6.3 Review of construction noise management levels and vibration criteria

As a result of adjusted NCAs and updated background noise monitoring, construction noise management levels (NMLs) have differed from those presented in the Project REF. These criteria are presented below.

Construction noise management levels

Residential receivers

Guidance for setting construction NMLs for residential receivers was summarised in Section 8.2.1 of the Project Noise and Vibration Assessment (NVA) (Appendix L of the Project REF). Details of the updated NMLs for residential receivers in each NCA are provided in Table 6-24.

Table 6-24 Noise catchment areas and construction noise management levels – residential receivers

NCA	Period	Rating background level, dB(A)	Construction noise management level (NML)[1]
1	Day	52	62
	Evening	45	50
	Night	35	40
2	Day	54	64
	Evening	45	50
	Night	36	41
3	Day	61	71
	Evening	50	55
	Night	37	42
4	Day	40	50
	Evening	40	45
	Night	37	42
5	Day	40	50
	Evening	40	45
	Night	37	42

Notes:

1. *Standard hours day noise management levels = RBL + 10 dB(A), out-of-hours (OOH) daytime/evening/night noise management levels = RBL + 5 dB(A)*
2. *Daytime OOH*

Non-residential criteria

Guidance for setting construction NMLs for residential receivers was summarised in Section 8.2.2 of the Project NVA. Details of the updated NMLs for non-residential receivers in each NCA are provided in Table 6-25 and Table 6-26.

Table 6-25 Construction noise management levels – non-residential sensitive land uses

Land use	Construction noise management level, $L_{Aeq(15\ min)}$
Education (classrooms at schools and other educational institutions)	Internal noise level 45 dB(A)
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dB(A)
Community centres	Depends on the intended use of the centre. Refer to the recommended "maximum" internal levels in AS2107 for specific uses.

Table 6-26 Construction noise management levels – commercial and industrial land uses

Land use	Construction noise management level, $L_{Aeq(15min)}$
Industrial premises	External noise level 75 dB(A)
Offices, retail outlets	External noise level 70 dB(A)

Sleep disturbance criteria

Guidance for setting construction NMLs for residential receivers was summarised in Section 8.2.3 of the Project NVA. Based on the measured background noise levels during the nighttime period, the sleep disturbance criteria for the nearest noise sensitive residential receivers are presented in Table 6-27.

Table 6-27 Sleep disturbance criteria

NCA	Nighttime background noise level (L_{A90}), dB(A)	**Sleep disturbance criteria, $L_{A1(1\ minute)}$, dB(A) (external)**	
		Screening level	Awakening reaction
1	35	50	65
2	36	51	65
3	37	52	65
4	37	52	65
5	37	52	65

Construction road traffic noise criteria

Noise from construction traffic on public roads is not covered by the *Interim Construction Noise Guideline*. However, the *Interim Construction Noise Guideline* does refer to the *Road Noise Policy* for the assessment of noise arising from construction traffic on public roads.

In accordance with the *Road Noise Policy*, to assess noise impacts from construction traffic, an initial screening test should be undertaken by evaluating whether existing road traffic noise levels would increase by more than 2 dB(A). Where the predicted noise increase is 2 dB(A) or less, then no further assessment is required. However, where the predicted noise level increase is greater than 2 dB(A), and the predicted road traffic noise level exceeds the road category-specific criterion, then noise mitigation should be considered for those receivers affected. The road category-specific criteria are presented in Table 6-28 below. The *Road Noise Policy* does not require an assessment of noise impacts on commercial or industrial receivers.

Table 6-28 Road traffic noise assessment criteria

Road category	Type of land use	Assessment criteria, dB(A)	
		Day (7am – 10pm)	Night (10pm – 7am)
Freeway/arterial/sub-arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15\ hour)}$ 60 dB(A)	$L_{Aeq(9\ hour)}$ 55 dB(A)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	$L_{Aeq(1\ hour)}$ 55 dB(A)	$L_{Aeq(1\ hour)}$ 50 dB(A)

Temporary traffic diversions

An assessment of the operational road traffic noise impacts of temporary traffic diversions during the construction phase is proposed to occur during detailed design. The two main traffic diversion scenarios considered include:

- Traffic diverted around the Pacific Highway via Johnson Road, Gavenlock Road, and McPherson Road
- Traffic diverted around Howarth Street via Warner Avenue, Ithome Street, and Rose Street.

A high-level operational road traffic assessment is to be undertaken for each of the two aforementioned diversion routes.

In accordance with the *Road Noise Policy*, a screening assessment evaluates whether road traffic noise levels would increase by more than 2 dB(A), as a result of traffic diversions. Where road traffic noise levels are expected to increase by more than 2 dB(A), road traffic noise levels for worst-case receivers on each road are assessed against the *Road Noise Policy* 'Target noise abatement levels for existing roads not subject to redevelopment'. Where road traffic noise levels exceed the *Road Noise Policy* target noise abatement levels and increase by more than 2 dB(A), receivers along these roads would be considered for noise mitigation.

Existing and detour traffic information is not currently available for these diversion roads. As such, an additional safeguard would require obtaining this traffic information for assessment during the detailed design phase. This safeguard is provided in Table 6-29.

Construction vibration criteria

Construction vibration criteria were presented in Section 9.1 of the Project NVA and are unchanged.

6.6.4 Potential impacts

A comprehensive update to the noise and vibration impact assessment would be completed during detailed design and would assess impacts associated with the construction and operation of the proposed modification.

6.6.5 Safeguards and management measures

Table 6-29 provides the in-principle noise control measures (as described in the Project REF) to reduce construction noise impacts as a result of the proposal. This firstly consists of standard noise and vibration measures, as outlined in Transport's *Construction Noise and Vibration Strategy*, which has now been superseded by the *Construction Noise and Vibration Guideline (Roads),* 2023 (Transport for NSW, 2023b). Additional measures have also been provided in Table 6-29.

Table 6-29 Noise and vibration safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Construction noise and vibration impacts	• A Construction Noise and Vibration Management Plan (CNVMP) would be prepared. The plan would provide details of noise and vibration management measures and procedures to be undertaken during construction to minimise and manage noise impacts on sensitive receivers, including: - Noise and vibration monitoring and reporting requirements - A map showing the locations of all sensitive receivers - Specific mitigation treatments, management methods and procedures to be implemented to control noise and vibration during construction - Construction timetabling to minimise noise impacts including time and duration restrictions, respite periods and frequency - Procedures for notifying residents, business owners, schools and other sensitive receivers of construction activities likely to affect their amenity through noise and vibration - Contingency procedures to be implemented in the event of non-compliances and/or noise complaints.	Contractor	Pre-Construction Construction
Construction noise and vibration impacts	• Considerations for the CNVMP include: – Use quieter and less noise/vibration emitting construction methods where feasible and reasonable – Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be limited/avoided where possible – Where vibration intensive equipment is used within the minimum working distances identified, determine whether alternative construction methodology or less vibration intensive equipment can be used – The CEMP must be regularly updated to account for changes in noise and vibration management issues and strategies. – The noise levels of plant and equipment must have operating sound power or sound pressure levels compliant with the criteria in Appendix H of the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b). – Implement a noise monitoring audit program to ensure equipment remains within the more stringent of the manufacturer's specifications or Appendix H of the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b). – The noise levels of plant and equipment items are to be considered in rental decisions and in any case, cannot be used on site unless compliant with the criteria in Table 2 of the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b). – Use only the necessary size and power of plant and equipment. – Limit the use of engine compression brakes at night and in residential areas. – Ensure vehicles are fitted with a maintained original equipment manufacturer exhaust silencer or a silencer that complies with the *National Stationary Exhaust Noise Test Procedures for In-service Motor Vehicles* (National Transport Commission, 2006) and any relevant reference standards. • Stationary noise sources should be enclosed or shielded where feasible and reasonable whilst ensuring that the occupational health and safety of workers is maintained, referencing Appendix D of Australian Standard AS2436: Guide to	Contractor	Pre-Construction Construction

Impact	Environmental safeguards	Responsibility	Timing
	Noise and Vibration Control on Construction, demolition and Maintenance Sites (Council of Standards Australia , 2010) for materials suitable for shielding.		
Construction vibration impacts	• A vibration assessment is to be prepared and included in the CNVMP. The vibration assessment is to include: - Assessment of the potential vibration impacts on sensitive receivers due to vibration - Detail which sensitive receivers would have building condition surveys - Outline a monitoring program. • Where there is a potential for vibration to impact on sensitive receivers: - Potentially impacted residents would be informed of the nature and duration of works and provided contact details for the contractor. - Compliance vibration monitoring would be undertaken and documented in accordance with the CNVMP procedures. In the case that exceedances are detected, the situation would be reviewed in order to identify means to minimise the impacts to residences. - In terms of human comfort criteria, measures may include modifications of construction methods and respite periods. • Noise and vibration generating activities with impulsive, tonal or low frequency characteristics (such as jack hammering, rock breaking, rock hammering, vibratory rolling) should only be carried out: - in continuous blocks, up to but not exceeding three hours each - with a minimum respite period of one hour between each block.	Contractor	Construction
Construction hours	• Where reasonable and feasible, works would be undertaken within Interim Construction Noise Guideline (ICNG) recommended working hours • Where works are required to be undertaken outside of recommended working hours, all appropriate approvals would be obtained prior to works, and all affected receivers would be notified of all relevant details relating to the works • Noisy activities that cannot be undertaken during standard construction hours would be scheduled as early as possible during the evening and/or nighttime periods. • Any out of hours works would comply with G36 community notification requirements and the mitigation measures specified within ~~Roads and Maritime's Construction Noise and Vibration Guideline (April 2016)~~ *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b).	Contractor	Construction
Operational noise mitigation	• During the detailed design stage of the proposal, further investigations of all feasible and reasonable mitigation options would be undertaken in the following order of priority: - Road design and traffic management - Quieter pavement surfaces - At-property treatments. Where practicable, any mitigation measures provided to control operational noise impacts would be implemented in the construction schedule as early as practicable to also provide a benefit during some of the construction phase.	Transport	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Noise and vibration	• All relevant noise and vibration management measures would be incorporated into site inductions for all employees, contractors and sub-contractors. The environmental component may be covered in toolboxes and should include: - Relevant licences and approval conditions - Permissible hours of work - Location of nearest sensitive receivers - Construction employee parking areas - Designated loading/unloading areas and procedures - Site opening/closing times.	Contractor	Pre-construction and construction
Construction noise	• The environmental induction program would include specific noise and vibration issues awareness training including, but not limited to, the following: - Avoiding use of radios during work outside normal hours - Avoiding shouting and slamming doors - Where practical, operating machines at low speed or power and switching off when not being used rather than left idling for prolonged periods - Minimising reversing - Avoiding dropping materials from height and avoiding metal to metal contact on material.	Contractor	Pre-construction and construction
~~Noise and vibration~~	• ~~All plant and equipment are to be maintained to ensure optimum running conditions, with periodic monitoring.~~	~~Contractor~~	~~Construction~~
~~Noise and vibration~~ Construction compound	• Consider construction compound layout so that primary noise sources are at a maximum distance from sensitive receivers (primarily residential receivers), with solid structures (sheds and containers) placed between sensitive receivers and noise sources (and as close to the noise sources as is practical). • Locate compressors, generators, pumps and any other fixed plant as far from residences as possible and behind site structures. • Alternatives to reversing alarms reversing alarms would be considered for site compound equipment subject to OHS compliance requirements and risk assessments. • Vehicle delivery times would be scheduled where feasible to the recommended construction hours to minimise noise impacts from heavy vehicle movements and deliveries.	Contractor	Pre-construction and construction
~~Noise and vibration~~	• ~~Locate compressors, generators, pumps and any other fixed plant as far from residences as possible and behind site structures.~~ • ~~Alternatives to reversing alarms reversing alarms would be considered for site compound equipment subject to OHS compliance requirements and risk assessments.~~ • ~~Vehicle delivery times would be scheduled where feasible to the recommended construction hours to minimise noise impacts from heavy vehicle movements and deliveries.~~	~~Contractor~~	~~Construction~~
~~Noise and vibration~~	• ~~Use quieter and less noise/vibration emitting construction methods where feasible and reasonable~~ • ~~Plant used intermittently would be throttled down or shut off when not in use~~	~~Contractor~~	~~Construction~~

Impact	Environmental safeguards	Responsibility	Timing
	• ~~Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be limited/avoided where possible~~ • ~~The offset distance between noisy plant and adjacent sensitive receivers is to be maximised where practicable~~ • ~~Noise-emitting plant to be directed away from sensitive receivers where possible~~ • ~~Where vibration intensive equipment is used within the minimum working distances identified, determine whether alternative construction methodology or less vibration intensive equipment can be used~~		
~~Noise and vibration~~	• ~~Where practicable, any mitigation measures provided to control operational noise impacts would be implemented as early as practicable to also provide a benefit during some of the construction phase.~~	~~Contractor~~	~~Construction and operation~~
Noise and vibration monitoring	• The following approach would be adopted with regard to noise monitoring procedures during the construction works. - Where potential noise impacts are predicted to be 20 to 30 dB(A) above the RBL, the potential construction noise nuisance is considered to be moderate. Noise monitoring would be carried out to confirm predicted noise impacts within two weeks of commencement of construction. Reasonable and feasible noise reduction measures would be investigated, where necessary. - Where potential noise impacts are predicted to be more than 30 dB(A) above the RBL, the potential construction noise nuisance is considered to be high. All reasonable and feasible noise control measures would be implemented prior to the commencement of construction works. Noise compliance monitoring for all major equipment and activities on the sites would be undertaken prior to their commencement of work on site. Noise levels during construction would be monitored and where exceeded, further noise reduction measures (where reasonable and feasible) would be implemented e.g. restrict working hours, use silencing equipment.	Contractor	Pre-construction and construction
Noise and vibration`	• Building condition surveys would be undertaken for buildings within 50 m of construction works. A copy of the report would be sent to the landholder. • In the case that exceedances are detected for noise and vibration monitoring, the activities would be reviewed in order to identify means to minimise impacts to residents and the appropriate changes made and the NVMP updated accordingly.	Contractor	Pre-construction and construction
Temporary noise impacts from known traffic diversions	• An assessment of temporary noise impacts from key traffic diversions is to be undertaken during the detailed design phase. This will require that additional traffic counts are undertaken on all diversion roads, including the following: - Johnson Road - Gavenlock Road - McPherson Road - Howarth Street - Warner Avenue - Ithome Street - Rose Street. • Traffic counts are to occur before the beginning of any construction works (including early works) for the proposal.	Transport, Contractor	Pre-construction

6.7 Climate change and greenhouse gases

Australia's climate is changing due to climate change. The *State of the Climate* 2022 (CSIRO and the Bureau of Meteorology, 2023) presents the latest climate research, analysis, and projections. It shows the long-term warming trend over Australia's land and oceans, showing that Australia's climate has warmed by 1.47ºC since 1910. The Intergovernmental Panel on Climate Change (IPCC) *Sixth Assessment Report (AR6)* (Intergovernmental Panel on Climate Change , 2023) states with high confidence that Australia is already experiencing impacts from recent climate change, including a greater frequency and severity of extreme weather events. Other observed trends include an increase in record hot days, a decrease in record cold days, ocean warming, sea-level rise and increases in global greenhouse gas concentrations.

6.7.1 Local climate context

The current and historical local climate of the Hunter Region of NSW provides an indication of the exposure to future climate risks to the upgrade of the Pacific Highway through Wyong Town Centre. Where feasible, this report would focus on climate projections for the Central Coast region, which is located 77 km northeast of Sydney, extending over an area of 1,681 km^2.

Recent extreme weather events in Wyong and the greater Central Coast region have demonstrated the magnitude and potential consequences of extreme events. Recent impacts have included bushfire smoke and poor air quality from the 2019/2020 bushfire season, extreme rainfall and storm events of 2022 and January 2023 thunderstorms.

6.7.2 Methodology

As stated, the current and historical local climate of the region provides an indication of the potential exposure of the proposal. To better understand the impacts to the proposal, AECOM conducted a pre-screening climate change risk assessment (CCRA) (Appendix H). This assessment encompasses both the previous concept design (as described in the Project REF) and any additional changes, including the proposed modification. The CCRA was developed in accordance with the relevant standards and guidelines:

- The climate change projections used in this assessment have been derived and collated in accordance with AS 5334:2013 *Climate change adaptation for settlements and infrastructure*
- The climate change risks to the proposal have been assessed in line with TfNSW *Climate Risk Assessment Guidelines* Version 4.1 (Transport for NSW, 2022).

The CCRA, considered the impact to the proposal both during construction and operation and proposed possible adaptation actions to design, to reduce the impacts of climate change. The methodology used to undertake the CCRA included a desktop analysis whereby:

- The proposal area was reviewed against currently available spatial natural hazard overlays for the site location, including flood and bushfires
- Climate change projections were collated from NARCliM for 2030 and 2070 (relative to 1990 - 2009) and CSIRO and the Bureau of Meteorology (BOM) for 2030 and 2090 (relative to 1986-2005) using IPCC *Fifth Assessment Report* (AR5) emissions scenarios (Intergovernmental Panel on Climate Change, 2014)
- The impacts of climate hazards under the IPCC climate scenarios were assessed to identify potential risks and implications for the proposal area.

In addition to being impacted by climate change, the proposal may also contribute to climate change through the emission of greenhouse gases (GHG). To understand how the proposal contributes to climate change, AECOM conducted a high-level assessment of the GHG emissions sources and likely scale resulting from the proposal's construction and operation, utilising Transport's Carbon Estimate Reporting Tool (CERT). GHG emissions have been categorised into scopes which relate to whether they are direct or indirect emissions and their origin. There are three scopes of GHG emissions:

- Scope 1 – direct emissions: GHG emissions generated by sources owned or controlled by the proposal. For example, emissions generated by the combustion of diesel fuel in proposal-owned vehicles.
- Scope 2 – indirect emissions: GHG emissions from the consumption of purchased electricity in owned or controlled equipment or operations for the proposal. These GHG emissions are generated outside the construction and operational footprint of the proposal. For example, the use of electricity purchased from the grid.

- Scope 3 – indirect upstream/downstream emissions: GHG emissions generated in the wider economy due to third party supply chains because of activity within the boundary of the Proposal. For example, GHG emissions associated with the mining and production of materials used in construction (referred to as the embodied emissions of a material) and transport of materials to site.

6.7.3 Existing and projected environment

The climate around Wyong is expected to become hotter, with more variable rainfall patterns. This is likely to lead to more intense storms, floods, droughts, and bushfires. Section 6.7.1 and the following sections provide a high-level overview of the local climate conditions.

To assess future climate conditions, the proposal has adopted the following emissions scenarios:

NARCliM

The *Special Report on Emissions Scenarios* (SRES) A2 scenario represents a high emissions pathway driven by economic growth and is projected to result in warming by approximately 3.4°C by 2100. The SRES A2 emission scenario was selected for use in the NARCliM climate projections as the global emissions trajectory suggests that we are tracking along the higher end of the A2 scenario (Office of Environment and Heritage, 2015).

Climate futures

Projections are presented for two emission scenarios or possible pathways, referred to as 'representative concentration pathways' (RCPs), each of which reflects a different concentration of global greenhouse gas emissions. The RCP8.5 pathway, which arises from little effort to reduce emissions and represents a failure to prevent warming by 2100, is similar to the highest SRES scenario.

The climate projections for 2030, 2070 and 2090 timeframes for relevant climate variables are summarised below in Table 6-30. The proposal was assessed against 2030 for the construction period and 2090 for the operation phase of the proposal considering that some elements, such as bridge structures, have a design life of 100 years.

