



Transport for NSW

Sydney Park Junction

Walking, cycling and public domain improvements

Submissions report





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improvements

Submissions Report

Transport for NSW | March 2022

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Prepared by Jacobs and Transport for NSW

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Sydney Park Junction Walking, cycling and public domain improvements Submissions Report

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Approval and authorisation

Title	Sydney Park Junction Walking, Cycling and Public Domain Improvements Submissions Report
Accepted on behalf of Transport for NSW by:	Panduka Manamperi Senior Project Manager
Signed:	
Dated:	

Executive summary

The proposal

Transport for NSW proposes to improve the southern 'gateway' to King Street, Newtown by reallocating lanes on King Street, Princes Highway and Sydney Park Road improving pedestrian and cyclist access and urban amenity along these road corridors to Sydney Park, St Peters Station and surrounding neighbourhoods (the proposal). The proposal is located about four kilometres south west of the Sydney Central Business District (CBD), in the suburbs of St Peters, Newtown, Erskineville and Alexandria along the boundary between the Inner West and City of Sydney Local Government Areas (LGAs).

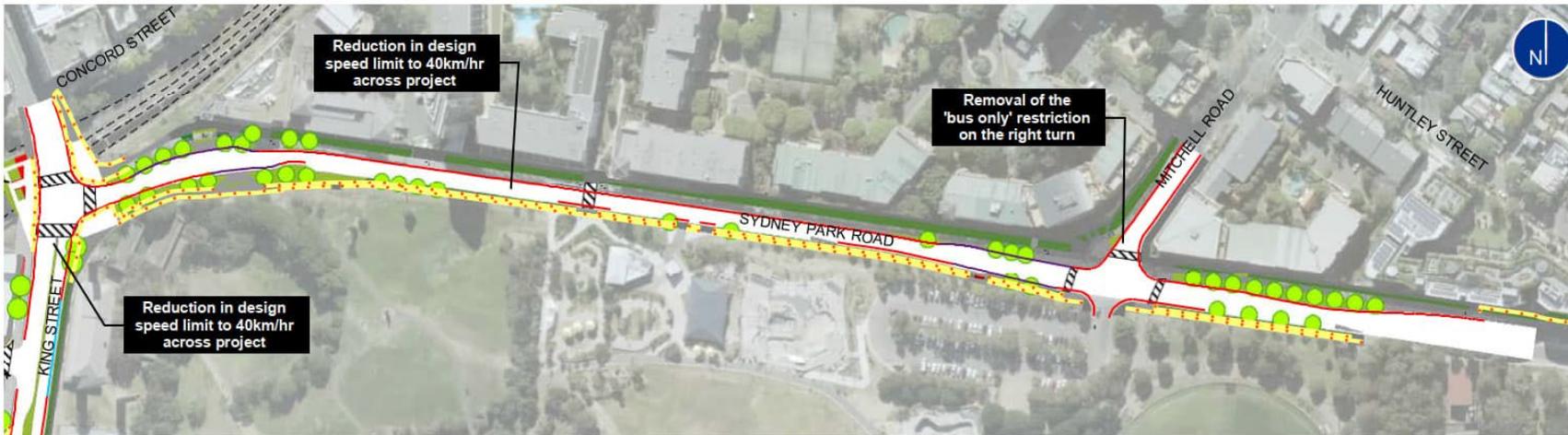
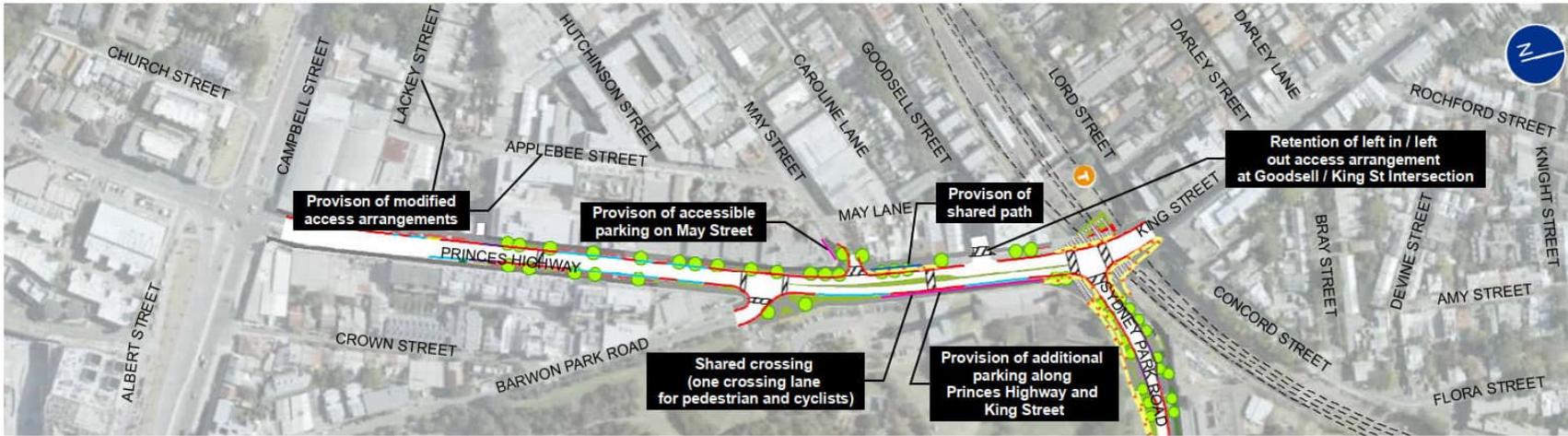
The key features of the proposal were described in Chapter 3 of the Sydney Park Junction Review of Environmental Factors (REF) prepared by Transport for NSW in July 2021. Transport for NSW has since refined the proposal design in response to issues raised in public submissions and during design development (refer to **Figure A- 1**).

Key features of the revised proposal include:

- Reducing the Princes Highway/King Street carriageway from six lanes (generally) to four lanes (two lanes off-peak) from Campbell Street to Sydney Park Road, to accommodate an on-road two way segregated cycleway (on the western side of King Street between May Street and St Peters Square), additional landscaping and community spaces to increase urban amenities. The existing pop-up cycleway along Sydney Park Road would remain operational until construction of the proposal
- Reducing the Sydney Park Road carriageway from four lanes to two lanes to accommodate a permanent solution for the existing temporary on-road two way (pop-up) segregated cycleway (northern side), parking and additional landscaping to increase urban amenities
- New mid-block pedestrian shared crossings to improve access across the Princes Highway/King Street and into Sydney Park, including:
 - A new mid-block pedestrian crossing on Princes Highway north of Short Street.
 - A new mid-block pedestrian and cyclist crossing on Princes Highway between May Street and Goodsell Street.
- Traffic signal and intersection reconfiguration to improve safety at:
 - Princes Highway/King Street and Sydney Park Road intersection:
 - King Street southbound approach: Reduce existing three through lanes and one left turn slip lane to a one through lane and one through/left turn lane
 - King Street northbound approach: Maintain existing two through lanes and reduce existing two dedicated right turn lanes to one lane
 - Sydney Park Road approach: Reduce existing two left turn lanes and two right turn lanes to one left turn lane and one right turn lane
 - Replacing existing signalised pedestrian crossing facilities with signalised shared crossing facilities on all approaches
 - Princes Highway/King Street and Goodsell Street intersection:
 - Retention of two traffic lanes approaching the intersection and retention of the current left in and left out access
 - New raised shared pedestrian and cyclist crossing at the entrance of Goodsell Street
 - Princes Highway/King Street and May Street intersection:

- Removing traffic signals and re-configuring May Street to left in and left out only movements with a new raised zebra crossing to prioritise pedestrians at the entrance of May Street
 - Princes Highway/King Street and Barwon Park Road intersection:
 - Installing new traffic signals with new pedestrian crossings
 - Sydney Park Road and Mitchell Road intersection:
 - Eastbound approach: Reduce existing two through lanes and one left turn lane to one through lane and a through/left turn lane
 - Westbound approach: Reduce existing one right turn lane, one through lane and one through/left turn lane to one through lane and one left turn lane
 - Mitchell Road approach: Change existing one right turn lane and one right/through/left turn lane to one right turn lane and one through/left turn lane
- Reducing the posted speed limit on Princes Highway from 60 kilometres per hour to 40 kilometres per hour from Campbell Street to Goodsell Street
- Sydney Park car park access on King Street will be modified so that Barwon Park Road access will be entry only into the car park, and King Street will be exit only from the car park
- Adjustments and relocation of parking spaces along the road corridor, resulting in an overall addition of 11 parking spaces
- Providing one additional accessible parking space on May Street
- Reassigning the existing footpath along the western side of King Street between the cycleway and May Street as a shared path for both pedestrians and cyclists
- Road re-surfacing at signalised intersections and along road corridor where required
- Providing dynamic community spaces on both sides of Princes Highway
- Providing landscaped buildouts on Sydney Park Road and Princes Highway
- Relocating the bus stops on Princes Highway near the Short Street intersection, and on Sydney Park Road near the Mitchell Road intersection
- Relocating utilities and adjustments to streetlights where required
- Removing the Princes Highway and Sydney Park Road corridors from the approved B-double freight access network
- Adjusting stormwater to accommodate design
- Relocating existing Variable Message Sign and CCTV camera
- Relocating road signs and line marking works
- Temporary construction facilities, including site compounds and an ancillary facility at Burrows Road and Venice Street, Mascot
- Allowing a right turn from May Street into Applebee Street; reversal of one-way traffic directions on Lackey Street and Applebee Street; with an extension of the two way direction on Applebee Street up to Hutchinson Street to improve access arrangements into the St Peters Triangle for residents

Construction is expected to commence in mid to late 2022 and would take around 20 months to complete.



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Legend

- Railway line
- Bus zone
- Parking permitted
- Mail zone
- Proposed shared path
- No stopping zone
- ▨ New crossings
- New tree plantings

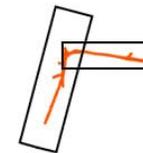


Figure A-1 | Refinements to the proposal
Sydney Park Junction

Display of the Review of Environmental Factors

Transport for NSW prepared a Review of Environmental Factors (REF) to assess the potential environmental and social impacts of the proposed works and identify ways to minimise these impacts. A summary of the suggestions, issues and concerns raised in submissions to the Sydney Park Junction proposal and Transport for NSW's responses to these suggestions, issues and concerns are provided in this report.

The REF was published on the Transport for NSW project website on 6 September 2021 to view and download and the community and key stakeholders (including local councils, organisations and local businesses) were invited to provide feedback on the proposal over a 30-day period until 4 October 2021. Late submissions from local government and community stakeholders were accepted until 20 October 2022. The website link was advertised on the Transport for NSW Facebook page, Facebook pages and websites of Inner West and City of Sydney communities and the Inner West Council website.

Physical copies of the REF were not made available during the consultation period due to the Public Health (COVID-19 Greater Sydney) Order (No 2) 2021 stay-at-home advisory that was in place during this time as a result of the COVID-19 pandemic.

Consultation activities carried out during the display of the REF included an online community information session, Facebook notifications and distribution of information material. The community information session provided the community with the opportunity to learn more about the proposal and ask the project team questions. About 32,600 copies of the community update were letterbox dropped to residents surrounding the proposal area, including St Peters, Erskineville, Alexandria, Newtown, Sydenham and surrounding suburbs. The community update included a description of the proposal, a schematic map showing the key features of the proposal, information on the consultation period and information on how to make a submission on the REF via the project website, phone or email.

Summary of issues and responses

A total of 548 submissions were received from the general community, including individuals, businesses and community groups. Two submissions were received from the local councils, Inner West Council and City of Sydney Council. Of these submissions, 49 per cent of respondents supported the proposal, 31 per cent objected to the proposal and seven per cent were partially supportive of the proposal. The remaining 13 per cent of respondents offered no position on whether they supported or objected to the proposal.

The five issue categories most commonly raised in the submissions (in order of total number of issues raised) relate to the following:

- Traffic and transport (558 issues)
- Support for the proposal (451 issues)
- Stakeholder and community consultation (72 issues)
- Design (66 issues)
- Proposal clarifications (63 issues).

The remaining categories raised in the submissions are listed below:

- Urban design and visual amenity (54 issues)
- Socio-economic, property and land use (36 issues)
- Construction (11 issues)
- Air quality and human health (7 issues)
- Noise (6 issues)
- Cumulative impacts (4 issues)
- Climate change (3 issues)

- Biodiversity (2 issues)
- Other issues (9 issues).

Some submissions raised more than one issue per category.

The main issues raised by the community relate to:

- Impacts on access for local residents and rat running via local roads in Erskineville and Newtown due to the removal of the right turns into/out of May Street from King Street/Princes Highway and the restriction of the right turn from Mitchell Road into Sydney Park Road to buses only
- A concern that the reduction in traffic lanes and the speed limit would increase congestion and travel times
- Adequacy of proposed pedestrian and cycling infrastructure, including connectivity of cycleways to the existing cycling network
- Safety risks for pedestrians
- Loss of parking spaces
- Prioritisation and separation of pedestrians and cyclists at intersections and crossings
- Need and justification for the proposal
- Road design, signage and markings
- Landscaping and urban design
- Inadequate consideration of impacts on the surrounding road network
- Pedestrian and bicycle level of service/delays.

Changes to the proposal since display of the review of environmental factors

Since display of the REF further refinements have been made to the final design. These changes to the proposal do not affect the environmental assessment. The refinements to the final design include:

- Reduction of the design speed limit to 40 kilometres per hour along Princes Highway (north of Campbell Street), King Street (south of Lord Street) and Sydney Park Road
- Removal of the 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road
- Provision of one accessible parking space on May Street
- The Goodsell Street/King Street intersection would retain its current left in/left out access arrangement and the approach to the intersection would have two traffic lanes
- The new mid-block crossing on Princes Highway between May Street and Goodsell Street has been moved further to the north and would be a shared crossing instead of a separated crossing for pedestrian and cyclists
- The existing footpath along the western side of King Street between the cycleway and May Street would be reassigned as a shared path
- An additional 25 parking spaces would be provided along King Street and Princes Highway, an overall addition of 11 parking spaces.

Prior to the start of construction, the construction design will be considered for consistency with the determined project (REF and this submissions report) and its conclusions.

Additional assessment

Due to community and stakeholder concerns raised about the removal of the right turns into and out of May Street at its intersection with King Street/Princes Highway, further traffic impact assessment has been carried out to review the impacts of the removal of the right turns and evaluate changes in access arrangements to address these concerns. The methodology and findings of the assessment are presented in **Chapter 5** of this submissions report.

The assessment involved an options assessment to review the impact of the proposed access arrangements into the St Peters Triangle (consisting of Goodsell Street, Council Street, May Street, May Lane, Caroline Lane, Council Street, Hutchinson Street, Lackey Street, Applebee Street, Short Street, Princes Highway and Campbell Street) and to identify additional access arrangements that would address community and stakeholder concerns. All options included the removal of the right turns into/out of May Street from/into King Street and Princes Highway, as per the current design, to reduce through traffic using King Street, Princes Highway and Sydney Park Road and to discourage rat running through local residential streets, including May Street

From the options assessment, a preferred option was identified that would improve accessibility for residents within the St Peters Triangle, while minimising congestion and changes to travel times and maintaining safety. The preferred option involves a right turn from May Street into Applebee Street, extending the two way section on Applebee Street to the intersection with Hutchinson Street, and reversing the one way traffic directions on Lackey Street and Applebee Street only. The remaining identified one way roads would be maintained as per the existing direction of traffic flow.

Notification of the proposed changes to access arrangements to improve traffic movement within the St Peters Triangle was letterboxed to residents in Hutchinson Street, Lackey Street and Applebee Street on 17 November 2021. Residents in these streets had the opportunity to provide feedback on the proposed changes via phone or email over a two week period from 17 November 2021 to 1 December 2021. Transport for NSW will continue to consider all community and stakeholder feedback.

Environmental management measures

A full list of the environmental management measures proposed, including one additional measure to address issues raised in stakeholder and community submissions received on the REF, is provided in **Chapter 6** of this submissions report.

Should the proposal proceed (subject to determination by Transport for NSW), detailed investigations, planning and surveys will be undertaken by the appointed design and construction contractor/s. The design presented by the design and construction contractor/s will need to satisfy all technical road design requirements and road functionality as described in the REF and this submissions report, and be consistent with the approved scope of the proposal, including the environmental management measures for the proposal.

Ongoing consultation with community and stakeholders

Transport for NSW, as the determining authority for the proposal, is committed to undertaking further engagement with communities and key stakeholders regarding detailed design of the proposal and opportunities to provide future input, prior to construction.

Based on community and stakeholder feedback and concerns raised in submissions on the REF, Transport for NSW is proposing improvements in access to St Peters Triangle and has carried out further targeted engagement with affected residents, as described above. Transport for NSW will continue to engage with stakeholders before implementing this portion of the proposal.

A Construction Environmental Management Plan and associated sub-plans will be prepared in consultation with relevant stakeholders as described in **Chapter 6** of this submissions report. The Construction Environmental Management Plan will include a Community and Stakeholder Engagement Plan, which will

outline consultation with stakeholders and the community during construction. This will include protocols for providing notifications and updates on construction activities and program, responding to enquiries and concerns in a timely manner and minimising potential impacts where possible.

These requirements for further consultation are also captured in the proposed environmental management measures as listed in **Section 6.2** of this submissions report.

Conclusion

The issues raised during the public display of the review of the environmental factors have been summarised and responded to in this submissions report. All potential environmental impacts have been assessed adequately with appropriate safeguards and management measures identified to avoid, minimise and mitigate impacts. The implementation of the safeguards and management measures identified in this submissions report would appropriately manage and mitigate the potential impacts.

Transport for NSW, as the determining authority, will consider the information in the review of the environmental factors and this submissions report and make a decision whether or not to proceed with the proposal.

Transport for NSW will inform the community and stakeholders of this decision. Where a decision is made to proceed with the proposal, Transport for NSW will continue to consult with the community and stakeholders before and during the construction phase.

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1. Introduction and background

1.1 The proposal

Transport for NSW proposes to improve the southern ‘gateway’ to King Street, Newtown by reducing the capacity of King Street, Princes Highway and Sydney Park Road, improving pedestrian and cyclist access and urban amenity along these road corridors to Sydney Park, St Peters Station and surrounding neighbourhoods (the proposal). The proposal is located about four kilometres south west of the Sydney Central Business District (CBD), in the suburbs of St Peters, Newtown, Erskineville and Alexandria along the boundary between the Inner West and Sydney Local Government Areas (LGAs), as shown in **Figure 1-1**.

The proposal objectives align with the strategic objectives articulated in the *Greater Sydney Region Plan* (Greater Sydney Commission, 2018), the *Road Safety Plan 2021* (Transport for NSW, 2018) and the *Future Transport Strategy 2056* (Transport for NSW, 2018).

The key features of the proposal were described in Chapter 3 of the Sydney Park Junction Review of Environmental Factors (REF) prepared by Transport for NSW in July 2021. Transport for NSW has since refined the proposal design in response to issues raised in public submissions and during design development. These refinements to the proposal are described in **Chapter 4** of this submissions report.

