

Review of Environmental Factors

Curlewis St Streetscape Upgrade

Prepared for Waverley Council

February 2024



Project Director

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13 February 2024



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* This document is for discussion purposes only unless signed and dated by the Project Director.

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Table of Contents

1	Introduction	7
1.1	Purpose of report	7
1.2	Planning pathway	8
1.3	Need for the activity	8
2	Site analysis	8
2.1	Project area.....	8
2.2	Land ownership.....	11
2.3	Local context and surrounding development.....	11
2.4	Heritage context.....	12
2.5	Land use zoning	13
3	Description of the activity	14
3.1	Overview.....	14
3.2	Separated cycleway	16
3.3	Old South Head Road intersection modification	17
3.4	Amenity improvements.....	18
3.5	Construction	19
3.6	Post Finalisation Design Updates	21
3.7	Analysis of alternatives.....	22
4	Strategic context.....	24
4.1	State strategies	24
4.2	Local strategies	25
5	Statutory context.....	27
5.1	Nominated determining authority.....	27
5.2	Commonwealth legislation	27
5.3	State legislation.....	28
5.4	Local legislation	31
5.5	Approvals.....	33
6	Consultation.....	33
6.1	Previous consultation	33
6.2	Exhibition of concept plans.....	34
6.3	Additional consultation – updated design	36
6.4	Exhibition of REF	37
6.5	Post Finalisation Design Amendments	42

7	Environmental assessment and mitigation measures.....	42
7.1	Air quality	42
7.2	Water quality	43
7.3	Flooding	44
7.4	Soils and contamination	45
7.5	Biodiversity	45
7.6	Aboriginal heritage	46
7.7	Historic heritage	47
7.8	Noise and vibration	48
7.9	Social impacts.....	49
7.10	Economic impacts	50
7.11	Traffic and parking	51
7.12	Pedestrian accessibility.....	54
7.13	Safety	55
7.14	Waste	57
7.15	Climate change and greenhouse gas emissions.....	57
7.16	Streetscape impacts	58
7.17	Post Finalisation Design Amendments	58
7.18	Cumulative impacts	59
8	Summary of mitigation measures	59
9	Conclusion	63

Schedule of Figures and Tables

Figure 1. Project area aerial image	9
Figure 2. Curlewis St looking south from southern end of street	10
Figure 3. Curlewis St looking north from southern end of street.....	10
Figure 4. Existing street tree image 1	11
Figure 5. Existing street tree image 2.....	11
Figure 6. Local context map	12
Figure 7. Heritage map.....	13
Figure 8. Zoning map	14
Figure 9. 3D render of upgrades looking south	15
Figure 10. 3D render of upgrades looking north.....	16
Figure 11. Cycleway design.....	17
Figure 12. Old South Head Road intersection plan	18
Figure 13. Land use zoning map	32
Table 1 –Consideration of matters of national environmental significance.....	27
Table 2 –Factors to be considered under section 171 of EP&A Reg	29
Table 3 –Mitigation measures	59

Appendices

Appendix 1 – Site Works Drawings – Issued For Construction (Post Exhibition Update)	
Appendix 2 – Landscape Drawings (Post Exhibition Update)	
Appendix 3 – Arboricultural Impact Assessment	
Appendix 4 – Aboriginal Heritage Due Diligence	
Appendix 5 – Statement of Heritage Impact	
Appendix 6a – SIDRA Analysis – Old South Head Road Intersection	
Appendix 6b – SIDRA Analysis – Wellington Street Intersection	
Appendix 6c – SIDRA Analysis – Campbell Parade Intersection	
Appendix 6d – SIDRA Analysis – Glenayr Street Intersection	
Appendix 7 – Road Safety Audit (Post Exhibition Update)	

Certification

This Review of Environmental Factors (REF) has been prepared by Mecone Group Pty Limited on behalf of Waverley Council to take into account all matters affecting or likely to affect the environment as a result of the proposed streetscape upgrade works at Curlewis Street, Bondi Beach.

I certify that I have reviewed and endorsed the contents of this REF document, and, to the best of my knowledge, it is in accordance with the *Environmental Planning and Assessment Act 1979*, the Environmental Planning and Assessment Regulations 2021 (EP&A Regulation) and the Guidelines approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.

It is concluded that by adopting mitigation measures identified in this assessment to avoid, minimise or manage environmental impacts, the proposed activity:

- Is not likely to have a significant impact on the environment, and therefore an environmental impact statement is not required.
- Is not likely to significantly impact threatened species, populations, ecological communities or critical habitat defined under the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994*, and therefore a species impact statement is not required.
- Is not likely to affect any Commonwealth land or significantly affect any matters of national environmental significance.

Subject to implementation of the mitigation measures identified in this assessment, the proposed activity is recommended for approval.



Georgia Sedgmen
Director
Mecone Group

13 February 2024

1 Introduction

This review of environmental factors (REF) has been prepared by Mecone Group Pty Limited on behalf of Waverley Council (Council) to assess the environmental factors associated with a proposed activity under Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The proposed activity involves a full streetscape upgrade to the length of Curlewis Street to renew existing infrastructure, promote active transport, increase safety and update material finishes to enhance the sense of belonging for all users. This will involve:

- Provision of a separated cycleway.
- Streetscape upgrades, including, but not limited to, widening of footpaths, pavement upgrades, lighting upgrades.
- Removal of 20 street trees and planting of approximately 83 new trees.
- Intersection realignments, including, but not limited to, replacement of the existing left turn slip lane from Old South Head Road into Curlewis Street (left turn still permitted but controlled by traffic signals).
- Parking adjustments (net loss of approximately 5 spaces along Curlewis Street).

The project has been the subject of two rounds of community consultation—in May 2022 and November-December 2022 (as described in **Section 6** of this report), and the feedback received from the community has been incorporated into the design of the project.

The REF was publicly exhibited between 5 April 2023 and 2 May 2023. Following exhibition and finalisation, minor design amendments have been made as part of the detailed documentation to be issued for construction (IFC). The post-exhibition design amendments (detailed in Section 3.6 of this report) are minor in nature and will have no unacceptable environmental impacts. Refer also to Section 6.5 and 7.17 of the report for additional information.

1.1 Purpose of report

The purpose of the REF is to describe the proposed activity, document the likely impacts of the activity on the environment, and set out any required mitigation and management measures.

The findings of this REF are to be considered when the determining authority considers whether an environmental impact statement (EIS), species impact statement (SIS) or biodiversity development assessment report (BDAR) is required for the activity.

This REF has been prepared with consideration of *Guidelines for Division 5.1 assessments* (DPE, June 2022).

1.2 Planning pathway

The activity is development permitted without consent under section 2.109 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (TI SEPP). For further discussion regarding the planning pathway, refer to **Section 5.3.2**.

Council is the proponent for the activity. Council and Transport for NSW (TfNSW) are both determining authorities for the activity, and Council is the nominated determining authority. For further discussion, refer to **Section 5.1**.

1.3 Need for the activity

In November 2017 Council resolved to investigate the building of a separated bike path between Bondi Beach and Rose Bay Wharf. At that time Woollahra Council resolved to develop the route as a joint initiative and to seek funding from TfNSW (then RMS) to develop the proposal.

In May 2020 Council resolved to apply for a grant to the Department of Planning for the development of a bike path along Curlewis Street as part of the Bondi Beach to Rose Bay Wharf bike route.

At present, the public domain infrastructure along Curlewis Street (e.g., road pavement, footpaths, stormwater drainage, trees and streetlighting) is dated, aging and failing in some cases. As per Council's endorsed strategic asset management principles, the assets in Curlewis Street are considered "condition 4" (poor) and require renewal within 12 to 24 months to meet the agreed service levels as defined in Strategic Asset Management Plan 6 (Waverley Council, June 2022). Moreover, the street has a high number of utility service (e.g., communications, gas, water and electricity) trenches, which has led to a patchwork of finishes throughout.

Considering the above, it is warranted to carry a renewal of existing assets and to incorporate improvements to the streetscape in line with Council plans and policies, including a separated bike path.

2 Site analysis

2.1 Project area

The project area is within the road reserve of Curlewis Street in the suburb of Bondi Beach, which forms part of the Waverley Council local government area (LGA).

Figure 1 shows an aerial image of the proposal area.



Figure 1. Project area aerial image
Source: Metromap

Works are expected to be limited to government-owned road reserve. Any minor works extending onto private property will be undertaken with the permission of the land owner.

Photos of the street are provided at **Figure 2** to **Figure 5**.

As noted above, the public domain infrastructure along Curlew Street is dated and failing in some cases. Moreover, the street has a high number of utility service (e.g., communications, gas, water and electricity) trenches, which has led to a patchwork of finishes throughout. As demonstrated at **Figure 4** and **Figure 5**, some street trees have outgrown their allotted planting areas and caused damage to the surrounding footpath.



Figure 2. Curlew St looking south from southern end of street
Source: 33 Parallel



Figure 3. Curlew St looking north from southern end of street
Source: 33 Parallel



Figure 4. Existing street tree image 1
Source: 33 Parallel



Figure 5. Existing street tree image 2
Source: 33 Parallel

2.2 Land ownership

Curlew Street is owned by Council, and the neighbouring parcels of land are owned by a mix of private entities.

2.3 Local context and surrounding development

The proposal area is within the suburb of Bond Beach, a local centre of the Greater Sydney area as defined by the Eastern City District Plan (Greater Sydney Commission, 2018). Bondi Beach is an iconic recreational resource for the district and broader city and is a major tourist destination. Bondi Beach is also a residential neighbourhood, providing a mix of low and medium density residential development.

Curlew Street forms a key eastern village centre within the LGA, linking Bondi Beach to Old South Head Road. The street is fronted by a mixture of uses, including commercial premises, dwelling houses, shop top housing, residential flat buildings, tourist and visitor accommodation.

The street functions as a local commercial strip and a major transport route, servicing school and high-season public buses. The street also functions as a bike route and features high pedestrian movements.

For cyclists, Curlew Street offers a direct and relatively low-trafficked route from North Bondi Beach for those requiring access to Woollahra or Bondi Junction.

A local context map is provided at **Figure 6**,

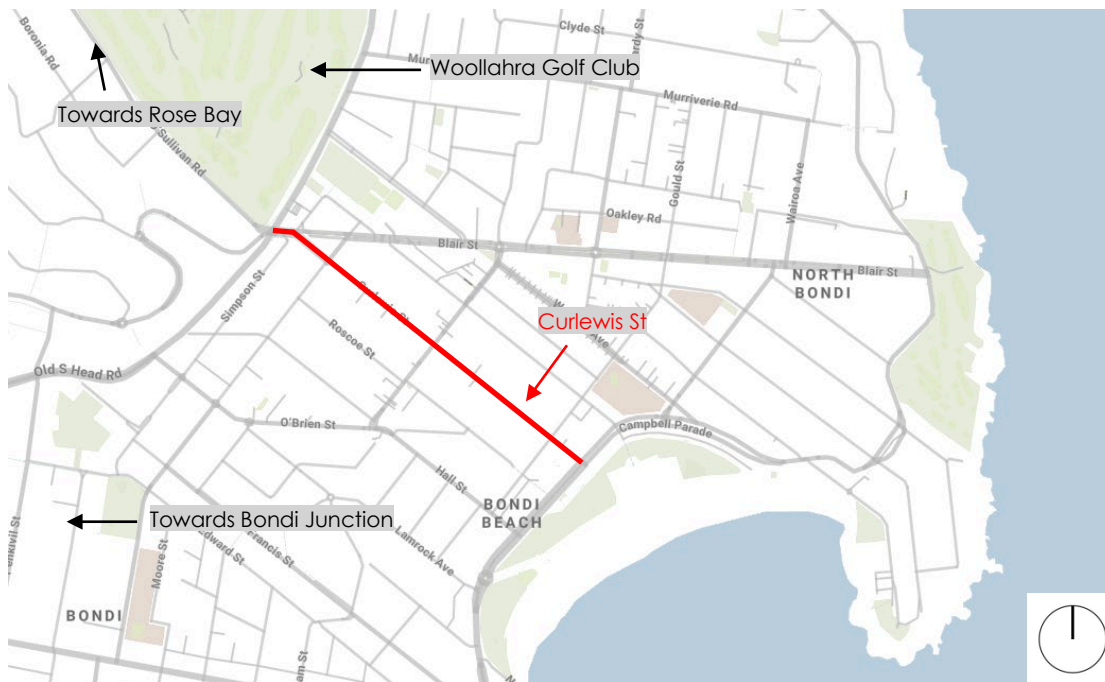


Figure 6. Local context map
Source: Mecone Mosaic

A number of notable developments along Curlewis Street have been recently approved or are currently under assessment, including:

- DA-6/2021 – 148 Curlewis Street – Construction of a 4-storey mixed use development with 2 basement levels, including 1 retail tenancy at ground level and 31 boarding house rooms above. This development has been approved, but, based on analysis of aerial imagery, works have not yet commenced.
- DA/214/2022 – 17, 19, 21 Curlewis Street – Demolition of existing buildings and construction of a commercial building with car parking. This development has been approved, but, based on analysis of aerial imagery, works have not yet commenced.
- DA-472/2022 – 141-155 Curlewis Street - Demolition of buildings and amalgamation of lots and construction of a new part 3-, part 4-storey shop top housing development with 2 levels of basement parking. This application is currently under assessment.