Table 6-30 Detailed climate projections

Climate Variable	Baseline Data Adapt NSW (OEH)[1]	Adapt NSW (OEH)[2] NARCliM 2030	Adapt NSW (OEH)[2] NARCliM 2070	Climate Futures[3] 2030	Climate Futures[3] 2090
	Central Coast	SRES A2 (High emissions)	SRES A2 (High emissions)	RCP 8.5 (High emissions)	RCP 8.5 (High emissions)
		Change relative to 1990 - 2009 (base)		East Coast South Region; Change relative to 1986 - 2005	
Mean temperature change (°C)	Summer 20–22°C Winter 12–14°C	+0.66 (+0.66 to +0.69)	+1.95 (+1.89 to +2.06)	+0.98 (+0.74 to +1.30)	+3.67 (+2.94 to +4.60)
Extreme heat (days over 35°C)	Fewer than 10 hot days per year	+2.50	+7.10	7.40 (6.43 to 9.03)	19.44 (13.70 to 29.53)
Extreme heat (days over 40°C)	NA	NA	NA	0.70 (0.53 to 0.93)	2.80 (1.57 to 5.20)
Bushfire weather (Cumulative Forest Fire Danger Index (FFDI))	Number annual severe (FFDI>50) fire weather days 1.4 (Williamtown weather station).	+0.1	+0.5	Increase by 45%	Increase by 130%
Mean annual rainfall change (%)	High variability from year to year. Rainfall varies considerably over the region, with average annual rainfall ranging from 1200–1600 mm near the coast to between 800–1200 mm further inland.	+1.50	+8.20	-0.87 (-10.84 to +6.20)	-3.22 (-20.21 to +16.11)
Wind speed (%)	NA	NA	NA	-0.51 (-2.31 to +1.86)	-1.10 (-6.88 to +4.22)
Sea Level Rise (Sydney) (m)	NA	NA	NA	+0.14 (+0.10 to +0.19)	+0.66 (+0.45 to +0.88)

Notes:

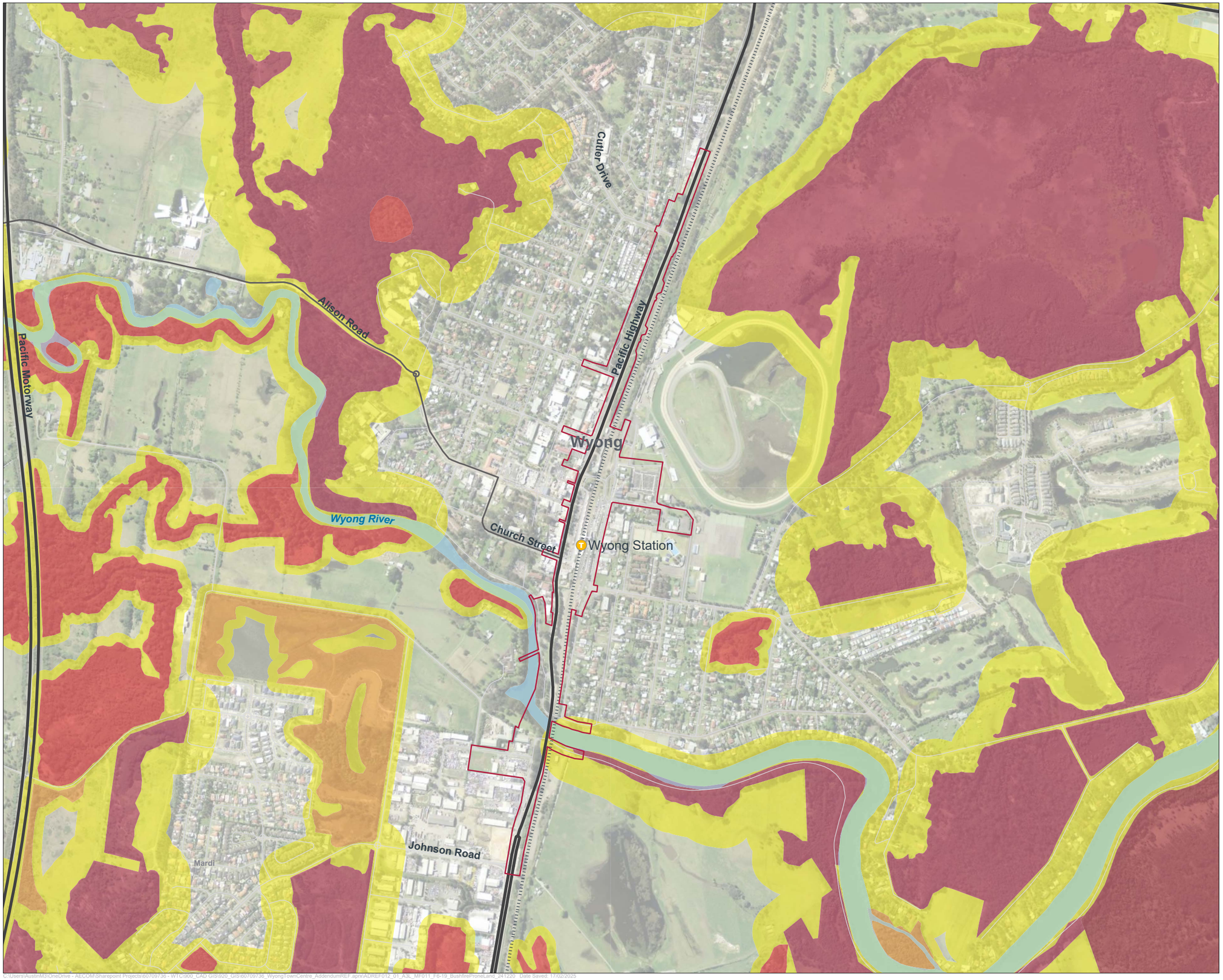
- *Climate projections for 2030 represent the average for the 20-year period between 2020 - 2039 (near future)*
- *Climate projections for 2070 represent the average for the 20-year period between 2060 - 2079 (far future)*
- *SRES A2 represents a high emissions pathway driven by economic growth and is projected to result in warming by approximately 3.4ºC (likely range 2.0-5.4) by the end of the 21 century*
- *RCP8.5 represents a high emissions pathway, with global carbon dioxide concentrations reaching around 940 ppm by the end of the 21 century*
- *The FFDI combines observations of temperature, humidity and wind speed Fire weather is classified as severe when the FFDI is above 50.*
- *Quantitative results presented as model median (50th percentile) value, with 10 to 90 percentile range in bracket below*
- *Qualitative results have been discussed in the report where specific quantitative projections were unavailable (i.e. cells containing "NA")*
- *Climate Futures climate projections for the East Coast South sub-cluster gathered from the East Coast Cluster Report*
- *Extreme temperature greater than 30 and 40 degrees from the CSIRO threshold calculator tool.*

[1] NSW Government 2014, Central Coast Climate Change snapshot,
[2] NSW Government, Adapt NSW, 2023, Interactive climate change projections map near future and far future, available at: https://www.climatechange.environment.nsw.gov.au/projections-map , accessed 17 October 2023
[3] Dowdy, A. et al. 2015, East Coast Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports, eds.Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia.

Climate variables

Bushfire

Bushfire-prone land mapping has been reviewed to identify potential risks and constraints to the proposal from bushfires. As shown in Figure 6-20, most of the proposal area is not located upon bushfire-prone land; however, there is a large portion of land categorised as high bushfire risk land within the vicinity. High risk bushfire prone lands extend to the west at Wyong and Ourimbah State Forests and further west to Yengo National Park. This presents risks related to access and egress and secondary impacts to bushfires such as smoke to the Wyong community.



AECOM

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0 200 400 m

DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- Railway
- Motorway
- Main road
- Watercourse

Bushfire Prone Land

- Category 1
- Category 2
- Category 3
- Vegetation buffer

FIGURE 6-20:
BUSHFIRE PRONE LAND

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

Note: NSW RFS Bushfire vegetation categories

***0** Vegetation buffer. 100m buffer for vegetation category 1 and 20m for vegetation category 2 and 3.*
***1** Highest risk of bushfire. Areas of forest, woodlands, heaths (tall and shot), forested wetlands and timber plantations.*
***2** Considered to be lower bushfire risk than Category 1 and Category 3. Rainforests. >Lower risk vegetation parcels Lan with ongoing land management practices that actively reduces bush fire risk.*
***3** Considered to be of medium bushfire risk. Grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.*
**Buffers are created based on the bushfire vegetation, with buffering distance being 100 metres for vegetation category 1 and 30 metres for vegetation category 2 and 3.*

Extreme heat

The Central Coast region does not have an extended history of extreme heat and heat waves. The nearby township of Norah Head (BOM site ID: 061366) experiences mean maximum temperatures of 25.9°C over summer and an average of 2.6 days over 35°C and 0.5 days over 40°C annually (Bureau of Meteorology, 2023).

Flooding

The Central Coast region is prone to flooding. The NSW Government declared the Central Coast an area of disaster during recent flood events. Eight major flood events have occurred since 2018 (NSW Government, 2023).

Figure 6-21 and Figure 6-22 highlight the risk of flooding to the current site in a 1 in 100-year flood event. Flood mapping and historical events show the Wyong River, which flows into Tuggerah Lake, is prone to flooding.

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DATE EXPORTED:
17/02/2025

CREATED BY:
AUSTINM3

COORDINATE SYSTEM:
GDA 1994 MGA ZONE 56

Legend

- Proposal area
- 1 in 100 Flood Extent
- Train Station
- Railway
- Watercourse

FIGURE 6-21:
1 IN 100 YEAR FLOOD EXTENT

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

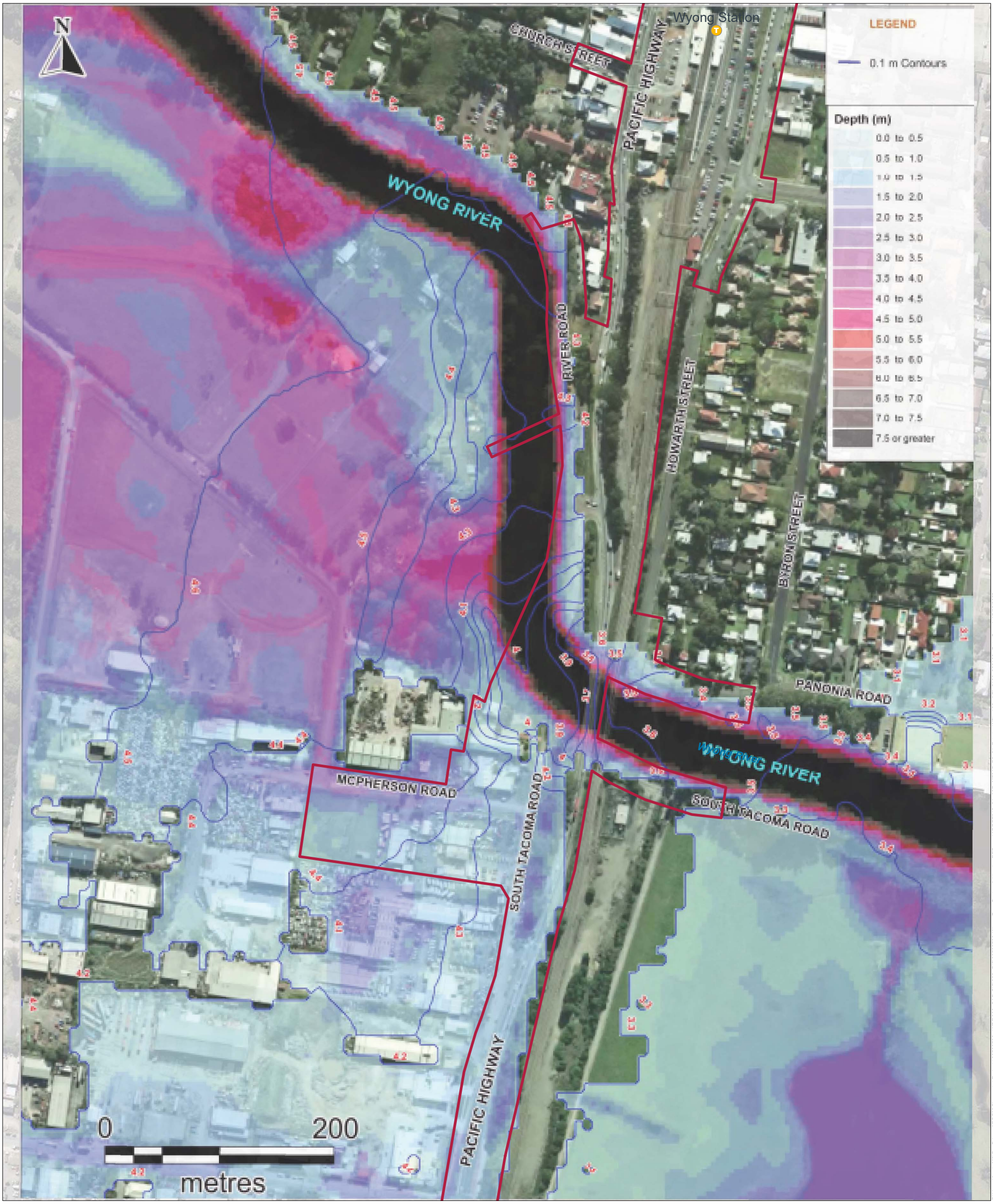

FIGURE 6-22:
WYONG RIVER EXISTING WATER SURFACE LEVEL AND 100-YEAR ARI FLOOD EXTENT

Legend

Proposal area

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

Storms

The Central Coast region is prone to East Coast Lows, with more than 78% of extreme rain events on the central coast of NSW being attributed to East Coast Lows (Adapt NSW, 2016). Recent extreme storm events include:

- March 2022 East Coast Low off the NSW Central Coast which resulted in heavy rainfall (Bureau of Meteorology, 2023),
- January 2023 intense thunderstorms across the Central Coast which led to large hailstones within Wyong (Weather Zone, 2023), and
- December 2023 which resulted in extreme cyclonic winds and hail causing significant damage to properties (Coast News, 2024).

Sea level rise

The proposal area is not currently impacted by sea level rise (Figure 6-23), however, the impact of sea level rise and increased rainfall should be considered within the design as it spans over Wyong River, which is connected to the tidal Tuggerah Lake. Figure 6-24 presents the projected sea level rise in 2100 at the highest tide, the mapping utilises projections from the IPCC Sixth Assessment Report of a 0.84m increase in sea level.

AECOM

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0 200 400 m

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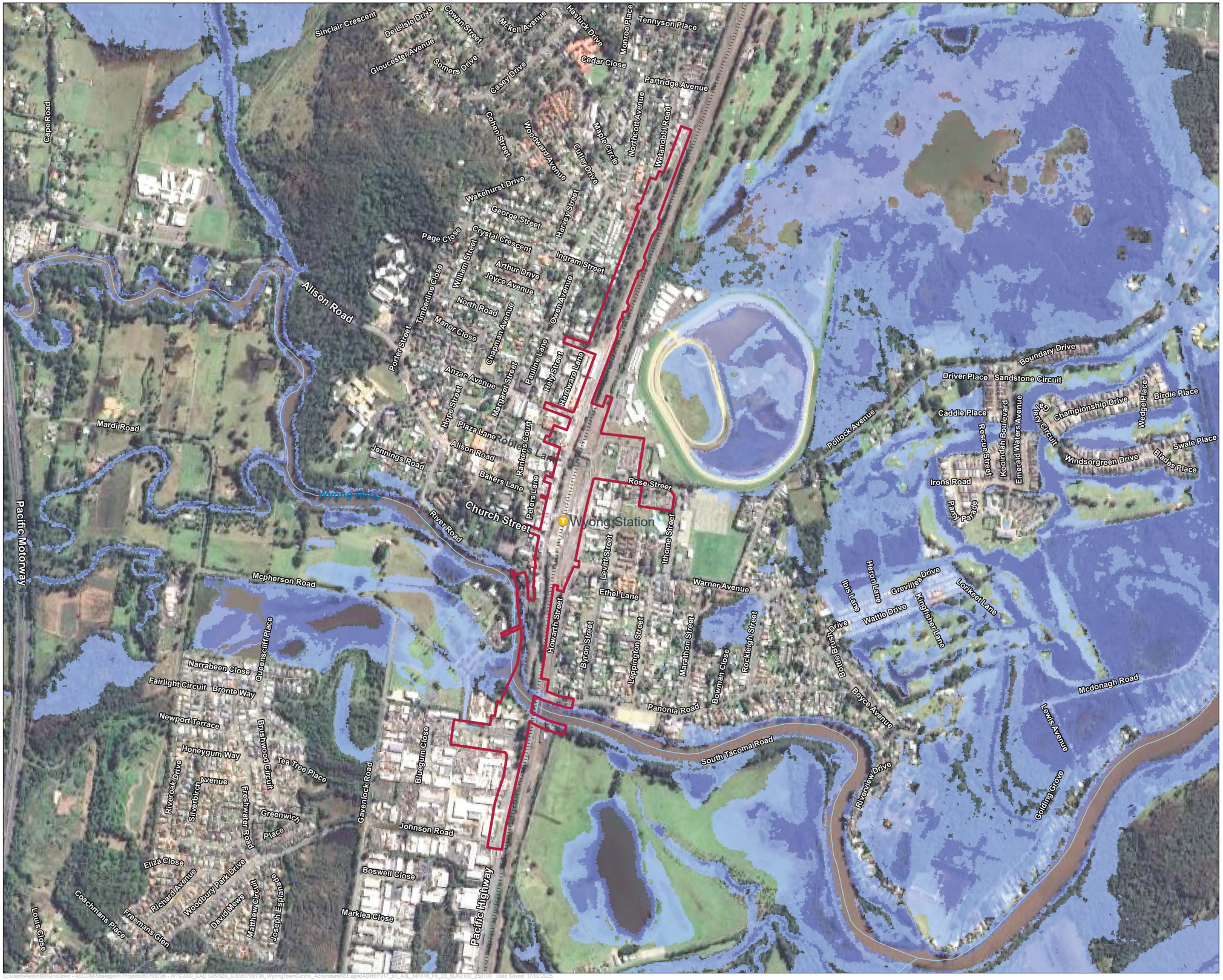
FIGURE 6-23:
CURRENT DAY IMPACTS FROM SEA LEVEL RISE

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023



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- Proposal area
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- Train Station
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FIGURE 6-24:
IMPACTS FROM SEA LEVEL RISE IN 2100 (+0.84 M)

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

6.7.4 Potential Impacts

Construction

Potential climate change impacts on the proposal

Construction of the proposal may be susceptible to impacts of climate change. Climate change projections for the near future (2030) are considered relevant to the construction timeframe. The potential impacts on the proposal are shown in Table 6-31.

Table 6-31 Potential climate change impacts on construction

Hazard	Risk ID	Risk Statement
Increasing temperatures and number of hot days	C-T1	Extreme heat events leading to health and safety concerns for construction staff
	C-T2	Extreme heat events leading to reduced effectiveness and poor establishment of plantings
	C-T3	Extreme heat impacting the integrity of concrete during concrete pours
Extreme rainfall and flooding	C-P1	Extreme rainfall and wind events leading to construction interruption
	C-P2	Extreme rainfall and flooding leading to overflow of sediment basins and increased risk of pollution to nearby waterway and the adjacent wetlands
	C-P3	Extreme rainfall and flooding leading to lack of access to the site impacting supply chain.
	C-P4	Extreme rainfall leading to damage to infrastructure during construction
	C-P5	Extreme rainfall and flooding impacting the ability to store materials onsite without concern of erosion of materials washing away
	C-P6	Extreme rainfall leading to increased potential for stormwater runoff to impact surrounding sites, in particular the nearby wetlands
Bushfire	C-B1	Increasing bushfire frequency and intensity resulting in poor air quality and reduced visibility on construction sites causing delays in construction
	C-B2	Increasing bushfire frequency and intensity leading to increased frequency of road closures and reduced access within the region causing delays in construction
	C-B3	Increasing bushfire frequency and intensity impacting supply chain routes
	C-B4	Increasing bushfire conditions leading to increased risk of grassfires within the vicinity of the site
	C-B5	Increased bushfire frequency leading to increased delays in construction e.g. no hot works allowed during total fire bans
Drought	C-D1	Decreased availability of water for dust suppression leading to environment impacts and negative community perception
	C-D2	Failure of landscaping due to planting in dry and hot conditions
	C-D3	Decreased availability of water impacting concrete pour as a high quantity of drinking quality water is required for concrete mixes and water restrictions could mean bore licenses are required
	C-D4	Severe lack of water resulting in impacts to construction and increased associated costs
Storm Events	C-S1	Extreme storms leading to construction interruption
	C-S2	Extreme storms leading to damage to infrastructure during construction
	C-S3	Extreme wind lifting dust from site impacting air quality

Potential GHG impacts from the proposal

The likely sources of GHG emissions during the construction of the proposal are listed in Table 6-32.

While measures would be carried out where possible to reduce GHG emissions, it is important to note that not all GHG sources are currently managed.

Table 6-32 Likely GHG emissions during the construction of the proposal

GHG sources	Details	Assessment
Scope 1 emissions		
Construction equipment	GHGs would be generated from fossil fuel combustion in plant, equipment and vehicles used for construction activities.	Construction activities would be planned to minimise movements on-site and use lower emission equipment.
Generator use	Generators may be required during construction. This would create GHG emissions through the combustion of diesel or other fossil fuels.	Further assessment during future planning and design stages is required to quantify and reduce these emissions.
Scope 2 emissions		
Electricity	It is expected that a minimal amount of electricity would be required during construction, which would be associated with power for the on-site construction buildings and worker facilities.	Electricity would be purchased from the grid, which largely comprises from electricity generated from fossil fuels. Further assessment during future planning and design stages is required to quantify and reduce reliance on grid-supplied electricity to limit emissions.
Scope 3 emissions		
Construction materials	Extraction and production of materials used for construction of the proposal, such as concrete, steel, road base, pipes, cables, conduits and other materials would result in GHG emissions.	Some recycled materials have been identified for inclusion in the design. Additional opportunities for incorporating recycled materials would be explored during the detailed design phase.
Construction waste	Construction waste would be produced from the removal, demolition or excavation of materials onsite.	Further assessment during future planning and design stages is required to quantify and reduce these emissions.
Construction transport	GHGs would be generated by staff travelling to and from the construction site and by any transportation related to the movement of construction materials, equipment or plant.	Construction staging would be developed to minimise haulage and other construction vehicle movements. Further assessment during future planning and design stages is required to quantify and reduce these emissions.