The key features of the revised proposal are shown in **Figure 1-2** and include:

- Reducing the Princes Highway/King Street carriageway from six lanes (generally) to four lanes (two lanes off-peak) from Campbell Street to Sydney Park Road, to accommodate an on-road two way segregated cycleway (on the western side of King Street between May Street and St Peters Square), additional landscaping and community spaces to increase urban amenities. The existing pop-up cycleway along Sydney Park Road would remain operational until construction of the proposal
- Reducing the Sydney Park Road carriageway from four lanes to two lanes to accommodate a permanent solution for the existing temporary on-road two way (pop up) segregated cycleway (northern side), parking and additional landscaping to increase urban amenities
- New mid-block shared crossings to improve access across the Princes Highway/King Street and into Sydney Park, including:
 - A new mid-block pedestrian crossing on Princes Highway north of Short Street.
 - A new mid-block pedestrian and cyclist crossing on Princes Highway between May Street and Goodsell Street.
- Traffic signal and intersection reconfiguration to improve safety at:
 - Princes Highway/King Street and Sydney Park Road intersection:
 - King Street southbound approach: Reduce existing three through lanes and one left turn slip lane to a one through lane and one through/left turn lane
 - King Street northbound approach: Maintain existing two through lanes and reduce existing two dedicated right turn lanes to one lane
 - Sydney Park Road approach: Reduce existing two left turn lanes and two right turn lanes to one left turn lane and one right turn lane
 - Replacing existing signalised pedestrian crossing facilities with signalised shared crossing facilities on all approaches
 - Princes Highway/King Street and Goodsell Street intersection:
 - Retention of two traffic lanes approaching the intersection and retention of the current left in and left out access
 - New raised shared pedestrian and cyclist crossing at the entrance of Goodsell Street

- Princes Highway/King Street and May Street intersection:
 - Removing traffic signals and re-configuring May Street to left in and left out only movements with a new raised zebra crossing to prioritise pedestrians at the entrance to May Street
- Princes Highway/King Street and Barwon Park Road intersection:
 - Installing new traffic signals with new pedestrian crossings
- Sydney Park Road and Mitchell Road intersection:
 - Eastbound approach: Reduce existing two through lanes and one left turn lane to one through lane and a through/left turn lane
 - Westbound approach: Reduce existing one right turn lane, one through lane and one through/left turn lane to one through lane and one left turn lane
 - Mitchell Road approach: Change existing one right turn lane and one right/through/left turn lane to one right turn lane and one through/left turn lane
- Reducing the posted speed limit on Princes Highway from 60 kilometres per hour to 40 kilometres per hour from Campbell Street to Goodsell Street Sydney Park car park access on King Street will be modified so that Barwon Park Road access will be entry only into the car park, and King Street will be exit only from the car park
- Adjustments and relocation of parking spaces along the road corridor, resulting in an overall addition of 11 parking spaces
- Providing one additional accessible parking space on May Street
- Reassigning the existing footpath along the western side of King Street between the cycleway and May Street as a shared path for both pedestrians and cyclists
- Road re-surfacing at signalised intersections and along road corridor where required
- Providing dynamic community spaces on both sides of Princes Highway
- Providing landscaped buildouts on Sydney Park Road and Princes Highway
- Relocating the bus stops on Princes Highway near the Short Street intersection, and on Sydney Park Road near the Mitchell Road intersection
- Relocating utilities and adjustments to streetlights where required
- Removing the Princes Highway and Sydney Park Road corridors from the approved B-double freight access network
- Adjusting stormwater to accommodate designed works
- Relocating existing Variable Message Sign and CCTV camera
- Relocating road signs and line marking
- Temporary construction facilities, including site compounds and an ancillary facility at Burrows Road and Venice Street, Mascot
- Allowing a right turn from May Street into Applebee Street; reversal of one-way traffic directions on Lackey Street and Applebee Street; with an extension of the two way direction on Applebee Street up to Hutchinson Street to improve access arrangements into the St Peters Triangle for residents

A more detailed description of the proposal is found in Chapter 3 of the REF.



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Legend

- Proposal area
- Compound locations
- Modified access arrangements
- Road
- Railway line



Figure 1-1 | The locality
Sydney Park Junction

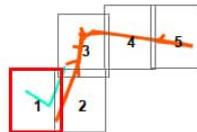


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Legend

- Construction footprint
- Modified access arrangements
- Railway line
- Road
- e Relocated bus stops
- Detail design

Figure 1-2 | The proposal
Sydney Park Junction



Page 1 of 5





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Legend

- Construction footprint
- Modified access arrangements
- Railway line
- Road
- B Relocated bus stops
- Detail design
- Pedestrian/shared crossings

Figure 1-2 | The proposal
Sydney Park Junction





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Legend

- Construction footprint
- Modified access arrangements
- Railway line
- Road
- B Relocated bus stops
- Detail design
- Pedestrian/shared crossings
- Cycleway

Figure 1-2 | The proposal
Sydney Park Junction

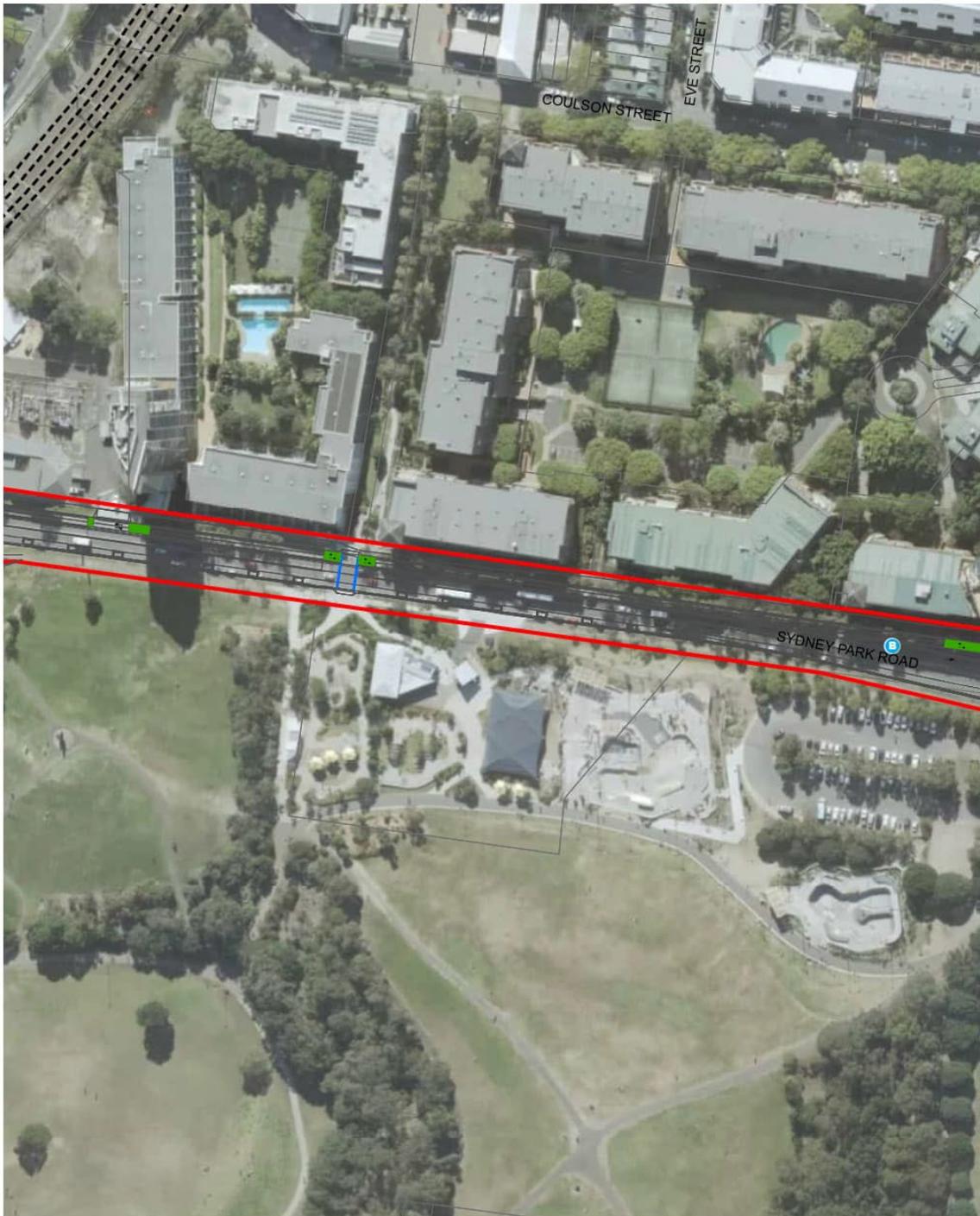
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Legend

- Construction footprint
- Railway line
- Road
- Ⓟ Relocated bus stops
- Detail design
- Pedestrian/shared crossings
- Cycleway

Figure 1-2 | The proposal
Sydney Park Junction





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Legend

- Construction footprint
- Railway line
- Road
- Relocated bus stops
- Detail design
- Pedestrian/shared crossings
- Cycleway

Figure 1-2 | The proposal
Sydney Park Junction



The proposal would be constructed in two main construction zones over approximately 20 months commencing in mid to late 2022.

1.1.1 Definitions

The following terms are used in this submissions report:

- ‘The proposal’ refers to the concept design for the Sydney Park Junction Project
- ‘The proposal area’ refers to the area that would be directly impacted by the proposal and includes the land within a 10 metre buffer on either side of the road corridor in which construction activities would occur (refer to **Figure 1-2**). The proposal area encompasses the Princes Highway/King Street from Campbell Street to Lord Street (including the entrances to Barwon Park Road, May Street, Goodsell Street, Lord Street and Concord Street) and Sydney Park Road from Euston Road to King Street (including up to Sydney Park Village entrance, to adjoin the Mitchell Road works completed by City of Sydney Council)
- The ‘construction footprint’ refers to the area that would be directly impacted by the proposal during construction, as shown in **Figure 1-2**. The construction footprint includes stockpile sites and any other areas that would be temporarily disturbed and which are located within the two main construction zones
- ‘The study area’ encompasses the proposal area and the area that may be indirectly impacted by the proposal and varies for specialist studies
- ‘The locality’ encompasses the area within a 10 kilometre radius of the proposal
- ‘Direct impacts’ occur through direct interaction of an activity with the environment. For biodiversity, direct impacts include the removal of trees/vegetation by the proposal
- ‘Indirect impacts’ on the environment are those that are not a direct result of the proposal and are often produced away from or as a result of a complex impact pathway. Indirect impacts are also known as secondary impacts. For biodiversity indirect impacts include construction machinery compacting soil over tree roots or accidental damage by construction machinery.

1.2 Display of the REF and ongoing consultation

Transport for NSW prepared a REF to assess the potential environmental impacts of the proposed works. The REF was published on the Transport for NSW project website (caportal.com.au/tfnsw/Sydney-Park-Junction) on 6 September 2021 and made available for download. The website link was advertised on the Transport for NSW Facebook page, Facebook pages and websites of Inner West and City of Sydney communities (including the Inner West Facebook site, Friends of Erskineville Facebook page and website, Alexandria Facebook page and the St Peters residents and friends Facebook page) and the Inner West Council website.

Physical copies of the REF were not made available at councils or libraries during the consultation period due to the Public Health (COVID-19 Greater Sydney) Order (No 2) 2021 stay-at-home advisory that was in place from 25 June 2021 as a result of the COVID-19 pandemic. Restrictions were eased from 11 October 2021, although limits still applied to the number of people that could attend indoor and outdoor gatherings, and to people who were unvaccinated.

The community and key stakeholders (including local councils, organisations and local businesses) were invited to provide feedback on the proposal over a 30-day period until 4 October 2021. Late submissions from local government and community stakeholders were accepted until 20 October 2022.

The advertisement (community update) was sent out on 5 September 2021 and included a description of the proposal, a schematic map showing the key features of the proposal, information on the consultation period and information on how to make a submission on the REF via the project website, phone or email. A

copy of the community update is provided in Appendix A. About 32,600 copies of the community update were letterbox dropped to residents surrounding the proposal area, including St Peters, Erskineville, Alexandria, Newtown, Sydenham and surrounding suburbs.

In addition to the above public display, Transport for NSW held a community information session about the proposal on Facebook Live on 22 September 2021. During the information session, the community was given the opportunity to provide comments and ask questions to the project team and a technical specialist. An invitation to the Facebook Live community information session was sent via email to over 300 stakeholders who expressed interest in the information session or requested more information on the proposal in their submissions.

1.2.1 Ongoing engagement

Consultation undertaken prior to public exhibition is described in Chapter 5 of the REF. Consultation would be ongoing as required during the detailed design and construction phases of the proposal and would include:

- Provision of current proposal information through the Transport for NSW project website
- Meetings with City of Sydney Council, Inner West Council, utility providers and other government agencies
- Updates to the immediately affected community during the detailed design phase and construction phases
- Consultation with community stakeholders to help manage impacts during construction
- Follow-up meetings to discuss and agree access arrangements with directly affected landowners prior to and during construction
- Media releases and project advertisements in local media.

Should the proposal proceed, the construction contractor would develop a Community and Stakeholder Engagement Plan to keep residents and road users up to date about construction progress. This would include:

- Notifying residents when work is proposed to start
- Notifying residents of night work
- Notifying residents of access issues.

Transport for NSW will continue to engage with stakeholders before implementing this portion of the proposal.

1.3 Updated statutory context

The *Environmental Planning and Assessment Regulation 2021* came into force on 1 March 2022. This regulation requires the following criteria to be assessed in Reviews of Environmental Factors:

- Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the *Environmental Planning and Assessment Act 1979*
- Other relevant environmental factors.

The statutory planning framework of the proposal, including relevant strategic plans, was considered throughout Section 2.1 of the REF. It is considered that all relevant environmental factors have been addressed throughout Chapter 6 of the REF.

As a result, no further assessment is required in relation to the *Environmental Planning and Assessment Regulation 2021*.

1.4 Purpose of the report

This submissions report relates to the REF prepared for the Sydney Park Junction proposal, and should be read in conjunction with that document.

The REF was placed on public display and submissions relating to the proposal and the REF were received by Transport for NSW. This submissions report summarises the issues raised and provides responses to each issue raised by the community (refer to **Chapter 2**) and government agencies (refer to **Chapter 3**). This submissions report details further environmental investigations, amendments and clarifications carried out since finalisation of the REF as a result of changes to the proposal (**Chapter 4**), describes and assesses the environmental impact of changes to the proposal (**Chapter 5**) and identifies new or revised environmental management measures (**Chapter 6**).

No revisions have been made to the assessment as described in the REF. One additional environmental management measure, safeguard TT13, has been implemented to commit to consultation with Inner West Council regarding the timing of implementing proposed access arrangements (refer to **Section 6.2** of this submissions report).

2. Response to issues

Transport for NSW received 548 submissions, accepted up until 4 October 2021. Late submissions from local government and community stakeholders were accepted until 20 October 2022. The list of respondents and each respondent's allocated submission number is provided in Appendix B. Appendix B also indicates where the issues from each submission have been addressed in **Chapter 2** and **Chapter 3** of this submissions report.

2.1 Overview of issues raised

A total of 548 submissions were received in response to the display of the REF. This included submissions from City of Sydney Council and Inner West Council and 546 submissions from the community.

Each submission has been examined individually to understand the issues raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and Transport for NSW responses to these issues form the basis of this chapter. Responses to issues raised by City of Sydney Council and Inner West Council are provided in **Chapter 3** of this submissions report.

Forty-nine per cent of respondents supported the proposal, seven per cent were partially supportive and 13 per cent did not offer a position. Thirty-one per cent of respondents objected to the proposal.

The main issues raised by the community relate to:

- Impacts on access for local residents and rat running via local roads in Erskineville and Newtown due to the removal of the right turns into/out of May Street from King Street/Princes Highway and the restriction of the right turn from Mitchell Road into Sydney Park Road to buses only
- A concern that the reduction in traffic lanes and the speed limit would increase congestion and travel times
- Adequacy of proposed pedestrian and cycling infrastructure, including connectivity of cycleways to the existing cycling network
- Safety risks for pedestrians
- Loss of parking spaces
- Prioritisation and separation of pedestrians and cyclists at intersections and crossings
- Need and justification for the proposal
- Road design, signage and markings
- Landscaping and urban design
- Inadequate consideration of impacts on the surrounding road network
- Pedestrian and bicycle level of service/delays.

2.2 Support for the proposal

2.2.1 General support

Submission number(s)

6, 8, 12, 13, 17, 19, 23, 38, 44, 46, 48, 49, 52, 56, 70, 74, 75, 82, 92, 94, 95, 96, 103, 106, 108, 115, 122, 125, 127, 129, 131, 134, 135, 137, 148, 150, 157, 159, 166, 168, 178, 181, 185, 187, 189, 191, 202, 209, 215, 216, 226, 230, 232, 233, 235, 241, 245, 246, 247, 254, 258, 260, 261, 266, 267, 288, 295, 298, 301, 303, 310, 317, 323, 330, 331, 335, 342, 347, 348, 351, 358, 371, 399, 400, 408, 410, 411, 413, 419, 432, 442, 447, 448, 454, 458, 460, 463, 475, 477, 510, 511, 520, 521, 523, 529, 543

Issue description

One hundred and six respondents expressed general support for the proposal, including:

- Praise for Transport for NSW, City of Sydney and Inner West Council for a well-conceived proposal which would be of great benefit to the community
- Support for the proposed design
- Support for the overall objectives and benefits of the proposal
- Support for the improvements in safety and security for pedestrian and cyclists near residential areas, the reduction in traffic noise which would make Sydney Park more inviting, safe and pleasurable for rest and relaxation and the prioritisation of community wellbeing and people-centred design
- The proposed changes to Sydney Park Junction are much needed and should be implemented as soon as possible
- The proposed improvements are a model for how similar heavily trafficked road corridors and intersections can be modified to deliver significant benefits to the local community
- Support for the proposed walking, cycling and public domain improvements
- The proposal would connect well with the surrounding infrastructure
- The proposal is a great example of community place-making that will deliver great benefits for many stakeholders
- The proposal would be a vast improvement on the current urban environment and make the area more liveable for local residents, including families
- The proposal would be a tremendous asset to the local community and the wider Inner West
- The proposal is functionally aligned with the St Peters Station upgrade
- Support for the proposed changes as local residents and regular users of Sydney Park.

Response

Transport for NSW acknowledges the in-principle support provided for the proposal by the community.