Also, at the time of writing, we understand that the only significant current construction project along Curlewis Street is streetscape upgrades to Glenayr Avenue, which passes through Curlewis Street.

2.4 Heritage context

Several heritage items and areas are located adjacent or near the proposed route, as shown in **Figure 7**.

Three locality significant heritage items front Curlewis Street:

- 1940s flat buildings at 63-65 Curlew Street (item no. I98).
- 1940s flat buildings at 67-71 Curlew Street (item no. I99).
- 1920s hotel landmark building at 178A Campbell Parade (item no. I82).

Additionally, the eastern end of Curlew Street is within the locally significant Bondi Beach Conservation Area (HCA), and the intersection of Curlew Street and Blair Street is within the locally significant Blair Street Landscape Conservation Area (LCA).

Other local heritage areas in the vicinity include:

- Bondi Beach and Park LCA (item no. C25) (local item) located to the south of Curlew Street.
- Bondi Beach Cultural Landscape (item no. I94) (State item), located to the south of Curlew Street.

Further detail regarding the significance of these items and areas, and the proposal's impacts on their significance, is provided in the Statement of Heritage Impact at **Appendix 5** and the heritage discussion at **Section 7.7** of this REF.

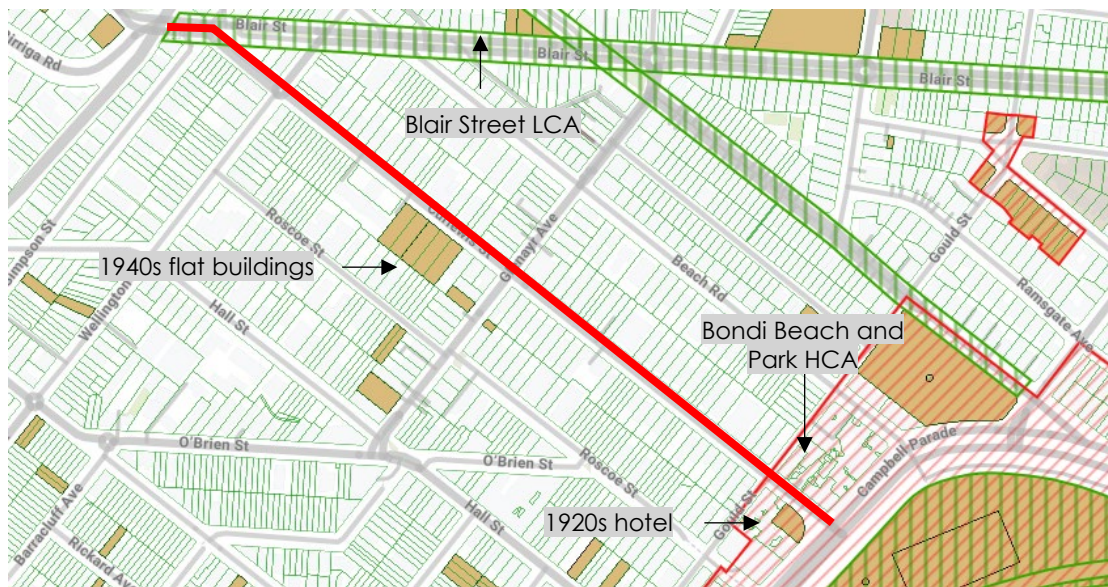


Figure 7. Heritage map
Source: Mecone Mosaic

2.5 Land use zoning

Curlew Street is zoned part R3 Medium Density Residential, part B1 Neighbourhood Centre and part B4 Mixed Use, under Waverley Local Environmental Plan 2012(the LEP), as shown in **Figure 8**.

The neighbourhood centre is located in the centre portion of the street, while the B4 areas are located at each end. The R3 areas are located between the business zones.

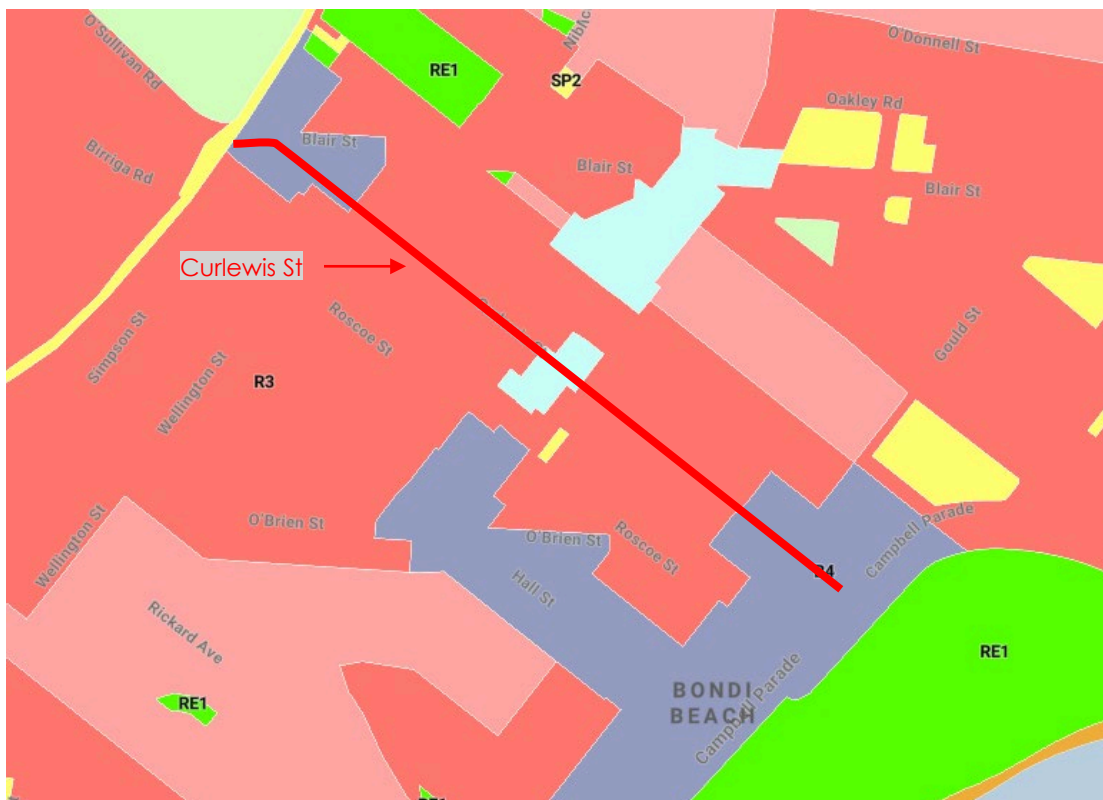


Figure 8. Zoning map
Source: Mecone Mosaic

3 Description of the activity

3.1 Overview

The project proposes a full streetscape upgrade to the length of Curlew Street to renew existing infrastructure, promote active transport, increase safety and update material finishes to enhance the sense of belonging for all users.

This will involve:

- Provision of a separated cycleway.
- Streetscape upgrades, including, but not limited to, widening of footpaths, pavement upgrades, lighting upgrades.
- Removal of 20 street trees and planting of approximately 83 new street trees.
- Intersection realignments, including, but not limited to, replacement of the existing left turn slip lane from Old South Head Road into Curlew Street (left turn still permitted but controlled by traffic signals).
- Parking adjustments (net loss of approximately 5 spaces along Curlew Street).

The approximate dimensions of the upgraded street are as follows:

- Full road reserve width: 20.1m.
- Roadway width: 6.95m.
- Parking aisle width: 2.2m northern side and approximately 2.1m southern side.
- Pedestrian pathway width: 1.35m to 3m.
- Cycleway width: 2.4m.

Figure 9 and **Figure 10** show 3D renders of the improved streetscape.

The following sub-sections provide further detail on the key elements of the project. Design drawings are provided at **Appendices 1a, 1b and 2**.



Figure 9. 3D render of upgrades looking south
Source: 33 Parallel



Figure 10. 3D render of upgrades looking north
Source: 33 Parallel

3.2 Separated cycleway

A key element of the project is to formalise the existing link for active transportation by incorporating a separated bike path. This is identified in the 2013 Waverley Bike Plan and was previously endorsed by Council as a pop-up cycleway as part of the COVID-19 response by TfNSW identified as the “Bay to Beach Pop-up Cycleway” connecting Bondi Beach to Rose Bay Wharf.

The cycleway will form a separated, 2-way cycleway along the northern side of Curlew Street.

Figure 11 provides an extract of the plans showing the cycleway design. For further detail, refer to the site works drawings at **Appendix 1**.

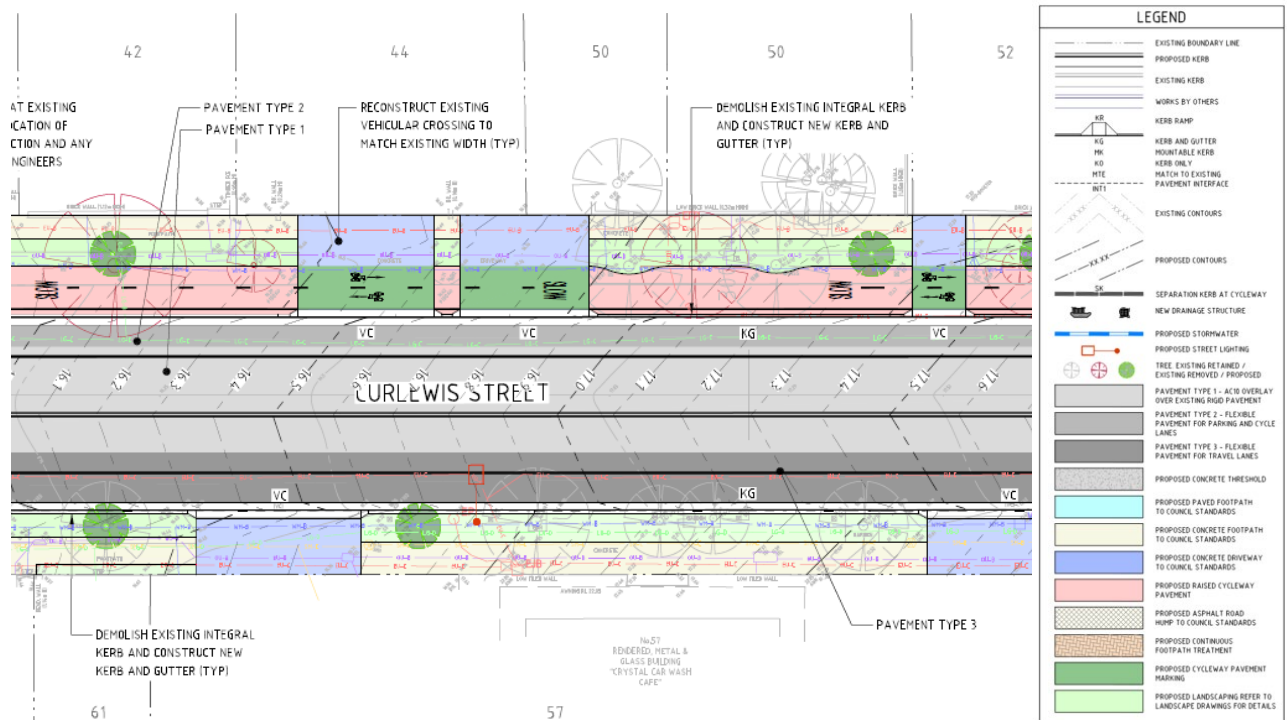


Figure 11. Cycleway design
Source: Northrop

When complete, the cycleway will create a link in a State regional route that can be used by cyclists with minimal and controlled opportunities for conflict with pedestrians and motor vehicle traffic. This route will allow for effective movement in the immediate local area, across the LGA and in the regional area.