Operation

Potential climate change impacts on the proposal

The potential impacts of climate change and extreme weather events can significantly impact road surfaces and road safety. Extreme weather events are projected to become more frequent and intense, increasing the vulnerability of transport networks and the communities they serve. The increasing variability of extreme weather events, and longer-term changes in the climate would alter the profile of existing risks and create new risks. Moisture and temperature are the primary factors influencing road surface conditions, and variations in both can lead to faster rates of deterioration.

More intense rainfall and flooding events could put pressure on drainage infrastructure for the road including culverts and open drainage channels.

Direct risks to the proposal during operation and indirect risks from interdependencies with other infrastructure systems and organisations, as a result of climate change, are identified in Table 6-33.

Table 6-33 Potential climate change impacts on operations

Climate variable	Risk statement	
Extreme rainfall and flood events	Direct Risks	
	F1	Extreme rainfall and flooding leading to increased maintenance requirements
	F2	Extreme rainfall exceeding the capacity of the stormwater drainage network
	F3	Extreme rainfall and flooding leading to a loss of access and egress to the commuter car park and surrounding region
	F4	Extreme rainfall leading to an increase in road accidents
	F5	Erosion of embankments and bridge piers impacting the integrity of the asset
	F6	Extreme rainfall impacting plant health leading to risk of erosion and invasive species threat
	F7	Increased rainfall intensity leading to a higher frequency of floods causing damage to infrastructure
	Indirect Risks	
	F8	Extreme rainfall leading to faults/failure of power infrastructure resulting in interruptions to power supply
	F9	Extreme rainfall leading to accelerated soil movement
Storm events (including wind and hail)	Direct Risks	
	S1	Extreme weather events leading to damage and disruption to lighting and overhead power towers
	S2	Extreme storms and winds leading to increased instances of debris on the carriageway impacting the health and safety of road users
	S3	Extreme storms and winds leading accelerated degradation of materials and reduced life of structures
	S4	Extreme storm events leading to hail damage to the asset
	Indirect Risks	
	S6	Storm events leading to damage to power supply infrastructure
	S7	Extreme wind and hail causing damage to vehicles
Mean rainfall change	Direct Risks	
	R1	Change in mean rainfall leading to increased soil erosion
Sea Level Rise	Indirect Risks	
	SLR1	Sea level rise leading to reduced access to the proposal and reduced customer satisfaction
Mean temperature change and Extreme heat (days over 35ºC)	Direct Risks	
	T1	Extreme heat events leading to health and safety concerns for community members
	T2	Extreme temperatures causing thermal expansion beyond design tolerances leading to increased stress of carriageway to bridge connections
	T3	Increased failure of landscaping leading to risk of erosion and limb drop
	T4	Increased risk of asphalt failure
	T5	Increased risk of median trips buckling
	Indirect Risks	
	T6	Extreme heat leading to increased power demand and/or failure of power infrastructure
Bushfire events	Direct Risks	
	B1	Increasing bushfire frequency and intensity resulting in damage of structures
	Indirect Risks	
	B2	Bushfire events leading to damage to power supply infrastructure
	B3	Bushfires leading to damage to signage resulting in potential impacts to the health and safety of road users
	B4	Bushfires leading to reduced air quality and visibility impacting the health and safety of road users and commuter cark park customers
Drought	Direct Risks	
	D1	Increased instances of drought leading to vegetation loss leading to erosion and weed invasion

Potential GHG impacts from the proposal

The likely sources of GHG emissions during the operation of the proposal are listed in Table 6-34. While measures would be carried out where possible to reduce GHG emissions, it's important to note that not all GHG sources are currently subject to emission controls.

Table 6-34 Likely GHG emissions during the operation of the proposal

GHG sources	Details	Assessment
Scope 2 emissions		
Electricity	Electricity would be required during the operation of the proposal for lighting at intersections, within the commuter car park, along the roadway and cycle path.	Electricity would be purchased from the grid, which largely comprises of electricity generated from fossil fuels.
Scope 3 emissions		
Traffic	It is expected that the annual traffic growth rate is 1.5%. Planned developments in the Wyong area are expected to be contributing to this future traffic growth.	Traffic modelling would be completed by others (Arcadis) directly engaged by Transport for NSW. The upgrade to the roadway would improve traffic flow and travel times thus resulting in more efficient use of fuel. A 3.5m wide off-road cycleway has been provided along the Pacific Highway southbound carriageway from the southern extent of the proposal to North Road. A 2.0m wide footpath has been provided along the Pacific Highway northbound carriageway from the southern tie-in to the Church Street intersection. Both elements allow for additional cyclist/pedestrian routes to Wyong Town Centre, promoting the use of active transport.

6.7.5 Safeguards and management measures

Climate change and greenhouse gas management measures were presented in Section 6.13 of the Project REF and Section 7.2 of the 2017 Addendum REF. Table 6-35 provides a list of the environmental safeguards (as described in the Project REF) which the proposal should consider throughout the detailed design, construction and operation to limit emissions and improve the proposal's resilience to physical climate-related risks.

Other safeguards in waste management, biodiversity and urban design may also indirectly mitigate the impacts of climate change on the proposal and are not repeated below in Table 6-35.

Table 6-35 Climate change and greenhouse gases safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
~~Greenhouse Gas (GHG) emissions~~	• ~~Specify construction materials with lower emissions intensity in the detailed design (e.g. recycled steel in place of virgin steel) where engineering and other technical specifications can be met, and the alternative is reasonable and feasible.~~	~~Designer contractor~~	~~Detailed design Construction~~
~~GHG emissions~~	• ~~Plant and equipment would be switched off when not in use.~~ • ~~Vehicles, plant and construction equipment would be appropriately sized for the task and properly maintained so as to achieve optimum fuel efficiency.~~ • ~~Materials would be delivered with full loads and would come from local suppliers, where possible.~~	~~Contractor~~	~~Construction~~
Impact of increased flood events	• Detailed design would take the effect of climate change on the proposal into consideration, including for the drainage design.	~~Roads and Maritime~~ Transport	Pre-construction
Climate change	• Implement adaptation actions from the pre-screening CCRA as a part of detailed design and construction.	Transport Contractor	Detailed design Construction
GHG emissions	• Develop a Carbon Management Plan (CMP) in accordance with *Decarbonising Infrastructure Delivery Policy and Measurement Guidance* (Infastructure NSW, 2024). Ensure the CMP is reviewed throughout detailed design and pre-construction to refine specific energy and material requirements for low emissions and material waste. • Example safeguards within the CMP may include: - Opportunities to use low emission construction materials, such as recycled aggregates in road pavement and surfacing, and cement replacement materials would be investigated and incorporated where feasible and cost-effective. - ~~Design street lighting to optimise lamp wattages and types within compliance limits, minimise waste light and reduce overall scheme energy consumption.~~ - Energy efficiency and related carbon emissions would be considered in the selection of vehicle and plant equipment. • Locally produced goods and services would be procured where feasible and cost effective to reduce transport fuel emissions.	Transport Contractor	Detailed design Construction ~~Pre-construction~~
GHG emissions	• Material selection would consider products with lower energy requirements in processing and handling where feasible.	Contractor	Construction
GHG emissions	• Develop a Sustainability Management Plan that supports the Transport Sustainability Plan 2021 and incorporates the Baseline Sustainability Requirements established to provide a consistent set of objectives, targets and supporting initiatives to deliver sustainable outcomes across Transport's eight sustainability focus areas.	Contractor	Construction

6.8 Other impacts

6.8.1 Existing environment and potential impacts

For the remaining environmental aspects where the potential impact of the proposed modification was considered to be negligible to minor, a brief assessment is summarised in Table 6-36. These remaining environmental aspects include:

- Hydrology and flooding
- Non-Aboriginal heritage
- Aboriginal heritage
- Air quality
- Land use, property, and utilities
- Resource use and waste management.

Table 6-36 Other impacts existing environment and potential impacts

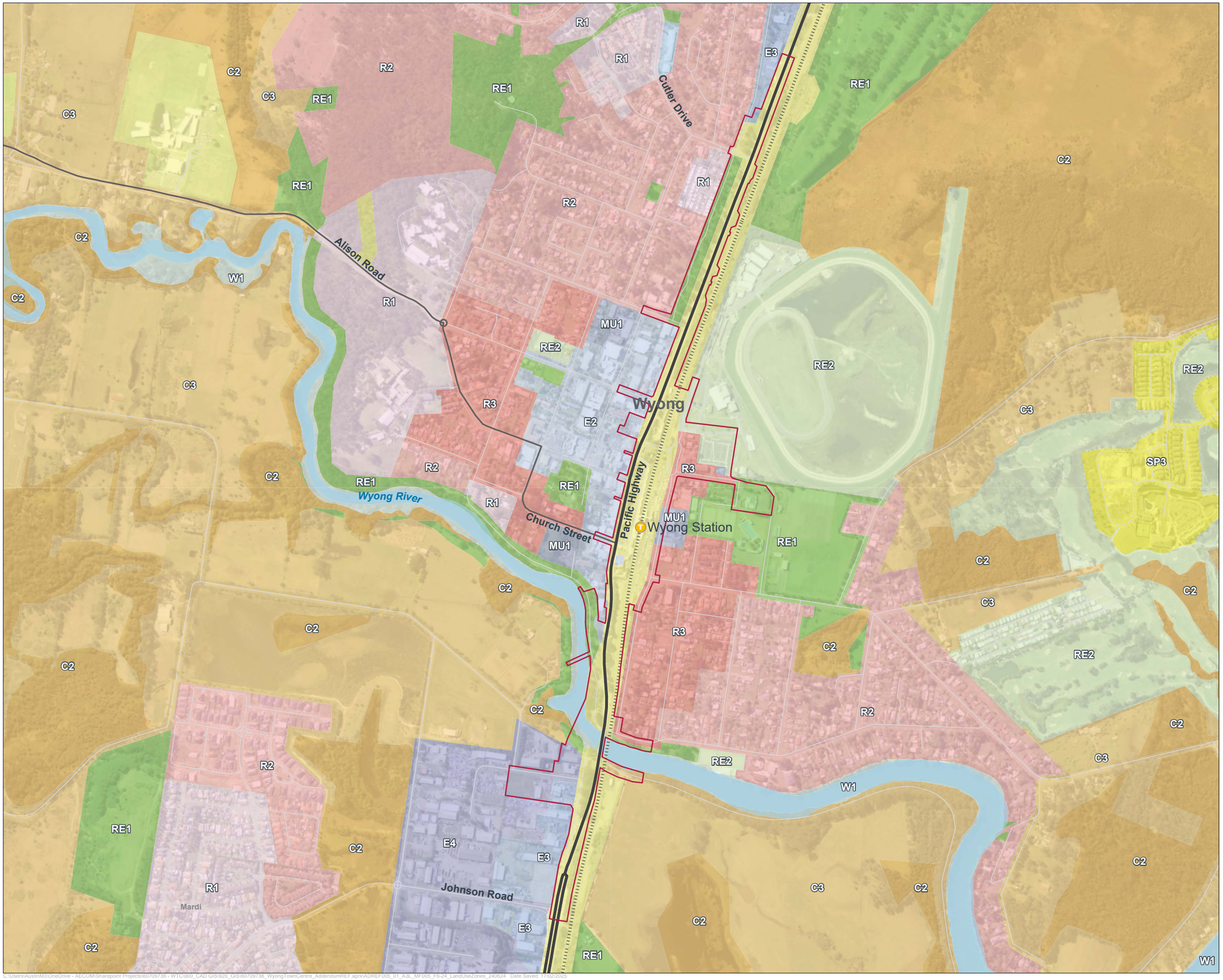
Environmental factor	Existing environment	Potential impacts
Hydrology and flooding	The existing hydrology and flooding environment in the vicinity of the proposed modification is consistent with those described in Section 6.3 of the Project REF.	The potential impacts of the proposed modification on hydrology and flooding are consistent with those outlined in the Project REF. Consistent with the bridge design described in the Project REF, the revised bridge structure over Wyong River has been designed so that the underside of the bridge would be higher than the 100-year Average Recurrence Interval (ARI) flood level. In line with Part 3, Section 8.2.3 of the *Austroads Guide to Road Design* (Austroads, 2021), an additional 0.5 m clearance above the 100-year ARI flood level would be provided. Consistent with the Project REF, construction ancillary facilities are to be located above the 20-year ARI flood level unless a contingency plan to manage flooding is prepared, approved by Transport and implemented as part of the CEMP. As noted in Section 3.3.1, a temporary working platform would be constructed during Stage 2 works for the southern zone. The temporary platform would be constructed to provide a working area for the crane. Navigation through this section of the Wyong River would be closed to allow for the construction of the temporary bridge. An additional safeguard has been developed to ensure that appropriate consultation takes place (in accordance with Section 79-81 of the Roads Act) regarding the obstruction of the navigable channel. No additional safeguards related to hydrology and flooding are required, and existing safeguards identified in Section 7 are considered adequate.

Environmental factor	Existing environment	Potential impacts
Non-Aboriginal heritage	Section 6.4 of the Project REF and Section 6.1 of the 2017 Addendum REF describe the existing environment, as well as previous studies that have occurred. The former Station Master's Cottage and the Wyong Produce Store building were demolished in 2019-20, and archival recording has been completed. The Hawke weighbridge and scales and associated machinery at the former Produce Store have been retained for interpretation, as per the recommended safeguard in the 2017 Addendum REF. A Heritage Interpretation Strategy has been prepared to meet the requirements of safeguard identified in the 2017 Addendum REF. The HIS identifies the history and heritage values of the area and provides a strategy for interpreting those heritage values identified in the previous non-Aboriginal heritage studies. A Heritage Interpretation Plan would guide the features and interpretation materials for the proposal's detailed design. As Section 6.4.1 of the Project REF notes, the Canary Island Palms are not formally listed as heritage items but have been identified by the community as being of cultural value. Section 6.4.3 of the Project REF stated that potential impacts to archaeological relics associated with the 1887 rail bridge at Wyong River would be mitigated through the preparation of an Archaeological Research design. The Project REF also stated that a Section 140 excavation permit would be required. A Maritime Archaeological Statement of Heritage Impact (SOHI) was prepared by MTS Heritage in 2024. The SOHI concluded that the proposed modification is not likely to impact on any known or potential historical archaeological remains in the vicinity of the 1887 rail bridge relics. As such, an Excavation Permit issued by Heritage NSW under S.140 of the *Heritage Act 1977* is not required.	Transport no longer proposes relocating the existing Canary Island Palms, and the Statement of Heritage Impact (SOHI) would be updated during the next design phase. The updated urban design would include feature street plantings incorporating some palms but not an avenue of Canary Island Palms. Arborist advice and fungal disease testing have been conducted, see Appendix J. While some Canary Island Palms show symptoms of Fusarium wilt, testing has not revealed some infections but not widespread in all individuals . Consideration has also been made of the logistics of relocation—including a need for multiple moves, maintaining the trees in long-term storage, the advanced age of the palms, other crown dieback, and visible trunk damage, and a need for care and anchoring of trees after construction in a busy public space—with low guarantee of successful transplantation and establishment. The proposal is considering several options to be reviewed in an updated SOHI in the next phase of development. These include planting new mature palms in Wyong Railway Station entry plaza area at Church Street, potentially Canary Island Palms, or alternative feature palms such as *Washingtonia* or *Livistona*, which are less disease prone. Other feature trees may also be considered in consultation with the Council. Additionally, some existing palms on Transport-owned land south of the river could potentially be relocated north later in construction. This would be subject to arborist assessment of their health and viability and could involve planting at either the station forecourt or the Rose Street commuter car park.

Environmental factor	Existing environment	Potential impacts
Aboriginal heritage	The Project REF identified five recorded Aboriginal sites within a 2 km radius of the proposal area and no Aboriginal sites located within the proposal area. The project REF also included a Stage 2 study under the Transport Procedure for Aboriginal Cultural Heritage Consultation and Investigation(PACCHI) undertaken with the Darkinjung LALC, which did not identify any aboriginal heritage sites or items that could be impacted by the works. The PACHCI was again followed to inform the Consistency Review completed for geotechnical investigations in November 2023 (AECOM Australia, 2023). A search of the Aboriginal Heritage Information Management System (AHIMS) was conducted as part of the PACHCI on 4 September 2023, which showed that additional Aboriginal sites had been recorded since the determination of the Project REF. The basic AHIMS search identified one Aboriginal site within the proposal area. However, an extensive search was conducted, which clarified that this site is actually located outside the proposal area at [redacted] and does not represent a constraint to the proposed modification. The location of this site was discussed with the Transport Heritage team and has been verified with the Darkinjung LALC. An additional AHIMS search was conducted on 9 May 2024. This search confirmed that no additional Aboriginal heritage sites have been recorded in the proposal area. The basic and extensive AHIMS searches are provided in Appendix K. Section 6.10 of the Project REF provides further context of the existing Aboriginal heritage environment.	Given that no additional sites have been recorded in the vicinity of the proposal area and the adjusted boundary would not impact areas that have not previously been disturbed by development, it is unlikely that there would be additional impacts on Aboriginal heritage due to the proposed modification. No additional safeguards related to Aboriginal heritage are required, and existing safeguards identified in Section 7 are considered adequate.
Air quality	Existing air quality in the vicinity of the proposed modification is consistent with those described in Section 6.11 of the Project REF.	The potential impacts of the proposed modification on air quality would be generally consistent with those described in Section 6.11.3 of the Project REF. Consistent with the Project REF, dust generation would be the main potential impact on air quality during construction, and there would be temporary, localised, and minor emissions from machinery (for example, delivery vehicles and construction plant). No additional safeguards related to air quality are required, and existing safeguards identified in Section7are considered adequate.

Environmental factor	Existing environment	Potential impacts
Land use, property, and utilities	The existing land use, property and utilities environment of the proposed modification is consistent with those described in Section 6.6 of the Project REF.	Construction activities within the existing highway corridor, rail corridor, and local roads are consistent with activities required to maintain and construct transport infrastructure. All property acquisitions described in the Project REF have been conducted. No additional property impacts would result from the proposed modification. Consistent with the Project REF, the proposed modification would require significant utility adjustments throughout the proposal area. Affected utilities would include water mains, sewer, gas, electrical, and telecommunications. Utility adjustments would be finalised during detailed design, and consistent with the mitigation measures described in Section 6.6.3 of the Project REF, utility providers would be consulted with through detailed design to ensure satisfactory protection of assets is achieved. Consistent with the Project REF, the proposed modification is aligned, or does not conflict with, the following land use zones (shown in Figure 6-25): • C3 Environmental Management • E2 Commercial Centre • E3 Productivity Support • E4 General Industrial • MU1 Mixed Use • R2 Low Density Residential • R3 Medium Density Residential • RE1 Public Recreation • RE2 Private Recreation • W1 Natural Waterways.

Environmental factor	Existing environment	Potential impacts
Resource use and waste management	Consistent with Section 6.12 of the Project REF, the construction activities for the proposed modification would create a number of waste streams generating volumes of waste that require a coordinated management process. A review of legislation and guiding documents revealed that the following have been updated since the Project REF was written: • *Protection of the Environment Operations (Waste) Regulation 2014* • *Waste Classification Guidelines* (NSW Environment Protection Authority, 2014). These documents have been reviewed and considered for the proposed modification.	The materials required for the proposed modification are generally consistent with those described in Section 6.12.2 of the Project REF. The materials required for the proposed modification would include, but not be limited to: • Select material (recycled where possible) • General fill material (recycled where possible) • Road base material (recycled where possible) • Asphaltic material • Sand • Concrete • Rock • Aggregate • Fuel • Reinforcement and structural steel. A summary of major raw materials to be imported for the construction of the proposed modification is provided in Table 3-9 (refer to Section 3.3.5). As described in Section 3.3.5, potential sources of materials that would be required for the proposed modification would be similar to those described in Section 3.4.5 of the Project REF. Waste generating activities and waste materials generated as a result of the proposed modification are consistent with those described in Section 6.12.2 of the Project REF.



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Legend

- Proposal area
- Railway
- Motorway
- Main road
- Watercourse

LEP Land Zoning

- C2 - Environmental Conservation
- C3 - Environmental Management
- E1 - Local Centre
- E2 - Commercial Centre
- E3 - Productivity Support
- E4 - General Industrial
- MU1 - Mixed Use
- R1 - General Residential
- R2 - Low Density Residential
- R3 - Medium Density Residential
- RE1 - Public Recreation
- RE2 - Private Recreation
- SP2 - Infrastructure
- SP3 - Tourist
- W1 - Natural Waterways

FIGURE 6-25:
LAND USE ZONES

Source: Imagery @ Sixmaps, 2023
Department of Customer Services, 2023

6.8.2 Safeguards and management measures

The safeguards in the Project REF remain relevant for the proposed modification. Additional safeguards have been developed for the proposed modification. Existing and additional safeguards are provided in Table 6-37.