2.2.2 Specific support

Submission number(s)

1, 6, 8, 9, 11, 12, 15, 16, 19, 31, 33, 35, 36, 45, 46, 47, 48, 49, 50, 51, 52, 53, 57, 58, 62, 64, 66, 69, 71, 72, 74, 76, 77, 79, 81, 82, 83, 89, 90, 97, 98, 101, 104, 105, 106, 108, 113, 116, 117, 119, 120, 123, 124, 125, 126, 130, 138, 139, 143, 144, 147, 150, 151, 152, 153, 160, 164, 165, 170, 173, 180, 186, 188, 190, 191,

192, 193, 197, 198, 203, 210, 213, 214, 217, 222, 223, 227, 234, 236, 239, 250, 253, 255, 259, 263, 264, 265, 277, 292, 300, 301, 302, 305, 306, 307, 308, 311, 314, 315, 322, 332, 334, 335, 336, 337, 339, 346, 349, 350, 353, 356, 361, 377, 379, 380, 393, 400, 401, 404, 405, 407, 409, 412, 415, 417, 418, 420, 422, 423, 424, 427, 428, 431, 433, 435, 437, 438, 439, 440, 441, 442, 445, 447, 448, 450, 451, 458, 461, 485, 498, 505, 510, 513, 516, 522, 523, 525, 526, 528, 529, 530, 532, 538, 539, 540, 541, 543, 546

Issue description

One hundred and seventy-eight respondents expressed support for specific aspects of the proposal. Support for specific issues are outlined below.

One hundred and six respondents expressed support for the improvement of pedestrian and cycling infrastructure, including:

- Transport for NSW is demonstrating real intent to meet the aspirations set out in the recently-published Movement and Place Framework. The proposal for Sydney Park Junction provides exciting evidence that when the available asphalt is reduced, demand will decrease and space can be allocated to walking, cycling and public transport. By considering the whole street, from building line to building line, and all users, including pedestrians, cyclists, drivers, delivery workers and transit users, whether travelling through or lingering, and allocating the space accordingly, the city can move forward from decades of car domination
- The proposal would give a heavily congested and polluted area back to the community and help integrate Sydney Park into Newtown and Erskineville by humanising the entrance and extending the streetscape of King Street further south
- The proposal is a great long term strategy of reclaiming Sydney Park Road as a local street and includes great improvements to alternative modes of transport and streetscape improvements. The widened footpaths and landscaping are well needed and the increased pedestrian connectivity to St Peters by upgrading the Barwon Park Road/Princes Highway intersection is a great idea
- The proposal sets a precedent to make walking, cycling and the streetscape more attractive for everyone and encourage the gradual behavioural change from over-reliance on the motor car for personal travel
- The improvements in walkability and cyclability of the area would ensure a healthier and happier population and environment
- Support for the proposed cycleways on Sydney Park Road and King Street since they would, in combination with other existing and planned connections in the local cycling network, provide people of all ages with more opportunities to access local destinations, including workplaces, schools, Sydney Park and St Peters Station using an affordable, efficient, low-stress, healthy, safe and quiet mode of transport
- The improvement to pedestrian and cycling infrastructure would provide quick, enjoyable, quiet and clean transport options to the King Street precinct and St Peters Station, enhance attractiveness of King Street and its small businesses as a retail and recreation destination and improve access to Sydney Park
- The proposal would provide a much needed public benefit as the current pedestrian experience can be unfriendly and dominated by fast moving vehicular traffic. The proposal would redress the balance between competing uses and create a more pedestrian friendly environment
- Support for the proposed pedestrian crossings at the intersection of Princes Highway with Goodsell Street, May Street and Short Street. The Princes Highway corridor with all its new apartment blocks would benefit from the improved pedestrian friendly sidewalk treatment
- Having separated cycleways and wider footpaths would make the ride/walk to Sydney Park more enjoyable for families with children

- Support for the crossing at the Mitchell Road/Sydney Park Road intersection to ensure separation between pedestrians and cyclists
- Support for reclaiming road space for cyclists and pedestrians
- The prioritisation of pedestrians and cyclists over cars is applauded in this location, which vitally connects existing and emerging residential areas and the St Peters Station with Sydney Park
- Support for separated cycleways since they would promote better travel speeds for vehicles and cyclists
- It would be a big improvement to have a more connected network of bicycle paths to use for commuting
- Support for the removal of parking spaces to create bicycle paths
- Support for the proposal since Sydney Park has a high level of foot traffic with people exercising and kids and older people using the skate park, therefore, the area should therefore be focused on pedestrian and cycling infrastructure, not on vehicles
- Support for the wider pedestrian areas at intersections
- Support for the pedestrian crossings on Princes Highway and Sydney Park Road to enable bus users to safely cross the road
- The proposal would improve pedestrian and bicycle access and safety for a growing number of locals and visitors to Sydney Park
- Support for the proposed changes to the May Street/Princes Highway intersection, including the relocation of the pedestrian crossing, as it would make it easier for pedestrians and cyclists to cross the road in this location and access businesses south of this location, thereby integrating these businesses into the King Street commercial precinct
- The proposal area includes important connections in the local and regional bike route network, particularly connections between the inner west (Marrickville, South Newtown) and Green Square (Alexandria, Zetland)
- Current and future residents of the local area and adjoining suburbs will benefit significantly from the proposed Sydney Park Junction pedestrian and cycling improvements.

Thirty respondents expressed support for the reduction in traffic lanes along Princes Highway, King Street and Sydney Park Road since it would improve safety, reduce noise and result in a reduction in motor vehicle traffic and associated traffic impacts which is consistent with the project objectives and state and local government priorities and strategies.

Twenty-six respondents expressed support for the lowering of the speed limit on Princes Highway, King Street and Sydney Park Road, including:

- The lower speed limit would improve road safety, decrease road noise and sleep disturbance for people living close to the road corridor and improve amenity for al fresco dining and pedestrians
- It would prevent heavy vehicles trucks and vehicles speeding on the Princes Highway and running the red light at the May Street/Princes Highway intersection
- The proposed speed reductions would make the area much more liveable
- It would be a pleasure to have calmer streets to navigate across to Sydney Park.

Twenty-three respondents expressed support for the proposed landscaping improvements, including:

- The additional landscaping would improve visual amenity in the proposal area and make the area much more liveable
- The additional landscaping would provide shading
- The proposed increase in the tree canopy would complement the residential areas adjoining the park.

Twenty-two respondents expressed support for the proposed improvements in visual amenity in the proposal area.

Nineteen respondents expressed support for the improvement of pedestrian and cyclist access to Sydney Park to improve connectivity between Sydney Park and surrounding areas.

Eighteen respondents expressed support for the proposed dynamic community spaces, as the reallocation of road space for public open space, outdoor seating and dining would benefit local communities and revitalise the area.

Eighteen respondents expressed support for the improvement in pedestrian and cyclist safety as a result of the improvement of pedestrian and cycling infrastructure and the lowering of the speed limit.

Sixteen respondents expressed support for the replacement of the temporary pop-up cycleway on Sydney Park Road with a permanent on-road two way segregated cycleway.

Twelve respondents expressed support for the removal of the right turns into and out of May Street.

Eleven respondents expressed support for the restriction of the right turn from Mitchell Road into Sydney Park Road to buses only.

Nine respondents expressed support for consultation carried out for the proposal, including:

- The information session on Facebook was very helpful and the community was given the opportunity to provide feedback during the information session
- The Virtual Information Centre communicates the proposed changes very effectively
- The proposal has been promoted with excellent explanatory material.

Seven respondents support the proposal's aim to divert through traffic, especially heavy vehicle traffic, to Euston Road and Campbell Road, to encourage activation of the retail and cultural precinct along King Street and Princes Highway.

Seven respondents expressed support for the proposed road design and intersection modifications, including:

- Support for the revised layout of the road
- Support for the removal of slip lanes
- Support for the right turn from Sydney Park Road into the Sydney Park car park
- Support for the new traffic signals at the Barwon Park Road/ Princes Highway intersection.

Five respondents expressed support for the removal of parking spaces to widen footpaths, including:

- It would improve air quality by encouraging fewer car trips to the area
- There is sufficient car parking in the area, including four car parks within the park boundaries, in addition to the kerb-side parking on Euston Road and Barwon Park Road
- The kerb-side parking on Sydney Park Road does not align with numerous government policies, such as improving green space and giving priority to sustainable transport modes
- Kerb-side parking is at the direct expense of more sustainable land uses such as vegetation buffers and active transport. Re-allocating the space would allow better protective features for a far greater number of people, including apartment residents, bus patrons, pedestrians and cyclists.

Three respondents expressed support for the proposed improvements to bus stops on Sydney Park Road.

Two respondents expressed support for the proposal since it would be consistent with government strategies, policies and plans, including:

- The proposal strongly delivers on all fronts of the NSW Government's *Future Transport Strategy 2056* (NSW Government, 2018)
- Transport for NSW is demonstrating real intent to meet the aspirations set out in the Movement and Place Framework (Department of Planning, Industry and Environment (DPIE), 2020)
- The provision of safe walking and cycling infrastructure at Sydney Park Junction is fully supported by the Transport for NSW's new *Road User Space Allocation Policy* (Transport for NSW, 2021a) that establishes a road user hierarchy that prioritise pedestrians over vehicles
- The proposal is supported by the Greater Sydney Commission's *Eastern City District Plan* (Greater Sydney Commission, 2018) and the *Greater Sydney Green Grid* (Government Architect NSW, 2017).

Two respondents expressed support for the proposed urban design for the proposal, as it would better integrate Sydney Park with its surrounding environment.

One respondent expressed support for the proposal objectives to achieve better balanced movement and place outcomes.

One respondent expressed support for the proposal since it is likely to increase foot traffic and attract new businesses to the area.

Response

Transport for NSW acknowledges support provided for specific aspects of the proposal by the community.

2.3 The proposal

2.3.1 Proposal need, justification and objectives

Submission number(s)

5, 8, 20, 25, 28, 155, 167, 201, 204, 208, 228, 243, 268, 274, 277, 299, 301, 322, 323, 329, 344, 356, 363, 368, 369, 405, 412, 416, 459, 469, 520, 525, 529, 536, 542, 545

Issue description

Twenty-five respondents raised concerns and questions about the proposal need and justification, including:

- What is the basis for justification for the proposal
- Traffic in St Peters has already reduced since the opening of WestConnex and there is no need to redesign the proposal area
- Of the view that the flow of traffic worked well prior to 2020, although travel times along Sydney Park Road have increased over the last three years
- There are currently not many heavy vehicles using Sydney Park Road during peak hours or weekends and there is currently less traffic on the road due to people working from home as a result of the COVID-19 pandemic
- There is still substantial car ownership in Sydney and therefore not sufficient need for pedestrian and cycling infrastructure
- Concerns that traffic lanes are removed to create cycleways when existing on-road cycleways have low usage
- There is no need for additional pedestrian crossings

- There is no need to reconfigure the May Street/Princes Highway intersection
- Many people visiting the area, especially Sydney Park, travel by car and require parking
- Concerns that traffic patterns during the COVID-19 pandemic is used as justification around existing road use
- There is no need for a St Peters Square when there is no parking for people to commute there other than by train
- The Princes Highway around Sydney Park does not need any dynamic spaces for outdoor dining, recreation and entertainment since it is already provided further up King Street and along Enmore Road
- Outdoor dining along Princes Highway is not likely to be used due to traffic noise and there are already too many unused storefronts in the proposal area
- The addition of community spaces is unnecessary next to the pleasant and useable space provided by Sydney Park
- Questions asking whether local businesses or residents have expressed the need for dynamic community spaces.

Fourteen respondents raised concerns and made recommendations in relation to the proposal objectives, including:

- Easy and safe travel and movement around King Street, Sydney Park Junction and Sydney Park for motorists and heavy vehicles have not been considered in the proposal, considering that St Peters is a light industrial area
- Queries about the benefit of the proposal for local residents that require cars to commute to work due to distance from work or lack of public transport options
- Concerns that the intention of the proposal is to encourage traffic to use the WestConnex M8, which would be at the expense of local residents and businesses, not benefit drivers travelling to and from Sydney, Newtown, Erskineville or Alexandria and increase congestion for traffic exiting the M8
- The proposal would not reduce traffic by 50 per cent
- Requests to consider the high pedestrian activity in the area from St Peters Station, Sydney Park and King Street that is likely to increase over time
- The proposal should prioritise safe pedestrian and cycling routes and not simply see these as secondary issues
- Questions about whether the objective of the proposal is to encourage people to travel by public transport considering that it is sometimes more efficient to walk or drive
- The proposal would disadvantage local residents and create major traffic hazards that will not achieve the safety and amenity objectives of the Sydney Park Junction proposal
- The current plans do not look to the future and would only benefit a minority in the local community
- The proposal should aim to improve liveability for all in the community
- A recommendation to revise the proposal so it would be easier for motorists, cyclists and pedestrians
- Queries asking what evidence is there that the proposal would provide the required traffic calming, accessibility and pedestrian and cycling initiatives suitable to the area
- The proposal should consider longer term objectives such as King Street emerging as a public and active transport corridor all the way to Broadway, further speed reductions in line with the global 30please movement ([30please.org](https://www.30please.org)), and the implementation of a cycling network of fully segregated one directional cycleways on both sides of the street in line with the *Future Transport Strategy 2056* (NSW Government, 2018), and providing the benefits of active travel to everyone in the community.

Response

Strategic need and justification for proposal

Sydney Park Junction is located at the intersection of three major roads (King Street, Princes Highway and Sydney Park Road), a significant cultural precinct, public transport infrastructure hub and one of the city's major green open spaces, Sydney Park.

The transformation over time of the Princes Highway from a local road to a major metropolitan conduit, leading directly into King Street and around Sydney Park, has made the area traffic-intensive and an inhibitor to urban activity and pedestrian and bicycle movement. High traffic and freight volumes on Princes Highway/King Street and Sydney Park Road, combined with limited pedestrian crossing opportunities or cycling access, are presently creating an unsafe environment for all road users. Current crash rates in the proposal area, involving cars, motorcycles and cyclists, are also higher than would normally be expected for similar roads in Sydney (refer to Section 6.1.2 of the REF).

The proposal is required to improve the safety, performance and efficiency of the King Street and Sydney Park Road intersection as well as road safety along the King Street, Princes Highway and Sydney Park Road corridors. The proposal would also improve urban amenity around Sydney Park by providing better pedestrian and cycling facilities and improved urban landscaped areas for the benefit of the local community and visitors.

The opening of the WestConnex M8 Motorway, St Peters Interchange and associated local road upgrades has altered traffic patterns in the area, with Euston Road and Campbell Street/Campbell Road replacing Sydney Park Road and Princes Highway as part of the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo. The proposal would be consistent with approval conditions B44, B50 and B51 for the M8 Motorway project by providing traffic calming initiatives along Princes Highway, improvements in accessibility to Sydney Park for the residential areas of St Peters, Newtown and Erskineville and the provision of upgraded cycle and pedestrian facilities within one kilometre of the St Peters Interchange.

The proposal is also consistent with a number of key State and local government strategic planning and policy documents (refer to Section 2.1.1 of the REF) that identify the need to re-allocate road space in key commuter corridors to:

- Give priority to more productive and sustainable transport modes
- Create direct, safe and accessible walking and cycling connections to access local destinations and services
- Improve road safety
- Improve liveability and place value through landscaping and the provision of dynamic community spaces.

Car use and parking

The proposal would re-allocate road space in a key commuter corridor to give priority to more productive and sustainable transport modes (walking and cycling). This is consistent with various State and local government strategies and plans that encourage walking and cycling to promote healthier, more sustainable lifestyles and improve community wellbeing, including *Sustainable Sydney 2030 – Community Strategic Plan 2017-2021* (City of Sydney Council, 2016), *Walking Strategy and Action Plan 2015-2030* (City of Sydney Council, 2014) and the *Cycling Strategy and Action Plan 2018-2030* (City of Sydney Council, 2017) (refer to Section 2.1.1 of the REF).

Transport for NSW acknowledges that the use of vehicles would still be required in certain instances to access residences and businesses. Due to concerns raised about the potential impacts of the proposed reduction in car parking spaces on residents and businesses along King Street and Princes Highway, the design has been refined to provide an additional 25 parking spaces along this road corridor (refer to **Section 4.1.9** of this submissions report). Overall, the proposal would result in an additional 11 parking

spaces in the proposal area, which would improve access for residents and customers, staff and delivery drivers of businesses (refer to **Section 2.7.9** of this submissions report).

COVID-19 pandemic

The assessment of the existing transport network as part of the traffic and transport assessment (Appendix C of the REF) was based on operational conditions in 2019 (as stated in Section 6.1.1 of the REF), whereas the COVID-19 pandemic broke out in Australia in January 2020.

The COVID-19 pandemic is an unprecedented event that has recently impacted the way people work and their travel patterns, while creating uncertainty about the future.

The impact of COVID-19 on the transport network has been multi-faceted, and is largely broken down into immediate and medium term impacts:

- Immediate: major reductions in public transport and car trips, reductions in public transport capacity, increased second hand car purchases, increased intrastate visitation, reduction in public transport preference, increased online shopping and deliveries, and reductions in overseas and interstate visitors
- Medium term: Reduction in overseas migration, leading to a pause in NSW and Sydney population growth rates, reducing overall projected travel demand; reduced commuter trips due to more people working from home, changing spatial distribution of interpeak/daily non-commute trips.

Significant uncertainty still exists about how long the impacts of COVID-19 will last. Outbreaks could continue to occur in 2022 and into the future, depending on the timing and efficacy of the vaccination program. It is not possible to accurately predict when immediate and medium term impacts would finish, or when a return to pre-pandemic travel patterns will occur. At the time of preparing this submissions report, the duration of impacts to transport demands and behaviours from the COVID-19 pandemic are still unknown, and current traffic conditions and travel behaviours are the result of a variety of temporary factors, including reduced public transport capacity and demand.

While the COVID-19 pandemic presents immediate to medium-term challenges for Sydney (and NSW more broadly), the proposal has been developed with a long-term view to address the challenges Greater Sydney will face over the next 40 years, to enable and accommodate sustainable growth, and to deliver long-lasting benefits for road users, communities and businesses. As Sydney continues to grow, more sustainable trips are essential to reducing congestion and providing new levels of access to jobs, recreation, and services such as schools and hospitals. As such, the need for the proposal to meet the demands of a growing population and economy remains critical to ensuring the future success of Sydney.

The Princes Highway/King Street and Sydney Park Road corridors currently carry high volumes of traffic during peak periods, as described in Section 6.1.2 of the REF. This contributes to high levels of congestion, long journey times and an unsafe environment for all road users. The proposal would encourage through and regional traffic to use the widened Euston Road and Campbell Street/ Campbell Road, instead of Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street), to improve traffic flows along the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo. The proposal would also re-allocate road space in a key commuter corridor to give priority to more productive and sustainable transport modes (walking and cycling).

Dynamic community spaces

Many of the retail/commercial floor spaces along the southern end of King Street and Princes Highway are currently underutilised (unoccupied, low quality or closed down) (McGregor Coxall, 2018). The provision of dynamic community spaces and streetscape improvements at St Peters Square and along King Street and Princes Highway as part of the proposal would provide opportunities for temporary commercial uses such as eateries (for example, food trucks) and other pop-up event spaces and activities to be established. This would impact positively on the local business environment and surrounding businesses by contributing to the amenity, vitality and vibrancy of the streetscape. These changes would contribute to the attractiveness of the local business environment and commercial properties near the proposal and support opportunities

to attract new businesses and customers and thereby extend the existing retail, commercial and entertainment activity along King Street in Newtown to Princes Highway in St Peters.