3.3 Old South Head Road intersection modification

The project proposes to remove the existing left turn slip lane from Old South Head Road into Curlew Street to enhance pedestrian and bicycle connectivity through the intersection. This modification will create additional public space, including a raingarden, and will also facilitate additional parking. Refer to **Figure 12.**

- Reconstruction of raised pedestrian crossing across Curlewis Street immediately west of Gould Street.
 - New continuous footpath treatment across Gould Street on both sides of intersection.
- Removal of 20 existing street trees including:
 - 14 trees on the north side of Curlewis Street between Wellington Street and Glenayr Avenue.
 - 6 trees on the north side of Curlewis Street between Glenayr Avenue and Gould Street.
- Planting of approximately 83 trees across the project area (net increase of more than 60 trees), comprising a mix of native species.
- Addition of turf and garden beds with a range of native shrubs and raingardens across the project area. Total vegetated area is approximately 1,700m².
- Installation of new multi-function (MF) light poles along the street. Six of poles will include electric vehicle chargers. The chargers will be available to the general public under a user-pays system.

New lighting will comply with the requirements of:

- AS/NZS 1158.3.1 PP3 (pedestrian pathway lightning).
- AS/NZS 1158.3.1 Category PP3 (cycleway lighting).
- AS/NZS 1158.1.1 Category PR3 (roadway Lighting).

3.5 Construction

3.5.1 Staging and duration

The works will be staged to minimise disruption to the community. It is anticipated that the sequence of works for each stage will be as follows:

1. Install erosion and sediment controls.
2. Install traffic and pedestrian controls.
3. Demolish existing kerb, gutter and footpaths one side and reconstruct with required trenching and conduit placement for services.
4. Install cycleway.
5. Demolish and rebuild kerb, gutter and footpaths other side.

6. Install and connect new MF light poles.
7. Construct road carriageway.
8. Proceed to next section of works and repeat.

The exact staging locations and their order is subject to the future contractor tendering process for the construction works. Based on recently completed streetscape upgrades projects within Waverley LGA, it is expected construction staging will involve one side of the road being constructed in blocks at a given time. The majority of works in each stage will be completed prior to the contractor moving to the next stage. Certain elements of the streetscape upgrade, such as activation of street lighting and road re-sheeting, are likely to span multiple stages once the main in-ground construction works have been completed.

Works are expected to commence in early financial year 2023/2024 and last approximately one year.

3.5.2 Plant and equipment

Plant and equipment to be used during construction will be finalised by the approved contractor. It is expected that the following equipment will be utilised:

- Vacuum sucker truck.
- Backhoe diggers.
- Line marking machines.
- Small/mid-size excavators.
- Pneumatic hammer (hand and plant-mounted).
- Concrete saws.
- Trucks (tipper and semi-trailer).
- Concrete agitators.
- Rollers.
- Portable lights.
- Generators.
- Air compressors.
- Air tools.
- Hand tools.

- Light vehicles.

3.5.3 Hours

Works will be carried out during standard construction hours (Monday to Friday 7am to 6pm, Saturday 8am to 1pm and no work on Sundays or public holidays) where possible.

However, given the nature of the project, some works will need to be carried out outside standard hours. For a discussion on noise impacts and mitigation measures, refer to **Section 7.8**.

3.6 Post Finalisation Design Updates

The REF was publicly exhibited between 5 April 2023 and 2 May 2023. Following exhibition and finalisation of the REF, minor design amendments have been made as part of the detailed documentation to be issued for construction (IFC). The changes relate primarily to detailed engineering matters, which are typically refined at IFC stage to ensure a practical design outcome based on site conditions. The changes include:

- Revised geometry of median strip at Old South Head Road and Curlewis Street to reinforce and make it less susceptible to breaking if struck by a westbound vehicle
- Minor widening of shared path between Blair Street and 28a Curlewis Street
- Minor stormwater design amendments, including incorporating stormwater line A1 into line A2 to avoid potential clash with existing sewer
- Amended location of cycleway ramp west of Glenayr Avenue to avoid clash with existing stormwater pit
- Minor amendments to extent of paving at properties with kerbside dining approvals and at locations with narrow turf strips
- Adjustment of water meter near Old South Head Road, and adjustment of tap in central median
- Minor amendments to signage, including:
 - "NO LEFT TURN" at Simpson Street sign to be mounted to proposed light pole
 - Wellington Street crossing to include a "GIVE WAY TO CYCLISTS" sign
- Amended concrete median with cobble setts detail with additional information for median and roundabout centre island use
- Permeable concrete cycleway to be constructed of no fine permeable base
- Amended raised pedestrian crossing to have Asphalt Concrete surfacing

3.7 Analysis of alternatives

3.7.1 Whole-of-project consideration

One option is to do nothing, i.e., not construct a separated cycleway with associated streetscape improvements. This option was not chosen because it would conflict with State and local plans and policies, and not align with the community's general support for the cycleway.

Another option is to carry out partial upgrades to the street, such as the separated cycleway only. This option was not chosen because the full extent of the street infrastructure is dated and failing in some cases. The street is due for a full upgrade. While some components of the street may be in better shape than others, it is preferable to carry out a full upgrade now in order to avoid ongoing patchwork repairs in the near future.

3.7.2 Route

TfNSW has identified Curlewis Street as a priority bike route, which, along with O'Sullivan Road, connects Bondi Beach to Rose Bay Wharf. Curlewis Street also forms a key bike route identified in Council's Bike Plan adopted in 2013.

Curlewis Street provides the most direct route between O'Sullivan Road and Bondi Beach. The route passes by both residential properties and business and is wide enough to cater for a separated bike path and adjoining parking lanes. Drivers and cyclists will both benefit from the proposed upgrade to Curlewis Street as it will improve traffic flow and create safe space for bicycles.

3.7.3 Pavement upgrade options

Three main pavement upgrade options were considered:

1. Retain existing rigid pavement along the traffic lanes and reconstruction of rigid parking lane.
2. Retain existing rigid pavement along traffic lanes and convert existing rigid pavement parking lane to flexible pavement (preferred option).
3. Convert the existing rigid pavement to flexible pavement for the entire pavement width.

Option 1 would have undesirable construction risks, as the depth required for the new rigid parking lane would involve milling/excavation of the existing sandstone cobble pavement.

Option 3 is undesirable because technical analysis has identified that the existing rigid pavement in the traffic lanes currently provides a very stiff pavement structure, and it is not recommended to remove this structure unless required.

Option 2 is considered to be the best value. It maintains the stiff pavement structure of the existing traffic lanes and avoids the construction risks associated with reconstruction of the rigid parking lane.

3.7.4 Intersection treatment options

Old South Head Road intersection

Regarding the Old South Head Road intersection, 2 primary options were considered and presented during public exhibition of the concept design:

- Option 1 removes the existing left turn slip lane from Old South Head Road into Curlewis Street, with the left turn movement still permitted but controlled by the traffic signals. This creates additional public space at the corner of Old South Head Road and Curlewis Street facilitating additional parking and a raingarden/public space.
- Option 2 retains the existing slip lane, resulting in a narrower shared path and smaller turfing/landscaped areas than Option 1. Further, pedestrians would still need to cross onto the existing traffic refuge in order to cross the street.

In general, there was large community support for Option 1—the establishment of a rain garden and removal of the slip lane. This option has been incorporated into the current design.

Gould Street to Campbell Parade

Regarding the Gould Street to Campbell Parade section of the street, 2 primary options were considered:

- Option 1 keeps the new bike path on the northern side of Curlewis Street, crossing the pedestrian crossing near Gould Street for a short distance at right angles, and retains the existing parking on the southern side of Curlewis Street.
- Option 2 sees the new bike path cross to the southern side of Curlewis Street at the pedestrian crossing near Gould Street, and then continue on the southern side until Campbell Parade. This reduces the existing parking on the southern side of Curlewis Street.

There was overall community support Option 1, and this option has been incorporated in the current design.

4 Strategic context

4.1 State strategies

4.1.1 Greater Sydney Region Plan

A Metropolis of Three Cities (NSW Government 2018) is the current Greater Sydney Regional Plan (regional plan). It is a 40-year plan that prioritises integrated land use planning and infrastructure to promote 30-minute connections between people, their jobs, education, recreation and services.

The proposed streetscape upgrade aligns with the following key objectives in the regional plan:

- *Objective 6: Services and infrastructure meet communities' changing needs.*
- *Objective 12: Great places that bring people together.*
- *Objective 13 : Environmental heritage is identified, conserved and enhanced.*
- *Objective 30: Urban tree canopy cover is increased*
- *Objective 32: The Green Grid links parks, open spaces, bushland and walking and cycling paths.*

4.1.2 Eastern City District Plan

The Eastern City District Plan (NSW Government 2018) (district plan) sets out a 20-year strategy for Sydney's Eastern City District. The district plan aims to support the vision of a 30-minute city identified in the region plan.

The proposed streetscape upgrade aligns with the following key planning priorities in the district plan:

- *Planning Priority E1: Planning for a city supported by infrastructure.*
- *Planning Priority E3: Providing services and social infrastructure to meet people's changing needs.*
- *Planning Priority E6: Creating and renewing great places and local centres, and respecting the District's heritage.*
- *Planning Priority E17: Increasing urban tree canopy cover and delivering Green Grid connections.*

4.2 Local strategies

4.2.1 Local Strategic Planning Statement

The Waverley Local Strategic Planning Statement (LSPS) plans for Waverley's economic, social and environmental needs over the next 20 years (to 2036). The LSPS gives effect to a number of strategic plans prepared by the NSW Government. This includes implementing the directions and actions of A Metropolis of Three Cities 2016-2036 and the Eastern City District Plan 2016-2036.

The LSPS is organized around four themes—infrastructure and collaboration, liveability, productivity and sustainability—and identifies a number of directions and planning principles under each theme. Key principles relevant to the project include:

- *Improve public and active transport connections between centres.*
- *Encourage mode-shift from private vehicles to active and public transport to decrease congestion.*
- *Collaborate with neighbouring councils to improve water quality entering our coast, beaches and receiving catchments.*
- *Protect and grow the tree canopy and shrub layer to reduce the urban heat island effect.*

The LSPS also identifies a number of key actions related specifically to Curlewis Street:

- *Investigate and report on traffic and public transport improvement options for Bondi Road and Carrington Road City Serving Transport Corridors and Curlewis Street corridor.*
- *Increase travel via ferry and improve connections along Curlewis Street and O'Sullivan Road to reduce load on buses between Bondi Beach and Bondi Junction.*

4.2.2 Waverly Community Strategic Plan 2018-2029

The draft Waverly 2032 (Waverly Council, 2022) is Council's community strategic plan which sets out the Waverley community's vision for the next 10 years. The plan is organised around three themes—people, place and performance—and a number of objectives and strategies are identified under each theme.

The project aligns with the following strategies in the strategic plan:

- *2.4.4 Increase the quantity of trees and plants in public and private spaces, parks and streets to achieve Waverly's canopy targets.*
- *2.5.3: Reduce or minimise pollutants entering into the waterways.*

- 2.6.5. *Create a thriving, flourishing, accessible and liveable destination with great public spaces and buildings, public art, and walkable streets that engage and excite everyone.*
- 2.6.6. *Celebrate the heritage and character of our centres and heritage sites, and protect and enhance their character.*
- 2.8.1. *Deliver an innovative and integrated mass transport solution, as well as separated bike paths for the centre, with improved transport efficiency.*
- 2.8.2. *Encourage more shared vehicles (cars, bicycles, scooters) and electric vehicle charging.*
- 2.9.1. *Leverage technologies and regulations to provide better transport and parking outcomes.*
- 2.9.2. *Improve access to schools and local destinations by making it easier to walk, ride and catch public transport.*
- 2.10.1. *Ensure Council's infrastructure assets are operated, maintained, renewed and upgraded to meet the levels of service set by the community.*

4.2.3 Waverley Bike Plan 2013

Waverley Bike Plan 2013 (Waverly Council, 2013) is Council's cycling strategy to increase the number and proportion of trips made by bicycle. The goal is to increase the number of trips made by bicycle in order to reduce traffic congestion and parking pressure in Waverley, while improving the health and amenity of the area.

Separated cycling facilities linking desirable and bikeable destinations are a key strategy of the plan. The plan identifies Bondi Beach to Rose Bay, via Curlewis Street, as a new priority route. The plan suggests that the route should be a two-way bicycle path or through a mixed traffic environment considered as part of an urban revitalisation project, and recommends that an analysis of options and community consultation occur to determine the best treatment option for this route.