Table 6-37 Other impacts safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Increased flooding during construction	• Construction ancillary facilities are to be located above the 20-year Average Recurrence Interval (ARI) flood level unless a contingency plan to manage flooding is prepared, approved by ~~Roads and Maritime~~ Transport and implemented.	Contractor	Construction
Temporary blocking of fish passage during construction	• Construction staging and erosion and sediment controls would ensure that fish passage is maintained at all times. • Temporary work platforms for bridge construction must be designed to maintain fish passage. If impacts are considered possible, early consultation with Department of Primary Industries - Fisheries is required. • If blockage of fish passage on the Wyong River is required, a permit in accordance with Section 220 of the *Fisheries Management Act 1994* must be obtained.	Contractor	Construction
Increased flooding at McPherson Road	• To offset the expected flood level increases, it would be necessary to demolish the existing buildings and lower the terrain at 204-206 and 210 Pacific Highway, Tuggerah. During detailed design the grading levels required to convey flood waters towards the river would be examined further.	~~Roads and Maritime~~ Transport	Detailed design Construction
Impacts on heritage items during construction	• A Non-Aboriginal Heritage Management plan would be prepared and included in the CEMP. This plan would include but not be limited to the following: - A map identifying locations of items or sites within and around the proposal site. - Identification of potential environmental risks/impacts due to the works/activities - Mitigation measures to avoid risk of harm and the interface with work activities on site. - Identification in toolbox talks where management of non-Aboriginal heritage is required such as identification of no-go zones and responsibilities under the *Heritage Act 1977*. • Requirement to comply with the ~~Roads and Maritime Standard Management Procedure: Unexpected Heritage Items (2015)~~ *Unexpected Heritage Items Procedure* (Transport for NSW, 2022b).	Contractor	Construction
Unexpected impacts on non-Aboriginal heritage values	• Should archaeological material be unexpectedly uncovered during construction, all works are to cease within the vicinity of the material/find and the steps in the ~~Roads and Maritime Standard Management Procedure: Unexpected Heritage Items (2015)~~ *Unexpected Heritage Items Procedure* (Transport for NSW, 2022b) must be followed. ~~Roads and Maritime~~ Transport Environment staff must be contacted immediately.	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Impact on the historic significance of Canary Island Palms	• ~~A suitably qualified arborist would be appointed to prepare a management strategy for the translocation of the Canary Island Palms along the Pacific Highway.~~ • ~~The Canary Island Palms management strategy would be submitted to the Roads and Maritime~~ Transport ~~Environmental Officer for approval prior to construction commencing~~. • ~~Canary Island Palms would be included in the final streetscape design for the Wyong town centre.~~ • The *Historic Heritage Assessment and Statement of Heritage Impact* (Australian Museum Consulting, 2015) prepared for the Project REF would be updated in the next design phase to reassess the impact of the loss of Canary Island Palms to the town centre on the basis that relocation of existing palms is not feasible and investigate alternative options for mitigation.	Contractor Transport	Pre-construction
Impact on the heritage milestone	• The heritage milestone on the Pacific Highway would be removed prior to the commencement of construction at that location and stored securely in accordance with ~~Roads and Maritime~~ Transport requirements. • The milestone would be reinstated during the landscape works and finishing works in accordance with the Landscape and Urban Design Strategy.	Contractor	Construction
Demolition of the Warner Shops	• Archival photographic recording of the interior and exterior of the Warner Shops and the former Station Master's Cottage and their immediate and broader environment would be undertaken before the demolition work commences. • Archival recording would be undertaken in accordance with *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office, 2006)). • Copies of the archival records would be deposited with the ~~Wyong Shire Council~~ Central Coast Council local heritage collection and Sydney Trains heritage office. • Formal notice to ~~Wyong Shire Council~~ Central Coast Council and Sydney Trains would be undertaken to advise the intention to demolish local and Section 170 heritage items.	Contractor Transport	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Loss of heritage buildings and features	• An interpretation strategy would be developed and implemented to mitigate the loss of the former Station Master's Cottage, Warner Shops, the former Wyong Produce Store Group, and the visual and physical separation of the Wyong Station Group from the Wyong Town Centre, as well as the original rail bridge over the river. • The interpretation strategy should include the interpretation of the Produce Store Group within the design for the public facilities adjacent to the proposed Rose Street commuter car park. The interpretation should: - Interpret the industrial history of Wyong, in particular the role of timber-getting in the development of the town; the inter-relationship of the O'Neil and Goldsmith Saw Mill within the railway and produce store; and the role of D'Arcy Rose in the development of Wyong. - Include reference to the Store in the broader historical development of Wyong. • ~~Roads and Maritime~~ Transport would consult with the private owner of the Hawke scales in regard to potentially including the scales as part of the proposal's interpretation strategy. • The strategy should include further research into the elements of visible machinery and motor generators as well as any that may remain beneath the warehouse floor, or otherwise concealed, to identify and determine their value and inclusion in the interpretation. • ~~Roads and Maritime~~ Transport would continue to consult with ~~Wyong Shire Council~~ Central Coast Council and Sydney Trains during detailed design and construction.	Transport	Pre-construction
~~Potential for archaeological relics associated with the 1887 rail bridge at Wyong River~~	• ~~An Archaeological Research design that includes a strategy for managing archaeological relics would be prepared and submitted to the Heritage Council of NSW prior to construction commencing.~~ • ~~A Section 140 Excavation Permit or exception under Section 139(4) of the *Heritage Act 1977* would be obtained from the Heritage Council of NSW.~~	~~Contractor~~	~~Pre-construction~~
Non-Aboriginal heritage - former rail siding	• Detailed design of the proposed Rose Street commuter car park would consider exploring the full extent of the railway siding as it extends toward the railway and toward the Wyong Racecourse. Where possible, non-intrusive methods would be adopted in determining the full extent of the siding. • The design of the commuter car park is to consider the feasibility of retaining the tracks within the car park surface and to include signage that would indicate the function and destination of the original siding to the O'Neil and Goldsmith Saw Mill. • The location of the commuter car park and associated facilities, such as a shelter building, would be optimised during detailed design to accommodate the retention of the weighbridge and rail siding in-situ, as far as practicable.	Contractor	Detailed design
Non-Aboriginal heritage – former Produce Store	• Archival photographic recording of the interior and exterior of the buildings that represent the former Wyong Produce Store would be undertaken before demolition commences. • The recording would include a recording of the immediate and broader environment and association with the railway. • Archival recording would be undertaken in accordance with *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office, 2006).	Contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Unexpected finds	• The CEMP would include the responsibility for all construction staff to be observant as to the potential presence of Aboriginal cultural heritage material when working on site. • In the event of an unexpected find of Aboriginal cultural heritage, work would cease in the affected area and ~~Roads and Maritime Standard Management Procedure - Unexpected Heritage Items (2015)~~ *Unexpected Heritage Items Procedure* (Transport for NSW, 2022b)would be implemented. ~~Roads and Maritime~~ Transport Environment Manager would be notified immediately.	Contractor	Pre-construction Construction
Impacts on local air quality during construction	• Prepare a Construction Air Quality Management Plan (CAQMP) as part of the CEMP. This Plan must show the locations of all potentially affected properties and residences on a map and provide details of air quality control measures to be undertaken during construction, including: - air quality and dust management objectives consistent with OEH guidelines. - potential sources and impacts of dust, identifying all dust sensitive receptors. - an environmental risk assessment to address potential impacts and mitigation measures to minimise dust impacts to sensitive receivers and to the environment. - mitigation measures to be implemented, including measures during weather conditions where high dust episodes are likely (such as strong winds in dry weather). - a monitoring program to assess compliance with the identified objectives. - a progressive stabilisation/ rehabilitation strategy for disturbed surfaces with the aim of minimising exposed surfaces. - contingency plans to be implemented in the event of non-compliances and/or complaints about dust. - procedures for regularly reviewing the effectiveness of the CAQMP.	Contractor	Pre-construction
Impacts on local air quality during construction	• The CAQMP is to be followed and updated as required for the duration of construction works. • Construction plant and equipment is to be maintained in order to ensure exhaust emissions comply with applicable regulations (POEO Act). Emissions controls used on vehicles and construction equipment would comply with standards listed in Schedule 4 of the *Protection of the Environment Operations (Clean Air) Regulation 2010.* In addition, plant would be operated in a proper and efficient manner. • Controlling truck speed and movements onsite and restrict trucks to designated roadways. • Modifying or stopping construction activities during periods of high wind, if necessary. • Vehicle loads involving loose materials are to be covered when travelling off-site. • Implementing control measures, such as compaction or stabilisation, in order to minimise dust from stockpile sites, work areas and exposed soils. • Regularly inspecting and maintaining erosion control structures to ensure silt does not become a source of dust. • Maintaining all equipment for dust control to keep it in good operating condition. The equipment would be operable at all times with the exception of shutdowns required for maintenance.	Contractor	Construction
Property acquisition	• All property acquisition would be undertaken in accordance with the *Land Acquisition (Just Terms) Compensation) Act 1981*.	Transport	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
Temporary commuter parking south of Wyong Railway Station	~~• Site of former heritage buildings is only to be used for temporary commuter facilities during Stage 1.~~ • The community consultation strategy is to contain a notification strategy that appropriately addresses the temporary nature of any proposed parking and provides details of the final plans for this area.	Transport Contractor	Construction
Property acquisition and impacts on Council land	• Consultation with Central Coast Council would be ongoing through detailed design and construction regarding works in Riverside Park and the new open space area on the south bank of the Wyong River.	Transport	Pre-construction
Impact on ancillary sites	• All ancillary sites are to be restored to pre-existing conditions or to a condition agreed with the landowner, at the completion of construction.	Contractor	Construction
Disruption to utility services during construction	• Residents are to be informed prior to any interruptions to utility services that may be experienced as a result of utilities relocations.	Contractor	Pre-construction Construction
Relocation of sensitive utilities	• Consultation with Jemena, and other utility providers, would continue through detailed design to ensure satisfactory protection of assets is achieved.	Transport	Detailed design
Handover of assets	• Transport would continue to engage with and consider and address feedback from Central Coast Council throughout detailed design, including on infrastructure, built assets, and urban design and landscape elements that would be handed over to council for ongoing maintenance in the operational phase. • Transport would prepare an asset handover plan with as-built drawings addressing council's feedback where feasible and reasonable.	Transport	Detailed design Post construction
Construction waste	• A Materials Management Plan would be prepared by the construction contractor as part of the CEMP prior to the commencement of relevant site works. The Materials Management Plan is to ensure that wastes are properly managed during construction in a way that it is consistent with the principles of avoidance, reduction, reuse and recycling. • The Materials Management Plan would: - Identify the waste streams that would be generated during construction - Detail for each of the identified waste streams: o its waste classification o how and where the waste is to be reused, recycled, stockpiled or disposed o the receptacles that would be used for storing identified waste materials prior to reuse, recycling, stockpiling or disposal o how, and by whom, the waste would be transported between generation, storage and point of reuse, recycling, stockpiling or disposal (including maintenance of a waste management register) o specify the methods to be used for monitoring the implementation of the Materials Management Plan	Contractor	Pre-construction

Impact	Environmental safeguards	Responsibility	Timing
	○ comply with the requirements of the PoEO Act for any non-licensed as well as licensed waste activities that involve the generation, storage and/or disposal of waste ○ identify the need or otherwise for Section 143 notices to be obtained from landowners of sites where waste is to be deposited ○ comply with any relevant NSW Resource Recovery Exemptions when applying waste to land. • The Resource Management Hierarchy principles of the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) are to be adopted in the Materials Management Plan, as follows: - unnecessary resource consumption is to be avoided as a priority - generation of excess materials is to be avoided as a priority - resource recovery including the reuse of materials, reprocessing, recycling, and energy recovery would be implemented throughout construction - disposal is only to be undertaken as a last resort. • Reuse opportunities for the proposal would be considered within the Materials Management Plan and may include: - re-use of recovered aggregates and excavated road materials in road construction in accordance with Roads and Maritime pavement specifications - weed free topsoil may be stockpiled and reused on batters or in landscape works and revegetation works - excavated natural material may be sent offsite to a place that can legally accept this material for reuse or reprocessing. To facilitate future re-use, excavated natural material should not be mixed with any other types of waste - virgin excavated natural material may be sent offsite to a place that can legally accept this material for reuse or reprocessing. To facilitate future re-use, virgin excavated natural material should not be mixed with any other types of waste. • The Materials Management Plan is to include the following as a minimum: - all wastes, including contaminated wastes, would be identified and classified in accordance with *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (NSW Environment Protection Authority, 1999). - excavated material that is not suitable for on-site reuse or recycling would be transported to a site that may legally accept that material for reuse or disposal - green waste that could not be reused during revegetation works would be transported to an appropriate waste depot for recycling. - non-weed species would be mulched for onsite reuse wherever possible, in preference to transportation off-site - putrescible and other waste, such as chemical waste that cannot be recycled, would be regularly collected and disposed of at an appropriate disposal site - other recyclable wastes would be separated and transported to a suitable recycler - contaminated wastes would be disposed of at an appropriate waste facility		

Impact	Environmental safeguards	Responsibility	Timing
	- should unanticipated contaminated material be found during excavation activities, a procedure would be developed as part of the CEMP to manage the contaminated material in terms of rehabilitation requirements, waste classification, transport and disposal requirements. Such a procedure would include, as appropriate, the obtaining of appropriate licences and approvals from OEH prior to disposal of a contaminated waste generated by the proposal, and notification to the operators of the appropriately licensed disposal site - at the end of the construction period, unused fuel, oils and chemicals would be removed from the site - construction waste material would not be left on-site once the works have been completed - rubbish loads being transported from the site for disposal would be covered to prevent the spread of waste - portable, self-contained toilet and washroom facilities would be provided on-site and would be regularly emptied and serviced by the contractor providing them - excavated flexible and concrete pavement would be recycled where possible. - roadside materials (guideposts, guard rails) would be recycled or reused where possible - working areas would be maintained, kept free of rubbish and cleaned up at the end of each working day.		
Materials use	• Where reasonable and feasible, procure materials with recycled content or re-use materials for road construction and maintenance such as recycled aggregates in road pavement and surfacing (including crushed concrete, granulated blast furnace slag, glass, slate waste and fly ash). This measure forms part of Transport's implementation of the NSW Government's *Waste Reduction and Purchasing Policy*.	Contractor	Construction
Construction waste	• The Materials Management Plan would be implemented for all stages of construction. • The Materials Management Plan would be regularly reviewed and revised as necessary. • Wastes would be properly managed during construction in a way that it is consistent with the principles of avoidance, reduction, reuse and recycling.	Contractor	Construction

6.9 Cumulative impacts

Cumulative impacts are caused by the compounding effects of individual elements within the proposal and other external projects in close vicinity. Transport is required under the EP&A Act and Clause 228(o) of the EP&A Regulation to assess the potential for the proposal to have any cumulative environmental effects with other existing or likely future activities.

When considered in isolation, a particular impact from one project may be considered minor, but when the impact of multiple projects on the same receivers is considered, the impacts can be more substantial.

Another type of cumulative impact is 'construction fatigue'. Construction fatigue relates to receivers that experience construction impacts from various projects over a long period with few or no breaks between construction periods. Construction fatigue typically relates to amenity impacts from consecutive or 'back-to-back' construction of projects.

The impacts associated with the construction and operation of the proposal and other relevant projects are the subject of this Section of the Addendum REF. This is provided as an update to the assessment completed for the Project REF in 2015, with reference to the most current publicly available information.

6.9.1 Methodology

This assessment of cumulative impacts focuses on the key environmental issues that are assessed in detail in Sections 6.1– 6.8.

The following websites were searched for recent or proposed projects near the proposal site:

- Department of Planning, Housing and Infrastructure (DPHI)
- Central Coast Council
- Transport for NSW

The identification of projects for consideration was based on the following criteria:

- The project size – all major projects or developments (as advertised on the website of the above organisations) planned within the study area were considered, as well as several smaller local projects of relevance to this proposal
- Impact on the regional road network – given the importance of the Pacific Highway for north–south connectivity, projects that would impact regional traffic flows were considered
- The project timeframe – the construction timeframes of relevant projects were taken into consideration with regard to potential overlap between projects.

As per Section 3.3, construction of the proposal is expected to commence in late 2026 or early 2027 and take 2.5 years to complete.

6.9.2 Projects considered

Wyong Hospital Expansion

The NSW Government is investing $200 million to redevelop Wyong Hospital and an additional $6.4 million to expand the Wyong Cancer Day Unit. The redevelopment would significantly increase the Central Coast's health capacity and meet the community's growing healthcare needs. The first two phases of the Wyong Hospital Redevelopment were completed in 2021 and 2022, respectively. Construction of the final phase, which involves the expansion of various facilities, began in 2024 and is expected to be completed in 2025, hence it is unlikely to result in cumulative impacts with the proposal.

Warnervale Town Centre

Flagged in the Project REF, the Warnervale Town Centre development remains in a planning phase, with parts of the project progressing at different rates and specific timelines for construction yet to be confirmed. The area has been designated a major future growth hub, with significant residential development already underway. Central Coast Council's Greater Warnervale Structure Plan lays out the vision for the area, anticipating a population of around 57,000 by 2041. The plan includes infrastructure needs, such as roads, public transport, and community and commercial facilities to be built over a number of years.

Future Rail Upgrade

The Future Rail Upgrade, which aims to expand the Main North Railway line, is part of a long-term plan to improve rail capacity and support increased freight and passenger services. In the study area the proposal includes the construction of a new track running to the west of the existing lines, between the rail corridor and the Pacific Highway, as well as a new bridge over the Wyong River. This new bridge would be positioned to the west of the current rail bridge. Transport for NSW has not provided a specific timeline for the project's commencement or completion. However, it is considered highly unlikely that this project would coincide with the proposal.

Rail Infrastructure Upgrades Project – Wyong Railway Station

Transport for NSW is upgrading and modifying rail infrastructure across NSW as part of Mariyung and Regional Rail fleet projects. Station and rail infrastructure upgrades and modifications are needed to accommodate the new rail fleets. Site investigations were undertaken within the rail corridor at Wyong in 2024 to inform the final scope of work. The proposed modification has identified future signalling upgrades. This may occur in parallel with rail enabling works in the next 12-18months although no date is set. This work is part of the existing operational rail corridor and would not likely increase environmental impacts and would occur during routine shutdowns when the enabling works also occur. It is not likely to have any impact on the remaining project works.

Woolworths Wyong Regional Distribution Centre Expansion

Woolworths Group Pty Ltd is seeking a $67 million expansion of the Woolworths Wyong Regional Distribution Centre in Warren Road, Warnervale. This project includes significant extensions to the existing facility, such as additional warehouse space, banana ripening rooms, a truck maintenance and wash facility, and expanded parking and hardstand areas. The application for this development was publicly exhibited between May and June 2022. It has undergone reviews, with responses to stakeholder feedback addressing environmental, traffic, and noise concerns. Pending planning approvals, construction is expected to commence in 2025.

6.9.3 Potential cumulative impacts

The potential cumulative impacts of the proposal are consistent with those assessed in the Project REF. Below is a summary of potential cumulative impacts for the construction and operation phases.

Traffic and transport impacts

Overlap of construction activities associated with this proposal and the projects listed in Section 6.9.2 could potentially result in cumulative impacts for users of the existing road network as well as those living and working in the vicinity of the proposal area, including:

- An increase in construction vehicles on roads within the proposal area, contributing to elevated traffic volumes
- The potential for temporary shifts of traffic movements from roads within the proposal area to alternative routes, particularly during peak periods as motorists try to avoid congestion caused by road works
- Temporary disruptions, delays to traffic flow, and property access impacts resulting from measures such as lane reductions, speed restrictions, additional spoil and truck movements, and temporary road closures
- Reduced connectivity for pedestrians and cyclists due to temporary road closures, creating safety risks and inconvenience
- Impacts on public transport reliability and scheduling along roads within the proposal area, due to altered traffic patterns caused by construction activities.

Considering the nature, timing and location of the projects identified in Section 6.9.2, it is unlikely that the additional traffic or potential for disruption would be significant enough to be noticeable above the disruption caused directly by the proposal works itself. With the implementation of traffic management measures as identified in Section 6.2, the potential cumulative impacts are not likely to be significant.

Socio-economic impacts

Cumulative socio-economic activities caused by the compounding effects of the proposal and other nearby projects may positively and negatively affect the local community.

Generation of noise, vibration and traffic due to the construction of multiple projects may lead to adverse socio-economic impacts. Additionally, temporary or permanent changes to local road networks may create barriers within the Wyong community, limiting connectivity between neighbourhoods. Considering the nature, timing and location of other projects identified in Section 6.9.2, the potential cumulative impacts are not likely to be significant.

During the construction phase of the proposal, retail and food and beverage premises located adjacent to the proposal area would attract increased trade from construction workers. Multiple projects under construction in similar timeframes would be likely to generate employment opportunities, benefiting both local workers and local businesses that might supply goods and services to the proposal.

Once operational, socio-economic benefits could be achieved through time savings/efficiencies gained by freight and private and public transport as a result of the expected road layout efficiencies and reduced congestion after completion of the proposal. Wyong would remain a convenient commercial location for passing drivers to stop, providing ongoing socio-economic benefits to local businesses in and around the proposal area.

Landscape character and visual impacts

The proposal, combined with other developments, would alter the visual landscape and character of the local area. This provides an opportunity to coordinate the urban design elements of the proposal, and the projects listed in Section 6.9.2, to facilitate optimum landscape character and visual amenity outcomes.

6.9.4 Safeguards and management measures

The mitigation measures presented in Table 6-38 would be implemented to manage cumulative impacts.