Proposal objectives

The primary objectives of the proposal, as outlined in Section 2.4 of the REF, are to:

- Improve the amenity of the 'gateway' to King Street by enhancing the urban amenity of the area around the entry to St Peters Station, and access to Sydney Park along Princes Highway and Sydney Park Road to provide an improved pedestrian environment
- Transform King Street, Princes Highway and Sydney Park Road to achieve a better-balanced movement and place outcome
- Improve cyclist movement and safety in the area, particularly to Sydney Park and to St Peters Station
- Improve pedestrian and cycling connectivity to Sydney Park and improve the place environment of King Street, Princes Highway and Sydney Park Road
- Improve road safety for all road users
- Minimise the environmental impact of the development.

The proposal would result in the widened Euston Road and Campbell Street/Campbell Road replacing Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) as part of the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo. With the completion of other major road infrastructure projects in the area, including the Alexandria to Moore Park Connectivity Upgrade, WestConnex M4-M5 Link and Sydney Gateway and the recently completed WestConnex M8 Motorway, the proposal is expected to result in a decrease in heavy vehicle traffic on King Street/Princes Highway and Sydney Park Road, improved traffic flows, road safety and trip reliability along Euston Road and the nearby Alexandria to Moore Park road corridor, and reduced travel times across the wider road network, as outlined in Section 6.1.4 of the REF.

Traffic modelling indicates that King Street (south of Lord Street) and Princes Highway (north of Campbell Street) would carry up to 55 per cent fewer vehicles in 2023 (the assumed year of opening) and up to 66 per cent fewer vehicles in 2033 (10 years after opening) and Sydney Park Road would carry up to 71 per cent fewer vehicles in 2023 and up to 65 per cent fewer vehicles in 2033 with the proposal when compared to the scenario without the proposal (refer to Section 6.1.4 of the REF). Mitchell Road would carry up to 57 per cent fewer vehicles in 2023 and up to 54 per cent fewer vehicles in 2033 with the proposal when compared to the scenario without the proposal.

Although local traffic and freight customers would experience a decline in intersection performance in the proposal area and altered access arrangements, these impacts are considered to be relatively minor and manageable when considered in the context of the positive impacts of the proposal on travel times and traffic flows across the wider road network and movement and place performance for active transport customers.

The high pedestrian and cyclist activity at the King Street/Sydney Park Road, Princes Highway/May Street and Mitchell Road/Sydney Park Road intersections, as well as along King Street to access St Peters Station and Sydney Park, is one of the key considerations of the proposal, as noted above and discussed in Sections 3.3, 4.3.2 and 5.2.5 of Appendix C (Traffic and transport assessment) of the REF.

The increased number of formal crossing opportunities, footpath widening, dedicated cycle paths and landscaping as part of the proposal would significantly improve pedestrian and cyclist movement between the major shopping and cultural precinct along King Street/Princes Highway, St Peters Station, Sydney Park and surrounding neighbourhoods. The reduction in traffic lanes and traffic volumes, footpath widening, landscaping and dynamic community spaces would also improve overall amenity and the sense of place for pedestrians and cyclists.

While there would be some environmental impacts as a consequence of the proposal, such as temporary traffic delays, accessibility and amenity impacts during construction, these impacts have been avoided or minimised wherever possible through design and site-specific environmental management measures. During operation, the proposal and adjoining road upgrades would have a positive impact on the local community and visitors to the area by:

- Providing direct, safe and accessible walking and cycling connections that can be used by people of all ages and abilities
- Improving road safety and reducing traffic volumes in the King Street/Princes Highway and Sydney Park Road corridors, which would result in an associated improvement in air quality and a reduction in noise levels in the locality.

The proposal would also support local urban renewal initiatives planned in the area, including the Ashmore Precinct and St Peters Triangle developments, through improved urban amenity, pedestrian and cyclist infrastructure and the provision of dynamic community spaces, that would attract new businesses and customers and stimulate the local economy. The beneficial effects of improving road safety, pedestrian and cyclist access and connectivity and urban amenity are considered to outweigh the mostly temporary adverse impacts and risks associated with the proposal.

2.3.2 Proposal description

Submission number(s)

101, 116, 152, 301, 383, 452, 475, 502, 525

Issue description

Nine respondents raised questions and concerns and made recommendations in relation to the proposal description, including:

- Questions asking what is a multi-modal hub
- Questions asking what is meant by 'al fresco' dining areas
- Requests for more detail on the proposed outdoor dining areas along Sydney Park Road
- Questions about what constitutes a dynamic community space
- Requests for less traffic lanes and parking and more cycling paths to encourage people to use bicycles rather than private vehicles
- Requests to prioritise pedestrians over vehicles
- A recommendation to improve King Street by widening the footpath and reducing the traffic lanes, especially the southern end of King Street
- A recommendation to provide two lanes of traffic in each direction on Princes Highway
- The detail of the proposal for the movement of vehicles from Sydney Park Road into King Street is not clear
- A request for more information about the changes that would be implemented in May Street.

Response

Multi-modal hub

A key feature of the proposal is to transform St Peters Square into a multi-modal hub. A multi-modal hub is a mobility service infrastructure where people can switch seamlessly between different modes of transport, such as trains, buses, walking and cycling. Multimodal interchange hubs are vital for achieving sustainable transport systems and serve as the gateway to mobility and greater accessibility.

Outdoor dining areas

The proposal would provide dynamic community spaces along King Street and Princes Highway, including outdoor ('al fresco') dining areas. Outdoor dining areas are not proposed along Sydney Park Road.

A dynamic community space is an environment that facilitates movement, interaction and stimulation and accommodates both planned and spontaneous activities. Dynamic community spaces are flexible spaces that can be adapted to the community's needs in order to foster innovation, attract businesses and customers and stimulate social interaction. It would also provide opportunities for temporary commercial uses (for example, food trucks) and other pop-up event spaces and activities, as described in **Section 2.3.1** of this submissions report.

Traffic lanes, cycleways and parking

The proposal includes the reduction of traffic lanes on King Street, Princes Highway and Sydney Park Road, the provision of on-road two way segregated cycleways on King Street and Sydney Park Road and the widening of the existing shared path on the eastern side of King Street, as described in Section 1.1 of the REF. The proposal also includes the removal of on-street kerbside parking along Sydney Park Road, King Street and Princes Highway to accommodate landscaped buildouts, the new mid-block crossing along Princes Highway and kerb modifications (refer to Section 6.1.4 of the REF).

The proposal prioritises movement and place outcomes for pedestrians and cyclists over private vehicles through the proposed reduction in traffic lanes and speed limits, widening of footpaths and shared paths and the provision of cycleways and additional pedestrian crossings, as described in Section 6.1.4 of the REF.

King Street and Princes Highway

The detail of the reconfiguration of intersections and traffic lanes along King Street and Princes Highway is described in Section 3.2.3 of the REF.

The existing Princes Highway and King Street between Sydney Park Road (to the north) and Campbell Street (to the south) would be reduced from a six-lane divided carriageway (three lanes in each direction) to a four-lane divided carriageway (two lanes in each direction) with a central median.

The existing shared path along the eastern side of King Street south of Concord Street would have an additional width of up to 5.5 metres for sections of the path.

Sydney Park Road/King Street intersection

The movement of vehicles from Sydney Park Road into King Street is described in Section 3.2.3 of the REF, and would be as follows:

- The westbound approach of Sydney Park Road at the Sydney Park Road/King Street intersection would be reduced from two left turn lanes and two right turn lanes to one left turn lane and one right turn lane
- The northbound departure of King Street at the Sydney Park Road/King Street intersection would be reduced from three through lanes to two through lanes
- The southbound departure of King Street at the Sydney Park Road/King Street intersection would be reduced from three through lanes to two through lanes.

Changes in May Street

Changes that would be implemented in May Street are described in Section 3.2.3 of the REF and include the following:

- Reconfiguration of the existing signalised intersection of May Street and King Street/Princes Highway from a three-leg signalised intersection catering for all movements, to an unsignalised left in/left out only intersection. Further discussion on the removal of the right turns into and out of May

Street, including justification for these right turn bans, is provided in **Section 2.7.3** of this submissions report

- Reduction of traffic lanes on May Street from four lanes (two in each direction) to two lanes (one in each direction) at the intersection with King Street/Princes Highway. Justification for the reduction of the traffic lanes is provided in **Section 2.7.4** of this submissions report
- A raised 'bent-out' crossing would be provided adjacent to the intersection of May Street and King Street/Princes Highway to provide priority crossing for cyclists and pedestrians
- New angled parking bays and parallel parking bays, to offset losses in parking on Princes Highway and King Street
- Replacement of the existing pavement (if required) and widening of the footpath/shared path and additional landscaping at the intersection of May Street and King Street/Princes Highway, to improve amenity, safety and ease of use for pedestrians and cyclists.

2.3.3 Proposal alternatives and options

Submission number(s)

274, 277, 545

Issue description

One respondent recommended lowering the M8 Motorway tolls to solve the traffic issues.

Two respondents are of the view that the proposal will only be successful if more money is spent on encouraging people to use public transport since more public transport would be needed in the future.

Response

The primary objectives of the proposal, as outlined in Section 2.4 of the REF, are to:

- Improve the amenity of the 'gateway' to King Street by enhancing the urban amenity of the area around the entry to St Peters Station, and access to Sydney Park along Princes Highway and Sydney Park Road to provide an improved pedestrian environment
- Transform King Street, Princes Highway and Sydney Park Road to achieve a better-balanced movement and place outcome
- Improve cyclist movement and safety in the area, particularly to Sydney Park and to St Peters Station
- Improve pedestrian and cycling connectivity to Sydney Park and improve the place environment of King Street, Princes Highway and Sydney Park Road
- Improve road safety for all road users
- Minimise the environmental impact of the development.

The M8 Motorway provides nine kilometre twin tunnels from the M5 East at Kingsgrove to the St Peters Interchange. Lowering the M8 Motorway tolls could potentially reduce traffic travelling through the proposal area in a north-south direction, but is not likely to reduce traffic travelling through the proposal area in an east-west direction, and would therefore not achieve the proposal objectives. The proposal would reinforce the replacement of Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) with Euston Road and Campbell Street/Campbell Road and thereby reduce traffic travelling through the proposal area in a north-south and east-west direction.

The proposal would encourage the use of public transport by improving pedestrian and cycling access and connectivity to St Peters Station and bus stops along King Street, Princes Highway and Sydney Park Road.

2.4 Construction

2.4.1 Construction hours and duration

Submission number(s)

201, 409, 417, 468, 510, 516, 529, 543

Issue description

One respondent objected to the proposal since construction of the proposal would take too long.

Five respondents recommended that construction should take place only during standard daytime construction hours to minimise disruption and sleep disturbance for local residents, which can affect physical and mental health, workplace productivity/safety and childhood learning/development, and to reduce traffic capacity in line with the project objectives.

One respondent queried when the proposed changes for Sydney Park Junction would be carried out and another respondent questioned when the 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road would be implemented.

Response

Subject to planning approval, construction work would commence in mid to late 2022 and would take about 20 months to complete, as outlined in Section 3.3.1 of the REF. The construction timeframe is based on a staged approach, which would:

- Allow for a minimum number of lanes to be maintained
- Enable access to properties, either by retaining driveway access or allowing for alternate arrangements
- Allow for pedestrian access to be maintained.

Shortening of the construction timeframe is not proposed since it would increase the impacts experienced by the surrounding community.

Where possible, construction would be carried out during standard construction working hours in accordance with the *Interim Construction Noise Guideline* (DECC, 2009), and work generating high noise levels will be scheduled during less sensitive time periods. To minimise disruption to daily traffic and disturbance to surrounding land owners and businesses, and to ensure worker safety, it would be necessary to carry out some work outside of these hours, such as drainage works. The local community would be notified a minimum of five days prior to work outside of standard hours commencing, and safeguards and management measures would be implemented as required to further mitigate any out of hours construction impacts.

The program and construction timeframe is indicative only and may vary. As a result, specific details of construction timing cannot be provided at this time. However, residents would be kept informed of changes to the local traffic network and planned significant noise and vibration generating activities throughout the duration of construction.

2.4.2 Traffic management and access

Submission number(s)

529

Issue description

One respondent recommended implementing heavy vehicle safety standards and maintaining safe walking and cycling through the proposal area during construction, in accordance with the Austroads *Guide to Temporary Traffic Management* (Austroads, 2019).

Response

The following design guides and policies were considered during the development of the proposal, as described in Section 3.2.1 of the REF:

- Transport for NSW Technical Directions
- Transport for NSW design supplements for the Austroads Road Design Guide
- *Beyond the Pavement 2020* (Transport for NSW, 2020a)
- Australian Standards and Transport for NSW supplements.

Relevant guidelines and policies would continue to be considered throughout further development and construction of the proposal, including the Austroads *Guide to Temporary Traffic Management* (Austroads, 2019) where relevant.

2.4.3 Construction compounds

Submission number(s)

529

Issue description

One respondent recommended construction compounds should be established in industrial areas away from the proposal area to reduce the presence of construction vehicles on local roads.

Response

Temporary ancillary facilities required for construction are outlined in Section 3.4 of the REF and would be located at:

- 12-18 Burrows Road, St Peters
- Venice Street, Mascot.

Both locations are zoned as IN1 General Industrial, and the surrounding land uses to these sites are industrial and commercial in nature, with no sensitive receivers in proximity to the proposed sites. As both sites are owned by Transport for NSW, no temporary leases or acquisitions would be required. The Burrows Road site would be used simultaneously by another project as an ancillary site to reduce overall disruption to the community.

Additional compound and stockpile sites may be required for equipment laydown, stockpiling and staff parking. The location of these sites would be confirmed prior to construction. Consultation with the relevant local council(s) would be undertaken to confirm the suitability of the locations and whether any additional environmental assessment is required. The compound and stockpile sites would be located a suitable distance away from residential dwellings and other land uses that may be sensitive to noise and heavy vehicle traffic.

2.5 Stakeholder and community consultation

2.5.1 Formal and ongoing consultation

Submission number(s)

11, 20, 21, 111, 154, 312, 323, 418, 444, 446, 495, 508, 515, 518, 519, 524, 525, 531, 542

Issue description

Nineteen respondents raised concerns about the adequacy and accuracy of consultation carried out with stakeholders and the community about the proposal, including:

- There is a lack of transparency about the proposal
- Concerns that money has been spent on the proposal without any consultation
- A question asking why local residents were not consulted during the early design stages of the proposal
- Of the view that residents that would be impacted by the proposal have not been adequately consulted, including residents and businesses in Sydenham and Tempe
- Requests for the proposal to be put on hold until there has been an agreed period of community consultation
- Consultation was carried out during the COVID-19 pandemic when community meetings were not permitted
- Requests for face-to-face socially distanced COVID-safe consultation with the community
- Queries about why there was no notification of the display of the REF via a letter drop to surrounding residents and businesses
- The presentations during the information session were limited in content and questions were not fully addressed
- Complaints that the information line was called several times and details left but calls have not been returned
- Requests for more information or to be kept informed about the proposal
- A complaint that the proposal documents could not be viewed on a mobile phone
- The brochure about the proposal did not mention the proposal is a condition of approval for the WestConnex M8 Motorway project
- The removal of the right turns into and out of May Street was not disclosed.

Response

Ongoing and future consultation

Transport for NSW considers consultation with the community and stakeholders to be an important part of the development of the proposal. A Communication and Stakeholder Engagement Plan has been prepared by Transport for NSW to outline the communication and engagement process for the consultation on the REF, to ensure that stakeholders, community members, pedestrians, cyclists and other road users understand the benefits and impacts of the proposal and are aware of the ways they can provide their input. Communication and engagement objectives of the Communication and Stakeholder Engagement Plan include:

- Educate stakeholders and community about the REF (including objectives, impacts and benefits)

- Encourage stakeholders and community to take part in the engagement and have their say on the REF
- Promptly manage and resolve community and stakeholder enquiries
- Create transparent and quality information and promptly deliver it
- Report back to stakeholders and community on engagement outcomes.

Details of consultation carried out for the proposal during the development of the REF are provided in Chapter 5 of the REF. Transport for NSW will continue to engage with stakeholders before implementing this portion of the proposal.

Transport for NSW has consulted with City of Sydney Council and Inner West Council and other key stakeholders, including Sydney Trains, the Department of Planning, Industry and Environment, other departments within Transport for NSW and the NSW State Emergency Services, on an ongoing basis during the design development process.

Issues that have been raised as a result of consultation with the councils and other key stakeholders are outlined in Table 5-3 of the REF and have been considered in the design. The community was given the opportunity to provide feedback on the REF and the concept design over a four-week period during September and October 2021.

The REF was exhibited during the global COVID-19 pandemic, which presented a unique set of challenges for any face-to-face engagement. During the consultation period, the Public Health (COVID-19 Greater Sydney) Order (No 2) 2021 stay-at-home advisory was in place. Restrictions were eased from 11 October 2021, although limits still applied to the number of people that may attend indoor and outdoor gatherings and to those who are unvaccinated. As such, the engagement strategy was adapted to focus predominately on digital engagement tools such as the online REF, the proposal's interactive online portal and a virtual information session.

A virtual information session was held on Facebook Live on 22 September 2021 during the display of the REF and was attended by the project team, a technical specialist and 95 members of the community. An invitation to the Facebook Live community information session was sent via email to over 300 stakeholders who had expressed interest in the information session or requested more information on the proposal in their submissions. The information session was held in the evening to avoid normal business hours and to provide more opportunity for community attendance.

The aim of the virtual information session was to answer questions and address concerns from members of the community and provide a high level understanding of the proposal. Questions were answered by the project team or (where relevant) by a technical specialist live on camera and via the chat function in the virtual information session.

A recording of the virtual information session was published to the project's interactive online portal and made available to the public during the display period to ensure the community had access to these discussions, even if they were not able to attend (for example due to technical issues or unavailability). The recorded sessions were viewed over 8800 times during the display period.

Based on community feedback and concerns raised in submissions on the REF, Transport for NSW is proposing improvements to access to St Peters Triangle and has carried out further targeted consultation with affected residents. Notifications of the proposed changes to improve traffic movement within the St Peters Triangle were letterboxed to residents in Hutchinson Street, Lackey Street and Applebee Street on 17 November 2021. Residents in these streets had the opportunity to provide feedback on the proposed changes via phone or email over a two week period between 17 November 2021 and 1 December 2021. Transport for NSW is considering all community feedback to ensure that concerns are addressed.

Transport for NSW will continue to update the local community and identified stakeholders about the proposal. The following consultation will be ongoing:

- Current proposal information will be provided through the Transport for NSW project website
- Consultation with City of Sydney Council, Inner West Council, utility providers, emergency services and bus operators
- Updates to the immediately affected community during the detailed design phase and construction phases
- Consultation with community stakeholders to help manage impacts during construction
- Follow-up meetings to discuss and agree access arrangements with directly affected landowners prior to and during construction
- Media releases and project advertisements on community Facebook pages and the Transport for NSW project website.

Should the proposal proceed, the construction contractor would develop a Community and Stakeholder Engagement Plan in accordance with Transport for NSW's community engagement policy as part of the construction environmental plan to help provide timely and accurate information to the community during construction. This would include:

- Mechanisms to provide details, timing and likely impact of proposed activities to affected residents, businesses and the community, including changed traffic and access conditions and interruptions to utility services
- Complaints handling procedure, including the contact name and number for complaints.