In accordance with the plan, the subject project has included analysis of options (refer to **Section 3.6** of this report) and community consultation (refer to details at **Section 6** of this report).

4.2.4 Waverley's People, Movement and Places

Waverley's People, Movement and Places (Waverley Council, 2017) is a plan that identifies priorities and recommendations to improve transport options for the community. It places a focus on providing better streetscapes, which will provide major benefits for pedestrian and multi-modal road users. Separated cycleways are also a priority, as they will increase cycling participation, which in turn will reduce private vehicle traffic congestion and pressure on public transport.

The project will deliver a separated cycleway on Curlewis Street, a specific project identified in the plan, while also enhancing the streetscape, which will provide benefits for all road users.

5 Statutory context

5.1 Nominated determining authority

Determining authorities for the works include:

- Waverley Council.
- TfNSW (given TfNSW approval is required for the works within the Old South Head Road reserve).

Section 5.2 states that where there is more than one determining authority the Minister may nominate a determining authority to be the nominated determining authority in relation to the activity. In May 1999 the Minister published an order in the Gazette pursuant to section 110A of the EP&A Act (now Section 5.2) nominating the determining authority that is the proponent to be the nominated determining authority for the purposes of Part 5 of the EP&A Act.

Waverley Council is the proponent of the works, and therefore Council is the nominated determining authority.

5.2 Commonwealth legislation

The Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, which are identified in the EPBC Act as matters of national environmental significance (MNES).

The EPBC Act requires the assessment of whether the project is likely to significantly impact MNES or Commonwealth land. These matters are considered in further detail in the table below. The project would not significantly affect a MNES or Commonwealth land. Therefore, a referral to the Commonwealth Minister for the Environment is not required.

Table 1 – Consideration of matters of national environmental significance

Type of impact	Impact of project
Any impact on a World Heritage property?	Nil
Any impact on a National Heritage place?	Nil

Table 1 – Consideration of matters of national environmental significance

Type of impact	Impact of project
Any impact on a wetland of international importance?	Nil
Any impact on a listed threatened species or communities?	Nil
Any impacts on listed migratory species?	Nil
Does the Project involve a nuclear action (including uranium mining)?	Nil
Any impact on a Commonwealth marine area?	Nil
Does the Project involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources?	Nil
Additionally, any impact (direct or indirect) on Commonwealth land?	Nil

5.3 State legislation

5.3.1 EP&A Act 1979 and EP&A Regulation 2021

The proposal is being carried out as an “activity “under Division 5.1 of the EP&A Act. Specifically, the proposal involves “the carrying out of a work” and “the demolition of a building or work” as defined under subclauses (d) and l, respectively, of section 5.1(1) of the EP&A Act. The proposal does not include any of the exclusions in subclauses (g) to (k).

Given the proposal falls under Division 5.1 of the EP&A Act, it does not require development consent.

Waverley Council is the proponent and determining authority for the works. Section 5.5(1) of the EP&A Act requires that the determining authority, when considering activities under Part 5, Division 1 of the EP&A Act, must “examine and take into account to the fullest extent possible all matters likely to affect the environment by reason of that activity”. The subject REF addresses this requirement.

Section 5.5(3) of the EP&A Act also requires that the determining authority consider the effect of an activity on any wilderness area (within the meaning of the *Wilderness Act 1987*) in the locality in which the activity is intended to be carried on”. In this regard, the proposal is expected to have no impact on any wilderness area as there is no wilderness area within or near the area of the works.

Section 171(2) of the EP&A Regulation states that the determining authority must take into account the environmental factors specified in the environmental factors guidelines that apply to the activity. The table below addresses the factors contained in DPE's Guidelines for Division 5.1 assessments (June 2022). In summary, it has been found that the proposal will result in no more than minor impact.

Table 2 – Factors to be considered under section 171 of EP&A Reg

Factor	Impact
a) Any environmental impact on a community	Minor—refer to discussion of impacts at Section 7 of the REF.
b) Any transformation of a locality	Positive transformation of Curlewis Street due to full upgrade of streetscape.
c) Any environmental impact on the ecosystems of the locality	Nil
d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality	Nil
e) 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	Minor—refer to discussion of impacts at Section 7 of the REF.
f) Any impact on the habitat of protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)	Nil
g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air	Nil
h) Any long-term effects on the environment	Nil
i) Any degradation of the quality of the environment	Nil
j) Any risk to the safety of the environment	Short-term minor risk associated with construction impacts. General mitigation required.

Table 2 – Factors to be considered under section 171 of EP&A Reg

Factor	Impact
k) Any reduction in the range of beneficial uses of the environment	Nil
l) Any pollution of the environment	Minor and reasonable pollution associated with operation of construction equipment. No mitigation necessary.
m) Any environmental problems associated with the disposal of waste	No problems are anticipated. Waste will be classified and disposed in accordance with a waste management plan.
n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	Nil
o) Any cumulative environmental effect with other existing or likely future activities	Nil
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	Nil
q) Any applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act	<p>The project supports the vision in Council's LSPS, which envisions a mode shift from private vehicles to public and active transport. Refer to Section 4.2.1 of the REF for further detail.</p> <p>The project also supports the objectives of the Greater Sydney Region Plan and Eastern City District Plan, which seek to provide for a city of great places supported by infrastructure. Refer to Section 4.1 of the REF for further detail.</p>
R) Any other relevant environmental factors	Other impacts are discussed at Section 6 of the REF.

Post Finalisation Design Amendments

As outlined in Section 3.6 of this document, following exhibition, minor design amendments have been made as part of the detailed documentation to be issued for construction (IFC). The changes relate primarily to detailed engineering matters, which are typically refined at IFC stage to ensure a practical design outcome based on site conditions.

A review of the design amendments confirms they are minor in nature and will have no material impact to the environmental assessment undertaken in Section

7 of this document. As such, the determining authority has fulfilled their duty under Section 5.5 of the EP&A Act, in considering *to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity*.

5.3.2 SEPP (Transport and Infrastructure) 2021

The proposed works can be carried out as **development permitted without consent** under the TI SEPP.

Section 2.109(1) of the TI SEPP permits the development for the purpose of “road or road infrastructure facilities” on any land on behalf of a public authority without consent.

The definition of road infrastructure facilities in Section 2.108 includes “road related areas” within the meaning of the *Road Transport Act 2013*. The definition for a road related area under that Act includes “an area that is open to the public and is designated for use by cyclists”.

Furthermore, Section 2.109(3) of the TI SEPP defines road infrastructure facilities to include “alterations or additions to an existing road (such as widening, narrowing, duplication or reconstruction of lanes, changing the alignment or strengthening of the road)”.

The project is on behalf of a public authority (Council) and is considered to fit the definition of development for the purpose of road infrastructure facilities. Therefore, the upgrades can be carried out as development permitted without consent.

5.3.3 Roads Act 1993

Section 138(1) of the Roads Act requires consent from the appropriate roads authority for any of the following:

- (a) *erect a structure or carry out a work in, on or over a public road, or*
- (b) *dig up or disturb the surface of a public road, or*
- (c) *remove or interfere with a structure, work or tree on a public road, or*
- (d) *pump water into a public road from any land adjoining the road, or*
- (e) *connect a road (whether public or private) to a classified road*

In this case, the works require approval from two roads authorities. The works along Curlewis Street require approval from Waverley Council, and the works connecting to Old South Head Road require approval from TfNSW.

5.4 Local legislation

5.4.1 Waverley LEP 2021

Curlewis Street is located on land to which *Waverly Local Environmental Plan 2012* (the LEP) applies. However, there are no LEP provisions directly relevant to the project.

Aims of plan

The proposal is generally consistent with the aims of the LEP. Of particular relevance is aim (I), which is “to improve connectivity and accessibility in Waverley and prioritise development that enables walking, cycling and the use of public transport”. The proposal is consistent with this aim in that it will improve connectivity in the bicycle network and promote walking and cycling.

Zoning

Under the LEP the site is zoned part R3 Medium Density Residential, part B1 Neighbourhood Centre and part B4 Mixed Use, as shown the figure below. "Roads" are permitted with consent in each of these zones.

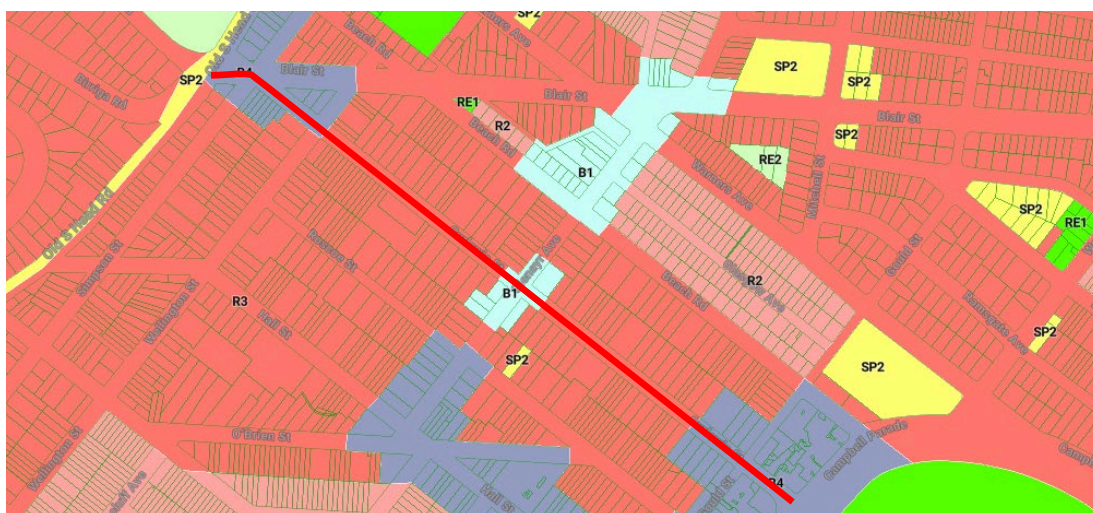


Figure 13. Land use zoning map
Source: Mecone Mosaic

The project does not rely upon the LEP for permissibility. Nonetheless, the zone objectives have been considered, and it has been found that the project is consistent with the following key relevant objectives:

Zone R3:

- *To maximise public transport patronage and encourage walking and cycling.*
- *To promote development that incorporates planning and design measures that reduce the urban heat island effect.*
- *To improve the urban tree canopy by providing high levels of deep soil planting and additional landscaping.*

Zone B1:

- To maximise public transport patronage and encourage walking and cycling.

- *To provide equitable access to essential goods and services.*

Zone B4:

- *To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.*

Notably, clause 5.12 of the LEP explicitly states that the LEP does not restrict or prohibit the carrying out of any development by or behalf of a public authority under Chapter 2 of the TI SEPP.

5.5 Approvals

Under section 138 of the Roads Act, approval from Council is required for works in the Curlewis Street reserve, and approval from TfNSW is required for any works in the Old South Head Road Reserve.

While Council is the proponent of the proposed works, subsection (4) states that the requirement for an approval applies to a roads authority in the same way as it applies to any other person.

No requirement for any other additional approvals have been identified at this stage, including no requirement for approval under the *Fisheries Management Act 1994*, *Forestry Act 2012*, *Heritage Act 1977*, *National Parks and Wildlife Act 1974*, *Protection of the Environment Operations Act 1997*, *Rural Fires Act 1997*, *Water Act 1912*, *Water Management Act 2000* or any other legislation.

6 Consultation

No statutory requirement for community consultation has been identified. Nonetheless, given the nature and scale of the project, Council has carried out significant consultation.

This section provides a summary of the community consultation carried out for the project. It is informed by:

- Curlewis Street Streetscape Upgrade Consultation Report prepared by Council officers (report PD/5.4/22.08), provided as part of the 2 August 2022 Strategic Planning and Development Committee Agenda.
- Curlewis St Streetscape Upgrade Consultation Round Two prepared by Council officers dated 2023.
-

6.1 Previous consultation

In September and October 2019, Council officers undertook community consultation for the Our Liveable Places Centres Strategy (Waverley Council,

November 2020). Through the consultation outcomes, the following key items have been identified and considered in the design of the Curlewis Street upgrade:

- Safe movement of pedestrians.
- Places for arts and creativity.
- Night-time entertainment and trading.
- Pedestrian through-site links.
- Wide footpaths.
- Accessibility of people of all abilities.
- Trees, planting and greenery.
- Public recycling facilities.
- Community and verge gardens.