Table 6-38 Cumulative impacts safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Cumulative impacts	~~Roads and Maritime~~ Transport would undertake ongoing consultation with the ~~Department of Planning and Environment~~ Department of Planning, Housing and Infrastructure (DPHI) and ~~Wyong Shire Council~~ Central Coast Council to coordinate project planning where possible.	Transport	Pre-construction Construction
~~Cumulative impacts~~	~~Works would be staged to avoid and minimise impacts along the entire length where possible.~~	~~Contractor~~	~~Construction~~
Cumulative impacts –works in the rail corridor	Transport would consult with the Rail Infrastructure upgrades team when scheduling works within the rail corridor to ensure no overlap of work or to investigate opportunities to undertake works jointly during planned rail shutdowns.	Transport	Pre-construction
Cumulative impacts - traffic	The contractor would investigate the program for major development projects to the north and south of Wyong for consideration in developing the Traffic Guidance Scheme (TGS) for the proposal's construction.	Contractor	Pre-construction

7. Environmental management

7.1 Environmental management plans

A number of safeguards and management measures have been identified to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposed modification. Should the proposed modification proceed, these management measures would be addressed if required during detailed design and incorporated into the Project Environmental Management Plan (PEMP) and Contractors Environmental Management Plan (CEMP) and applied during the construction and operation of the proposed modification.

7.2 Summary of environmental safeguards and management measures

Environmental safeguards and management measures for the Pacific Highway upgrade through Wyong Town Centre are summarised in Table 7-1. Changes to safeguards and management measures identified in this Addendum REF are identified as follows:

- Deleted text is shown as ~~strikethrough~~
- New text is underlined.

The safeguards and management measures would be incorporated into the detailed design phase of the proposed modification, the CEMP and the PEMP and implemented during construction and operation of the proposed modification, should it proceed. These safeguards and management measures would minimise any potential adverse impacts arising from the proposed works on the surrounding environment.

Table 7-1 Summary of safeguards and management measures

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
1.	General	• All environmental safeguards must be incorporated within the following documents: - Detailed design stage - Contract specifications for the proposal - Contractor's Environmental Management Plan	Project manager	Pre-construction
2.	General	• The environmental contract specification G36, G38 and G40 must be forwarded to the ~~Roads and Maritime Services~~ Transport Senior Environmental Officer for review at least 10 working days prior to the tender stage. • A contractual hold point must be maintained until the CEMP is reviewed by the ~~Roads and Maritime Services~~ Transport Senior Environmental Officer.	Project manager	Pre-construction
3.	General	• The ~~Roads and Maritime Services~~ Transport Project Manager must notify the ~~Roads and Maritime Services~~ Transport Senior Environmental Officer ~~Greater Sydney Program Office~~ at least five days prior to work commencing.	Project manager	Pre-construction
4.	General	• All businesses and residences likely to be affected by the proposed works must be notified at least five working days prior to the commencement of the proposed activities.	Project manager	Pre-construction
5.	General	• Environmental awareness training must be provided, by the contractor, to all field personnel and subcontractors.	Contractor	Pre-construction Construction
6.	Construction related disruption	• A Communications Strategy would be prepared for the proposal to detail ongoing communication and notification procedures and processes throughout construction. • The Communications Strategy would include a complaint handling procedure and register and a 24-hour contact number.	Contractor	Construction
7.	Construction related disruption	• Affected residents and businesses would be notified of the progress of the works and advised in advance (e.g. by letterbox drop, meetings with individuals) of any anticipated changes in noise emissions or access arrangements prior to each construction stage.	Contractor	Construction
8.	Construction related disruption	• Where temporary changes to access arrangements for residents and businesses are necessary, the contractor would advise owners and tenants and consult with them in advance with regard to alternative access arrangements. • ~~Construction staging related to the Rose Street bridge would be planned in consultation with the Wyong Race Club and Baker Park management.~~ • Construction staging with potential direct and indirect impacts on the Wyong Race Club and Baker Park would be planned in consultation with the management of these facilities.	Contractor	Pre-construction Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
9.	Property acquisition	• Early and ongoing communication and consultation would be undertaken with property owners, business owners and residents regarding the property acquisition process.	Transport	Detailed design
10.	Property acquisition	• All property valuations and acquisitions would be carried out in accordance with ~~the *Land Acquisition Information Guide* (Roads and Maritime Services, 2014)~~ *A Guide to Property Acquisition in NSW* (NSW Government, 2022) and the *Land Acquisition (Just Terms Compensation)* Act 1991.	Transport	Detailed design
11.	Impacts to local businesses	• A business impact strategy would be developed during detailed design to engage directly with businesses in Wyong and identify appropriate measures to minimise impacts during construction. The strategy would identify construction management requirements, mitigation measures for localised disruption and opportunities to promote ongoing awareness of Wyong as a place to visit and stay during any construction changes.	Transport	Detailed design
12.	Construction workforce	• Transport would encourage the construction contractor to provide opportunities for local workers in the contract for this proposal.	Transport	Pre-construction Construction
13.	Construction traffic impacts	• A construction traffic management plan (CTMP) would be prepared prior to construction and would be included in the Construction Environmental Management Plan. • The CTMP would: – Identify the traffic management requirements during construction, including night work safety management – Describe the general approach and procedures to be adopted when producing specific traffic control plans – Determine temporary speed restrictions to ensure safe driving environment around work zones – Provide for access to local roads and properties, including the use of temporary turnaround bays and temporary alternate access arrangements where appropriate – Include methods for implementing the traffic management plan and minimising road user delays – Provide for appropriate warning and advisory signposting – Provide measures for consulting and informing the local community and other stakeholders (i.e. emergency services, bus operators, local businesses) of impacts on the local road networ – Consider other developments in the wider area that may also be under construction, to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic.	Contractor	Detailed design

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
14.	Construction traffic impacts	• For each stage of construction, detailed ~~Traffic Management Plans (TMPs)~~ Traffic Guidance Schemes (TGSs) would be developed and implemented. These would be prepared in accordance with the ~~Traffic Control and Work Sites, version 4.0 (Roads and Maritime, June 2010)~~ *Traffic Control at Work Sites version 6* (Transport for NSW, 2022a) (Transport for NSW, 2022a) and QA Specification G10 Control and Traffic (Transport for NSW, 2020) • Provision for emergency services passage through construction zones would be considered in all ~~Traffic Management Plans~~ TGSs.	Contractor	Construction
15.	Change to property access	• Owners of properties impacted during construction road closures would be notified prior to the commencement of construction adjacent to or in the vicinity their property and would be advised to use alternative routes during the construction period. Property owners would also be consulted regarding temporary access arrangements to their properties.	Contractor	Detailed design Operation
16.	Change to bus stops and services	• Bus operators would be consulted regarding relocated or removed bus stops and changed interchange and access arrangements ten days prior to changes. • A community engagement plan would be implemented to keep the community, including public transport operators, informed of any upcoming activities that may affect public transport operations.	Contractor	Construction
17.	Pedestrian and cyclist access	• Pedestrian and cyclist access (including crossing facilities) would be maintained where possible and separated from work areas at all times. • Safe pedestrian access to the Rose Street commuter car park would be provided for all stages of construction.	Contractor	Construction
18.	Wayfinding - construction	• Appropriate signage and wayfinding strategy for pedestrian and cyclist access during construction would be developed and implemented. • Temporary lighting on paths would be investigated and provided where current road lighting is insufficient. • ~~A signage strategy would be developed to guide road users to the new commuter car park facilities and transport interchange.~~	Contractor	Construction
19.	Wayfinding - operation	• A wayfinding and signage strategy would be developed, including identifying appropriate signage to advise road users of changed access to Wyong Town Centre, parking and other facilities and points of interest.	Transport	Detailed design
20.	Cyclist safety	• Cyclists would be considered when implementing temporary traffic arrangements, particularly at night.	Contractor	Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
21.	Short term closure of Rose Street bridge	• Any short-term closure of Rose Street bridge would be planned in advance for appropriate times by consultation with the community, Sydney Trains and ~~Wyong Shire~~ Central Coast Council • Diversions via Panonia Road and Pollock Avenue would be established during any short-term closure to maintain access to Baker Park	Contractor	Construction
22.	Damage to roads from construction traffic	• Dilapidation surveys of local roads around the proposal would be undertaken before and after construction. • Damage to local roads beyond standard wear and tear as a result of construction traffic would be repaired.	Contractor	Construction
23.	Traffic management	• During the initial operation phase, traffic signals and other traffic management measures would be actively monitored and adjusted as needed to ensure optimal performance and address any unforeseen traffic issues.	Transport	Operation
24.	On-street parking	• A review of on-street parking would be carried out during detailed design, in consultation with Central Coast Council, including consideration to a separate Kiss and Ride location on the Pacific Highway.	Transport	Detailed design
25.	Public safety and security	• A safety and security assessment would be undertaken during detailed design to identify locations for CCTV camera's, lighting and help points.	Transport	Detailed design
26.	Pedestrian crossings	• To enhance pedestrian safety at the traffic signals at Church Street, additional measures such as pedestrian count-down timers and a raised platform intersection would be investigated during detailed design.	Transport	Detailed design
27.	On-street parking	• Consultation with Central Coast Council would occur prior to construction to discuss options for implementing temporary daytime parking restrictions.	Transport	Pre-construction
28.	General construction impacts on flora and fauna	• Prepare a Construction Flora and Fauna Management Plan, including weed management, and ensure that it is integrated with the landscape plan for the proposal. • Limit of work temporary fencing is to be established. • Pre-clearing processes are to be undertaken in accordance with the ~~Roads and Maritime Biodiversity Guidelines: Guide 4 – Clearing of vegetation and removal of bushrock (Roads and Traffic Authority, 2011)~~ *Transport Biodiversity Management Guideline: Guide 4 – Clearing of vegetation and removal of bushrock* (Transport for NSW, 2024). • Construction access tracks, compound facilities and construction areas along the road verge are to be located in previously cleared or disturbed areas wherever possible.	Contractor	Pre-construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
29.	Risk to threatened species habitat	• Implement a Construction Erosion and Sediment Control Plan or Soil and Water Management Plan, in accordance with *the Blue Book* (Landcom, 2004). • Manage stormwater to ensure that the existing hydrology of wetlands within and adjoining the proposal area is maintained, including periodic drying to prevent colonisation by *Gambusia holbrookii*. • Where possible, habitat trees and hollow bearing trees are to be retained throughout the proposal area. • A microbat management plan would be developed and implemented prior to commencement of construction. • Options for providing microbat roosting habitat would be investigated during detailed design.	Transport	Pre-construction
30.	Mature and hollow bearing trees	Conduct an updated survey for mature and hollow bearing trees outside of identified EEC during detailed design, to inform the proposal's biodiversity offset requirements using mitigation measures outlined in Transport's *Tree and Hollow Replacement Guidelines* (Transport for NSW, 2023a).	Transport	Detailed design
31.	Minimise impacts of the proposal on Endangered Ecological Communities (EECs) and ~~State Environmental Planning Policy no. 14 wetlands~~ Coastal Wetlands	• Where possible, retain vegetation that contains EECs present in the proposal area and adjacent sites. • Offsetting for impacts on EEC vegetation would be investigated using the NSW Biodiversity Offsets Scheme in accordance with the ~~Roads and Maritime Guideline for Biodiversity Offsets (Roads and Maritime, 2011)~~ Transport's *Biodiversity Policy* (Transport for NSW, 2024)and the *Biodiversity Assessment Method* (NSW Department of Planning, Industry & Environment, 2020).	Transport Contractor	Pre-construction
32.	Site specific environmental induction	• All staff working on site are to undertake a site-specific environmental induction. The induction is to include items such as: - sensitivity of surrounding vegetation (particularly EECs, remnant and riparian vegetation) - site environmental procedures (vegetation management, sediment and erosion control protective fencing and noxious weeds) - what to do in case of emergency (chemical spills, fire or fauna encountered) - key contact in case of environmental incident - details of threatened flora species and risk of myrtle rust.	Contractor Transport	Pre-construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
33.	Minimise risk of establishment and spread of invasive species and disease due to the proposed development activities	• The use of pesticides in weed control is to be minimised to reduce threat to fauna species. • Inspection and maintenance procedures are to be implemented to reduce the carriage of weed material on machinery. • Install no-go zones to control the movement of vehicles, and human traffic, around areas of native vegetation. • All pathogens (e.g. Chytrid, Myrtle Rust and Phytophthora) are to be managed in accordance with the ~~Roads and Maritime~~ *Biodiversity Management Guidelines~~s~~ - Guide 7 (Pathogen Management)* (Transport for NSW, 2024), *Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi (for Phytophthora)* (NSW Department of Environment & Climate Change, 2008), and *Myrtle rust response 2011: Preventing spread of Myrtle Rust in bushland and OEH Interim management plan for Myrtle rust in bushland* (NSW Office of Environment and Heritage, 2011). • Declared noxious weeds are to be managed according to requirements under the *Noxious Weeds Act 1993* and *Guide 6 (Weed Management)* of the ~~Roads and Maritime Biodiversity Guidelines (2011)~~ *Biodiversity Management Guidelines* (Transport for NSW, 2024).	Contractor	Construction
34.	Flora and fauna encountered	• If unexpected, threatened fauna or flora species are discovered, stop works immediately and follow the Unexpected Threatened Species Finds Procedure in the ~~Roads and Maritime Biodiversity Guidelines~~ *Biodiversity Management Guidelines - Guide 1 (Pre-clearing process)* (Transport for NSW, 2024). • WIRES is to be consulted if any injured fauna are encountered as outlined in site specific environmental inductions. • Fauna handling must be carried out in accordance with the requirements the ~~Roads and Maritime Biodiversity Guidelines~~ *Biodiversity Management Guidelines - Guide 9 (Fauna Handling)* (Transport for NSW, 2024).	Contractor	Construction
35.	Re-establishment of any native vegetation disturbed or removed by the proposal	• Revegetate or replant disturbed areas progressively to minimise erosion activity. • Revegetation and replanting are to be carried out in accordance with the ~~Roads and Maritime Biodiversity Guidelines~~ *Biodiversity Management Guidelines* (Transport for NSW, 2024).	Contractor	Pre-construction Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
36.	Impacts on aquatic habitat	• Consideration of operational water quality controls, particularly south of Cutler Drive, would be undertaken during detailed design, in accordance with the *Policy and guidelines for fish habitat conservation and management* (NSW Department of Primary Industries, 2013). • Establish erosion and sediment control measures, including in-stream control structures, prior to works commencing in the vicinity, and retain them until the ground is stable or turbidity levels match adjoining river water. • Temporary limit of work fencing is to be established for riparian vegetation to limit the clearing as much as possible. • Measures to manage fish passage on the Wyong River during construction would be included in the Construction Environmental Management Plan (CEMP). • If blockage of fish passage on the Wyong River is required, a permit in accordance with Section 220 of the Fisheries Management Act 1994 must be obtained. • Progressive revegetation of the riparian zone would incorporate plantings of locally indigenous mature trees, bushes and grasses where possible. • Appropriate bank protection would be installed on the Wyong River underneath the new bridges where revegetation is unlikely to be suitable.	Transport	Detailed design Construction
37.	Erosion generated by the new ~~bridges~~ bridge over the Wyong River	• Detailed design would consider options to minimise potential erosion and scour impacts associated with the bridge construction and operation.	~~Detailed design~~ Transport Construction contractor	Detailed design Construction
38.	Erosion and sedimentation	• A Soil and Water Management Plan (SWMP) would be prepared for the proposal in accordance with the principles and practices detailed in *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) (the Blue Book). • The SWMP would be developed by a ~~Roads and Maritime~~ Transport registered soil conservationist or a certified practitioner in erosion control in accordance with the principles and practises detailed in *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) and in consultation with relevant government agencies and Central Coast Council. • The SWMP would form part of the CEMP and would be supported by a qualified and experienced soil conservationist.	Construction contractor	Pre-construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
39.	Erosion and sedimentation	• The SWMP would contain as a minimum the following elements: - Site-specific Erosion and Sedimentation Control Plans (ESCPs), including detailed consideration of staging and management at ancillary sites, in accordance with the Blue Book. - Identification of site conditions or construction activities that could potentially result in erosion and associated sediment runoff. - Methods to minimise potential adverse impacts of construction activities on the water quality within surrounding waterways. - Details of measures to minimise any adverse impacts of sedimentation on the surrounding environment. - Details of measures to minimise soil erosion caused by all construction works, including clearing, grubbing and earthworks. - Details of measures to make site personnel aware of the requirements of the SWMP by providing information within induction, toolbox and training sessions. - Details of the roles and responsibilities of personnel responsible for implementing the SWMP. - Details of measures for the inspection and maintenance of construction phase water treatment devices and structures.	Construction contractor	Pre-construction
40.	Groundwater	• A Groundwater Management Plan (GMP) would be prepared for the proposal in accordance with the *Groundwater Assessment Guideline* (Transport for NSW, 2024) and the *Guideline for assessing the impacts of treated water discharge from licenced construction sites* (Transport for NSW, 2022). • Any dewatering activities would be undertaken in accordance with the guidelines in a manner that prevents pollution of waters.	Construction contractor	Pre-construction Construction
41.	Interaction between Acid Sulfate Soils (ASS) and new bridge structures	• Detailed design would consider the presence of ASS and the potential impact on the new bridge structures over the Wyong River. • The SWMP would include a procedure to manage Potential ASS (PASS)/ASS in accordance with the *Acid Sulfate Soils Assessment Guidelines* (Acid Sulfate Soils Management Advisory Committee, 1988).	~~Detailed design~~ Transport Construction contractor	Detailed design Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
42.	Impacts on construction water quality	• Water quality control measures are to be used to prevent any materials (e.g. concrete, grout, sediment, etc.) entering drain inlets. • Spills of oil, fuel, chemicals, etc., are to be contained and cleaned up immediately in accordance with spill response procedures. • Construction plant is not to be washed down or cleaned outside of formal containment structures (e.g. wash bay). • No stockpiles of materials or storage of fuels or chemicals would be located within the 20-year ARI flood zone, and where located within the 100-year ARI flood zone, they are to be protected by an appropriate secondary control measure. • Environmental incidents, such as pollution spills and unauthorised vegetation clearing, would be reported and managed in accordance with the ~~Roads and Maritime Environmental Incident Classification and Reporting Procedure (Roads and Maritime, 2018~~ *Environmental Incident Procedure* (Transport for NSW, 2021c).	Construction contractor	Construction
43.	Impacts on operation water quality	• The proposed operational water quality treatment measures would be further refined during detailed design. • All operational water quality treatment designs would be forwarded to the ~~Roads and Maritime~~ Transport Environment Officer for comment and approval prior to the commencement of construction.	~~Roads and Maritime~~ Transport	Detailed design