Enquiries management

The project phone number is maintained by Transport for NSW's communication and stakeholder engagement staff who have a high-level understanding of the project.

Transport for NSW notes that some respondents were not able to access anyone on the project phone number. Transport for NSW followed up with these respondents as soon as possible after the call was logged using the contact details provided.

Respondents who requested more information or to be kept informed about the proposal were sent invitations to the Facebook Live community information session and have been added to the mailing list for the proposal.

The project phone number (1800 951 212) and email (ni@transport.nsw.gov.au) remain available as channels for the community and stakeholders to retrieve information and ask further questions.

Proposal documents

Further information on the proposal is provided on the Transport for NSW project website (caportal.com.au/tfnsw/Sydney-Park-Junction).

The proposal documents have been made available in PDF format as it is a widely used format to view large documents with figures online and meets Web Content Accessibility Guidelines. The proposal website also has a responsive design that responds to the needs of users and the devices they are using, ie mobile or desktop computers, to offer an optimised browsing experience. However, since the proposal involves complex design figures, the proposal documents are best viewed on a larger screen such as a computer screen.

Accuracy of engagement material

Communications material distributed to the community, such as community updates, provide a high-level overview of the proposal, whereas more detailed information about the proposal is provided in the REF that is available for download on the Transport for NSW project website (caportal.com.au/tfnsw/Sydney-Park-Junction).

The development of the 'Sydney Park Junction' concept as a condition of approval for the WestConnex M8 Motorway (Stage 2) project is mentioned on page 3 of the September 2021 community update (roads-waterways.transport.nsw.gov.au/projects/01documents/sydney-park-junction/sydney-park-junction-community-update-09-2021.pdf) and is further discussed in Section 2.1.2 of the REF. The removal of the right turn from King Street into May Street is mentioned on page 4 of the September 2021 community update and Section 3.2.3 of the REF.

2.5.2 Consideration of community feedback

Submission number(s)

83, 111, 222, 291, 344, 356, 381, 504, 505, 545

Issue description

Eight respondents requested feedback from the local community to be considered in the preparation of the final design of the proposal.

One respondent requested an informed response to their submission.

One respondent requested to not change the proposal to appease car owners.

Response

Feedback and issues identified during the engagement program with stakeholders and the community will inform the ongoing development of the proposal.

The local community was given the opportunity to provide feedback over a four week period on the Transport for NSW project website, as well as via the project phone number and email address and a virtual information session held on Facebook Live during the display of the REF, as described in **Section 2.5.1** of this submissions report.

Each submission received from the community has been examined in detail to identify and understand the issues raised. The issues raised in each submission were then categorised and collated and have been presented in this submissions report as a summary of the issues raised by individual submissions. Responses to these issues have been informed by the REF and where relevant, proposal refinements.

A summary of specific proposal refinements that have occurred as a result of community and stakeholder feedback is provided in **Chapter 4** of this submissions report. These refinements are proposed to:

- Improve the overall functionality of the project
- Further reduce the potential impacts of the project and/or respond to issues raised during display of the REF.

Refinements are changes that are consistent with the objectives of the project as described in Section 2.4 of the REF. The refinements as described in **Section 4.1** of this submissions report are minor, do not extent outside of the proposal area assessed in the REF and do not affect the environmental assessment of the proposal.

2.5.3 Web Content Accessibility

Submission number(s)

12

Issue description

One respondent requested publication of the proposal's Web Content Accessibility Guidelines compliance to allow the community to provide feedback on their accessibility needs.

Response

The Transport for NSW project website (caportal.com.au/tfnsw/Sydney-Park-Junction) has been designed by an independent visual engagement company in accordance with Web Content Accessibility Guidelines (WCAG) standards. All documents on the website are fully WCAG compliant.

The community can provide feedback on their accessibility needs via the project phone number (1800 951 212) and email (ni@transport.nsw.gov.au).

2.6 Design

2.6.1 Crossings and traffic signals

Submission number(s)

6, 37, 56, 62, 90, 107, 116, 131, 192, 193, 203, 263, 305, 335, 400, 409, 442, 447, 510, 526, 529, 539, 543, 545

Issue description

Twenty-four respondents raised concerns and made recommendations regarding pedestrian/shared use crossings and traffic signals, including:

- Recommendations to raise pedestrian crossings to prevent vehicles from encroaching on pedestrians
- Suggestions to raise the pedestrian crossing at May Street further and continue the footpath over the May Street crossing to provide a visual cue for vehicles to slow down and improve safety and accessibility for pedestrians
- Pedestrian crossings at intersections along King Street/Pacific Highway should be set back about four to five metres from the road so that pedestrians and vehicles cross each other at a 90 degree angle which increases visibility
- Suggestions to change the colour and texture of raised crossings, to improve accessibility for pedestrians and provide a visual cue to drivers that it is a shared space
- Questions about whether diagonal (scramble) pedestrian crossings can be considered at intersections which would allow pedestrians to cross in all directions, reducing the time for people to cross and the risk of people crossing the road when it is unsafe
- Recommendations to implement a longer pedestrian traffic signal phase so that pedestrians of all ages and abilities have time to cross safely
- Requests for pedestrian crossings to have countdown timers and fully accessible push buttons
- Concerns that Transport for NSW's standard design practices and guidelines prioritise vehicle movement over people movement and that pedestrian and bicycle level of service/delay would therefore not be as good as the vehicle level of service/delay at intersections/crossings
- Traffic signals should automatically prioritise pedestrians and cyclists without having to push a button using features such as inductive loop detectors (for bicycles, wheelchairs and mobility scooters)

- Requests for better separation of cyclists and pedestrians at the King Street/Sydney Park Road intersection for safety and more efficient cyclist movement
- Requests for a traffic signal phase for cyclists so that they do not have to dismount, specifically at the Sydney Park Road/King Street intersection, for cyclists turning right from Sydney Park Road into King Street
- Traffic lights at the Mitchell Road/Sydney Park Road intersection should allow separate phases for pedestrians/cyclists and vehicles, since there is currently not sufficient time for vehicles to turn left once pedestrians have crossed
- Requests for the proposed mid-block crossings on King Street/Princes Highway to be signalised crossings
- Requests for the mid-block crossing on King Street to remain unsignalised until pedestrian volumes warrant signalisation since traffic volumes would be reduced and pedestrian/shared use crossings are relatively close to another (about 200 metres apart)
- Concerns that the proposed traffic lights at the Barwon Park Road/Princes Highway intersection would create additional delay and inconvenience for pedestrians, which is inconsistent with the proposal objective to improve walking connectivity. Respondents recommend implementing a left in/left out access arrangement with a priority pedestrian and bicycle crossing instead.

Response

Pedestrian crossings

The proposal would provide raised shared crossings on Goodsell Street, May Street and Short Street at their intersections with King Street/Princes Highway (refer to Section 3.2.3 of the REF). All of these crossings would be raised to footpath level. The crossings have been designed in accordance with the *Austrroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (Austrroads, 2021) to provide adequate sight distance and good perception of pedestrian and cyclists from vehicles approaching the intersection, and would have appropriate signage and pavement marking implemented.

All signalised intersections in the proposal area have a diagonal crossing distance that exceeds 30 metres. Diagonal (scramble) crossings would therefore significantly increase the duration of the pedestrian traffic signal phase and the traffic signal cycle due to the relatively lengthy time that would be required by pedestrians to cross the road. This would result in increased delays for pedestrians, cyclists and vehicles (including buses), which may lead to illegal crossing movements.

The time allowed for pedestrians to cross the road at intersections are based on the 85th percentile walking speed of 1.2 metres per second as per Transport for NSW standards (Roads and Traffic Authority, 2008) and are considered appropriate for the location of the proposal.

Countdown timers are intended for the control of pedestrian movements only and are used at intersections where there is an exclusive pedestrian traffic signal phase (eg mid-block crossings) and no conflicting vehicle traffic signal phases. Countdown timers would be installed at signalised intersections where appropriate, as per Transport for NSW specifications (Roads and Maritime Services, 2016b). Push buttons at traffic lights would be fully accessible as per Australian accessibility standards (refer to **Section 2.6.5** of this submissions report).

Prioritisation of pedestrians and cyclists at intersections

The proposal was designed in accordance with the Movement and Place Framework outlined in the *Practitioner's Guide to Movement and Place* (DPIE, 2020), that aim to balance the movement of people and goods with the amenity and quality of places and thereby support the needs of all road users, including pedestrians and cyclists.

The proposal would increase pedestrian and cycling crossing opportunities in the area by providing two new signalised mid-block crossings on the Princes Highway where an exclusive pedestrian/cyclist traffic

signal phase would operate. These additional crossings would reduce delays and improve intersection level of service for pedestrians and cyclists.

Pedestrian and cyclist demand at the remaining signalised intersections would be detected and pedestrian/cyclists crossing phases would be initiated during each traffic signal cycle accordingly. Bicycles would likely be detected at traffic signals using in-pavement inductive loops. Pedestrian push button detectors are likely to be used to register demands by pedestrians and in some cases off road cyclists to prevent unnecessary traffic stoppages associated with automated pedestrian crossings (where pedestrian crossing phases are initiated at fixed time intervals).

Separation of pedestrians and cyclists at the Sydney Park Road/King Street intersection

The proposed on-road segregated cycleways on the northern side of Sydney Park Road and along the western side of King Street would improve cyclist and pedestrian separation on the approach to the Sydney Park Road/King Street intersection. As the area around the Sydney Park Road/King Street intersection is an area of high pedestrian and cyclist activity (refer to Section 2.3 of the REF), shared crossings and footpaths are more appropriate in this location since they encourage lower cyclist speeds and would provide better connectivity to St Peters Station.

Cycling from Sydney Park Road to King Street

Cyclists turning right from Sydney Park Road into King Street (northbound) would be able to continuously cycle from the on-road segregated cycleway on Sydney Park Road to the widened shared path on the eastern side of King Street without having to dismount.

Traffic signal phasing at the Mitchell Road/Sydney Park Road intersection

Exclusive pedestrian phasing is not proposed for the traffic lights at the Mitchell Road/Sydney Park Road intersection since it would result in a longer traffic signal cycle and increased waiting times for pedestrians, cyclists and vehicles (as discussed above), which may lead to illegal crossing movements.

Mid-block crossings on King Street/Princes Highway

The proposed mid-block crossings for pedestrians and cyclists on King Street (between May Street and Goodsell Street) and Princes Highway (immediately north of the intersection with Short Street) would be signalised crossings.

As discussed above, the mid-block crossings have been designed in accordance with Austroads Transport for NSW supplement to design guidelines (Austroads, 2021; Roads and Maritime Services, 2017). Since the guidelines do not permit unsignalised pedestrian crossings on roads with two or more traffic lanes in the same direction (Roads and Maritime Services, 2017), an unsignalised crossing would not be an appropriate alternative for the mid-block crossing on King Street.

Removal of the signalised mid-block crossing north of May Street would result in a 240 metre distance between the signalised pedestrian crossings at the King Street/Sydney Park Road and the Barwon Park Road/Princes Highway intersections (due to the removal of the signalised intersection at May Street). The design guidelines recommend that distances between pedestrian crossings over 200 metres should be avoided, as they create compliance and safety issues for pedestrians.

Barwon Park Road/Princes Highway intersection

There are currently no formalised pedestrian/cyclist crossings at the Barwon Park Road/Princes Highway intersection, resulting in an unsafe environment for pedestrians and cyclists. The proposal would upgrade the intersection to a three-way signalised intersection, with pedestrian crossings provided on all three legs of the intersection. The existing slip lane from Princes Highway southbound would be removed and replaced with a left in at the reconfigured intersection. These formalised crossing opportunities and changes would greatly improve safety and connectivity for pedestrians and cyclists at this intersection.

Since the May Street/King Street intersection would be reconfigured from a signalised intersection to an unsignalised intersection, the reconfiguration of the Barwon Park Road/Princes Highway intersection to a signalised intersection is not expected to result in any additional delays for pedestrians crossing Princes Highway or Barwon Park Road.

2.6.2 Road design, signage and markings

Submission number(s)

50, 140, 156, 294, 321, 335, 370, 400, 409, 417, 505, 526, 529, 533, 534, 537, 539, 546

Issue description

Eighteen respondents raised concerns and questions and made recommendations in relation to road design, signage and markings, including:

- Requests to raise the Sydney Park Road/King Street intersection to footpath level
- Concerns that a left turn from King Street into Sydney Park Road would not be permitted which would increase traffic turning left at the Barwon Park Road/Princes Highway intersection
- The central median along King Street appears too large for a 40 kilometres per hour street and should include trees, plants and small scale street lights with flags, and gutters should be removed or only 20 millimetres high
- A suggestion to remove the median kerb on Princes Highway if the speed limit would be 40 kilometres per hour
- Remove the median on Barwon Park Road to allow for a right turn when exiting the Sydney Park car park to head south along Princes Highway at the Barwon Park Road/Princes Highway intersection
- Traffic lanes on Princes Highway should be between 3.0 to 3.2 metres wide, in line with the *Sydney Streets Code 2021* (City of Sydney Council, 2021)
- Questions asking whether the traffic lanes on Princes Highway between May Street and Campbell Street would become 24-hour clearways, since the Princes Highway is currently often congested during business hours
- A right turn from Princes Highway into Barwon Park Road should be permitted unless it would result in unacceptable traffic performance
- Suggestions to widen Sydney Park Road to accommodate two lanes of traffic in each direction and a third lane in the westbound direction for parking
- Suggestions to reconfigure intersections as roundabouts with pedestrian/bicycle priority on all legs (also known as a protected or 'Dutch-style roundabout") to eliminate intersection delay for pedestrians and bicycles and reduce the effective road capacity, and therefore traffic volumes and associated impacts
- Suggestions to provide increased signage and road markings in relation to the speed limit on Sydney Park Road since the current speed limit is not clear
- Cycleways should not be painted green since it would not blend in with the environment
- Implement appropriate traffic calming measures with visual and physical cues to slow drivers down, such as rumble strips or paintwork on the road surface at the start and end of the proposal corridor to signal to drivers that the area is a low-speed, multi-modal, residential zone
- A concern about the reduced area available to heavy vehicles turning from Princes Highway into the BP service station due to the widened footpath and reduction of traffic lanes.

Response

Sydney Park Road/King Street intersection

Raising the Sydney Park Road/King Street intersection to footpath level is not proposed as this treatment is typically reserved for locations with lower traffic volumes and is not appropriate for an arterial route.

A left turn from King Street into Sydney Park Road would be allowed at the Sydney Park Road/King Street intersection, as outlined in Section 3.2.3 of the REF.

Central median along King Street/Princes Highway

The central median and gutters between the northbound and southbound traffic lanes of King Street/Princes Highway have been designed in accordance with Austroads and Transport for NSW design guidelines and specifications, as outlined in Section 3.2.1 of the REF. The median is required to accommodate the proposed design and achieve the proposal objectives.

The median would be planted with low-level low maintenance vegetation in accordance with the *Landscape design guideline* (Roads and Maritime Services, 2018), to maintain road user sight lines on the approach to intersections or crossings, ensure clear views of signage and minimise maintenance requirements. Streetlights would remain in their current locations to minimise the cost of relocating electricity cables.

Access to Sydney Park car park on King Street/Princes Highway

Access arrangements to the existing Sydney Park car park on King Street/Princes Highway would be modified so that entry would be via Barwon Park Road and exit would be via King Street to head south along King Street/Princes Highway, as described in Section 3.2.3 of the REF.

Width of traffic lanes on Princes Highway

Traffic lanes have been designed in accordance with Transport for NSW design criteria for the proposal and Austroads design guidelines to achieve the proposal objectives, as outlined in Section 3.2.1 of the REF.

Clearways

The proposal would retain the existing no stopping signs and clearways along King Street and Princes Highway. Clearways are located along the western side of Princes Highway between May Street and Campbell Street (6.00am to 10.00am) and along the eastern side of Princes Highway between Barwon Park Road and Campbell Street (3.00pm to 7.00pm).

Access to Barwon Park Road

The current access arrangements to Barwon Park Road from Princes Highway and Campbell Street would remain. The existing access to Barwon Park Road from the south via Campbell Street is considered adequate since residential developments are mostly concentrated near the southern end of Barwon Park Road. Crown Street is currently a one way road that can only be accessed from the south via Campbell Street. Access to Barwon Park Road from the north would be via a left turn lane at the reconfigured three-way signalised Barwon Park Road/Princes Highway intersection.

Sydney Park Road

Sydney Park Road would be reduced from four lanes to two lanes to accommodate the dedicated on-road two way segregated cycleway (on the northern side of the road), parking and additional landscaping, while retaining the existing pedestrian paths/shared paths. Traffic capacity would be reduced along Sydney Park Road in order to improve pedestrian and cyclist safety, access and connectivity as well as urban amenity, as outlined in the proposal objectives (refer to Section 2.4 of the REF). Providing two lanes in each direction and a third lane in the westbound direction for parking would not reduce traffic capacity and therefore not achieve the proposal objectives.

Reconfiguring intersections as roundabouts

There is not currently sufficient space at existing intersections to accommodate a dual-lane roundabout without the need for property acquisition, particularly as Dutch-style roundabouts require pedestrian and cyclist crossings to be set back at least six to 10 metres from the roundabout, which would further increase the required proposal footprint and associated impacts, including tree removal and impacts to the Brickworks local heritage item.

Signage and road markings

Speed limit signage is currently provided at the western and eastern entrances to Sydney Park Road. Additional signage would be provided where necessary.

Heavy vehicles

The proposal would remove the Princes Highway and Sydney Park Road corridors from the approved B-double freight network. Since local areas surrounding the proposal area are subject to redevelopment due to population growth and/or zoned for light industrial uses, heavy vehicle access would need to be maintained for construction trucks needing to access construction sites and delivery trucks servicing businesses. Princes Highway and Sydney Park Road have therefore been designed to carry general access heavy vehicles with a maximum length of 12.5 metres.

However, the proposal would result in a significant reduction in heavy vehicle traffic along Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street), as these roads would serve mostly local traffic with origins or destinations in St Peters, Newtown, Erskineville or Alexandria (refer to Section 6.1.4 of the REF).

Cycleways

Green colouring would be used for cycleways in specific locations to increase visibility and legibility of the cycleways or to mark the path in complicated intersections, as recommended by the *NSW Bicycle Guidelines* (Roads and Traffic Authority, 2005).

Traffic calming measures

Visual and physical cues to slow traffic have been implemented in the design where possible to improve safety for all road users, particularly pedestrians and cyclists, including:

- Reduction of traffic lanes
- Reduction of the design and posted speed limit to 40 kilometres per hour on Princes Highway from Campbell Street to Goodsell Street
- Additional signalised pedestrian crossings along King Street and Princes Highway
- Central median along King Street and the northern section of Princes Highway
- Raised pedestrian crossings on Goodsell Street, May Street and Short Street
- Additional landscaping.

Urban artwork on the road surface would be limited to pedestrian crossings in St Peters Square, to minimise distraction for drivers. Rumble strips are typically used in higher speed environments to alert drivers to approaching intersections, toll booths or other hazards, and are not considered appropriate for use in the proposal area.