As part of the unique circumstance around the delivery of the pop-up cycleways, in September 2020 Transport for NSW (TfNSW) notified residents and businesses along and adjacent to Curlewis Street and O'Sullivan Road that a pop-up cycleway would be installed on Curlewis Street and O'Sullivan Road. This notification included 10,000 letterbox notifications across the Bondi Basin and Rose Bay, and a reach of 53,000 via Facebook. The Facebook responses included 122 reactions (89% likes and 11% dislikes), and there were an additional 137 written comments on Facebook (85% positive and 15% negative).

TfNSW established a triage service to respond to enquiries and received 26 calls (10 positive, one neutral and 15 negative); however, only 2 negative calls related to Curlewis Street and were specifically about the temporary construction zone parking at 78 Curlewis Street that is now removed.

Whilst the pop-up was not installed, TfNSW's position remains that "TfNSW and Council are working together to deliver the project".

6.2 Exhibition of concept plans

In May 2022, Council approved the concept design of the Curlewis Street Streetscape Upgrade to be publicly exhibited for 28 days. The overall concept design package was presented for feedback from 18 May to 15 June 2022, with specific design options for two key intersections along Curlewis Street.

Other various engagement methods were implemented, including:

- Have Your Say website (18 May 2022 to present).
- Media release published on Council's website (20 May 2022).

- Letterbox drop – issued to approximately 5,900 properties and 100 businesses (late May 2022).
- Social media – 3 Facebook posts in May and June 2022, and three Instagram posts in May and June.
- Email stakeholder outreach to precincts, Councillors, Bicycle NSW, BIKEast, Bondi and Districts Chamber of Commerce and local businesses.
- Story in Council's weekly e-newsletter (26 May 2022).
- Have Your Say email to members who have shown interest in similar projects in the area (two emails in May 2022).
- Online information session hosted on Microsoft Teams for residents (2 June 2022).
- Online information session hosted on Microsoft Teams for businesses (6 June 2022).
- Have Your Say days—three face-to-face sessions to talk to residents on 2, 4 and 7 June.

There was significant interest in this project with the consultation, generating a total of 283 submissions.

Feedback from the community can generally be split into two categories: feedback on the overall streetscape upgrade, and feedback specific to the design options presented to the community for two key intersections along Curlewis Street.

6.2.1 Streetscape upgrades

Regarding the streetscape upgrades, the community response demonstrated overall support for the project, with 69% of respondents supportive of the project. Key items raised include:

Parking

Some respondents expressed concern for loss of parking along Curlewis Street, with some believing there would be no parking alongside the separated bike path.

The project will result in a net loss of approximately 5 spaces only along the length of Curlewis Street. These losses are predominantly due to changes to regulations and standards requiring “no stopping” setbacks at intersections and at prescribed traffic control devices like pedestrian crossings.

Separated bike path route

Some respondents queried the bike path route and the demand for the bike path on Curlewis Street.

Curlewis Street has been identified by TfNSW as a priority route (within a strategic corridor) for a bike path. Furthermore, the route has also been highlighted in Waverley's Bike Plan as it provides an alternative connection from Bondi Beach to Rose Bay.

Planting and greenery

The community expressed desire to have native planting along the streetscape upgrade, and additional greenery within the project.

The concept design maintains and protects existing viable trees where possible. The design includes the planting of approximately 83 new trees and removal of 20 trees which cannot be retained as they are within the development footprint, will be significantly affected by the works, or are in poor health and identified as a priority for removal.

Further introduction of traffic calming devices with planting and trees is also incorporated. Suitable native species have been selected as part of the landscape plans (**Appendix 2**) to enhance the streetscape and complement the location of Curlewis Street.

Interaction of bike path with retained trees

Some respondents expressed concern for the localised narrowing of the proposed bike path around existing trees being retained on the northern side of the street. However, this technique is considered acceptable as it is endorsed by TfNSW and is implemented on other bike paths elsewhere in Sydney.

6.2.2 Intersection treatments

Two options were presented to the community for treatments to the Old South Head Road intersection, and 2 options were also presented for treatments to the Gould Street to Campbell Parade section of Curlewis Street. These are explained in the analysis of alternatives at **Section 3.6.4** of the REF.

In each case, the community expressed an overall preference for a particular option, and the preferred option has been incorporated into the current design.

6.3 Additional consultation – updated design

Following the exhibition of the concept plans and consideration of community feedback, the design for the western end of Curlewis Street was updated and then exhibited from 21 November to 16 December 2022. A number of engagement methods were implemented to enable community members to submit feedback in a way that was easy and convenient, including:

- Dedicated page on the Have Your Say website.
- Online survey.
- Letterbox drop to approximately 5,900 properties in the Waverley area, 900 properties in the Woollahra area and 100 nearby businesses.
- One Have Your Say day held at Bondi Markets for community members to talk to Council officers about the project.
- Social media.
- Stakeholder outreach

A total of 128 submissions were received during the consultation period, with 60% supporting the updated design, although some respondents believe a separated bike path is not needed along Curlewis Street.

The submissions revealed that the left hand turn into Simpson Street is not heavily used; however, it is used by some respondents to access the petrol station and Barracluff Park.

Safety and traffic congestion are the main priorities for the community; there were requests for the Old South Head Road intersection to be improved for the benefit of all road users and for bike path connections across this intersection to be enhanced.

Some respondents noted congestion is an issue at the Wellington Street roundabout, and others asked for a pedestrian crossing to be constructed further up Blair Street (near Beach Road).

Overall, the community is largely supportive of the updated design at the western end of Curlewis Street, and the project has progressed accordingly. The updated design is included in the site works drawings at **Appendix 1**. Detailed design will progress on this basis.

6.4 Exhibition of REF

The REF was publicly exhibited between 5 April 2023 and 2 May 2023. Exhibition took place on Council's website, through Council's social media channels, a media release, a letter box drop to nearby businesses, emails directly to respondents who provided feedback to the scheme as part of its previous exhibition phase, and direct emails to key stakeholders and relevant organisations, such as BIKEast and Bicycle NSW.

Gyde Consulting prepared a review of public submissions to summarise the issues raised and provide recommendations for updates to the REF. Gyde's review has informed the following subsections.

6.4.1 Summary of submissions

A total of 29 submissions were received by Council during the exhibition period. The majority of submissions supported the proposal. There were several submissions which raised queries, and there were a relatively small number of submissions which objected to the proposal.

Submissions in support

In summary, the matters raised in support of the proposal include:

- Additional greenery.
- Renewal of pedestrian walkways and consequent safety improvements.
- Safety associated with dedicated and separated cycleways.
- Improved accessibility.
- Benefits to the local economy.
- Climate benefits.
- Reduced traffic congestion.
- Consistency with NSW State Government cycling strategies.

Submissions raising questions

The queries raised by some submissions can be summarised as follows:

- How will safety be ensured for cyclists along those portions of the cycle way which are not completely separated from pedestrian pathways or road ways?
- Can additional lighting be provided around existing or proposed 'zebra crossings' to improve safety particularly for pedestrians?
- Will any new street trees will be installed in accordance with relevant guidelines or best practice?
- Will any upgrades address existing flooding conditions?
- Can the cycle lane way be extended to Bondi Junction?
- Have construction related impacts been considered, particularly with regard to noise impacts to residents?
- Has adequate bike parking been provided in support of the cycle way?

Objections

The issues raised against the proposal can be summarised as follows:

- Additional vehicle-related traffic congestion, particularly at key existing intersections.
- Insufficient cycling demand to warrant the proposal.
- Conflicts between cyclists, pedestrians and vehicles.
- The proposal would increase cycling activity.
- Reduced lines of sight.
- Reduced on street vehicle parking.

6.4.2 Response to submission

The key matters raised in the submissions raising queries and objections are addressed below.

Safety associated with dedicated and separated cycleways

The proposal will increase the overall amount of separated cycleways. The REF includes a Road Safety Audit that outlines a number of safety improvements as a result of the proposal.

Whilst the proposal provides various safety benefits, it may result in some adverse safety outcomes such as reduced sight lines or additional conflicts between cyclists, pedestrians, and motorists. Whilst such outcomes may occur, a shift towards additional bicycle transportation is a specific direction by Council, and, on this basis, the outcomes are acceptable.

It is recommended that Council provide an education campaign prior to the operation of the cycleway to inform local stakeholders of these potential outcomes, and the operation of the cycleway generally. This forms part of the REF's mitigation measures.

Safety along those portions of the cycle way which are not completely separated from pedestrian pathways or road ways.

All options were investigated in relation to delivering an entirely separated cycle way. However, due to the width of the road reserve and the location of inground services, not all sections of the cycle way could be entirely separated. A Road Safety Audit has been prepared as part of the REF. No high risk items were identified as part of the audit. The medium and low risk items identified will be addressed as required as the project design progresses (see **section 7.13.2** for further discussion). No change to the REF is considered necessary to address this submission.

Additional vehicle related traffic congestion, particularly at key existing intersections

The traffic modelling carried out as part of the REF confirmed that some existing intersections along the cycle way route currently operate at or beyond capacity. The performance of such intersections is likely to become marginally worse due to the proposal.

However, qualified engineers have assessed the proposal's traffic related impact, and the impacts are considered acceptable. Furthermore, Council has adopted various strategies which aim to discourage vehicle use and a shift towards active transport. As such, no change to the REF is considered necessary to address this submission.

Insufficient cycling demand to warrant the proposal

Increasing cycling activity is a specific strategic direction by Waverley Council. The proposal is considered suitable on this basis regardless of the current level of cycling demand. No change to the REF is considered necessary to address this submission.

Conflicts between cyclists, pedestrians, and vehicles

Reduction in sight lines

Additional lighting for pedestrian crossings

The REF considers safety for pedestrians, motorists and cyclists, with specialist advice from TTPP in the form of a Road Safety Audit. The audit provides an overall assessment of the proposal's potential safety matters and provides various recommendations. These recommendations are included in the REF's mitigation measures as required.

To support the Road Safety Audit, it is recommended that Council undertake a local awareness campaign to make stakeholders aware of the modified road conditions. The campaign should take place before the operation of the new infrastructure and include temporary and ongoing notification measures. Such measures may include notifications on Council's website and Council's social media channels, advertisements in local newspapers, letter box drops, signage, or similar. The campaign should raise awareness of key matters such as reduced sight lines, oncoming bicycle traffic at intersections and zebra crossings, and potential conflicts with opening doors from vehicles. A requirement for this awareness campaign has been included as a mitigation measure.

Reduction in on street vehicle parking

The publicly exhibited REF confirms that the proposal will result in the loss of 5 on-street car spaces. Any impacts would be negligible as the amount of car spaces lost is minor. Furthermore, this loss of parking is acceptable given the promotion of bicycle-related transportation is consistent with Waverley Council's strategic directions. No change to the REF is considered necessary to address this submission.

Confirmation that any new street trees will be installed in accordance with relevant guidelines or best practice

The REF was exhibited with extensive information relating to existing and proposed landscaping for the subject route. This includes an extensive landscaping package prepared by Parallel 33; however, a planting specification did not form part of the package. A requirement for planting specification has been added as a mitigation measure.

Flooding impacts

A submission refers to historical flooding events. The publicly exhibited REF did not include detailed flooding analysis. The exhibited REF concluded that flooding impacts are negligible because the proposal maintains the existing overall carriageway width but did not include detailed flooding analysis.

Additional advice has been sought from the project designer and Council officers, which has been incorporated into the REF. The advice reiterates that the proposal is not anticipated to have any notable adverse impacts related to flooding and that 2d flood modelling is considered unnecessary. Refer to **section 7.3** for further information.

Extend the cycle lane to Bondi Junction

The proposal relates to Curlewis Street's connectivity to existing shared cycling facilities along Campbell Parade. The proposal does not include any connections to Bondi Junction.

Increasing cycling related transportation is a key strategic direction by Waverley Council. Broader cycling related opportunities, including potentially to Bondi Junction, can reasonably be considered by Council at an appropriate future time. No change to the REF is considered necessary to address this submission.

Construction related impacts

Construction will be staged in order to minimise construction-related impacts. The total construction timeframe is estimated to be 12 months, which is considered a reasonable timeframe given the scale of the project.

The exhibited REF provided mitigation measures requiring public notification for various aspects of the proposal's implementation. The mitigation measures have been updated to provide more detail (e.g., how much notice should be provided and who will be notified).

Ensure adequate bike parking is provided to support the cycle lane

The specification to landscaping package, which formed part of the publicly exhibited REF, makes reference to ancillary bike parking. However, no such facilities are shown on the plan.