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
44.	Disturbance of contaminated land	• A Contaminated Land Management Plan (CLMP) would be developed to comply with the *Contaminated Land Management Act 1997* and relevant EPA guidelines in relation to disturbance or treatment of potentially contaminated land. • The CLMP would detail the following: - Contaminated land legislation and guidelines including any relevant licences and approvals to be obtained. - Identification of locations of known or potential contamination and preparation of a map showing these locations. - Procedure for identifying contamination by monitoring for: o Discolouration or staining of soil. o Bare soil patches both on-site, and off-site adjacent to site boundary. o Visible signs of plant stress. o Presence of drums or other waste material. o Presence of stockpiles or fill material. o Soil vapour risk assessments o Odours. - Unexpected Finds Procedure to address the management of potentially contaminated material if encountered during works. - Include measures to identify and manage acid sulphate soils. - Protect the environment by implementing control measures to divert surface runoff away from the contaminated land. - Capture and manage any surface runoff contaminated by exposure to the contaminated land. - Manage the remediation and subsequent validation of the contaminated land, including any certification required. - A process for reviewing and updating the plan. - Additional investigations to confirm potential presence of contamination on proposed ancillary sites would be undertaken prior to construction commencing. - Where contaminated soils are identified and disturbed by construction activities as part of bulk excavation and disposed off-site to an appropriately licensed waste facility, a Remediation Action Plan (RAP) would not be required. If soils from potentially contaminated areas are proposed to be reused within the proposal area, a RAP and validation report would be required to demonstrate that potential contamination has been delineated and removed.	Construction contractor	Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
45.	Disturbance of asbestos bearing materials	• The CLMP would include an Asbestos Management Plan, to be developed in accordance with ~~the *Roads and Maritime Services Asbestos Management Plan* (2013)~~ Transport's *Asbestos in Soils Management Procedure (December 2024)* and *s429 of the Workplace Health and Safety Regulation 2017 (NSW).* • If previously unidentified asbestos contamination is discovered during construction, work in the affected area would cease immediately, and an investigation must be undertaken and report prepared to determine the nature, extent and degree of the asbestos contamination. Reporting must be in accordance with the relevant EPA and WorkCover Guidelines and include the proposed methodology for the remediation of the asbestos contamination. • Remediation activities must not take place until receipt of the investigation report by an occupational health professional. • Works may only recommence upon receipt of a validation report from a suitably qualified contamination specialist that the remediation activities have been undertaken in accordance with the investigation report and remediation methodology.	Construction contractor	Construction
46.	Potential soil vapour risk	• An assessment would be undertaken during detailed design to assess soil vapour risk in relation to the proposed construction works occurring between North Road and Anzac Avenue. The assessment would consider disturbance of potentially contaminated soils impacted from underground petroleum storage structures located on the western side of the proposal upgrade.	~~Roads and Maritime~~ Transport	~~Detailed design~~ Concept design
47.	Contamination	• Localised soil remediation in areas expected to be impact by excavation for the proposal, should be carried out in the lead hotspot within the railway corridor south of the station and the area impacted by Poly Aromatic Hydrocarbons (PAHs) adjacent to the former service station (now redeveloped) south of the North Road intersection on the Pacific Highway.	Construction contractor	Construction
48.	Management of contaminated waste	• Additional assessment is to be undertaken for soils requiring off-site disposal to ensure the correct waste classification is determined. Excavated material that is not suitable for on-site reuse or recycling, such as contaminated material should be transported to a site legally able to accept that material. • A classification system should be used to control the excavation, stockpiling and disposal of all potentially contaminated materials. Soils should be classified (where possible) in-situ prior to excavation or when stockpiled during excavation, depending on available time and room for stockpile areas. Any unexpected finds should follow the same procedures. • If groundwater is encountered during construction, it would be managed and disposed of in accordance with legislation.	Construction contractor	Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
49.	Risk of spills and leaks	• Vehicles and machinery should be properly maintained to minimise the risk of fuel/oil leaks. Routine inspections of all construction vehicles and equipment should be undertaken for evidence of fuel/oil leaks. • All fuels, chemicals and hazardous liquids should be stored within an impervious bunded area in accordance with Australian standards and EPA guidelines. • Any on-site refuelling would occur in a designated area with impervious surfaces.	Construction contractor	Construction
50.	Introduction of new built elements	• Opportunities for the inclusion of more planting in the large open areas of car parking would be considered during detailed design in order to improve visual amenity, and lighting to ensure user safety. • Options for the finish of the railway station retaining wall and the Rose Street commuter car park would be investigated during detailed design to achieve an outcome that discourages graffiti, avoids reflective glare and reduces the overall visual impact of the structures. A planting zone would be provided at the base of the wall to provide visual screening. • During detailed design, opportunities to further improve the visual appearance of the bridges over Wyong River would be explored. Road barriers and bridge parapet designs would also be addressed to minimise visual impacts. • The design of the bridges over Wyong River would be further developed during detailed design to consider the integration of the design of the headstocks and piers due to the high visibility from nearby local road. • The walkway and railway station entrance design would be well considered and designed as an architectural landmark aligning with the character of the town centre. • The lighting design along the Pacific Highway and lighting on the proposal in general would be developed in detailed design to consider suitable furniture types and placement. • During detailed design opportunities to minimise the visual impacts from the drainage works in Apex Park would be explored. • Opportunities for the inclusion of weather relief structures between Rose Street commuter car park and Wyong Railway Station would be considered at detailed design as part of the urban design to compensate for longer walking distances. Lighting would be upgraded to improve amenity and safety. • Where feasible, large walls should be set back to provide landscaped edges to visually soften their height, with tall shrubs breaking up the visual expanse of the walls. In locations where there is a pedestrian interface, wall treatments which provide interest and support the non-Aboriginal and Aboriginal cultural themes of the Wyong area should be implemented. • The gradients of engineered slopes would be designed with reduced grades or benches to encourage the establishment of vegetation and allow for ongoing maintenance during operation (for example, to the batter at the eastern side of the Rose Street bridge to the commuter car park).	Transport	Detailed design

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing

51.	Landscape character and visual impact	• A detailed landscape plan would be prepared for the proposal. The landscape plan would build on the findings of the UDLVIA (AECOM, 2024)and would include detailed set out, species and planting guides.
		• ~~The final landscape plan would include as many mature Canary Island Date Palms as possible within the upgraded town centre.~~
		• The final landscape plan would select tree species for placemaking characteristics, including:
		  ○ using some deciduous species to allow light to pedestrian spaces in winter and shade in summer
		  ○ potentially planting a similar feature palm species to the existing Canary Island Date Palms at the Church Street intersection and station forecourt to replace the existing characteristic palms within the town centre
		  ○ the inclusion of a larger street tree along verges between the intersections along the Pacific Highway in the business centre. This tree species should be low maintenance and able to provide shade and amenity for the footpaths and parking areas once established.
		• Proposed formal plantings within central Wyong Town Centre (between Church Street and the Rose Street bridge) would consider using feature shrubs that provide seasonal interest to public open spaces.
		• Proposed trees and shrubs removed for the works would be replaced where space permits, in open space areas away from the business centre (at the northern and southern approaches) and planted in a scattered pattern to mimic the natural setting.
		• The final landscape plan would include appropriate measures for the reinstatement of the historic milestone marker.
		• Transport would continue to consult Central Coast Council on the development of the final landscape plan including suitable species for use in street plantings.
			~~Construction contractor~~ Transport	~~Pre-construction~~ Detailed design

52.	Reduction of landscape character and visual amenity	• Landscape screening would be created where feasible; particularly to screen views of the railway, retaining wall structures and boundary fences. • Revegetation by planting or seeding of the median would be undertaken where median widths permit. Species should be endemic and frangible.	Construction contractor	Pre-construction / construction
53.	Landscape character and visual impact	• Existing healthy mature trees, particularly north and south of the business centre would be retained and protected and shown as such on construction drawings, where reasonable and feasible, with particular care to protect trees directly adjacent or just within the proposal boundary or works ~~Vegetation clearing along the proposal corridor would be minimised where possible,~~ This includes areas along the Wyong River banks and established trees within Riverside Park and Apex Park or areas where temporary works and laydowns and construction areas for permanent works are located.	Construction contractor	Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
54.	Construction visual impacts	• The visual impact of construction site areas would be minimised through the careful planning and positioning of temporary offices, other plant and material laydown areas. • Specific management of lighting and potential for light spill within the identified construction site compounds. • All construction generated litter/waste would be disposed of at an appropriate waste bin/facility.	Construction contractor	Construction
55.	Construction noise and vibration impacts	• A Construction Noise and Vibration Management Plan (CNVMP) would be prepared. The plan would provide details of noise and vibration management measures and procedures to be undertaken during construction to minimise and manage noise impacts on sensitive receivers, including: - Noise and vibration monitoring and reporting requirements - A map showing the locations of all sensitive receivers - Specific mitigation treatments, management methods and procedures to be implemented to control noise and vibration during construction - Construction timetabling to minimise noise impacts including time and duration restrictions, respite periods and frequency - Procedures for notifying residents, business owners, schools and other sensitive receivers of construction activities likely to affect their amenity through noise and vibration - Contingency procedures to be implemented in the event of non-compliances and/or noise complaints.	Contractor	Pre-Construction Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
56.	Construction noise and vibration impacts	• Considerations for the CNVMP include: – Use quieter and less noise/vibration emitting construction methods where feasible and reasonable – Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be limited/avoided where possible – Where vibration intensive equipment is used within the minimum working distances identified, determine whether alternative construction methodology or less vibration intensive equipment can be used – The CEMP must be regularly updated to account for changes in noise and vibration management issues and strategies. – The noise levels of plant and equipment must have operating sound power or sound pressure levels compliant with the criteria in Appendix H of the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b). – Implement a noise monitoring audit program to ensure equipment remains within the more stringent of the manufacturer's specifications or Appendix H of the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b). – The noise levels of plant and equipment items are to be considered in rental decisions and in any case, cannot be used on site unless compliant with the criteria in Table 2 of the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b). – Use only the necessary size and power of plant and equipment. – Limit the use of engine compression brakes at night and in residential areas. – Ensure vehicles are fitted with a maintained original equipment manufacturer exhaust silencer or a silencer that complies with the *National Stationary Exhaust Noise Test Procedures for In-service Motor Vehicles* (National Transport Commission, 2006) and any relevant reference standards. • Stationary noise sources should be enclosed or shielded where feasible and reasonable whilst ensuring that the occupational health and safety of workers is maintained, referencing Appendix D of Australian Standard AS2436: Guide to Noise and Vibration Control on Construction, demolition and Maintenance Sites (Council of Standards Australia , 2010) for materials suitable for shielding.	Contractor	Pre-Construction Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
57.	Construction vibration impacts	• A vibration assessment is to be prepared and included in the CNVMP. The vibration assessment is to include: - Assessment of the potential vibration impacts on sensitive receivers due to vibration - Detail which sensitive receivers would have building condition surveys - Outline a monitoring program. • Where there is a potential for vibration to impact on sensitive receivers: - Potentially impacted residents would be informed of the nature and duration of works and provided contact details for the contractor. - Compliance vibration monitoring would be undertaken and documented in accordance with the CNVMP procedures. In the case that exceedances are detected, the situation would be reviewed in order to identify means to minimise the impacts to residences. - In terms of human comfort criteria, measures may include modifications of construction methods and respite periods. • Noise and vibration generating activities with impulsive, tonal or low frequency characteristics (such as jack hammering, rock breaking, rock hammering, vibratory rolling) should only be carried out: - in continuous blocks, up to but not exceeding three hours each - with a minimum respite period of one hour between each block.	Contractor	Construction
58.	Construction hours	• Where reasonable and feasible, works would be undertaken within Interim Construction Noise Guideline (ICNG) recommended working hours • Where works are required to be undertaken outside of recommended working hours, all appropriate approvals would be obtained prior to works, and all affected receivers would be notified of all relevant details relating to the works • Noisy activities that cannot be undertaken during standard construction hours would be scheduled as early as possible during the evening and/or nighttime periods. • Any out of hours works would comply with G36 community notification requirements and the mitigation measures specified within ~~Roads and Maritime's Construction Noise and Vibration Guideline (April 2016)~~ *Construction Noise and Vibration Guideline* (Transport for NSW, 2023b).	Contractor	Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
59.	Operational noise mitigation	• During the detailed design stage of the proposal, further investigations of all feasible and reasonable mitigation options would be undertaken in the following order of priority: - Road design and traffic management - Quieter pavement surfaces - At-property treatments. • Where practicable, any mitigation measures provided to control operational noise impacts would be implemented in the construction schedule as early as practicable to also provide a benefit during some of the construction phase.	Transport	Pre-construction
60.	Noise and vibration	• All relevant noise and vibration management measures would be incorporated into site inductions for all employees, contractors and sub-contractors. The environmental component may be covered in toolboxes and should include: - Relevant licences and approval conditions - Permissible hours of work - Location of nearest sensitive receivers - Construction employee parking areas - Designated loading/unloading areas and procedures - Site opening/closing times.	Contractor	Pre-construction and construction
61.	Construction noise	• The environmental induction program would include specific noise and vibration issues awareness training including, but not limited to, the following: - Avoiding use of radios during work outside normal hours - Avoiding shouting and slamming doors - Where practical, operating machines at low speed or power and switching off when not being used rather than left idling for prolonged periods - Minimising reversing - Avoiding dropping materials from height and avoiding metal to metal contact on material.	Contractor	Pre-construction and construction
62.	~~Noise and vibration~~	• ~~All plant and equipment are to be maintained to ensure optimum running conditions, with periodic monitoring.~~	~~Contractor~~	~~Construction~~

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
63.	~~Noise and vibration~~ Construction compound	• Consider construction compound layout so that primary noise sources are at a maximum distance from sensitive receivers (primarily residential receivers), with solid structures (sheds and containers) placed between sensitive receivers and noise sources (and as close to the noise sources as is practical). • Locate compressors, generators, pumps and any other fixed plant as far from residences as possible and behind site structures. • Alternatives to reversing alarms reversing alarms would be considered for site compound equipment subject to OHS compliance requirements and risk assessments. • Vehicle delivery times would be scheduled where feasible to the recommended construction hours to minimise noise impacts from heavy vehicle movements and deliveries.	Contractor	Pre-construction and construction
64.	~~Noise and vibration~~	• ~~Locate compressors, generators, pumps and any other fixed plant as far from residences as possible and behind site structures.~~ • ~~Alternatives to reversing alarms reversing alarms would be considered for site compound equipment subject to OHS compliance requirements and risk assessments.~~ • ~~Vehicle delivery times would be scheduled where feasible to the recommended construction hours to minimise noise impacts from heavy vehicle movements and deliveries.~~	~~Contractor~~	~~Construction~~
65.	~~Noise and vibration~~	• ~~Use quieter and less noise/vibration emitting construction methods where feasible and reasonable~~ • ~~Plant used intermittently would be throttled down or shut off when not in use~~ • ~~Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be limited/avoided where possible~~ • ~~The offset distance between noisy plant and adjacent sensitive receivers is to be maximised where practicable~~ • ~~Noise-emitting plant to be directed away from sensitive receivers where possible~~ • ~~Where vibration intensive equipment is used within the minimum working distances identified, determine whether alternative construction methodology or less vibration intensive equipment can be used~~	~~Contractor~~	~~Construction~~
66.	~~Noise and vibration~~	• ~~Where practicable, any mitigation measures provided to control operational noise impacts would be implemented as early as practicable to also provide a benefit during some of the construction phase.~~	~~Contractor~~	~~Construction and operation~~

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
67.	Noise and vibration monitoring	• The following approach would be adopted with regard to noise monitoring procedures during the construction works. - Where potential noise impacts are predicted to be 20 to 30 dB(A) above the RBL, the potential construction noise nuisance is considered to be moderate. Noise monitoring would be carried out to confirm predicted noise impacts within two weeks of commencement of construction. Reasonable and feasible noise reduction measures would be investigated, where necessary. - Where potential noise impacts are predicted to be more than 30 dB(A) above the RBL, the potential construction noise nuisance is considered to be high. All reasonable and feasible noise control measures would be implemented prior to the commencement of construction works. Noise compliance monitoring for all major equipment and activities on the sites would be undertaken prior to their commencement of work on site. Noise levels during construction would be monitored and where exceeded, further noise reduction measures (where reasonable and feasible) would be implemented e.g. restrict working hours, use silencing equipment.	Contractor	Pre-construction and construction
68.	Noise and vibration`	• Building condition surveys would be undertaken for buildings within 50 m of construction works. A copy of the report would be sent to the landholder. • In the case that exceedances are detected for noise and vibration monitoring, the activities would be reviewed in order to identify means to minimise impacts to residents and the appropriate changes made and the NVMP updated accordingly.	Contractor	Pre-construction and construction
69.	Temporary noise impacts from known traffic diversions	• An assessment of temporary noise impacts from key traffic diversions is to be undertaken during the detailed design phase. This will require that additional traffic counts are undertaken on all diversion roads, including the following: - Johnson Road - Gavenlock Road - McPherson Road - Howarth Street - Warner Avenue - Ithome Street - Rose Street. • Traffic counts are to occur before the beginning of any construction works (including early works) for the proposal.	Transport, Contractor	Pre-construction
70.	~~Greenhouse Gas (GHG) emissions~~	• ~~Specify construction materials with lower emissions intensity in the detailed design (e.g. recycled steel in place of virgin steel) where engineering and other technical specifications can be met, and the alternative is reasonable and feasible.~~	~~Designer contractor~~	~~Detailed design Construction~~

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
71.	~~GHG emissions~~	~~• Plant and equipment would be switched off when not in use.~~ ~~• Vehicles, plant and construction equipment would be appropriately sized for the task and properly maintained so as to achieve optimum fuel efficiency.~~ ~~• Materials would be delivered with full loads and would come from local suppliers, where possible.~~	~~Contractor~~	~~Construction~~
72.	Impact of increased flood events	• Detailed design would take the effect of climate change on the proposal into consideration, including for the drainage design.	~~Roads and Maritime~~ Transport	Pre-construction
73.	Climate change	• Implement adaptation actions from the pre-screening CCRA as a part of detailed design and construction.	Transport Contractor	Detailed design Construction
74.	GHG emissions	• Develop a Carbon Management Plan (CMP) in accordance with *Decarbonising Infrastructure Delivery Policy and Measurement Guidance* (Infastructure NSW, 2024). Ensure the CMP is reviewed throughout detailed design and pre-construction to refine specific energy and material requirements for low emissions and material waste. • Example safeguards within the CMP may include: - Opportunities to use low emission construction materials, such as recycled aggregates in road pavement and surfacing, and cement replacement materials would be investigated and incorporated where feasible and cost-effective. ~~- Design street lighting to optimise lamp wattages and types within compliance limits, minimise waste light and reduce overall scheme energy consumption.~~ - Energy efficiency and related carbon emissions would be considered in the selection of vehicle and plant equipment. - Locally produced goods and services would be procured where feasible and cost effective to reduce transport fuel emissions.	Transport Contractor	Detailed design Construction ~~Pre-construction~~
75.	GHG emissions	• Material selection would consider products with lower energy requirements in processing and handling where feasible.	Contractor	Construction
76.	GHG emissions	• Develop a Sustainability Management Plan that supports the Transport Sustainability Plan 2021 and incorporates the Baseline Sustainability Requirements established to provide a consistent set of objectives, targets and supporting initiatives to deliver sustainable outcomes across Transport's eight sustainability focus areas.	Contractor	Construction
77.	Increased flooding during construction	• Construction ancillary facilities are to be located above the 20-year Average Recurrence Interval (ARI) flood level unless a contingency plan to manage flooding is prepared, approved by ~~Roads and Maritime~~ Transport and implemented.	Contractor	Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
78.	Temporary blocking of fish passage during construction	• Construction staging and erosion and sediment controls would ensure that fish passage is maintained at all times. • Temporary work platforms for bridge construction must be designed to maintain fish passage. If impacts are considered possible, early consultation with Department of Primary Industries - Fisheries is required. • If blockage of fish passage on the Wyong River is required, a permit in accordance with Section 220 of the *Fisheries Management Act 1994* must be obtained.	Contractor	Construction
79.	Increased flooding at McPherson Road	• To offset the expected flood level increases, it would be necessary to demolish the existing buildings and lower the terrain at 204-206 and 210 Pacific Highway, Tuggerah. During detailed design the grading levels required to convey flood waters towards the river would be examined further.	~~Roads and Maritime~~ Transport	Detailed design Construction
80.	Impacts on heritage items during construction	• A Non-Aboriginal Heritage Management plan would be prepared and included in the CEMP. This plan would include but not be limited to the following: - A map identifying locations of items or sites within and around the proposal site. - Identification of potential environmental risks/impacts due to the works/activities - Mitigation measures to avoid risk of harm and the interface with work activities on site. - Identification in toolbox talks where management of non-Aboriginal heritage is required such as identification of no-go zones and responsibilities under the *Heritage Act 1977*. • Requirement to comply with the ~~Roads and Maritime Standard Management Procedure: Unexpected Heritage Items (2015)~~ *Unexpected Heritage Items Procedure* (Transport for NSW, 2022b).	Contractor	Construction
81.	Unexpected impacts on non-Aboriginal heritage values	• Should archaeological material be unexpectedly uncovered during construction, all works are to cease within the vicinity of the material/find and the steps in the ~~Roads and Maritime Standard Management Procedure: Unexpected Heritage Items (2015)~~ *Unexpected Heritage Items Procedure* (Transport for NSW, 2022b) must be followed. ~~Roads and Maritime~~ Transport Environment staff must be contacted immediately.	Contractor	Construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
82.	Impact on the historic significance of Canary Island Palms	• ~~A suitably qualified arborist would be appointed to prepare a management strategy for the translocation of the Canary Island Palms along the Pacific Highway.~~ • ~~The Canary Island Palms management strategy would be submitted to the Roads and Maritime Transport Environmental Officer for approval prior to construction commencing~~. • ~~Canary Island Palms would be included in the final streetscape design for the Wyong town centre.~~ • The *Historic Heritage Assessment and Statement of Heritage Impact* (Australian Museum Consulting, 2015) prepared for the Project REF would be updated in the next design phase to reassess the impact of the loss of Canary Island Palms to the town centre on the basis that relocation of existing palms is not feasible and investigate alternative options for mitigation.	Contractor Transport	Pre-construction
83.	Impact on the heritage milestone	• The heritage milestone on the Pacific Highway would be removed prior to the commencement of construction at that location and stored securely in accordance with ~~Roads and Maritime~~ Transport requirements. • The milestone would be reinstated during the landscape works and finishing works in accordance with the Landscape and Urban Design Strategy.	Contractor	Construction
84.	Demolition of the Warner Shops	• Archival photographic recording of the interior and exterior of the Warner Shops and the former Station Master's Cottage and their immediate and broader environment would be undertaken before the demolition work commences. • Archival recording would be undertaken in accordance with *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office, 2006)). • Copies of the archival records would be deposited with the ~~Wyong Shire Council~~ Central Coast Council local heritage collection and Sydney Trains heritage office. • Formal notice to ~~Wyong Shire Council~~ Central Coast Council and Sydney Trains would be undertaken to advise the intention to demolish local and Section 170 heritage items.	Contractor Transport	Pre-construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
85.	Loss of heritage buildings and features	• An interpretation strategy would be developed and implemented to mitigate the loss of the former Station Master's Cottage, Warner Shops, the former Wyong Produce Store Group, and the visual and physical separation of the Wyong Station Group from the Wyong Town Centre, as well as the original rail bridge over the river. • The interpretation strategy should include the interpretation of the Produce Store Group within the design for the public facilities adjacent to the proposed Rose Street commuter car park. The interpretation should: - Interpret the industrial history of Wyong, in particular the role of timber-getting in the development of the town; the inter-relationship of the O'Neil and Goldsmith Saw Mill within the railway and produce store; and the role of D'Arcy Rose in the development of Wyong. - Include reference to the Store in the broader historical development of Wyong. • ~~Roads and Maritime~~ Transport would consult with the private owner of the Hawke scales in regard to potentially including the scales as part of the proposal's interpretation strategy. • The strategy should include further research into the elements of visible machinery and motor generators as well as any that may remain beneath the warehouse floor, or otherwise concealed, to identify and determine their value and inclusion in the interpretation. • ~~Roads and Maritime~~ Transport would continue to consult with ~~Wyong Shire Council~~ Central Coast Council and Sydney Trains during detailed design and construction.	Transport	Pre-construction
86.	~~Potential for archaeological relics associated with the 1887 rail bridge at Wyong River~~	• ~~An Archaeological Research design that includes a strategy for managing archaeological relics would be prepared and submitted to the Heritage Council of NSW prior to construction commencing.~~ • ~~A Section 140 Excavation Permit or exception under Section 139(4) of the *Heritage Act 1977* would be obtained from the Heritage Council of NSW.~~	~~Contractor~~	~~Pre-construction~~
87.	Non-Aboriginal heritage -former rail siding	• Detailed design of the proposed Rose Street commuter car park would consider exploring the full extent of the railway siding as it extends toward the railway and toward the Wyong Racecourse. Where possible, non-intrusive methods would be adopted in determining the full extent of the siding. • The design of the commuter car park is to consider the feasibility of retaining the tracks within the car park surface and to include signage that would indicate the function and destination of the original siding to the O'Neil and Goldsmith Saw Mill. • The location of the commuter car park and associated facilities, such as a shelter building, would be optimised during detailed design to accommodate the retention of the weighbridge and rail siding in-situ, as far as practicable.	Contractor	Detailed design