Heavy vehicle access to BP service station

Heavy vehicles would continue to enter and exit the BP petrol station from Princes Highway. The wider footpath would not impact the turning pathways of heavy vehicles, which would be unchanged. As a result, heavy vehicle access is not anticipated to be changed by the proposal at this location.

2.6.3 Traffic speed limit

Submission number(s)

409, 510, 529, 543

Issue description

Four respondents recommended the design speed should match the posted speed limit to discourage speeding, improve safety and reduce noise.

Response

Since the display of the review of the environmental factors, the design has been further refined and the design speed along King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Sydney Park Road has been reduced to 40 kilometres per hour to match the proposed posted speed limit (refer to **Section 4.1.2** of this submissions report).

2.6.4 Road drainage

Submission number(s)

50

Issue description

One respondent recommended that stormwater should be managed via sustainable urban drainage systems integrated with the new street planting areas.

Response

Water sensitive urban design treatments have been considered and investigated for the proposal. The existing pit and pipe network is quite shallow and therefore options to incorporate water sensitive urban design treatments are limited. Reconstructing a deeper pit and pipe network to accommodate water sensitive urban design treatments would have significant impacts on other disciplines such as existing pavements and utilities and therefore the existing stormwater infrastructure would be retained. Where possible, kerbed stormwater flow would be directed to the landscaped buildouts to act as passive watering for the landscaped areas.

2.6.5 Accessibility

Submission number(s)

12

Issue description

One respondent noted there is no accessibility plan/analysis for the proposal at present and recommends consideration of accessibility in design, rather than compliance. The respondent noted that the footpath on King Street/Princes Highway from St Peters Station is currently impeded by bins, poles and utility infrastructure that reduce accessibility for people using a mobility aid or pram. The respondent requested consideration of accessibility and lighting for footpaths between St Peters Station and Sydney Park, such as wider footpaths and kerb ramps.

Response

Kerbs ramps, footpath improvements and accessible parking that would be provided as part of the proposal have been designed in accordance with Australian disability standards and guidelines that comply with the *Disability Discrimination Act 1992*, including:

- *AS 1428.1-2009: Design for access and mobility, Part 1: General requirements for access - New building work* (Standards Australia, 2009a)
- *AS/NZS 2890.6-2009: Parking facilities, Part 6: Off-street parking for people with disabilities* (Standards Australia, 2009b)
- *Guidelines on application of the Premises Standards Version 2* (Australian Human Rights Commission, 2013a)
- *Advisory Note on streetscape, public outdoor areas, fixtures, fittings and furniture* (Australian Human Rights Commission, 2013b).

Since the display of the review of the environmental factors, the design has been further refined and one accessible car parking space would be provided on May Street (refer to **Section 4.1.4** of this submissions report).

2.7 Traffic and transport

2.7.1 Adequacy and accuracy of assessment

Submission number(s)

156, 185, 220, 313, 329, 336, 344, 405, 407, 450, 510, 520, 523, 525, 529, 543, 544

Issue description

Seventeen respondents raised concerns and questions about the adequacy and accuracy of the traffic and transport impact assessment carried out for the proposal, including:

- Concerns that Campbell Street west of Princes Highway was not included in the traffic and transport assessment when the intention of the proposal is to encourage traffic onto this road
- No traffic modelling has been carried out for Edgeware Road
- The traffic and transport assessment did not consider real-time data about local conditions or traffic metrics such as current vehicle travel patterns in the area
- The Traffic and Transport Assessment (Appendix C of the REF) did not model/report forecast changes in average daily traffic on arterial roads (only changes in forecast peak traffic are reported) or forecast changes in traffic on local streets, since this information is required to assess the overall benefit/cost of the proposal in terms of decreased/increased traffic and associated impacts
- Pedestrian, cyclist and traffic usage data has not been made available, considering that recently completed Transport for NSW projects may change traffic patterns and volumes
- The 2023/2033 traffic modelling does not account for changes in traffic flows when the WestConnex and Sydney Gateway projects will be completed
- Human nature would undermine traffic modelling carried out for the proposal
- No modelling has been carried out to show that there will be a decrease in traffic volumes
- The assessment did not consider the use of May Lane as a direct route from King Street and St Peters Station to May Street and beyond, and the potential conflicts between drivers, pedestrians and cyclists along May Lane and at the May Lane/May Street intersection.

- Concerns that the Traffic and Transport Assessment includes modelling of motor vehicle level of service/delay at intersections but not pedestrian and bicycle level of service/delay, when the proposal's objective is to improve walking/cycling movement and connectivity
- The traffic and transport assessment did not adequately consider the increased safety risk to pedestrians and cyclists at the Campbell Road and Euston Road intersection considering:
 - Traffic, including heavy vehicles, would be rerouted via Campbell Road and Euston Road
 - Active transport at the Campbell Road and Euston Road intersection, facilitated by the relatively new extension of Campbell Road to Bourke Road and the high density residential area around Mascot railway station, seems not to have been considered in Sections 3.2 and 3.3 of Appendix C (Traffic and transport assessment)
 - Observations in September 2021 indicates that the Campbell Road and Euston Road intersection appears to be an area with high pedestrian and cyclist activity. However, this is not indicated on the depiction of cycle and pedestrian networks near the proposal in Figure 3-2 of Appendix C (Traffic and transport assessment)
 - The 'Strava' heat maps provided in Figure 3-3 and Figure 3-4 of Appendix C (Traffic and transport assessment) do not indicate the recent surge in pedestrian and cycling activity since the opening of the Campbell Road bridge

Respondents recommended reviewing the design of this intersection, to take into consideration the provision of sufficiently sized waiting areas, crossing times and lighting for pedestrians and cyclists

- Questions about whether the potential wider traffic impacts of the proposal have been considered, especially where traffic would flow to and the related impacts.

Response

Traffic and transport modelling

The overall assessment approach for the traffic and transport assessment is outlined in Section 2.1 of Appendix C (Traffic and transport assessment) of the REF. To assess the impacts of the proposal on road network performance and the movement of general traffic, freight and buses, traffic modelling was undertaken of the road network in the area bounded by Princes Highway, King Street, Sydney Park Road, Euston Road and Campbell Street/Campbell Road (refer to Section 2.4.1 of Appendix C (Traffic and transport assessment) of the REF).

The traffic modelling approach for the proposal is outlined in Section 2.4 of the REF. Traffic modelling for the traffic and transport assessment was undertaken in accordance with the *Traffic Modelling Guidelines* (Roads and Maritime Services, 2013) and included:

- Development of calibrated and validated base models, using data on existing traffic volumes and patterns and intersection performance in the base year 2019
- Development of future year base models to align with anticipated operational conditions in the assumed year of opening (2023) and 10 years after opening (2033)
- Application of road network changes associated with the proposal to the future year base models to allow the identification of potential impacts to road network performance.

A summary of traffic modelling scenarios that were adopted to determine the impacts of the proposal on road network performance is provided in Table 6-3 of the REF. Traffic modelling was undertaken for the weekday morning (7am to 9am) and evening (4pm to 6pm) peak periods only, which is consistent with the standard approach for this type of assessment. The peak traffic periods represent a worst case scenario, as during these periods the road network experiences the maximum background traffic demand and the available spare capacity of the road network is at its most limited.

The existing pedestrian and cycling environment is assessed in Section 3.3 of Appendix C (Traffic and transport assessment) of the REF and the existing pedestrian and cycling network is shown in Section 2.4

of the REF. The assessment included site observations to determine the level of pedestrian and cyclist activity in the proposal area and descriptions of existing formal crossings and cycleways and the condition of footpaths and shared paths. Site observations of pedestrian and cyclist activity were compared with Strava data (an internet service to track running and cycling data using the Global Positioning System) to check if similar levels of activity were recorded¹.

Impacts of WestConnex M4-M5 Link, Sydney Gateway and human behaviour

The process for calculating traffic demand for 2023 (the assumed year of opening) in the traffic and transport assessment (Appendix C of the REF) does not account for the step-change in traffic flow which is likely to take place with the opening of nearby transport infrastructure projects that would avoid congestion on the road network, including the WestConnex M4-M5 Link and Sydney Gateway projects (expected to open in 2023 and 2024 respectively) (refer to Section 6.1.4 of the REF). Section 5.2.5 of the traffic and transport assessment also notes that the traffic modelling does not account for behavioural changes that may occur to avoid congestion, including:

- Retiming of vehicle trips to either side of the peak to avoid congestion, resulting in 'peak spreading'
- Rerouting of vehicle trips to other roads to avoid congestion
- Use of other modes such as active transport or public transport
- Other behavioural changes such as changing origin/destination or not undertaking the trip at all.

The traffic modelling therefore presents a worst case scenario and traffic volumes are likely to be less than predicted.

A qualitative analysis was carried out to determine the potential cumulative impacts of the construction and operation of the proposal in conjunction with other major projects that are expected to occur at the same time, including the WestConnex M4-M5 Link and Sydney Gateway projects, as mentioned in Section 2.1 of Appendix C (Traffic and transport assessment) of the REF. The results of this analysis are presented in Section 6.1.4 of the REF and are discussed below.

Predicted traffic volumes and patterns

Traffic modelling carried out to predict traffic volumes and patterns in the study area in the assumed year of opening (2023) and 10 years after opening (2033) are outlined above and in Section 2.4 of the REF.

A summary of traffic volumes and patterns forecast for 2023 and 2033 is provided in Table 6-9 of the REF. The modelling indicates that the proposal would reduce the number of vehicles within the proposal area significantly compared to the scenario without the proposal (as shown in Table 6-6 of the REF):

- King Street (south of Lord Street) and Princes Highway (north of Campbell Street) would carry up to 55 per cent fewer vehicles in 2023 and up to 66 per cent fewer vehicles in 2033 with the proposal when compared to the scenario without the proposal
- Sydney Park Road would carry up to 71 per cent fewer vehicles in 2023 and up to 65 per cent fewer vehicles in 2033 with the proposal when compared to the scenario without the proposal
- King Street (north of the rail overbridge) would carry up to 47 per cent fewer vehicles in 2023 and up to 46 per cent fewer vehicles in 2033 with the proposal when compared to the scenario without the proposal

¹ While internet service data such as Strava is not representative of all active transport, it has been used as a guide only.

- Mitchell Road would carry up to 57 per cent fewer vehicles in 2023 and up to 54 per cent fewer vehicles in 2033 with the proposal when compared to the scenario without the proposal.

May Lane

The proposal is expected to result in a decrease in traffic volumes on King Street as described in Section 6.1.4 of the REF, which would reduce the number of vehicles travelling from King Street and St Peters Station to May Street via May Lane. The removal of the right turns into and out of May Street at the King Street/Princes Highway intersection as part of the proposal would further reduce traffic volumes in May Street and Goodsell Street. The proposal is therefore expected to result in a reduction in conflicts between pedestrians/cyclists and vehicles along May Lane and at the May Lane/May Street intersection.

Issues relating to the removal of the right turns into and out of May Street at the King Street/Princes Highway intersection are discussed in detail in **Section 2.7.3** of this submissions report.

Pedestrian/bicycle level of service or delay

Since one of the primary objectives of the proposal is to transform King Street/Princes Highway and Sydney Park Road to achieve a better-balanced movement and place outcome, the methodology used to assess the impact of the proposal on the transport network combines the traditional traffic engineering and traffic modelling approach to road network project development and assessment with the movement and place approach to road corridor planning and management, as outlined in Section 6.1.1 of the REF.

The *Practitioner's Guide to Movement and Place* (DPIE, 2020) proposes five built environment themes that provide a framework for evaluating the movement and place performance of the built environment for pedestrians and cyclists, as outlined in Table 6-1 and shown in Figure 6-1 of the REF. Under these five themes, 10 user outcomes have been identified that reflect what a pedestrian or cyclist in the proposal area may reasonably expect as an outcome of good performance related to that theme, being:

- Access and Connection: mode choice, reliable transport and equity (of access)
- Amenity and Use: convenient facilities and local opportunities
- Green and Blue: a link to nature
- Comfort and Safety: a comfortable environment, that is low risk
- Character and Form: a place that is human-scaled, that celebrates its distinct features.

To achieve these outcomes, performance indicators were established for the proposal that recognise the various functions of the road network and reflect the needs of each road user customer group, as outlined in Section 6.1.1 of the REF. Performance indicators for each road user customer group are listed in Table 6-2 of the REF and include:

Pedestrians:

- Walking comfort and accessibility
- Pedestrian facilities
- Crossing opportunities
- Pedestrian environment and security.

Cyclists:

- Cycle connectivity and flow
- Cycling facilities
- Cycling difficulty
- Cycle parking facilities.

Therefore, the evaluation of the movement and place performance for pedestrians and cyclists involved the assessment of all of these performance indicators, instead of pedestrian/bicycle level of service or delay, which only represents a particular aspect of pedestrian and cyclist movement.

The proposal is expected to significantly improve the current pedestrian and cycling movement and sense of place, as outlined in Section 6.1.4 of the REF. Level of service or delay for pedestrians and cyclists in the proposal area would improve through the provision of cycleways and additional pedestrian and cyclist crossings, the widening of footpaths and shared paths and the improvement of existing shared crossings.

Safety risks for pedestrians and cyclists at the Euston Road/Campbell Road intersection

The Euston Road/Campbell Road intersection has recently been upgraded as part of the WestConnex M8 Motorway (Stage 2) works and signalised pedestrian and cyclist crossings have been provided on both Campbell Street and Euston Road at the intersection. These crossings have been designed in accordance with Transport for NSW and Austroads design guidelines and specifications and are not considered to present any safety risks to pedestrians and cyclists travelling through the intersection to access footpaths and cycleways on Campbell Street and Euston Road. Therefore, additional assessment of safety risks for pedestrians and cyclists at the Campbell Road/Euston Road intersection is not considered necessary.

Assessment of potential wider traffic impacts

The potential wider traffic impacts of the proposal are outlined in Section 5.2.8 of Appendix C (Traffic and transport assessment) and Section 6.1.4 of the REF.

There are currently a number of major road infrastructure and other road upgrade projects that have recently been constructed, currently being constructed or planned near the proposal area, including the WestConnex M8 Motorway, WestConnex M4-M5 Link and Sydney Gateway. The cumulative impact of the proposal and these projects are expected to include:

- Altered traffic patterns in the proposal area, with Euston Road and Campbell Street/Campbell Road replacing Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) as part of the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo
- Improved traffic flow, road safety and trip reliability along the nearby Alexandria to Moore Park corridor
- Increased demand for travel across all customer modes in and near the proposal area.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project.

Approval condition E40 of the WestConnex Stage 2 project specifies that Transport for NSW has to prepare a Road Network Performance Review Plan of the road network surrounding the M8 Motorway, including the proposal area and surrounding arterial and local roads, one year and five years after opening of the M8 Motorway. The purpose of the Road Network Performance Review Plan is to optimise road network performance including public transport access and times, and manage the performance impacts of the M8 Motorway on the adjoining road network by identifying or confirming mitigation improvements that could be required in areas where traffic performance may be unsatisfactory. The Road Network Performance Review Plan will be submitted to the Secretary, Transport for NSW (in relation to impacts on bus services) and to the relevant councils within 60 days of its completion and made publicly available.

Transport for NSW is currently preparing the Road Network Performance Review Plan for the first year of operation of the M8 Motorway. The findings of this plan would inform the need for any further environmental management measures to mitigate the operational impacts of the proposal on the surrounding road network.

2.7.2 Restriction of right turn at Mitchell Road

Submission number(s)

26, 55, 84, 91, 94, 96, 99, 100, 101, 109, 120, 133, 151, 155, 166, 169, 172, 174, 175, 176, 177, 182, 183, 188, 189, 194, 195, 196, 200, 208, 211, 219, 223, 226, 229, 236, 242, 244, 245, 246, 249, 251, 256, 268, 270, 271, 272, 273, 274, 275, 280, 281, 282, 283, 284, 286, 287, 288, 289, 290, 295, 296, 299, 300, 303, 313, 318, 323, 327, 337, 340, 343, 345, 354, 358, 376, 387, 390, 394, 398, 405, 407, 411, 412, 439, 440, 446, 449, 450, 459, 462, 463, 484, 490, 500, 504, 511, 513, 520, 545

Issue description

One hundred respondents raised concerns and made suggestions about the restriction of the right turn from Mitchell Road into Sydney Park Road to buses only, including:

- Questions asking how residents and businesses in the following locations would access their properties/premises:
 - St Peters Triangle (consisting of Goodsell Street, Council Street, May Street, May Lane, Caroline Lane, Council Street, Hutchinson Street, Lackey Street, Applebee Street, Short Street, Princes Highway and Campbell Street)
 - Barwon Park Road, Crown Street and Harber Street
 - St Peters Street, Brown Street, Florence Street and Church Street
- It would result in an increase in travel distances and travel times and inconvenience for the local community in Erskineville and Alexandria to access key services and destinations west of Princes Highway, including Marrickville Metro and businesses along King Street/Princes Highway, and for local residents in Alexandria, St Peters and suburbs further south travelling home from shops, businesses, child care centres and work places in Alexandria and other areas further to the north
- Access to residences in Barwon Park Road would be substantially impacted considering a right turn is currently not permitted from Euston Road into Sydney Park Road, from Campbell Road into Barwon Park Road and from Princes Highway into Barwon Park Road and the proposal would remove the right turn from May Street into Princes Highway
- Connections between the Inner West and Eastern suburbs would be impacted
- Rat running would increase through narrow residential streets in Erskineville and Alexandria such as Henderson Road, Copeland Street, Coulson Street and Lord Street that do not have the capacity to accommodate the additional traffic, and impact the amenity of local residents, increase safety risks for children walking to and from school, the elderly, mobile impaired and cyclists and result in additional noise and air quality impacts
- Existing congestion at the Concord Street/King Street intersection would increase as a result of rat running via Coulson Street and Concord Street, as the traffic signals do not prioritise vehicles turning left from Concord Street into King Street
- More traffic would be directed towards King Street and Euston Road, which are already congested
- Existing congestion along Mitchell Road would increase since vehicles turning left at the Mitchell Road/Sydney Park Road intersection have to give way to pedestrians crossing the road to access Sydney Park which limits the number of cars that are able to turn left during the traffic signal cycle
- Traffic would increase in Maddox Street, Huntley Street and Harley Street as drivers seek alternative routes, which would impact the safety of pedestrians, children and cyclists along these streets
- Concerns that drivers travelling south on Mitchell Road would use the Sydney Park car park on Sydney Park Road to make a U-turn to travel west on Sydney Park Road

- Drivers would be forced to use the M8 Motorway since there are no suitable alternatives to access Princes Highway
- The proposed restriction would only benefit cyclists and pedestrians visiting Sydney Park, since the majority of residents use the right turn from Mitchell Road into Sydney Park Road to commute to work or for essential trips and would be adversely impacted
- The proposed restriction would result in traffic congestion at the right turn from Sydney Park Road into Euston Road since this right turn lane is very short
- The proposed restriction is unnecessary since Mitchell Road is used less frequently since the COVID-19 pandemic and there is very little traffic congestion from vehicles travelling towards St Peters Station even during peak periods
- Suggestions to restrict heavy vehicles from using Sydney Park Road instead
- Suggestions to reinstate the right turns from Euston Road and Campbell Road to provide alternative routes to access Princes Highway
- Recommendations to maintain a single lane right turn from Mitchell Road into Sydney Park Road
- Requests for further information about environmental management measures that would be implemented to help manage impacts.