Additional bike parking facilities will be available within the upgraded streetscape. These include bike hoops attached to the new multi function poles throughout the scope and standalone bike racks in footpath areas having sufficient width to cater for their inclusion. No formalised "off street" bike parking facility is included in the project scope but may be examined for feasibility at a future stage by Waverley Council.

6.5 Post Finalisation Design Amendments

As outlined in Section 3.6 of this document, minor design amendments have been made as part of the detailed documentation to be issued for construction (IFC). The changes relate primarily to detailed engineering matters, which are typically refined at IFC stage to ensure a practical design outcome based on site conditions.

Based on a review of the proposed changes, there is no statutory requirement for additional community consultation. It is noted that Waverly Council's Community Engagement Strategy 2023 notes that some activities are exempt from notification requirements, including *"any other development which in the opinion of a senior Council planning officer is of minimal environmental impact or ancillary in nature; and is not likely to result in any adverse impacts on the broader community or adjoining and neighbouring premises"*. The amendments considered as part of this amended REF are generally aligned with the community consultation outcomes and do not contravene any historic response to submissions.

Notwithstanding the above, it is understood that the finalised REF is published on Council's website. As such, this revised REF which considers minor design amendments may be published by Council in the interest of the public, pursuant to Part 6 Section 4(c) of the EP&A Regulation.

7 Environmental assessment and mitigation measures

7.1 Air quality

7.1.1 Construction

The project requires demolition, resurfacing and construction in the road reserves along Curlewis Street, which may impact air quality through dust generation and fumes from vehicles, equipment and machinery.

The magnitude of these impacts is considered to be low, and the duration will be relatively short, being limited to the construction phase. However, the sensitivity of surrounding receivers, which includes medium density residential development and commercial premises, is high.

Potential air quality impacts generated by the proposal can be adequately mitigated through implementation of standard construction management measures, including:

- Develop appropriate communications to notify potentially affected residences and businesses (duration, types of works, etc.) and provide relevant contact details for complaints reporting.
- Measures to minimise or prevent air pollution or dust are to be used including watering or covering exposed areas.
- High dust-generating activities are not to be carried out during strong winds or in adverse weather conditions.
- Vehicles and vessels transporting waste or other materials that may product odours or dust are to be covered during transportation.
- Vehicles and equipment are to be maintained in good working order.
- Monitor work areas and stockpiles for dust generation and cover/spray to suppress.
- Do not leave vehicles idling.

Overall, it is considered that the construction-related air quality impacts are low subject to implementation of the recommended mitigation measures.

7.1.2 Operation

The project is not expected to result in any significant air quality impacts during construction. The project may result in a slowing of traffic, which may marginally increase emissions associated with motor vehicle traffic. However, the project may also result in an overall reduction in motor vehicle use by facilitating safe cycling as an alternative.

7.2 Water quality

7.2.1 Construction

Construction works have the potential to generate sediment in runoff from disturbed areas, which would enter waterways and affect water quality. There is also the potential for construction activities to result in accidental spills or stockpile runoff, which would contaminate surface water.

If uncontrolled, water quality impacts would generally be temporary and minor. However, the following mitigation measures are recommended to mitigate or prevent impacts:

- Prepare and implement a soil and water management plan and site-specific sediment and erosion control plan as part of the construction environmental management plan.

- Site management should incorporate best management erosion and sediment control practices such as those found in the “Blue Book”.
- All fuels, chemicals, and liquids stored appropriately in an impervious area away from drainage or areas prone to flooding.
- Ensure emergency spill kits and relevant trained staff are on hand during all stages of construction.

7.2.2 Operation

During operation, it is expected that the overall impact of the project on water quality will be positive. The project includes new garden beds, which will serve as rain gardens and swales, as well as new street trees and associated aggregate surfaces. These elements of the project will receive water from impervious surfaces and allow the water to infiltrate into the soil. The plants, mulch and soil will remove pollutants from the runoff prior to entering the groundwater or stormwater system, and also slow the amount of water entering the stormwater system at any one point, increasing the overall capacity of the stormwater system.

7.3 Flooding

7.3.1 Construction

No flood-related impacts have been identified for the construction phase.

7.3.2 Operation

Multiple properties along Curlewis Street are identified by Council's online mapping tool as being within high risk, medium risk and low risk areas, with the high and medium risk areas concentrated towards the middle segment of the street.

The proposed works are not anticipated to have any adverse flood impacts on flood-affected properties along Curlewis Street. The carriageway width is reduced to accommodate the cycleway; however, any potential impacts resulting from this reduction are mitigated by a number of factors incorporated into the design which aim to reduce the runoff required to be conveyed in the road corridor. These include:

- Levels maintained at interfaces with private property, including maintain existing fall directions.
- Replacement of previously fully impervious verges with mostly pervious verges consisting of landscape strips and permeable concrete paving.
- Addition of water sensitive urban design (WSUD) elements, specifically rain gardens (with infiltration to sand subgrade) and passive irrigation of street trees.

On balance, it is considered that substantive change to the existing flood behaviour is unlikely and that 2d flood modelling is not required.

7.4 Soils and contamination

7.4.1 Construction

No major contamination risks have been identified. The project area is not known to be contaminated, and the proposal involves no change of use to a sensitive use.

Given the urban nature of the proposal area, it is likely that there is some level of contamination. It is recommended that sampling is undertaken prior to soils being disturbed to determine contamination levels and identify the need for any site-specific management measures.

If contaminated areas are encountered during construction, appropriate control measures should be implemented to manage the immediate risks of contamination. All other works that may impact on the contaminated area should cease until the nature and extent of the contamination has been confirmed, and any necessary site-specific controls or further actions identified in consultation with relevant government agencies.

The risk of encountering acid sulfate soils at the site is low, as the entire project area is Class 5 land in LEP mapping. It is not anticipated that acid sulfate soils will be encountered during works.

7.4.2 Operation

No soil or contamination impacts have been identified for the operation stage.

7.5 Biodiversity

7.5.1 Construction

The project is located in an urban setting and has no significant biodiversity value. Twenty trees will be removed during the construction process, while approximately new trees will be planted, comprising a mix of native species.

It is noted that the landscape drawings at **Appendix 2** are not fully coordinated with the site works drawings at **Appendix 1**. It is recommended that updated landscape plans be prepared to fully align with the site works drawings. The updated plans may result in changes to planting quantities. Notwithstanding, it is expected that the changes will not be major, and therefore the plans at **Appendix 2** are suitable for the assessment purposes of this REF.

The trees to be removed are within the development footprint, will be significantly affected by the works, or are in poor health and identified as a priority for removal. The trees to be removed have been assigned low landscape significance values, except for Tree 4, which was assigned moderate landscape

significance value. For further details on these trees, refer to the Arboricultural Impact Assessment at **Appendix 3**.

Construction activities will take place within the tree protection zone (TPZ) and structural root zone (SRZ) of a number of trees to be retained, presenting a risk to the tree's long term structural and physiological viability. The Arboricultural report recommends a number of tree protection measures and tree-sensitive construction methods that should be implemented to avoid serious impacts to the trees to be retained.

It is noted that the Arboricultural Impact Assessment does not consider the project area west of Wellington Street. Prior to commencement of works, it is recommended that a suitably qualified arborist assess this area to determine the trees to be removed and retained, and to provide protection measures for trees to be retained.

It is also noted that the levels for a portion of the cycleway were raised following preparation of the Arboricultural Impact Assessment. In particular, a portion of the cycleway was changed from road level to verge level. Prior to commencement of works, it is recommended that a suitably qualified arborist assesses the updated plans to determine whether the recommendations in the assessment remain valid or require updating. In general, it is expected that the raised levels will improve conditions for trees to be maintained.

7.5.2 Operation

The project is not expected to have any adverse biodiversity impacts during operation. The project will result in a net increase of approximately 63 street trees, which will support native fauna in the area.

7.6 Aboriginal heritage

An Aboriginal Due Diligence Assessment (**Appendix 4**) has been prepared to consider the site's potential for containing Aboriginal objects. The findings of the assessment are summarised below:

- A search of the Aboriginal Heritage Information Management System (AHIMS) register identified 103 known Aboriginal sites currently recorded within a 3km x 10km area. There are no registered sites or Aboriginal Places within the project area.
- Given the environmental context, AHIMS results, and the absence of reliable evidence of fresh water in the project area or close by, the project area and immediate surrounds may have been used for hunting and gathering opportunities rather than large-scale long-term camping.
- The absence of natural sandstone geological formations in the project area indicates no habitation or art sites would be present in the project area. Evidence of hunting and gathering activities is manifest in the archaeological record as low-density background artefact scatters and isolated finds.

- The field survey confirmed the past land uses including clearing and housing/commercial, associated utilities and the construction of Curlews Road. These land uses have significantly altered the landscape of the project area, resulting in none of the original landform remaining. No sites or potential archaeological deposits (PADs) were identified. As such, there are no impacts on the archaeological record.
- As no sites or PADs were identified further investigations are not justified.

The report recommends the following mitigation measures to avoid impacts during the construction phase:

- The persons responsible for the management of onsite works will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Regulation 2019 under the *National Parks and Wildlife Act 1974*.
- Should any Aboriginal objects be uncovered during works, all work will cease in that location immediately and the Environmental Line contacted.

7.7 Historic heritage

The proposed works are partially within the following conservation areas:

- Bondi Beach HCA, at the southern end of Curlewis Street (item no. C2) (local item).
- Blair Street LCA, at the intersection of Blair Street and Curlewis Street) (item no. C23) (local item).

The proposed works are located in close proximity to the following 4 items/areas of heritage significance:

- 1940s flat buildings at 63-65 Curlewis Street (item no. I98) (local item).
- 1940s flat buildings at 67-71 Curlewis Street (item no. I99) (local item).
- 1920s hotel landmark building at 178A Campbell Parade (item no. I82) (local item).
- Bondi Beach and Park LCA (item no. C25) (local item).
- Bondi Beach Cultural Landscape (Item no. I94) (State item).

A Statement of Heritage Impact (**Appendix 5**) has been prepared to consider the impacts of the works on the significance of the above items and areas.

The report concludes that the works would have no detrimental heritage impacts and would respect the heritage significance of the surrounding heritage items and areas in the following ways:

- The proposal would introduce a new landscape treatment to the north end of Curlewis Street which would create a sympathetic verge garden and a vibrant streetscape entrance leading to Bondi Beach from Old South Head Road.
- The proposed streetscape elements would ensure the community is provided sufficient amenity to improve their engagement with the area and improve community experience with the public domain.
- The proposed civil works would be confined to the streetscape infrastructure which has been already altered over time and would ensure the upgraded streetscape elements make a positive contribution to the street.
- The proposed works would introduce a contemporary streetscape distinguishable as new, which would juxtapose with heritage items along Curlewis Street and make a positive contribution to the Blair Street LCA and Bondi Beach HCA.
- The proposal would increase the amenity of pedestrians using the public domain. This would ensure the community continues to interact and engage with the environment, specifically when crossing commercial hotspots at the Glenayr Street, Gould Street and Campbell Parade intersections.
- The proposal would include a new separated cycleway which responds to the surrounding beachside setting part of the Bondi Beach HCA. The increase in pedestrian amenity, improved walkability and cycling, would ensure that the street exhibits an active street-front setting. The ongoing engagement with community is a fundamental part of the Curlewis Street contribution to the Blair Street LCA and Bondi Beach HCA.
- The proposed works include street upgrades which are located away from buildings and limited to the public domain.

The report recommends a single mitigation measure—inclusion of a landscape plan. A landscape plan has been prepared for the works, and therefore a special separate mitigation measure is unnecessary.

7.8 Noise and vibration

7.8.1 Construction

The proposal is located within an active mixed-use area. Sensitive receivers include a mix of residential and commercial premises. These receivers will be affected by noise and vibration during construction works.

Works will be carried out during standard hours where possible. However, given the nature of the project, some night-time works may be required. This is due to a need to maintain the operational integrity of the road and pedestrian network.

The Interim Construction Noise Guideline (ICNG), (DECC, 2009), outlines noise assessment criteria and provides suitable mitigation measures to reduce noise and vibration impacts. The ICNG specify a noise management level for residential receivers of background levels +10 dB(A) during standard work hours (Monday to Friday 7am to 6pm and Saturday 8am to 1pm). Outside of these hours, it recommends only +5dB(A). The ICNG accepts that some works undertaken on public infrastructure, such as road works, may need to be carried out outside of standard hours.

For this project, background noise levels have not been provided and are not recommended due to the temporary and relatively minor nature of the works. However, given the close proximity of the proposal to multiple sensitive receivers, it is likely that the ICNG's recommended noise management levels will be exceeded during the day and night.