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
88.	Non-Aboriginal heritage – former Produce Store	• Archival photographic recording of the interior and exterior of the buildings that represent the former Wyong Produce Store would be undertaken before demolition commences. • The recording would include a recording of the immediate and broader environment and association with the railway. • Archival recording would be undertaken in accordance with *Photographic Recording of Heritage Items Using Film or Digital Capture* (NSW Heritage Office, 2006).	Contractor	Construction
89.	Unexpected finds	• The CEMP would include the responsibility for all construction staff to be observant as to the potential presence of Aboriginal cultural heritage material when working on site. • In the event of an unexpected find of Aboriginal cultural heritage, work would cease in the affected area and ~~Roads and Maritime Standard Management Procedure - Unexpected Heritage Items (2015)~~ *Unexpected Heritage Items Procedure* (Transport for NSW, 2022b)would be implemented. ~~Roads and Maritime~~ Transport Environment Manager would be notified immediately.	Contractor	Pre-construction Construction
90.	Impacts on local air quality during construction	• Prepare a Construction Air Quality Management Plan (CAQMP) as part of the CEMP. This Plan must show the locations of all potentially affected properties and residences on a map and provide details of air quality control measures to be undertaken during construction, including: - air quality and dust management objectives consistent with OEH guidelines. - potential sources and impacts of dust, identifying all dust sensitive receptors. - an environmental risk assessment to address potential impacts and mitigation measures to minimise dust impacts to sensitive receivers and to the environment. - mitigation measures to be implemented, including measures during weather conditions where high dust episodes are likely (such as strong winds in dry weather). - a monitoring program to assess compliance with the identified objectives. - a progressive stabilisation/ rehabilitation strategy for disturbed surfaces with the aim of minimising exposed surfaces. - contingency plans to be implemented in the event of non-compliances and/or complaints about dust. - procedures for regularly reviewing the effectiveness of the CAQMP.	Contractor	Pre-construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
91.	Impacts on local air quality during construction	• The CAQMP is to be followed and updated as required for the duration of construction works. • Construction plant and equipment is to be maintained in order to ensure exhaust emissions comply with applicable regulations (POEO Act). Emissions controls used on vehicles and construction equipment would comply with standards listed in Schedule 4 of the *Protection of the Environment Operations (Clean Air) Regulation 2010.* In addition, plant would be operated in a proper and efficient manner. • Controlling truck speed and movements onsite and restrict trucks to designated roadways. • Modifying or stopping construction activities during periods of high wind, if necessary. • Vehicle loads involving loose materials are to be covered when travelling off-site. • Implementing control measures, such as compaction or stabilisation, in order to minimise dust from stockpile sites, work areas and exposed soils. • Regularly inspecting and maintaining erosion control structures to ensure silt does not become a source of dust. • Maintaining all equipment for dust control to keep it in good operating condition. The equipment would be operable at all times with the exception of shutdowns required for maintenance.	Contractor	Construction
92.	Property acquisition	• All property acquisition would be undertaken in accordance with the *Land Acquisition (Just Terms) Compensation) Act 1981*.	Transport	Pre-construction
93.	Temporary commuter parking south of Wyong Railway Station	• ~~Site of former heritage buildings is only to be used for temporary commuter facilities during Stage 1.~~ • The community consultation strategy is to contain a notification strategy that appropriately addresses the temporary nature of any proposed parking and provides details of the final plans for this area.	Transport Contractor	Construction
94.	Property acquisition and impacts on Council land	• Consultation with Central Coast Council would be ongoing through detailed design and construction regarding works in Riverside Park and the new open space area on the south bank of the Wyong River.	Transport	Pre-construction
95.	Impact on ancillary sites	• All ancillary sites are to be restored to pre-existing conditions or to a condition agreed with the landowner, at the completion of construction.	Contractor	Construction
96.	Disruption to utility services during construction	• Residents are to be informed prior to any interruptions to utility services that may be experienced as a result of utilities relocations.	Contractor	Pre-construction Construction
97.	Relocation of sensitive utilities	• Consultation with Jemena, and other utility providers, would continue through detailed design to ensure satisfactory protection of assets is achieved.	Transport	Detailed design

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
98.	Handover of assets	• Transport would continue to engage with and consider and address feedback from Central Coast Council throughout detailed design, including on infrastructure, built assets, and urban design and landscape elements that would be handed over to council for ongoing maintenance in the operational phase. • Transport would prepare an asset handover plan with as-built drawings addressing council's feedback where feasible and reasonable	Transport	Detailed design Post construction
99.	Construction waste	• A Materials Management Plan would be prepared by the construction contractor as part of the CEMP prior to the commencement of relevant site works. The Materials Management Plan is to ensure that wastes are properly managed during construction in a way that it is consistent with the principles of avoidance, reduction, reuse and recycling. • The Materials Management Plan would: - Identify the waste streams that would be generated during construction - Detail for each of the identified waste streams: o its waste classification o how and where the waste is to be reused, recycled, stockpiled or disposed o the receptacles that would be used for storing identified waste materials prior to reuse, recycling, stockpiling or disposal o how, and by whom, the waste would be transported between generation, storage and point of reuse, recycling, stockpiling or disposal (including maintenance of a waste management register) o specify the methods to be used for monitoring the implementation of the Materials Management Plan o comply with the requirements of the PoEO Act for any non-licensed as well as licensed waste activities that involve the generation, storage and/or disposal of waste o identify the need or otherwise for Section 143 notices to be obtained from landowners of sites where waste is to be deposited o comply with any relevant NSW Resource Recovery Exemptions when applying waste to land. • The Resource Management Hierarchy principles of the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) are to be adopted in the Materials Management Plan, as follows: - unnecessary resource consumption is to be avoided as a priority - generation of excess materials is to be avoided as a priority - resource recovery including the reuse of materials, reprocessing, recycling, and energy recovery would be implemented throughout construction - disposal is only to be undertaken as a last resort.	Contractor	Pre-construction

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
		• Reuse opportunities for the proposal would be considered within the Materials Management Plan and may include: - re-use of recovered aggregates and excavated road materials in road construction in accordance with Roads and Maritime pavement specifications - weed free topsoil may be stockpiled and reused on batters or in landscape works and revegetation works - excavated natural material may be sent offsite to a place that can legally accept this material for reuse or reprocessing. To facilitate future re-use, excavated natural material should not be mixed with any other types of waste - virgin excavated natural material may be sent offsite to a place that can legally accept this material for reuse or reprocessing. To facilitate future re-use, virgin excavated natural material should not be mixed with any other types of waste. • The Materials Management Plan is to include the following as a minimum: - all wastes, including contaminated wastes, would be identified and classified in accordance with *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (NSW Environment Protection Authority, 1999). - excavated material that is not suitable for on-site reuse or recycling would be transported to a site that may legally accept that material for reuse or disposal - green waste that could not be reused during revegetation works would be transported to an appropriate waste depot for recycling. - non-weed species would be mulched for onsite reuse wherever possible, in preference to transportation off-site - putrescible and other waste, such as chemical waste that cannot be recycled, would be regularly collected and disposed of at an appropriate disposal site - other recyclable wastes would be separated and transported to a suitable recycler - contaminated wastes would be disposed of at an appropriate waste facility - should unanticipated contaminated material be found during excavation activities, a procedure would be developed as part of the CEMP to manage the contaminated material in terms of rehabilitation requirements, waste classification, transport and disposal requirements. Such a procedure would include, as appropriate, the obtaining of appropriate licences and approvals from OEH prior to disposal of a contaminated waste generated by the proposal, and notification to the operators of the appropriately licensed disposal site - at the end of the construction period, unused fuel, oils and chemicals would be removed from the site - construction waste material would not be left on-site once the works have been completed		

No.	Impact	Environmental safeguards and management measures	Responsibility	Timing
		- rubbish loads being transported from the site for disposal would be covered to prevent the spread of waste - portable, self-contained toilet and washroom facilities would be provided on-site and would be regularly emptied and serviced by the contractor providing them - excavated flexible and concrete pavement would be recycled where possible. - roadside materials (guideposts, guard rails) would be recycled or reused where possible - working areas would be maintained, kept free of rubbish and cleaned up at the end of each working day.		
100.	Materials use	• Where reasonable and feasible, procure materials with recycled content or re-use materials for road construction and maintenance such as recycled aggregates in road pavement and surfacing (including crushed concrete, granulated blast furnace slag, glass, slate waste and fly ash). This measure forms part of Transport's implementation of the NSW Government's *Waste Reduction and Purchasing Policy*.	Contractor	Construction
101.	Construction waste	• The Materials Management Plan would be implemented for all stages of construction. • The Materials Management Plan would be regularly reviewed and revised as necessary. • Wastes would be properly managed during construction in a way that it is consistent with the principles of avoidance, reduction, reuse and recycling.	Contractor	Construction
102.	Cumulative impacts	• ~~Roads and Maritime~~ Transport would undertake ongoing consultation with the ~~Department of Planning and Environment~~ Department of Planning, Housing and Infrastructure (DPHI) and ~~Wyong Shire Council~~ Central Coast Council to coordinate project planning where possible.	Transport	Pre-construction Construction
103.	~~Cumulative impacts~~	• ~~Works would be staged to avoid and minimise impacts along the entire length where possible.~~	~~Contractor~~	~~Construction~~
104.	Cumulative impacts –works in the rail corridor	• Transport would consult with the Rail Infrastructure upgrades team when scheduling works within the rail corridor to ensure no overlap of work or to investigate opportunities to undertake works jointly during planned rail shutdowns.	Transport	Pre-construction
105.	Cumulative impacts - traffic	• The contractor would investigate the program for major development projects to the north and south of Wyong for consideration in developing the Traffic Guidance Scheme (TGS) for the proposal's construction.	Contractor	Pre-construction

7.3 Licensing and approvals

All relevant licenses, permits, notifications and approvals needed for the Pacific Highway upgrade through Wyong Town Centre and when they need to be obtained are listed in Table 7-2. Additional or changed licenses and approval requirements identified in this Addendum REF are indicated by underlined and/or struck out font.

Table 7-2 Summary of licensing and approval required

Instrument	Requirement	Timing
Protection of the Environment Operations Act 1997	Part 1 of Schedule 1 of the POEO Act details the triggers for an EPL for 'premises-based activities'. Clause 35 of Schedule 1 details the triggers for road construction activities, and states that: The proposed modification is likely to require the extraction of more than 50,000 tonnes of materials (as described in Section 3.3.4). As a result, it is anticipated that an EPL would be required for the proposed modification.	Prior to the commencement of construction.
Roads Act 1993	An applicable road occupancy licence would be required. A road occupancy licence allows the proponent to use a specified road space at approved times, provided certain conditions are met. The licence applies to the occupation of the 'road space' only and does not imply permission or approval for the actual (physical) works being undertaken. Under Sections 79-81 of the *Roads Act 1993*, ~~Roads and Maritime~~ Transport must carry out public consultation for a proposed bridge across navigable waters, in accordance with the requirements of the Act.	An applicable road occupancy licence would need to be in place prior to the commencement of construction. ~~Concurrent with the public display of the REF~~ Prior to construction commencement or during construction as required. Section 79 of the *Roads Act 1993* provides public consultation requirements and states that a 28-day notice period is required.
Water Management Act 2000 and Regulations	The proposal would meet the requirements for needing 'controlled activity' approval given that there would be works within 40 metres of 'waterfront land'. However, under clause 38 of the Water Management (General) Regulation 2004, ~~Roads and Maritime~~ Transport is exempt from the requirement to obtain a 'controlled activity' approval. Notification of the activity to ~~DPI Water (the former NSW Office of Water)~~ NSW Natural Resources Access Regulator (NRAR) is required. If groundwater extraction is required, an aquifer interference approval would be required for the work under Section 91F of the Water Management Act 2000.	A notification of the activity would need to be provided to ~~DPI Water~~ NRAR at least 30 days before the activity commences. Prior to construction commencement or during construction as required.
Fisheries Management Act	In accordance with Section 199 of the Fisheries Management Act 1994, Roads and Maritime would be required to give the Minister written notice and would have to consider any matters raised by the Minister in order to carry out any dredging or reclamation work. If fish passage is to be blocked, a permit would be required under Section 220(1) of the Fisheries Management Act 1994 prior to any works commencing. If the requirement to remove seaweed, seagrass, saltmarsh or mangroves is identified, a permit under Section 38 of the Fisheries Management Act 1994 may be required.	Notification would be given to the Minister and any matters raised by the Minister would be considered within 28 days after the giving of the notice. Prior to construction commencement or during construction as required. Prior to construction commencement or during construction as required.

Instrument	Requirement	Timing
Heritage Act 1977	Section 139 requires an excavation permit to disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation would or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. A permit is also required to disturb or excavate any land on which the person has discovered or exposed a relic. Formal notice to Wyong Central Coast Council of the intention to demolish items listed on the Wyong Central Coast LEP would be required. Formal notice to Sydney Trains heritage Division of the intention to demolish items listed on the Section 170 register would be required.	An application for a s140 permit would be made prior to demolition or excavation commencing in remaining areas of known heritage significance such as the Warner Shops complex Prior to construction commencement or during construction as required. Prior to construction commencement or during construction as required.
State Environmental Planning Policy (Transport and Infrastructure) 2021	Central Coast Council should be informed of the project and its impact on the Wyong Town Centre Conservation Area in accordance with Section 2.11 of the Transport and Infrastructure SEPP: *1) This section applies to development carried out by or on behalf of a public authority if the development—* *a) is likely to affect the heritage significance of a local heritage item, or of a heritage conservation area, that is not also a State heritage item, in a way that is more than minor or inconsequential, and* *b) is development that this Chapter provides may be carried out without consent.* *2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this section applies unless the authority or the person has—* *a) had an assessment of the impact prepared, and* *b) given written notice of the intention to carry out the development, with a copy of the assessment and a scope of works, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and* c) *taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.*	Prior to construction commencement. A 21-day notice period is required.

8. Conclusion

8.1 Justification

The Pacific Highway plays a vital role in the connectivity of Wyong Town Centre. It serves as a key link between the town centre and the residential communities to the north, and the industrial precinct and regional shopping centre to the south. The proposal is strategically driven by the significant actual and predicted increase in traffic volume as a result of sustained urban growth across the Central Coast region. As described in the Project REF, the proposal aims to enhance the efficiency and safety of freight and commuter routes along the Pacific Highway through the town centre. It seeks to improve accessibility, manage current and future traffic demands, and enhance safety for pedestrians and cyclists.

The proposed modification aligns with the strategic planning and policy frameworks outlined in Section 2 of the Project REF. It is considered consistent with the objectives stated in Section 2 of the Addendum REF.

The proposed modification, comprising a refined concept design has aligned the proposal with current design standards and incorporates improvements for multimodal connections, road user allocation, and alignment with movement and place principles. The proposed modification is not expected to increase the magnitude of environmental or social impacts. The safeguards and management measures proposed by the Project REF have been updated to better manage the environmental and social impacts of the proposal during detailed design and construction.

8.1.1 Social factors

Potential social impacts of the proposed modification including temporary disruptions and amenity impacts including noise and vibration during construction activities and landscape and visual changes. No further property acquisitions to those described in the Project REF are required. Long term benefits of the proposed modification include improved road safety, connectivity and amenity alongside an enhanced urban design.

8.1.2 Biophysical factors

The proposed modification aims to minimise impacts on biodiversity where reasonable and feasible. The modification boundary has been adjusted from the Project REF, resulting in adjustments to vegetation clearing requirements. The proposed modification would increase the total area of TEC vegetation clearing by 0.114 ha from 2.24 ha to 2.35 ha. However, assessments of significance concluded that the proposal is not likely to significantly impact threatened species.

The potential biodiversity impacts as a result of the proposed modification are generally consistent with those identified in the Project REF.

As a result of investigations conducted during detailed design, baseline groundwater levels and localised soil contamination were identified that were not previously identified by the Project REF. New safeguards have been proposed and the proposed modification is not expected to result in additional environmental or human health impacts to the approved proposal.

8.1.3 Economic factors

The approved concept design has been refined to be economically viable by optimising the use of existing infrastructure and the constructability approach, and minimising disruption to the town centre. A parking provision will be maintained in the town centre along with a wider footpath will support businesses along the Pacific Highway. Additional parking and improved access to Howarth Street via the Rose Street bridge would also support businesses on the eastern side of the railway corridor.

In operation, the proposed modification would support regional growth through the provision of safer roads and enhanced multimodal transport connectivity. Improved traffic conditions would provide better economic outcomes for commuters and road users generally.

8.1.4 Public interest

The proposed modification is considered to be in the public interest as it would support local and regional strategies for growth in the Central Coast region. The proposed modification provides for additional public space connectivity and amenity, which is in the broader public interest. The short-term and temporary impacts associated with construction are expected to be outweighed by the long-term benefits of the proposal.

8.2 Objects of the EP&A Act

Object	Comment
1.3(a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	The proposed modification would promote social and economic welfare in the Wyong community by improving road safety and connectivity to public and active transport. Where feasible, the proposal would limit the use of resources and source materials locally where possible.
1.3(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.	The proposed modification would comply with the principles of ecologically sustainable development, see Section 8.3.
1.3(c) To promote the orderly and economic use and development of land.	The proposed modification would not significantly increase the use and development of land to the approved proposal. The proposed modification would release portions of public space that previously were required for the Project, allowing for potential future business revitalisation by Central Coast Council in the town centre.
1.3(d) To promote the delivery and maintenance of affordable housing.	Not relevant to the proposal
1.3(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	The proposed modification would result in a minor increased in native vegetation clearing compared to the Project REF. However, by adopting the recommended safeguards and management measures, the proposed modification would not result in additional biodiversity impacts.
1.3(f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	The proposed modification is not expected to increase impacts to built and cultural heritage (including Aboriginal cultural heritage). A Connecting with Country Framework (Artefact Heritage, 2024) was developed for the project in consultation with Darkinjung LALC and key Aboriginal stakeholder from the Wyong area. The report provides the best practice framework for designing with Country to be implemented as part of the proposal.
1.3(g) To promote good design and amenity of the built environment.	The proposed modification refines the concept design to current standards, improves multimodal connections and road user allocation while aligning with movement and place principles
1.3(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	Not relevant to the proposed modification.
1.3(i) To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State.	Not relevant to the proposed modification.
1.3(j) To provide increased opportunity for community participation in environmental planning and assessment.	The community and relevant government agencies have been consulted on the refined concept design during the preparation of this Addendum REF.

8.3 Ecologically sustainable development

8.3.1 The precautionary principle

The precautionary principle states 'if there are threats of serious or irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation'

The assessment of potential environmental impacts arising from the proposed modification has not identified any threats of serious or irreversible environmental damage as a result of the construction or operation of the proposal. The safeguards and management measures detailed in Section 7.2 would be implemented to minimise and manage potential environmental impacts during construction and operation of the proposed modification.

8.3.2 Intergenerational equity

This principle states, 'the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations'.

The Proposal and proposed modification would result in amenity impacts for some residents of Wyong and road users; however, they would not result in any impacts that are likely to impact the health, diversity, or productivity of the environment for future generations. The proposed modification would benefit future generations by improving road safety, efficiency, and maintenance of the Pacific Highway. In addition, the proposed modification would improve the accessibility and safety of Wyong Town Centre and over Wyong River by reducing the potential for pedestrian and cyclist vehicular conflict and providing a safer and more pleasant cycling and walking environment along this main thoroughfare.