Response

Transport for NSW, in consultation with City of Sydney Council, has responded to community concerns about the potential impacts of restricting the right turn from Mitchell Road into Sydney Park Road to buses only, and has removed this restriction from the proposal.

2.7.3 Removal of right turns at May Street

Submission number(s)

4, 7, 8, 13, 14, 16, 28, 32, 39, 42, 43, 45, 51, 54, 57, 59, 65, 67, 73, 76, 78, 81, 93, 95, 103, 110, 112, 113, 155, 187, 197, 215, 224, 225, 226, 238, 268, 274, 284, 310, 324, 332, 343, 360, 365, 367, 373, 374, 387, 388, 390, 391, 397, 399, 402, 403, 405, 407, 411, 412, 418, 434, 439, 440, 446, 450, 457, 465, 466, 469, 474, 505, 514, 517, 520, 523, 527, 528, 530, 531, 535, 538, 540, 542, 544

Issue description

Eighty-five respondents raised concerns and made suggestions about the removal of the right turns into and out of May Street at the King Street/Princes Highway intersection, including:

- Questions about the reasoning behind the removal of the right turns into and out of May Street since the same objective can be achieved by retaining the right turns
- Recommendations to implement traffic calming measures on May Street, such as restricting the length/weight of vehicles that may turn into or out of May Street, while allowing buses as excepted vehicles, or allowing a 'Local Access Only' right turn from Campbell Street into Hutchinson Street instead of removing the right turns at the Mitchell Road/Sydney Park Road and May Street/King Street intersections, and policing it with a camera, to retain access for locals, small business and local transport
- Travel distances and times and inconvenience would increase for residents and businesses in St Peters Triangle since there is currently no right turn allowed from May Street into Appleby Street, no right turn allowed from Campbell Street into Hutchinson Street, no other right turns from King Street/Princes Highway between St Peters Station and Campbell Street and many of the streets in St Peters Triangle are narrow one way streets

- Concerns that reversing the one way flow of traffic in the St Peters Triangle would not resolve impacts on access to this location since there is currently no right turn allowed from Hutchinson Street into Campbell Street
- Drivers would attempt to make an illegal U-turn at the Campbell Street median strip to turn into Hutchinson Street since no right turn is allowed from Campbell Street into Hutchinson Street. Respondents suggest reinstalling the right turn from Campbell Street into Hutchinson Street to improve access
- Suggestions to allow access to Applebee Street from May Street up to the Applebee Street/Hutchinson Street intersection and changing the direction of Hutchinson Street as was done previously, which would allow residents to access the St Peters Triangle via Campbell Street and May Street
- Questions asking how residents and businesses in St Peters Triangle (consisting of Goodsell Street, Council Street, May Street, May Lane, Caroline Lane, Council Street, Hutchinson Street, Lackey Street, Applebee Street, Short Street, Princes Highway and Campbell Street) would access their properties/premises
- Access for the St Peters Post Office along Princes Highway that has its loading bay access at the rear on Applebee Street would be impacted, considering that the westbound route via Campbell Street is one of the main approaches from the many distribution facilities and warehouses in Alexandria, Mascot and Port Botany
- The WestConnex project specifically created the right turn from May Street into Princes Highway and access to Princes Highway is consequently much easier and less congested than previously
- Questions asking how residents and businesses in Barwon Park Road, Crown Street and Harber Street would access their properties/premises
- Access to local areas would be restricted for local residents, such as Sydney Park, Camdenville Park and the BP Service Station along Princes Highway
- Access for the wider Inner West community in St Peters, Tempe, Stanmore, Alexandria, Enmore, Newtown, Sydenham and areas further away such as Undercliffe and Narwee, would be impacted since May Street is part of the major route to and from these areas
- Access for buses travelling to the Tempe depot via Unwins Bridge Road would be impacted, as well as operations and transport workers starting or ending shifts at the depot
- Access to St Peters Station would be impacted
- Rat running would increase through narrow residential streets such as Lord Street, Alice Street, Coulson Street, Florence Street, Brown Street/Conway Place and Silver Street, which would increase safety risks and noise impacts for families with young children and other residents
- Requests for measures to divert traffic via Euston Road and Campbell Road to avoid congestion in residential streets
- Congestion would increase on the local road network, including Edgeware Road, Bedwin Road and Unwins Bridge Road
- Traffic would be diverted via Edgewater Road and Unwins Bridge Road to areas in the west and south with schools, including St Peters Public School, St Pius Catholic Primary School and Camdenville Public School
- Congestion would increase at the Campbell Street/Princes Highway intersection by greatly increasing traffic turning right from Campbell Street into Princes Highway and traffic turning right from Princes Highway into Campbell Street
- It would reduce the number of alternative routes in the event of traffic incidents, road closures or congestion on King Street/Princes Highway and Campbell Street
- Access for heavy vehicles used in construction for new developments would be impacted which would discourage new developments

- Questions asking where traffic heading south along King Street would turn right off Princes Highway
- A large volume of traffic would be diverted to King Street/Princes Highway with no capacity to accommodate the additional traffic if traffic lanes have been reduced, which would impact the daily commute of residents
- Requests for further information about environmental management measures that would be implemented to help manage impacts.

Response

Justification

One of the main objectives of the proposal is to improve the amenity of the southern 'gateway' to King Street by reducing traffic capacity along King Street, Princes Highway and Sydney Park Road (refer to Section 1.1 and Section 2.4 of the REF). The removal of the right turns into and out of May Street at the King Street/May Street/Princes Highway intersection is required to reduce traffic lanes and through traffic using King Street, Princes Highway and Sydney Park Road and to discourage rat running through local residential streets, including May Street. Retaining the right turns would not achieve the proposal objectives.

City of Sydney Council has endorsed the removal of the right turn from King Street into May Street and also supports the removal of the right turn from May Street into Princes Highway.

Traffic calming measures on May Street

Retaining the right turns while restricting the length/weight of vehicles that turn into or out of May Street and allowing buses as excepted vehicles, or allowing a 'Local Access Only' right turn from Campbell Street into Hutchinson Street, is not proposed since compliance with these restrictions would be difficult to monitor and enforce and as such, would not significantly reduce traffic volumes in the proposal area.

Access to St Peters Triangle

Due to the above concerns raised about the impacts of the removal of the right turns into and out of May Street on access for residents in St Peters Triangle, further traffic impact assessment (refer to Appendix C of this submissions report) has been carried out to review the impacts of the removal of the right turns and evaluate changes in access arrangements to address these concerns, as discussed in **Section 5.1** of this submissions report.

To improve access to St Peters Triangle and minimise potential increases in travel times as far as is practicable, Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street, as discussed in **Section 5.1** of this submissions report.

These proposed new access arrangements would reduce the risk of drivers attempting an illegal U-turn at the Campbell Street median strip to turn into Hutchinson Street. Reinstating the right turn from Campbell Street into Hutchinson Street is not proposed since it would introduce safety risks for cyclists using the cycleway along Campbell Street.

The additional traffic modelling and assessment indicates that extending the two way section on Applebee Street to the intersection with Hutchinson Street and reversing the one way traffic direction on Hutchinson Street would generally improve access for residents in St Peters Triangle. The proposed changes in access arrangements as described above (presented as Option 8 in the assessment in **Section 5.1** of this submissions report) would improve accessibility for residents within the St Peters Triangle, while minimising congestion and changes to travel times and maintaining safety.

Residents/businesses in the St Peters Triangle (consisting of Goodsell Street, Council Street, May Street, May Lane, Caroline Lane, Council Street, Hutchinson Street, Lackey Street, Applebee Street, Short Street, Princes Highway and Campbell Street) would be able to access their properties via Campbell Street or May

Street when travelling from the west, via Princes Highway and May Street/Short Street when travelling from the south and via Euston Road, Campbell Road, Princes Highway and May Street/Short Street when travelling from the north or east.

Access to the St Peters Post Office loading bay in Applebee Street from distribution facilities and warehouses in Alexandria, Mascot and Port Botany would be via Campbell Street, Princes Highway and Short Street.

Access to Princes Highway

While the removal of the right turn from May Street into Princes Highway would impact vehicle access for St Peters Triangle residents to Princes Highway, pedestrian and cycling access to Princes Highway would be improved through the upgrades to pedestrian and shared pathways on May Street, Princes Highway and King Street and the provision of signalised mid-block crossings along King Street and Princes Highway. These proposed access changes and improvements would promote walking and cycling for local trips and are consistent with various State and local government strategies and plans that encourage walking and cycling to promote healthier, more sustainable lifestyles and improve community wellbeing, as described in **Section 2.3.1** of this submissions report.

Drivers in the St Peters Triangle would gain vehicle access to the Princes Highway from Short Street if they wish to travel northbound, or from Campbell Street if they wish to travel southbound.

Access to Barwon Park Road, Crown Street and Harber Street

The proposal would impact access to Barwon Park Road from May Street, due to the removal of the right turn from May Street into Princes Highway. Since Transport for NSW has removed the proposed 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road (refer to **Section 4.1.3** of this submissions report), the proposal would not impact any other existing routes to/from Barwon Park Road, Crown Street or Harber Street.

When travelling from the west or south, Crown Street, Barwon Park Road and Harber Street would be accessed via Campbell Street/Campbell Road. When travelling from the north or east, Barwon Park Road would be accessed by turning left into Barwon Park Road from Princes Highway and Crown Street and Harber Street would be accessed by travelling south on King Street/Princes Highway, left into Campbell Street and left into Crown Street or Harber Street.

Access to Sydney Park, Camdenville Park and the BP service station

While the proposal would impact vehicle access to the Sydney Park car park and BP service station on Barwon Park Road from St Peters Triangle, pedestrian and cycling access to Sydney Park and Camdenville Park would be improved by widening footpaths and providing additional formal crossings and dedicated cycleways in the proposal area. These proposed access changes and improvements are aimed at promoting walking and cycling for local trips and are consistent with various State and local government strategies and plans that encourage walking and cycling to promote healthier, more sustainable lifestyles and improve community wellbeing, as described in **Section 2.3.1** of this submissions report. Residents from St Peters Triangle would still be able to access the Sydney Park car park and the BP service station on Barwon Park Road by travelling west on May Street, east on Campbell Street and then north on Barwon Park Road.

The proposal would impact vehicle access to Camdenville Park for local residents from Erskineville and Alexandria by removing the right turn from King Street into May Street. These residents would be able to access the Camdenville Park car park by travelling south on Princes Highway, west on Campbell Street and east on May Street.

Access to St Peters Station

The proposal would reduce the number of access routes to St Peters Station by removing the right turn from King Street into May Street. Vehicle access to the entrance to St Peters Station on Goodsell Street

would still be possible by travelling north on Princes Highway (northbound), turning left into May Street and turning right into May Lane to access Goodsell Street, or travelling east on May Street from Bedwin Road/Unwins Bridge Road/Campbell Street to access May Lane and Goodsell Street.

Access to the wider Inner West and City of Sydney

The proposal would reinforce the replacement of Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) with Euston Road and Campbell Street/Campbell Road as part of the major east-west route linking areas west of the Princes Highway, e.g. St Peters, Newtown, Sydenham and Marrickville, with areas east of the Princes Highway, e.g. Erskineville, Alexandria and Waterloo (refer to Section 6.1.4 of the REF).

Local streets and intersections around the St Peters Interchange have recently been upgraded to ensure safe and efficient connections for the WestConnex M8 Motorway (Stage 2) (refer to Section 2.1.2 of the REF). As part of these works, Euston Road and Campbell Street/Campbell Road have been widened and the Campbell Street/Princes Highway/Campbell Road, Euston Road/Sydney Park Road/Huntley Street and Euston Road/Campbell Road intersections have been upgraded to accommodate larger volumes of traffic.

Although the proposal would result in altered traffic patterns in the locality, it would also improve traffic flow, road safety, travel times and trip reliability across the wider road network (refer to Section 5.2.8 of Appendix C (Traffic and transport assessment) of the REF). Minimal impacts to buses are expected and would be limited to a potential minor increase in travel time due to the reduction in the number of lanes available to traffic on Sydney Park Road and King Street/Princes Highway. It is considered that any potential increase in bus travel times is relatively minor when considered in the context of overall door-to-door travel times, where typical journeys are multi-modal (e.g. walking and bus; or walking, bus and train), as discussed in Section 6.1.4 of the REF.

Rat running and congestion

The potential for the proposal to result in rat running and congestion in the local road network is discussed in **Section 2.7.5** of this submissions report.

The proposal is expected to reduce rat running by substantially reducing existing traffic volumes in the proposal area and providing separation of through traffic and local traffic, which would lead to less through traffic using local streets to avoid congestion.

Intersection performance would decrease during operation of the proposal, as shown by predicted decreases in Level of Service in 2023 (assumed year of opening) and increases in average delays in 2023 and 2033 (10 years after opening), which may result in increased queuing and congestion. However, these impacts on general traffic and freight customers would be relatively minor and manageable when considered in the context of the positive impacts of the proposal on the movement and place performance for pedestrians and cyclists.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Alternative routes in case of accidents, road closures or congestion

The proposal would reduce traffic volumes and speed limits, improve pedestrian and cyclist crossings and remove the Princes Highway and Sydney Park Road corridors from the approved B-double freight access network which would reduce the likelihood of accidents in the proposal area.

In the case of accidents or road closures along King Street/Princes Highway or Campbell Street, traffic would be diverted via Variable Messaging Signs/traffic controllers and temporary access arrangements to prevent congestion in the area. Temporary access arrangements could involve, for example, temporarily

allowing right turns into and out of May Street to allow traffic through the area. Alternative access routes would also be possible via Goodsell Street, Short Street and Barwon Park Road.

Drivers would be able to avoid congestion on King Street/Princes Highway by using Euston Road and Campbell Street/Campbell Road that have been widened to accommodate larger volumes of traffic.

Construction traffic

Redevelopment is currently taking place in St Peters Triangle, Erskineville and Alexandria. Access routes to construction sites in these locations are typically designed to maximise the use of State or regional roads and minimise the use of local roads in accordance with legislation and relevant standards and guidelines of Transport for NSW and other authorities.

Although the proposal would remove the right turns into and out of May Street at the King Street/Princes Highway intersection, large redevelopments in St Peters Triangle are mostly taking place along King Street and Princes Highway, which construction vehicles would still be able to access via Campbell Road/Campbell Street during construction and operation of the proposal.

To improve access to St Peters Triangle, Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street, as discussed in **Section 5.1** of this submissions report.

Right turn from Princes Highway

Traffic heading south along King Street would be able to turn right off Princes Highway at the Campbell Street/Campbell Road intersection.

Traffic volumes on King Street/Princes Highway

Traffic modelling indicates that King Street (south of Lord Street) and Princes Highway (north of Campbell Street) would carry up to 55 per cent fewer vehicles in 2023 (the assumed year of opening) and up to 66 per cent fewer vehicles in 2033 (10 years after opening) with the proposal when compared to the scenario without the proposal. The predicted reductions in traffic volumes confirm that Euston Road and Campbell Road/Campbell Street would replace Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) as part of the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo, and that Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) would serve mostly local traffic with origins or destinations in St Peters, Newtown, Erskineville or Alexandria (refer to Section 6.1.4 of the REF).

Furthermore, the process for predicting traffic volumes in 2023 did not account for the step-change in traffic flow which is likely to take place with the opening of nearby transport infrastructure projects, including the WestConnex M4-M5 Link and Sydney Gateway projects (expected to open in 2023 and 2024 respectively). The traffic modelling also did not account for behavioural changes that would avoid congestion on the road network (eg rerouting of vehicle trips to other roads to avoid congestion and the use of other modes such as active transport or public transport). Therefore, it is considered that the traffic modelling presents a worst case scenario and traffic volumes are likely to be less than predicted.

Environmental management measures

Environmental management measures proposed to minimise and manage any potential impacts are outlined in **Table 6-1** of this submissions report.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

As discussed above, further traffic impact assessment (refer to Appendix C of this submissions report) has been carried out to review the impacts of the removal of the right turns into and out of May Street and evaluate changes in access arrangements to address community concerns, as discussed in **Section 5.1** of this submissions report. As a result of this assessment, Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street, to minimise impacts on access to St Peters Triangle and minimise potential increases in travel times as far as is practicable (refer to **Section 5.1** of this submissions report).

2.7.4 Reduction in traffic lanes and speed limit

Submission number(s)

5, 10, 14, 16, 22, 24, 25, 27, 69, 84, 90, 107, 116, 131, 142, 156, 162, 192, 204, 208, 243, 268, 287, 297, 299, 335, 337, 351, 368, 369, 383, 387, 391, 396, 409, 430, 436, 442, 446, 456, 460, 482, 510, 543, 545

Issue description

Forty-five respondents raised concerns about the proposed reduction in traffic lanes and the speed limit along King Street/Princes Highway and Sydney Park Road, including:

- Concerns that the number of traffic lanes would be reduced to accommodate pedestrian traffic when there is already sufficiently wide pathways and not much pedestrian activity
- Suggestions to retain two westbound lanes in Sydney Park Road to ensure better traffic flow, especially for emergency vehicles
- Concerns that the reduction of May Street from four lanes to two lanes at the intersection with King Street/Princes Highway would increase travel times for vehicles and create an unsafe experience for pedestrians from impatient drivers
- Concerns that the reduction in traffic lanes along King Street/Princes Highway and Sydney Park Road would increase congestion and travel times when COVID-19 lockdowns are lifted, when considering that these roads form part of the main route from the city to the southern suburbs and therefore carry large volumes of traffic, and that the local population is increasing
- Of the view the slowing of traffic in King Street through Newtown already addresses speeding issues
- Requests for traffic to be slowed down along Sydney Park Road up to its intersection with King Street
- Concerns that the proposed 40 kilometres per hour speed limit on Princes Highway would unnecessarily slow traffic and would create congestion and inconvenience for the local community, as road safety would already be improved through a reduction of traffic lanes and a central median
- Respondents recommend implementing a 50 kilometres per hour speed limit on Princes Highway and enforcing a lower speed limit only during peak hours
- Requests for further reductions in traffic capacity since it would further reduce vehicle traffic and associated traffic impacts
- Requests for a further reduction in the posted/design speed to 30 kilometres per hour for further safety and noise reduction benefits, especially where there is on-street parking with children getting in/out of vehicles next to the traffic lane.

Response

Reduction of traffic lanes

The existing pedestrian environment is described in Section 2.3 of the REF. Although footpaths along King Street and Princes Highway are generally wide, there is no separation between the footpath and the road, except for the eastern side between Sydney Park Road and Barwon Park Road. This currently contributes to an uncomfortable walking environment due to the 60 kilometres per hour speed limit and high adjacent vehicle flows. High pedestrian and cyclist activity generally occurs at the King Street/Sydney Park Road and Princes Highway/May Street intersections and along King Street, due to people travelling between St Peters Station, the commercial and entertainment corridor along King Street, Sydney Park and surrounding neighbourhoods. Low to moderate levels of pedestrian and cyclist activity occur along Princes Highway south of May Street due to limited active frontages in these areas.