It is recommended the following mitigation measures be used to reduce noise and vibration impacts:

- A construction noise and vibration management plan is to be prepared and implemented as part of the CEMP. The plan is to generally follow the approach in the ICNG.
- All sensitive receivers likely to be affected will be notified at least 5 working days prior to the start of any works associated with the activity that may have an adverse noise or vibration impact.
- Works are to be carried out during normal work hours (i.e., 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; no work on Sunday or public holidays). Works outside these times will be carried out in accordance with the management and mitigation measures detailed within the noise and vibration management plan.
- Establish and maintain safe working distances from structures when performing vibration intensive works.

7.8.2 Operation

The project will have no significant noise or vibration impacts during operation. Road noise may reduce marginally due to reduced speeds of vehicles along the street.

7.9 Social impacts

7.9.1 Construction

Curlewis Street is an active mixed use street fronted by a residential and commercial uses. The street serves as a local commercial strip and a major

transport route. Construction works have the potential to temporarily disrupt the surrounding community through reduced amenity for outdoor sitting; disruption of pedestrian routes, access to businesses; displacement of established cycling, pedestrian and vehicle routes; and potential safety issues due to movement of heavy vehicles and construction machinery and equipment.

In order to minimise these impacts, the following mitigation measures are recommended:

- Engage with businesses with an early information campaign.
- Establish a contact, complaint and response protocol.
- Stage construction to minimise extent of impact.
- Maintain existing pedestrian access where practical.
- Minimise disruption to pedestrian access where practical.
- Minimise external environmental impacts that would deter trade traffic.
- Display public information signs until works are completed.

With the implementation of these mitigation measures, social impacts associated with the construction of the proposal are expected to be moderate, temporary and reasonable.

7.9.2 Operation

As discussed in **Section 4**, the project aligns with State and local strategies, and is expected to make a positive contribution to the area. Social benefits associated with the project will include alignment with community aspirations, improved amenity for users, increased safety for cyclists and pedestrians, and increased community health benefits associated with promotion of active transport.

7.10 Economic impacts

7.10.1 Construction

Construction activities will disrupt pedestrian movements and may result in temporary adverse impacts to businesses along Curlewis Street that rely on foot traffic. These impacts are not uncommon in urban areas, and the staging of works will minimise impacts. However, several mitigation measures can be implemented to minimise impacts:

- Early consultation with residents and businesses.
- Consider pedestrian movements when designing stage areas to minimise the need for complete footpath closure.

- Include pedestrian management measures as part of construction traffic management plans (CTMPs) and traffic guidance schemes (TGSs).
- Restrict complete closure of footpaths to non-peak periods where possible.

7.10.2 Operation

The proposal is expected to result in generally positive economic impacts for local businesses. The improved streetscape may encourage pedestrian movements and thereby support business that rely on foot traffic.

There will be no net reduction in parking due to the proposal, and therefore there is no concern that businesses will be adversely affected due to a loss of parking.

7.11 Traffic and parking

7.11.1 Construction

Construction will result in temporary traffic delays and congestion, as well as restricted access to street parking and loading zones. Access to existing bus stops and bus routes would also be disrupted.

Uncontrolled, these impacts would likely result in significant impacts on residents, business and shoppers until construction was complete. However, as discussed in **Section 3.5.1**, the proposal is planned to be constructed over several stages. This will substantially reduce impacts by ensuring that areas outside of the current stage are not directly affected by construction activities. Impacts can be further mitigated through the following measures:

- Communicate with local residents and business regarding the impacts, status and timing of construction stages.
- Signpost changes to truck/loading zones, taxi ranks, bus stops or routes.
- Prepare a construction traffic and pedestrian management plan (CTPMP) as part of the CEMP that outlines the impacts, mitigation measures and access controls for construction works.
- Prepare traffic guidance schemes specialised for individual stages or hazards.
- Maintain at least one lane of traffic in either direction during the construction of the stage.

With the implementation of these mitigation measures, social impacts associated with the construction of the proposal are expected to be moderate, temporary and reasonable.

7.11.2 Operation

Parking

The proposal will result in a net loss of approximately 5 spaces along Curlewis Street. There will be no loss of parking along Simpson Street.

The loss of parking along Curlewis Street is to allow for compliance “No Stopping” lengths at intersections and adequate vehicle swept paths. This loss of parking is considered minor and unlikely to significantly affect drivers ‘ability to utilise parking in the area.

It is also important to keep in mind that the proposal responds to objectives in Council’s LSPS and community strategic plan which seek to encourage mode-shift from private vehicles to active and public transport to decrease congestion. The minor loss of parking should be considered in this context.

Intersection performance

The proposal includes changes to intersection design which may affect intersection performance. As such, SIDRA modelling has been carried out to assess the impacts of the proposed intersection design. Modelling was carried out for the key intersections at Old South Head Road, Wellington Street, Glenayr Street and Campbell Parade (**Appendices 6a, 6b, 6c and 6d**). The results of the assessment are summarised below.

Old South Head Road/Curlewis Street intersection

This intersection currently operates beyond capacity at Level of Service (LoS) F in both the AM and PM peak, with excessive delay on Old South Head Road and Birriga Road and significant queuing on Old South Head Road.

The SIDRA results indicate that in the AM peak, the intersection continues to operate at capacity; however, the proposed layout changes result in a relatively minor decrease in performance.

In the PM peak, the proposed layout changes result in an overall intersection increase in average delay of approximately 16 seconds, with the greatest impacts to vehicles on the O’Sullivan Road approach where all through-vehicles would use the kerbside lane only. Observations from traffic survey videos indicate approximately 90% of through-vehicles on O’Sullivan Road currently use the kerbside lane to pass vehicles waiting to turn right. This, combined with the unusual existing intersection geometry that allows through-vehicles to manoeuvre around vehicles waiting in the intersection to turn, indicates that the impact on O’Sullivan Road is unlikely to be as substantial as the modelling suggests.

On balance, the changes to the intersection are considered acceptable as they are generally supported by the community and will improve pedestrian amenity and appearance of the streetscape while potentially resulting in minor decreases to intersection performance. It is important to keep in mind that the project’s aim is to improve connectivity, safety and amenity for pedestrians and cyclists in the area.

Wellington Street/Curlewis Street intersection

This intersection currently operates satisfactorily at an overall LOS B during the AM peak and LOS A during the PM peak.

The introduction of a shared pedestrian and cyclist crossing on the north-eastern approach has been modelled as a SIDRA network layout. The crossing effectively introduces a second delay point on the north-east approach, resulting in the average delay and queue lengths being spread across two points.

The future modelling indicates that the overall roundabout performance improves; however, this is due to the average delay and queue length on the north-eastern approach being split between the roundabout and crossing point.

The Curlewis Street approaches and Wellington Street south-west approach performance remain as per existing.

Combining the roundabout and crossing point average delays and 95th percentile queue lengths for the north-east approach, the total average delay on this approach is increased by two seconds in both peak periods, and the queue length is increased by 1m in the AM peak period only. These minor increases in average delay and queue lengths are considered acceptable, with no significant impact to overall roundabout operation.

Analysis of the south-west approach to the proposed crossing indicates average delays of 1 second and 95th percentile queue lengths of 0m. This indicates that vehicles exiting the roundabout will not be delayed at the proposed crossing, with vehicles not anticipated to queue back and impact the roundabout operation.

Overall, the impacts to the operation of this intersection are considered minor and acceptable.

Glenayr Street/Curlewis Street intersection

This intersection currently operates satisfactorily, with an overall LoS B in both the AM and PM peak periods.

There are two available signal phasing options to incorporate the separated cycleway along Curlewis Street that require confirmation from Council and TfNSW on the preferred option. These are:

- Separate cycle phase.
- Cyclist turning bans (to retain existing two-phase operation).

Both signal phasing options result in satisfactory intersection operation, with an overall LoS B in both peak periods.

The introduction of a separate cycle phase increases the degree of saturation, average delay and queue lengths compared to the existing. However, the provision of a separate cycle phase allows all existing movements to be retained.

Banning cyclist turning movements from the separated cycleway results in similar average delays and queue lengths compared with existing intersection operation.

Overall, the impacts to this intersection are considered minor and acceptable for either option. The preferred option will be chosen through the design and development of traffic control signal (TCS) plans in consultation with TfNSW.

Campbell Parade/Curlewis Street intersection

This intersection currently operates satisfactorily, with an overall LoS A in the weekday AM peak period and LoS B in the weekday PM and Saturday peak periods.

The introduction of the proposed bi-directional cycleway on Curlewis Street requires a new bicycle-only signal phase and bicycle transition ramps on Campbell Parade eastern kerb to cater for connections to and from the proposed cycleway. SIDRA modelling shows that the introduction of this infrastructure increases the intersection average delay by 8 to 9 seconds and queue lengths by approximately 30m. These increases in average delay and queue lengths are considered acceptable, with no significant impact to overall intersection performance.

In all three peak periods the proposed intersection layout is anticipated to operate at LoS B, representing a decrease in level of service for the weekday AM peak period only.

Overall, the impacts to this intersection are considered minor and acceptable.

Network-wide impacts

Modelling of cumulative network impacts has not been carried out given the project does not involve changes to travel lanes along Curlewis Street (except for the removal of the slip lane from Old South Head Road, which has been modelled). Furthermore, the impacts identified in the intersection-specific modelling are generally minor, and therefore significant cumulative impacts are not anticipated.

7.12 Pedestrian accessibility

7.12.1 Construction

During construction, complete or partial footpath closures and street crossing closures during will affect pedestrian movements and accessibility. Impacts may include reduction in footpath capacity, increase in travel distance between points due to footpath closures, reduction in pedestrian amenity, and reduction in trade for businesses that rely on foot traffic. The impacts will be felt disproportionately by individuals with mobility impairments.

These impacts are not uncommon in urban areas, and the staging of works will minimise impacts. However, several mitigation measures can be implemented to minimise impacts:

- Early consultation with residents and businesses.
- Consider pedestrian movements when designing stage areas to minimise the need for complete footpath closure.
- Include pedestrian management measures as part of construction traffic management plans (CTMPs) and traffic guidance schemes (TGSs).
- Restrict complete closure of footpaths to non-peak periods where possible.
- Incorporate temporary pedestrian infrastructure to maintain access levels where possible (e.g., ramps and signage).

7.12.2 Operation

As discussed in **Section 3.4**, the project involves new/improved pedestrian infrastructure, including:

- Refreshing of approximately 900m of footpaths (on each side of the road).
- New raised pedestrian crossing across Wellington Street to the north of the roundabout.
- Reconstruction of existing pedestrian islands to suit new levels.
- Reconstruction of raised pedestrian crossing across Curlewis Street immediately west of Gould Street.
- New continuous footpath treatment across Gould Street on both sides of intersection.

These changes are generally expected to have positive impacts on pedestrian accessibility and amenity.

7.13 Safety

7.13.1 Construction

Safety risks associated with construction of the cycleway generally relate to the safety of construction staff, pedestrians, drivers, passengers and nearby building occupants, as well as larger risks to infrastructure. This may include risks associated with:

- Interaction with utilities.
- Movement of materials and vehicles.

- Pedestrian movements around construction area.
- Injury due to manual handling/lifting.
- Blockage of roads for emergency services.

However, these risks are not be unique to the proposal and are standard for projects involving extended road works in an urban environment.

Ongoing management measures include active monitoring and management, as well as the preparation and implementation of recommended management plans (e.g., CEMPs, CTMPs and TGSs). It is recommended that the identified risks are incorporated into these plans as appropriate and discussed at inductions.

7.13.2 Operation

A Road Safety Audit (RSA) (**Appendix 7**) has been prepared to examine the road safety issues associated with the design of the cycleway and associated streetscape upgrades. Day time and night-time inspections were carried out on 7 March and 8 March 2023. The results of the inspection are summarised below.

- The inspection identified **0 design items** with a risk rating of **High** (very important and needs to be addressed urgently).
- The inspection identified **3 design items** with a risk rating of **Medium** (important and needs to be addressed as soon as possible). These are discussed in further detail below.
- The inspection identified **29 design items** with a risk rating of **Low** (needs to be considered as part of regular maintenance/planning program). These will be considered and incorporated as appropriate as the design progresses.

The **3 medium risk items**, and the designer's response, are detailed below:

- **Diverge point to Blair Street from Curlewis Street:**

Issue: Drivers may not be aware of the diverge point as the signage plan does not show the existing direction sign for Bondi Beach, pavement arrows give late notice, and the gore area is not well-delineated.