Should the Proposal and proposed modification not proceed, the principle of intergenerational equity may be compromised, as public safety may be affected by the continued regional growth increasing traffic within Wyong Town Centre.

8.3.3 Conservation of biological diversity and ecological integrity

This principle states the 'diversity of genes, species, populations and communities, as well as the ecosystems and habitats to which they belong, must be maintained and improved to ensure their survival'.

An assessment of the existing local environment has been undertaken in order to identify and manage any potential impacts of the proposed modification on local biodiversity. This is described in Section 6.3. The proposed modification would be located primarily in a disturbed urban environment with pockets of native vegetation.

The design of the proposed modification has sought to minimise impacts on vegetation where feasible. The biodiversity impacts associated with the proposed modification are consistent with the Project REF, where the proposal is not considered to have a significant impact on biological diversity and ecological integrity.

8.3.4 Improved valuation, pricing and incentive mechanisms

This principle requires 'costs to the environment should be factored into the economic costs of a project'.

The Project REF and Submissions Report as well as the 2017 Addendum REF examined the environmental impacts and benefits of the proposal and identified mitigation measures to manage the potential for adverse impacts.

Additional mitigation measures have been identified as a result of proposed modification presented in Section 7. The requirement to implement these mitigation measures would result in an economic cost to Transport. Incorporating environmental mitigation measures into the physical design and contractual requirements ensures that the costs of environmental impacts and mitigation are recognised by the proposal.

The refined concept design aims to minimise potential impacts on the surrounding environment, which indicates that the proposal is being developed with an environmental objective in mind.

8.4 Conclusion

This Addendum REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed modification.

This has included consideration where relevant, of conservation agreements and plans of management under the NPW Act, biodiversity stewardship sites under the BC Act, wilderness areas, areas of outstanding value, impacts on threatened species, populations and ecological communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the Federal EPBC Act.

A number of potential environmental impacts from the proposed modification have been avoided or reduced during the design development and options assessment. The proposed modification as described in the Addendum REF best meets the proposal objectives but would still result in some impacts on traffic and transport, biodiversity, soil and water quality, noise and vibration, and landscape and visual aspects. Safeguards and management measures as detailed in this Addendum REF would ameliorate or minimise these expected impacts. On completion, the proposed modification would result in positive outcomes for the community through provision of safer roads and enhanced multimodal transport connectivity. On balance the proposed modification is considered justified, and the following conclusions are made.

8.4.1 Significance of impact under NSW legislation

The proposed modification would not result in a change to the findings of the Project REF, Submissions Report and 2017 Addendum REF and would be unlikely to cause a significant impact on the environment. Therefore, it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. A Biodiversity Development Assessment Report or Species Impact Statement is not required. The proposed modification is subject to assessment under Division 5.1 of the EP&A Act. Consent from Council is not required.

8.4.2 Significance of impact under Australian legislation

The proposed modification would not likely cause a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the EPBC Act. A referral to the Australian Government Department of Climate Change, Energy, the Environment and Water is not required.

9. Certification

This Addendum review of environmental factors provides a true and fair review of the proposed modification in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed modification.

Neil Standen
AECOM Environment Manager
AECOM Australia Pty Ltd

Date: 24.02.2025

I have examined this Addendum review of environmental factors and accept it on behalf of Transport for NSW.

Ryan Massurit
Project Development Manager
Transport for NSW

Date: 28.02.2025

10. EP&A Regulation publication requirement

Respondent	Yes/No
Does this REF need to be published under Section 171(4) of the EP&A Regulation?	Yes

11. Terms and acronyms used in this Addendum REF

Term /acronym	Description
AHIMS	Aboriginal Heritage Information Management System
AMP	Asbestos Management Plan
ARI	Average Recurrence Level
ASS	Acid sulphate soils
BAR	Biodiversity Assessment Report
BC Act	*Biodiversity Conservation Act 2016 (NSW).*
BDAR	Biodiversity Development Assessment Report
BOM	Bureau of Meteorology
CAQMP	Construction Air Quality Management Plan
CCRA	Climate Change Risk Assessment
CEMP	Construction / Contractor's environmental management plan
CMP	Carbon Management Plan
CLMP	Contaminated Land Management Plan
CSIRO	Commonwealth Scientific and Industrial Organisation
CTMP	Construction Traffic Management Plan
CNVIA	Construction Noise and Vibration Impact Assessment
DSI	Detailed Site Investigation
EEC	Endangered Ecological Community
EIA	Environmental impact assessment
ESCP	Erosion and Sedimentation Control Plans
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
EPL	Environmental Protection License
ESD	Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
FM Act	*Fisheries Management Act 1994* (NSW)
GHG	Greenhouse Gas
GMP	Ground Management Plan
ICNG	Interim Construction Noise Guide

Term /acronym	Description
IPCC	Intergovernmental Panel on Climate Change
KFH	Key Fish Habitat
LALC	Local Aboriginal Land Council
LCVIA	Landscape Character Visual Impact Assessment
LCZ	Landscape Character Zone
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act.
LGA	Local Government Area
LoS	Level of Service. A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers.
Marine Safety Act	Marine Safety Act 1988
mbgl	Meters below ground level
MNES	Matters of national environmental significance under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
NCA	Noise Catchment Area
NML	Noise Management Levels
NAPL	Non-aqueous phase liquids
NPW Act	National Parks and Wildlife Act 1974 (NSW)
NVA	Noise and Vibration Assessment
OOH	Out of Hours
OOHW	Out of Hours Work
OSOM	Oversize Overmass Load Carrying Vehicles
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PAH	Polycyclic aromatic hydrocarbons
PASS	Potential acid sulphate soil
PCB	Polychlorinated biphenyls
PEMP	the Project Environmental Management Plan
PFOS	Perfluorooctanesulfonic
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
QA Specifications	Specifications developed by Roads and Maritime Services for use with road work and bridge work contracts let by Transport for NSW.
RAP	Remediation Action Plan
RBL	Rating Back Levels. An industry measurement of ambient noise levels.
RCP	Representative Concentration Pathways
REF	Review of Environmental Factors
Roads Act	*The Roads Act of 1993* (NSW)

Term /acronym	Description
Roads and Maritime	NSW Roads and Maritime was dissolved by the Transport Administration Amendment Bill in August 2019, all functions are now managed by Transport for NSW
SEED	Sharing and Enabling Environmental Data Portal (NSW)
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
SEPP (Resilience and Hazards)	State Environmental Planning Policy (Resilience and Hazards) 2021
SEPP (Transport and Infrastructure)	State Environmental Planning Policy (Transport and Infrastructure) 2021
SWMP	Soil and Water Management Plan
SRES	Special Report on Emission Scenarios
SOHI	State of Heritage Importance
TCP	Traffic Control Plan
TEC	Threatened Ecological Community
TGS	Traffic Guidance Scheme
Transport	Transport for NSW
TRH	Total recoverable hydrocarbon
TSC Act	*Threatened Species Conservation Act 1995* (NSW)
TTIA	Traffic and Transport Impact Assessment
UFP	Unexpected Finds Protocol
UDLCVIA	Urban Design and Landscape Character Visual Impact Assessment
VOC	Volatile organic hydrocarbon
WARR Act	Waste Avoidance and Resource Recovery Act 2001 (NSW)
WM Act	*Water Management Act 2000*
WRAPP	Waste Reduction and Purchasing Policy

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Appendix A - Consideration of Section 171(2) factors and matters of National Environmental Significance and Commonwealth land

Section 171(2) checklist

In addition to the requirements of the Is an EIS required guideline (NSW Department of Urban Affairs and Planning, 1995/96) and the *Roads and Related Facilities EIS Guideline* (NSW Department of Urban Affairs and Planining , 1996) as detailed in the Addendum REF, the following factors, listed in Section 171(2) of the Environmental Planning and Assessment Regulation 2021, have also been considered to assess the likely impacts of the proposed modification on the natural and built environment.

Factor	Impact
Any environmental impact on a community?	
The proposed modification would result in additional traffic and transport impacts beyond those assessed in the Project REF. During construction, impacts would be caused by reduced speed limits, increased construction vehicle movements, road closures, and altered property access. These impacts would be temporary and managed by implementing the mitigation measures outlined in Section 7.2of this Addendum REF.	Short-term negative
The proposed modification would further enhance the long-term positive impacts of the Project REF. It would improve the impacts stated in the Project REF, reducing congestion through the Wyong Town Centre, improving safety for all road users, providing capacity for projected future traffic growth, and providing space for the future rail upgrade. The proposed modification would increase the space for the cycleway and footpaths through the town centre by the re-allocation of road user space.	Long-term positive
The proposed modification would result in additional impacts beyond those assessed in the Project REF, largely due to the additional proposed modification boundary changes. The proposed modification would increase the total area of TEC vegetation clearing by 0.114 ha from 2.24 ha to 2.35 ha. However, assessments of significance concluded that the proposal is unlikely to have a significant impact and potential biodiversity impacts as a result of the proposed modification are generally consistent with those identified in the Project REF Additional clearing of native vegetation is outlined as a minor impact and would be minimised per the safeguards presented in Section 7.2.	Long-term minor negative
The proposed modification may result in additional impacts on soil and water quality, primarily due to construction activities. However, the concentrations are not expected to impede the proposed works, and the human health and environmental risks remain consistent with those identified in the Project REF. These risks can be managed through the development of a Contaminated Land Management Plan (CLMP) in compliance with the Contaminated Land Management Act 1997.	Short-term negative
Any transformation of a locality?	
During construction the proposed modification would have a short-term negative impact on the Wyong Town Centre due to construction activities. Resulting in additional access arrangements on local roads and to private properties access to the Project REF. Additional safeguards are outlined in Section 7.2 to minimise the impact.	Short-term negative
The proposed modification LCZ sensitivities would remain consistent with the Project REF. However, the magnitude of change would be higher within LCZ 4, resulting in a beneficial impact with improved parking access and parking as well as tree planting, improving the existing 'bare character' of the LCZ. A detailed landscape plan would be prepared for the proposal.	Long-term positive
Any environmental impact on the ecosystems of the locality?	
The proposed modification would involve a slight increase in native vegetation clearing due to the proposed modification boundary changes. However, the additional clearing is still consistent with the Project REF, remaining unlikely to have a significant impact. The impact of the additional clearing would be minimised through the implementation of the safeguards presented in Section 7.2.	Minor negative

Factor	Impact
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	
The proposed modification impact would remain largely consistent with the Project REF, having an increased footprint in the locality with high to moderate impacts. However, the modification would enhance traffic flow through the town centre, reducing congestion, and improving safety and facilities for cyclists and pedestrians. These improvements are expected to benefit the community. Overall, the benefits to traffic flow and safety would be consistent with the Project REF outcomes and would outweigh the loss of historic aesthetics in the town centre.	Long-term positive
Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?	
The proposed modification would not further impact Aboriginal or non-heritage sites. However, the proposed modification has implemented additional safeguards in Section 7.2 to further conserve the heritage value of the proposal area.	Neutral
Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)?	
The proposed modification would result in additional disturbance of a Freshwater Wetland area, which is potential habitat for the Wallum Froglet and Green and Golden Bell Frog Species. The area would primarily experience disturbance rather than removal and the impacts would therefore be minor, with the impacts determined not significant. Safeguards are presented in Section 7.2.	Minor negative
Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	
The proposed modification would remain consistent with the Project REF and remain unlikely to have a significant impact on protected flora or fauna. Any impacts of the proposed modification would be minimised through the implementation of the safeguards in Section 7.2.	Neutral
Any long-term effects on the environment?	
Operation of the proposed modification would remain predominantly consistent with Project REF's long-term effects. However, the proposed modification would improve the efficiency and safety of freight and commuter routes along the Pacific Highway through the town centre. It would seek to improve accessibility, manage current and future traffic demands, and enhance safety and connectivity for pedestrians and cyclists. The proposed modification would result in additional clearing of 6.4 ha of native vegetation outlined in the Project REF.	Long-term positive
Any degradation of the quality of the environment?	
The proposed modification would result in additional clearing of 0.114 ha of native vegetation outlined in the Project REF. Safeguards are presented in Section 7.2.	Minor negative
Any risk to the safety of the environment?	
The proposed modification would not present any further safety risk to the environment than that presented in Appendix A of the Project REF.	Neutral
Any reduction in the range of beneficial uses of the environment?	
The proposed modification would not result in any additional acquisition of property.	Neutral
Any pollution of the environment?	
The proposed modification may cause temporary impacts during construction, including effects on visual amenity, dust, noise, and vibration. Additionally, there could be potential impacts on groundwater quality due to erosion and sedimentation from groundworks, as well as potential oil or fuel spills from construction machinery. However, these impacts would be short-term and minimised through the implementation of the safeguards outlined in Section 7.2.	Short-term negative

Factor	Impact
Any environmental problems associated with the disposal of waste? Construction of the proposed modification would result in a number of waste streams being generated, largely consistent with the Project REF. additional mitigation measures for the proposed modification are presented in Section 3.3.5, including a Materials Management Plan, and Contaminated Management Plan. Allowing the reuse opportunities for materials and fill gained on the proposed modification to remain consistent with the Project REF.	Neutral
Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The proposed modification would require additional quantities of concrete, asphalt and steel; the additional changes in quantities are presented in Section 3.3.5. Additional safeguards for the proposed modification are presented in Section 7.2.	Short-term negative
Any cumulative environmental effect with other existing or likely future activities? The potential cumulative impacts of the proposal are consistent with those assessed in the Project REF. The potential for adverse cumulative impacts would be addressed by applying individual proposal-specific environmental safeguards and management measures as summarised in Section 7.2.	Neutral
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposed modification would remain consistent with the Project REF and not impact on coastal processes and coastal hazards. The proposed modification has included consideration of sea level rise in the design of the bridge.	Neutral
Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1. As discussed in Section 2.1, the strategic need for the proposed modification is consistent with the Project REF. Applicable plans include: • Central Coast Council Local Strategic Planning Statement • Draft Central Coast Regional Transport Plan 2041 • Central Coast Regional Plan 2041.	Long-term positive
In considering the potential impacts of the proposed modification, all relevant environmental factors have been considered. Refer to Section 8 of this addendum REF.	Nil

Matters of National Environmental Significance and Commonwealth land

Under the environmental assessment provisions of the EPBC Act, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposed modification should be referred to the Australian Government Department of Climate Change, Energy, the Environment and Water.

Under the EPBC Act strategic assessment approval a referral is not required for proposed road actions that may affect nationally listed threatened species, populations, endangered ecological communities and migratory species. Impacts on these matters are assessed in detail as part of this Addendum REF in accordance with Australian Government significant impact criteria and taking into account relevant guidelines and policies.

Factor	Impact
Any impact on a World Heritage property? The proposed modification would not impact on World Heritage properties.	Nil
Any impact on a National Heritage place? The proposed modification would not impact on a National Heritage place.	Nil
Any impact on a wetland of international importance? The proposed modification would have an additional impact (additional disturbance of 0.03 ha, from 0.14 ha to 0.17 ha) on the Freshwater Wetlands on Coastal Floodplains TEC, which is in the proximity area of a coastal wetland (Racecourse Swamp). This wetland is not listed as a wetland of internation importance. Drainage at the northern end of the proposal would drain to the wetland. The impact of the proposal on the wetland is considered to be negligible, subject to the proposed mitigation measures detailed in Section 7.2 being implemented.	Negligible
Any impact on a listed threatened species or communities? The proposed modification would increase the total area of TEC vegetation clearing by 0.114 ha from 2.24 ha to 2.35 ha. The proposed modification would increase the total area of TEC vegetation clearing in combination with the project REF by 0.114 ha from 2.24 ha to 2.35 ha. The proposed modification would see an increase in clearing requirements in the Swamp Oak Floodplain Forest of the NSW North Coast (0.08 ha), River Flat Eucalypt Forest on Coastal Floodplains (0.004 ha) and the Freshwater Wetlands on Coastal Floodplains TEC (0.03 ha). Assessments of significance concluded that the proposal is unlikely to have a significant impact. No MNES have been identified. No MNES have been identified.	Minor negative
Any impacts on listed migratory species? The proposed modification would not impact on any listed migratory species.	Nil
Any impact on a Commonwealth marine area? The proposed modification would not impact on a Commonwealth marine area.	Nil
Does the proposed modification involve a nuclear action (including uranium mining)? The proposed modification would not involve a nuclear action.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? The proposed modification would not comprise coal related development.	Nil

Appendix B - Statutory consultation checklists

Transport and Infrastructure SEPP

Certain development types

Development type	Description	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) Section
Car park	Does the project include a car park intended for the use by commuters using regular bus services?	Yes	Central Coast Council	Section 2.110
Bus depots	Does the project propose a bus depot?	No	Central Coast Council	Section 2.110
Permanent road maintenance depot and associated infrastructure	Does the project propose a permanent road maintenance depot or associated infrastructure such as garages, sheds, tool houses, storage yards, training facilities and workers' amenities?	No	Central Coast Council	Section 2.110

Development within the Coastal Zone

Issue	Description	Yes / No / N/A	If 'yes' consult with	SEPP (Transport and Infrastructure) Section
Development with impacts on certain land within the coastal zone	Is the proposal within a coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land?	No	Central Coast Council	Section 2.14

Note: See interactive map Coastal management - (nsw.gov.au). Note the coastal vulnerability area has not yet been mapped.

Note: a certified coastal zone management plan is taken to be a certified coastal management program.

Council related infrastructure or services

Development type	Potential impact	Yes / No	If 'yes' consult with the relevant local council(s).	SEPP (Transport and Infrastructure) Section
Stormwater	Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	No	-	Section 2.10
Traffic	Are the works likely to generate traffic to an extent that would strain the capacity of the existing road system in a local government area?	No	Consultation carried out as part of the Project REF and this Addendum REF.	Section 2.10
Sewerage system	Will the works involve connection to a council owned sewerage system? If so, would this connection have a substantial impact on the capacity of any part of the system?	No	-	Section 2.10
Water usage	Will the works involve connection to a council owned water supply system? If so, would this require the use of a substantial volume of water?	No	-	Section 2.10

Development type	Potential impact	Yes / No	If 'yes' consult with the relevant local council(s).	SEPP (Transport and Infrastructure) Section
Temporary structures	Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, would this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	No	Consultation carried out as part of the Project REF and this Addendum REF.	Section 2.10
Road and footpath excavation	Will the works involve more than minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	No	Consultation carried out as part of the Project REF and this Addendum REF.	Section 2.10

Local heritage items

Development type	Potential impact	Yes / No	If 'yes' consult with the relevant local council(s).	SEPP (Transport and Infrastructure) Section
Local heritage	Is there is a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than minor or inconsequential?	No	-	Section 2.11

Flood liable land

Development type	Potential impact	Yes / No	If 'yes' consult with	SEPP (Transport and Infrastructure) Section
Flood liable land	Are the works located on flood liable land? If so, would the works change flood patterns to more than a minor extent?	No	Consultation carried out as part of the Project REF and this Addendum REF.	Section 2.12
Flood liable land	Are the works located on flood liable land? (to any extent). If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance	No	Consultation carried out as part of the Project REF and this Addendum REF.	Section 2.13

Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled Floodplain Development Manual: the management of flood liable land published by the New South Wales Government.

Public authorities other than councils

Development type	Potential impact	Yes / No	If 'yes' consult with the relevant local council(s).	SEPP (Transport and Infrastructure) Section
National parks and reserves	Are the works adjacent to a national park or nature reserve, or other area reserved under the *National Parks and Wildlife Act 1974*, or on land acquired under that Act?	No	Department of Planning, Housing and Infrastructure	Section 2.15
National parks and reserves	Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	No	Department of Planning, Housing and Infrastructure	Section 2.15
Aquatic reserves and marine parks	Are the works adjacent to an aquatic reserve or a marine park declared under the *Marine Estate Management Act 2014*?	No	Department of Industry-	Section 2.15
Sydney Harbour foreshore	Are the works in the Sydney Harbour Foreshore Area as defined by the *Sydney Harbour Foreshore Authority Act 1998*?	No	Sydney Harbour Foreshore Authority-	Section 2.15
Bush fire prone land	Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional centre or group home in bush fire prone land?	No	Rural Fire Service	Section 2.15
Artificial light	Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	No	Director of the Siding Spring Observatory-	Section 2.15
Defence communications buffer land	Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in Section 5.15 of Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	No	Secretary of the Commonwealth Department of Defence	Section 2.15
Mine subsidence land	Are the works on land in a mine subsidence district within the meaning of the *Mine Subsidence Compensation Act 1961*?	No	Mine Subsidence Board	Section 2.15

SEPP (Precincts – Central River City) 2021 and SEPP (Precincts – Western Parkland City) 2021

Development type	Potential impact	Yes / No	If 'yes' consult with the relevant local council(s).	SEPP (Transport and Infrastructure) Section
Clearing native vegetation	Do the works involve clearing native vegetation (as defined in the Local Land Services Act 2013) on land that is not subject land (as defined in cl 17 of schedule 7 of the *Threatened Species Conservation Act 1995*)?	No	Department of Planning and Environment	Section 3.24

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