Response: Directional signage will be relocated and shown on the final drawings. Also, the diverse is an existing condition, and the provision of the off-road cycleway improves safety.

- **General item—driveway/cyclist conflict:**

Issue: There are several driveways along the route where motorists will be required to reverse across the cycleway as there is insufficient area on-site to enter and exit in a forward direction.

Response: This item is unavoidable as any cycleway would require vehicles to cross it to move between properties and the roadway. Green surface treatment is provided at conflict points in accordance with the relevant specifications and guidelines.

- **West leg approach side of Campbell Parade:**

Issue: The design does not indicate any connectivity or restriction for cyclist turning movements from the existing on-road cycleway to Campbell Parade to Curlewis Street. This would potentially cause confusion for other cyclists and result in conflicts with other road users.

Response: Designs are subject to ongoing coordination and review with TfNSW, and these comments are under consideration.

7.14 Waste

7.14.1 Construction

The works will generate general construction waste, such as surplus material, off-cuts, green waste from removed vegetation, and other debris. In order to manage this waste, the following mitigation measures are recommended:

- A waste management plan (WMP) will be prepared and implemented as part of the CEMP.
- All surplus material, off-cuts, and other debris resulting from the work shall be removed from the site and disposed of by a licensed contractor to a license waste management facility.
- Waste material other than vegetation and tree mulch, is not to be left on site once the works have been completed.
- Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.

7.14.2 Operation

No ongoing waste impacts are anticipated during operation.

7.15 Climate change and greenhouse gas emissions

7.15.1 Construction

An increase in greenhouse gas emissions, primarily carbon dioxide, is expected during construction of the project due to exhaust emissions from construction machinery and vehicles transporting materials and personnel. However, due to the relatively small scale of the project and the short-term, temporary nature of the construction activities, it is considered that greenhouse gas emissions resulting from the construction would be minimal and acceptable.

7.15.2 Operation

It is anticipated that, once operational, the project may result in an increase in use of active transport and a relative decrease in use of private motor vehicles by commuters travelling in the area. This modal shift in transport usage could result in a reduction in fuel consumption by private vehicles and therefore a corresponding relative reduction in associated greenhouse gas emissions in the local area.

7.16 Streetscape impacts

7.16.1 Construction

The project may result in minor adverse impacts to the streetscape during construction works due to partial road closures and general construction activities. However, this type of impact is standard for road infrastructure projects and is considered minor and acceptable.

7.16.2 Operation

The existing public domain infrastructure along Curlewis Street is dated and failing in some cases. Moreover, the street has a high number of utility service (e.g., communications, gas, water and electricity) trenches, which has led to a patchwork of finishes throughout

The project will have decidedly positive streetscape impacts through the addition of a new separated cycleway, new pavement, new footpaths, and new trees and other landscaping. The 3D renders at **Figure 9** and **Figure 10** illustrate the improvements.

7.17 Post Finalisation Design Amendments

As outlined in Section 3.6 of this document, minor design amendments have been made as part of the detailed documentation to be issued for construction (IFC). The changes relate primarily to detailed engineering matters, which are typically refined at IFC stage to ensure a practical design outcome based on site conditions.

Based on a review of the proposed changes, the following can be concluded:

- The design amendments will provide a practical response to on-site conditions and include more robust and suitable finishes which will contribute to the longevity of the infrastructure.
- The design amendments trigger no statutory requirement for additional community consultation. They are considered to be generally aligned with the community consultation outcomes and do not contravene any historic response to submissions.
- The design amendments will not result in any negative environmental impacts in relation to those matters set out in clause 171(2) of the EP&A Regulation.

- As the amendments have no significant environmental impact, no further consideration is required for cumulative impacts.
- The design amendments require no additional mitigation measures.

7.18 Cumulative impacts

7.18.1 Construction

As noted in **Section 2.3**, there are a number of significant developments along Curlewis Street that have recently been approved or are currently under assessment. Construction of these developments may overlap with construction of the proposed streetscape upgrades.

Once the construction schedule for the proposed streetscape upgrades is known, Council may wish to notify the proponents of the proposed schedule to ensure that the proponents' plans take into account the street upgrades.

The staging of the upgrades will assist in avoiding prolonged impact on any one area of the street.

7.18.2 Operation

No adverse impacts are anticipated during operation of the upgraded streetscape. In fact, the streetscape upgrades are expected to result in positive cumulative impacts over the long term by aligning the quality and functionality of the public domain with new high quality commercial and development along the street.

8 Summary of mitigation measures

Table 3 below provides a summary of the recommended mitigation measures. Implementation of these measures will ensure the proposed activity does not result in any significant or unreasonable adverse impacts.

Table 3 – Mitigation measures	
Area of impact	Mitigation measure
General	<ul style="list-style-type: none"> • A construction environment management plan (CEMP) is to be prepared prior to any construction works commencing. The CEMP should include relevant REF mitigation measures.
Streetscape	No mitigation measures identified.
Air quality	<ul style="list-style-type: none"> • Develop appropriate communications to notify potentially affected residences and businesses (duration, types of works,

Table 3 – Mitigation measures

Area of impact	Mitigation measure
	<p>etc.) and provide relevant contact details for complaints reporting.</p> <ul style="list-style-type: none"> • Measures to minimise or prevent air pollution or dust are to be used including watering or covering exposed areas. • High dust-generating activities are not to be carried out during strong winds or in adverse weather conditions. • Vehicles and vessels transporting waste or other materials that may product odours or dust are to be covered during transportation. • Vehicles and equipment are to be maintained in good working order. • Monitor work areas and stockpiles for dust generation and cover/spray to suppress. • Do not leave vehicles idling.
Water quality	<ul style="list-style-type: none"> • Prepare and implement a soil and water management plan as part of the CEMP. • Site management should incorporate best management erosion and sediment control practices such as those found in the "Blue Book". • All fuels, chemicals, and liquids stored appropriately in an impervious area away from drainage or areas prone to flooding. • Ensure emergency spill kits and relevant trained staff are on hand during all stages of construction.
Flooding	No mitigation measures required.
Soils and contamination	<ul style="list-style-type: none"> • Undertake sampling prior to soils being disturbed to determine contamination levels, and incorporate site-specific management measures as required. • If contaminated areas are encountered during construction, appropriate control measures should be implemented to manage the immediate risks of contamination. • All other works that may impact on the contaminated area should cease until the nature and extent of the contamination has been confirmed, and any necessary site-specific controls or further actions identified in consultation with relevant government agencies.
Biodiversity	<ul style="list-style-type: none"> • Updated landscape plans are to be prepared to ensure coordination with the site works drawings. The updated plans are to include tree installation specifications to ensure trees are planted in accordance with relevant guidelines or best practice.

Table 3 – Mitigation measures

Area of impact	Mitigation measure
	<ul style="list-style-type: none"> • Only trees identified for removal in the Arboricultural Impact Assessment are to be removed. • For trees to be retained, tree protection measures and tree-sensitive construction methods must be implemented in accordance with the recommendations in the Arboricultural Impact Assessment. • Prior to commencement of works, a suitably qualified arborist is to review the project area west of Wellington Street to identify trees to be removed and retained, and to provide protection measures for trees to be retained. • Prior to commencement of works, a suitably qualified arborist is to review the raised (verge level) portion of the cycleway against the findings of the Arboricultural Impact Assessment and provide updated recommendations and tree protection measures if required.
Aboriginal heritage	<ul style="list-style-type: none"> • The persons responsible for the management of onsite works will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. • Should any Aboriginal objects be uncovered during works, all work will cease in that location immediately and the Environmental Line contacted.
Historic heritage	No mitigation measures identified.
Noise and vibration	<ul style="list-style-type: none"> • A construction noise and vibration management plan is to be prepared and implemented as part of the CEMP. The plan is to generally follow the approach in the ICNG. • All sensitive receivers likely to be affected will be notified at least 5 working days prior to the start of any works associated with the activity that may have an adverse noise or vibration impact. • Works are to be carried out during normal work hours (i.e., 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; no work on Sunday or public holidays). Works outside these times will be carried out in accordance with the management and mitigation measures detailed within the noise and vibration management plan. • Establish and maintain safe working distances from structures when performing vibration intensive works.
Social impacts	<ul style="list-style-type: none"> • Engage with businesses with an early information campaign. • Establish a contact, complaint and response protocol. • Stage construction to minimise extent of impact. • Maintain existing pedestrian access where practical.

Table 3 – Mitigation measures

Area of impact	Mitigation measure
	<ul style="list-style-type: none"> • Minimise disruption to pedestrian access where practical. • Minimise external environmental impacts that would deter trade traffic. • Display public information signs until works are completed.
Economic impacts	<ul style="list-style-type: none"> • Early consultation with residents and businesses. • Consider pedestrian movements when designing stage areas to minimise the need for complete footpath closure. • Include pedestrian management measures as part of construction traffic management plans (CTMPs) and traffic guidance schemes (TGSs). • Restrict complete closure of footpaths to non-peak periods where possible.
Traffic and parking	<ul style="list-style-type: none"> • Communicate with local residents and businesses regarding the impacts, status and timing of construction stages. For each construction stage, affected residents and businesses are to be notified of works a minimum of 10 days prior to commencement of the works. • Signpost changes to truck/loading zones, taxi ranks, bus stops or routes. • Prepare a CTMP that outlines the impacts, mitigation measures and access controls for construction works. • Prepare TGSs specialised for individual stages or hazards. • Maintain at least one lane of traffic in either direction during the construction of the stage. • Update the design for the west leg approach to Campbell Parade, taking into consideration the concerns identified in the RSA (item 38). The design is to be finalised to the satisfaction of TfNSW.
Pedestrian accessibility	<ul style="list-style-type: none"> • Carry out early consultation with residents and businesses. For each construction stage, affected residents and businesses are to be notified of works a minimum of 10 days prior to commencement of the works. • Consider pedestrian movements when designing stage areas to minimise the need for complete footpath closure. • Include pedestrian management measures as part of CTMP and TGSs. • Restrict complete closure of footpaths to non-peak periods where possible. • Incorporate temporary pedestrian infrastructure to maintain access levels where possible (e.g., ramps and signage).

Table 3 – Mitigation measures

Area of impact	Mitigation measure
Safety	<ul style="list-style-type: none"> • Include construction safety risks and management measures as part of CTMP. • Ensure Bondi Beach directional signage at the Blair Street diverge point is shown on final drawings. • Implement an education campaign prior to the commencement of operation of the cycleway. The campaign should include temporary and ongoing notification measures. Such measures may include notifications on Council's website and Council's social media channels, advertisements in local newspapers, letter box drops, signage, or similar. The campaign should raise awareness of key matters, including, but not limited to, reduced sight lines, oncoming bicycle traffic at intersections and zebra crossings, and potential conflicts with vehicles.
Waste	<ul style="list-style-type: none"> • A WMP will be prepared and implemented as part of the CEMP. • All surplus material, off-cuts, and other debris resulting from the work shall be removed from the site and disposed of by a licensed contractor to a license waste management facility. • Waste material other than vegetation and tree mulch, is not to be left on site once the works have been completed. • Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.
Cumulative impacts	<ul style="list-style-type: none"> • Inform proponents of significant developments along Curlewis Street of streetscape upgrades once the construction schedule is known.

9 Conclusion

This REF has considered the proposed Curlewis Street streetscape upgrades and the associated environmental impacts in accordance with the provisions of Division 5.1 of the EP&A Act and EP&A Regulation), and other relevant statutory requirements. In accordance with section 5.5 of the EP&A Act, it has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the project. In particular, the REF has taken into account the factors set out in section 171 of the EP&A Regulation.

This REF has assessed whether the project is likely to significantly affect the environment. The assessment has also included whether there are likely to be impacts to matters of national significance under the EPBC Act and whether a species impact statement would be required under the BC Act.

This REF has found that the key potential environmental impacts associated with the project include:

- Noise emissions during construction.
- Disruptions to pedestrian and vehicle movements during construction.
- Minor impacts on intersection performance during operation.

However, none of the impacts are expected to be significant. The impacts can be mitigated effectively by the design and management strategies implemented as part of the project.

Overall, the assessment in this REF has found that:

- The project is not likely to significantly affect the environment, and therefore does not require the preparation of an EIS.
- The Project is not likely to have a significant impact on matters of national environmental significance, and therefore referral to the Commonwealth Government under the EPBC Act is not required.
- Significant impacts on threatened species, populations, ecological communities or their habitats as defined by the BC Act are not expected as a result of the project, and therefore a species impact statement is not required.