The proposal's main objective is to improve the amenity of the southern 'gateway' to King Street by improving the pedestrian and cycling environment through traffic calming measures such as the reduction of traffic lanes, additional pedestrian/shared crossings and additional landscaping (refer to Section 2.4 of the REF).

The reduction of traffic lanes on King Street and Princes Highway is required to provide a dedicated cycleway and widen footpaths/shared paths to allow for dynamic community spaces and landscaped buildouts to provide a more comfortable walking environment and improve pedestrian and cyclist access and connectivity. On Sydney Park Road, the number of traffic lanes would be reduced to provide a dedicated cycleway and landscaped buildouts to improve access to bus shelters and pedestrian and cyclist access and connectivity. Emergency vehicles would be able to pass through traffic by drivers giving way to these vehicles.

The reduction of May Street from four lanes to two lanes at its intersection with King Street/Princes Highway is required to slow down traffic on the approach to the new raised pedestrian and cyclist crossing near the intersection to improve the safety of pedestrians and cyclists using the crossing. Additional landscaping near the new crossing would also improve visual amenity and provide additional traffic calming in this location.

Reduction in speed limit

The proposal would reduce the design and posted speed limit on King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Sydney Park Road to 40 kilometres per hour.

The current speed limit along King Street changes from 50 kilometres per hour north of Lord Street to 60 kilometres per hour south of Lord Street, which allows drivers to increase their speed as they travel south from Newtown (refer to Section 2.2.1 of the REF). Analysis of crash statistics indicates that in the five-year period from 2014 to 2018, a total of 52 crashes were recorded in the proposal area, with 65 per cent of crashes resulting in an injury and 12 per cent of crashes resulting in a serious injury (refer to Section 6.1.2 of the REF). The reduction in the speed limit to 40 kilometres per hour in the proposal area, together with the reduction in traffic lanes, is required to improve road safety for all road users, especially for pedestrians and cyclists who would use the proposed new mid-block and improved intersection crossings.

Impact of reduction of traffic lanes and speed limit on congestion and travel times

The proposal would reinforce the replacement of Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) with Euston Road and Campbell Street/Campbell Road as part of the main route linking the city with the Inner West (refer to Section 6.1.4 of the REF). Euston Road and Campbell Street/Campbell Road have been widened and the Campbell Street/Princes Highway/Campbell Road, Euston Road/Sydney Park Road/Huntley Street and Euston Road/Campbell Road intersections have been upgraded as part of the WestConnex M8 Motorway (Stage 2) project to accommodate larger volumes of traffic, as discussed in Section 2.1.2 of the REF.

Traffic modelling indicates that the proposal would reduce traffic volumes along King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Sydney Park Road but that intersection performance may decline in the proposal area which could lead to increased queuing and congestion. This is to be expected when lane capacity is removed from an already congested network. As discussed in

Section 2.7.1 of this submissions report, traffic modelling carried out for the proposal presents a worst case scenario and does not account for the step-change in traffic flow which is likely to take place with the opening of nearby transport infrastructure projects, including the WestConnex M4-M5 Link and Sydney Gateway projects (expected to open in 2023 and 2024 respectively), or behavioural changes that would avoid congestion on the road network (e.g. rerouting of vehicle trips to other roads to avoid congestion and the use of other modes such as active transport or public transport). Traffic volumes during operation of the proposal are therefore likely to be less than predicted.

It is considered that the impacts of the potential increases in congestion on general traffic and freight customers would be relatively minor and manageable when considered in the context of the positive impacts of the proposal on the movement and place performance for active transport customers.

At this time, the longer term impacts on transport demand and travel behaviours from the COVID-19 pandemic are still unknown, and current traffic conditions and travel behaviours are the result of a variety of temporary factors, including reduced public transport capacity and demand, as discussed in **Section 2.3.1** of this submissions report. While the COVID-19 pandemic presents immediate to medium-term challenges for Sydney (and NSW more broadly), the proposal has been developed with a long-term view to address the challenges Greater Sydney will face over the next 40 years, to enable and accommodate growth, and to deliver long-lasting benefits for road users, communities and businesses.

Further reductions in traffic capacity and speed limit

The design of the project has considered a wide variety of factors including safety, connectivity, accessibility, efficiency and reliability outcomes for all transport users. The proposed design has been developed through careful consideration ensuring efficient operation, while also balancing and minimising impacts, as described in Section 2.5 of the REF.

Reducing traffic lanes on King Street/Princes Highway further to one lane in each direction or reducing the speed limit further to 30 kilometres per hour would result in a significant decrease in operational performance of the road network for general traffic, freight and bus customers, which is not an acceptable outcome of the proposal. The proposed reductions in traffic lanes and speed limit would best meet the proposal objectives by:

- Limiting the volumes of traffic on King Street/Princes Highway and Sydney Park Road to achieve a better balance for all road users including vehicles, cyclists, buses and pedestrians
- Improving the place environment of King Street/Princes Highway and Sydney Park Road through urban design
- Utilising the residual roadway space outside trafficable lanes for pedestrian pathways, cycleways, parking and landscaping
- Improving safety for pedestrians and cyclists
- Minimising impacts to utilities and drainage.

2.7.5 Performance of the local road network

Submission number(s)

2, 67, 100, 156, 168, 171, 178, 195, 216, 229, 268, 277, 278, 285, 290, 307, 317, 319, 322, 329, 333, 337, 344, 361, 386, 395, 410, 411, 419, 439, 440, 447, 450, 456, 482, 492, 505, 510, 514, 520, 523, 525, 529, 533, 540, 541, 542, 543, 544

Issue description

Forty-nine respondents raised concerns about the impacts of the proposal on the local road network, and recommended the implementation of environmental management measures to mitigate potential impacts, including:

- Concerns that the proposed reduction in traffic lanes, right turn restrictions and additional pedestrian crossings would increase travel times of local residents and exacerbate existing traffic congestion in the local road network
- Concerns that the proposed reduction in traffic lanes and right hand restrictions would result in rat running via smaller residential streets that do not have the capacity to accommodate the additional traffic, including Coulson Street, Concord Street, McDonald Street (after it is extended to Mitchell Rd), Lord Street, Alice Street, Bray Street, Flora Street, Harley Street, Maddox Street, Goodsell Street, Barwon Park Road
- Recommendations to work closely with the relevant councils, in consultation with the community, to develop a local traffic management plan to ensure there will be no traffic volume increases on local streets. Additional traffic calming, modal filtering and one way flows should all be considered to help reduce the capacity of local streets and discourage through traffic, including:
 - Install central median at the King Street/Lord Street intersection to allow only left or right turn movements from Lord Street, with an exemption for residents
 - Provide signage to prevent heavy vehicles with gross vehicle mass over three tonnes from entering Lord Street and monitor compliance with a camera
 - Change the direction of travel along Lord Street
 - Close Lord Street off to through traffic other than bicycles half way or at the end
 - Reorientate the stop sign at the John Street/Lord Street intersection so that traffic moving down Lord Street has to stop and give way to traffic in John Street
 - Change one or more of the streets likely to be impacted by rat running into one way streets
 - Close Amy Street off half way
 - Remove the left turn from Union Street into Knight Street
 - Remove the right turn from Mitchell Road into Coulson Street
 - Create a 'turn left at any time' lane for traffic turning left from Bedwin Road into May Street
 - Remove the right turn from Edgeware Road into Alice Street (buses excepted)
- Requests for traffic to be diverted away from Mitchell Road and Sydney Park Road to Euston Road
- Concerns that Euston Road does not have the capacity to accommodate the additional traffic as it was only widened as far as Maddox Street
- Suggestions to implement clearways on Euston Road
- Concerns about traffic increases in the local road network that connects to Campbell Road/Campbell Street, including Unwins Bridge Road, Bedwin Road, Edgeware Road, Stanmore Road, Edinburgh Road and the surrounding streets in south Newtown, Enmore and Marrickville.

Response

Congestion

Traffic modelling indicates that intersection performance would decline during operation of the proposal, as shown by predicted reductions in Level of Service in 2023 (assumed year of opening) and increases in average delays in 2023 and 2033 (10 years after opening), as outlined in Section 6.1.4 of the REF. This is to be expected when lane capacity is removed from an already congested network.

The predicted decline in intersection performance may result in increased queuing and congestion. However, traffic modelling presents a worst case scenario that does not account for the step-change in

traffic flow which is likely to take place with the opening of nearby transport infrastructure projects, including the WestConnex M4-M5 Link and Sydney Gateway (expected to open in 2023 and 2024 respectively), or behavioural changes such as rerouting or retiming of vehicle trips to avoid congestion or changing to other modes of transport such as active or public transport.

It is considered that the impacts of the predicted decline in intersection performance on general traffic and freight customers are relatively minor and manageable when considered in the context of the positive impacts of the proposal on the movement and place performance for pedestrians and cyclists, as described in Section 6.1.4 of the REF.

Following the completion of construction, Transport for NSW will undertake an operational traffic review of the proposal area, including Crown Street, to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Rat running

Rat running can be generally characterised as traffic using lower-order roads to avoid congestion on arterial roads.

As discussed above, traffic modelling indicates intersection performance would decline during operation of the proposal which may result in increased queuing and congestion. However, traffic modelling was based on conservative (worst case) assumptions and is likely to be less than described in the REF.

The proposal would result in a significant reduction in traffic volumes on Sydney Park Road, King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Mitchell Road compared to the scenario without the proposal, as outlined in Table 6-9 and Section 6.1.4 of the REF. Overall, these predicted reductions in traffic volumes confirm the proposal would reinforce the replacement of Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) with Euston Road and Campbell Street/Campbell Road as part of the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo and roads within the proposal area would serve mostly local traffic with origins or destinations in St Peters, Newtown, Erskineville or Alexandria.

The proposal would therefore provide for a separation of through traffic and local traffic, which would lead to reduced through traffic using local streets for rat running. Additional traffic calming in local residential streets is therefore not considered necessary for the proposal.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Euston Road

The proposal would reinforce the replacement of Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) with Euston Road and Campbell Street/Campbell Road as part of the major east-west route linking areas west of the Princes Highway, e.g. St Peters, Newtown, Sydenham and Marrickville, with areas east of the Princes Highway, e.g. Erskineville, Alexandria and Waterloo, as outlined in Section 6.1.4 of the REF.

Local streets and intersections around the St Peters Interchange have recently been upgraded to ensure safe and efficient connections for the WestConnex M8 Motorway (Stage 2) (refer to Section 2.1.2 of the REF). As part of these works, Euston Road and Campbell Street/Campbell Road have been widened and the Campbell Street/Princes Highway/Campbell Road, Euston Road/Sydney Park Road/Huntley Street and Euston Road/Campbell Road intersections have been upgraded to accommodate larger volumes of traffic.

Clearways are currently in use on both sides of Euston Road.

Traffic increases in the surrounding road network

As discussed above, traffic modelling carried out for the proposal presents a worst case scenario and does not account for changes in traffic flow since the opening of the M8 Motorway, the step-change in traffic flow which is likely to take place with the opening of nearby transport infrastructure projects, including the WestConnex M4-M5 Link and Sydney Gateway projects, or behavioural changes that would avoid congestion on the road network (e.g. rerouting of vehicle trips to other roads to avoid congestion and the use of other modes such as active transport or public transport). Traffic volumes during operation of the proposal are therefore likely to be less than predicted.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network, including Unwins Bridge Road, Bedwin Road, Edgeware Road and Edinburgh Road. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

2.7.6 Active transport

Submission number(s)

2, 12, 30, 36, 51, 69, 100, 104, 112, 143, 156, 162, 167, 191, 218, 228, 229, 234, 247, 263, 264, 293, 294, 305, 323, 325, 328, 333, 337, 344, 358, 381, 383, 423, 442, 445, 447, 451, 459, 461, 476, 490, 520, 530, 533, 539, 545

Issue description

Forty-nine respondents raised concerns and made recommendations about the proposed pedestrian and cycling infrastructure improvements, including:

- Recommendations to install pedestrian footbridges instead of pedestrian crossings and use these structures to introduce more landscaping, shading and public art installations
- Concerns that the additional pedestrian crossings on Princes Highway, King Street and Sydney Park Road would result in congestion considering that traffic lanes would be reduced as well
- Concerns that the mid-block crossing along King Street between May Street and Goodsell Street does not follow the desire lines from either May Street or Goodsell Street or the desire line to the paved pedestrian entry to Sydney Park south of the Brickworks building, which may lead to jaywalking and pose a risk to pedestrian safety
- Requests for the installation of bollards to ensure safety of pedestrians
- Requests for improvements to the pedestrian pathways at the northern end of the proposal area since they are currently narrow and visually unappealing
- Recommendations to resurface the existing shared paths along the sides of Sydney Park using multi-coloured pavers and paintwork to maximise safety and enjoyment for all users, including pedestrians
- Requests for separate pedestrian and bicycle paths to be provided
- Suggestions to create cycleways on both sides of the road or removing street parking, as it will allow more space to share the road with cyclists
- Suggestions to use the existing wide verge on the eastern side of King Street to create a cycleway instead of removing traffic lanes

- Of the view that extending the cycleways south on Princes Highway would be more useful than providing permanent parking along the highway, since the current shared paths are in poor condition but have heavy bike traffic, particularly delivery bikes
- Concerns that the temporary pop-up cycleway along Sydney Park Road would be converted into a permanent cycleway when current usage of the temporary cycleway is not known
- There is enough space along Sydney Park Road to create cycleways without reducing the number of traffic lanes
- Questions about why the cycleway along Sydney Park Road is not on the same side of the road as Sydney Park. Suggest creating a cycleway on the southern side of Sydney Park Road alongside Sydney Park instead to improve traffic flow and connectivity, access and safety for cyclists, especially families
- Requests to continue the green colouring of the cycleway along Sydney Park Road uninterrupted across the Mitchell Road intersection so that drivers can have a visual cue that the space is shared by pedestrians and cyclists and reduce safety risks for cyclists
- Recommendations to merge the Sydney Park Road cycleway into the traffic lane before the Euston Road intersection rather than sharply ending the cycleway and making cyclists dismount
- Suggestions to create cycleways through the compulsory acquisition of properties, which would require a more careful consideration of costs
- Cycleways should be designed in accordance with the Transport for NSW Cycleway Design Toolbox
- Concerns that cycleways would be made of poor quality materials and would be visually unappealing, not be maintained and collect litter. Respondents recommend that cycleway surfaces be of a quality suitable for bicycle tyres, according to Austroads or City of Sydney Council standards
- Recommendations to provide additional kerb ramps to improve access to cycleways
- Cycleways should be safe to use, eg not close to car parking where there is a risk of cyclists being doored and cycleway medians should be rounded not hard and angular
- The 40 kilometres per hour speed limit along Princes Highway/King Street is not safe enough for cyclists without protected cycling infrastructure
- Recommendations to increase the height of the barrier separating cars and cyclists to 80 centimetres as utility and heavy vehicles can easily drive over the proposed 15 centimetre barrier
- Requests for bicycle parking rails or racks to be installed
- Consideration should be given to how cycling infrastructure connects with the road network in all directions to ensure safety for cyclists
- Concerns that the provision for cyclists of all ages and cycling for all purposes are not adequate since cyclists travelling from Tempe, Sydenham and St Peters into the city would have to compete for road space with heavy vehicles
- Requests to remove the proposed cycleway on Mitchell Road
- Requests to consider the transition between Sydney Park Road and Lord Street for cyclists
- Recommendations to provide safe access and journeys for cyclists along May Street and at the May Street/King Street intersection
- Recommendations to provide shared kerbside paths to connect with the shared paths in Sydney Park
- Recommendations to provide shared kerbside paths to connect the kerbside paths on Barwon Park Road with the proposed cycleway along King Street via the new mid-block crossing.

Response

Pedestrian footbridges

Footbridges are not recommended in the proposal area because the design has aimed to create a local low speed traffic area with increased pedestrian and bicycle movement and access (for example, via dedicated cycleways and raised crossings) in order to prioritise pedestrians and cyclists. Pedestrian footbridges work contrary to these principles, and are utilised on high speed roads, where vehicles have preference and safe pedestrian crossing is difficult.

Impact of pedestrian crossings on congestion

The additional mid-block crossings along King Street and Princes Highway are required to improve pedestrian and cycling access and connectivity between St Peters Station, Sydney Park and surrounding residential areas.

Although the proposal may result in an increase in congestion and delays in the proposal area, these impacts would be relatively minor and manageable when considered in the context of the positive impacts of the proposal on pedestrian movement, access, safety and sense of place, as discussed in **Section 2.7.5** of this submissions report. Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex M8 Motorway (Stage 2) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Mid-block crossing on King Street

The new mid-block crossing for pedestrians and cyclists on King Street between May Street and Goodsell Street aligns with the paved shared pathway entrance to Sydney Park as best as possible without encroaching on the Sydney Park car park exit next to the shared pathway entrance, to ensure the safety of pedestrians, cyclists and motorists at this location. Since the display of the REF, the design has been further refined and the mid-block crossing on King Street has been moved further north to reduce potential conflicts between vehicles exiting the Sydney Park car park and traffic departing from the mid-block crossing (refer to **Section 4.1.6** of this submissions report).

Bollards

Since the display of the review of the environmental factors, the design has been further refined and the design speed along King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Sydney Park Road has been reduced to 40 kilometres per hour to match the proposed posted speed limit for these roads (refer to **Section 4.1.2** of this submissions report), which would reduce safety risks for pedestrians. With the reduction in the speed limit and the proposed landscaped buildouts and widening of pedestrian pathways to increase separation between pedestrians and traffic (refer to Section 6.1.4 of the REF), the installation of bollards is not considered necessary.

Condition of pedestrian/shared pathways

Footpaths and shared paths would be widened along King Street and Princes Highway, to improve walking accessibility and pedestrian movement, as outlined in Section 6.1.4 of the REF. The existing shared paths along King Street and Sydney Park Road would be milled and re-sheeted with asphalt to improve safety and ease of use for users. Mill and re-sheet treatment would also be carried out on remaining pedestrian footpaths where there are pavement distresses. The need for rehabilitation work, which could include replacement of the existing pavement, would be established during construction and would include pavements at May Street and the Sydney Park Road/King Street intersection.

Separate pedestrian pathways and cycleways

The proposal has maximised opportunities to provide dedicated cycleways that would improve connectivity to existing/planned cycle networks and shared pathways, while widening footpaths and shared paths,

providing dynamic community spaces and landscaping and retaining parking near businesses along King Street and Princes Highway to minimise impacts on businesses.

Dedicated on-road two way cycleways would be provided along the western side of King Street between May Street and St Peters Square, along the northern side of Sydney Park Road between King Street and Euston Road and along the western side of Mitchell Road between Sydney Park Road and the Sydney Park Village entrance.

The shared path along the eastern side of King Street would be widened and footpaths and shared paths would be milled and re-sheeted where required to increase safety and comfort for pedestrians and cyclists.

A cycleway along the eastern side of King Street has not been considered due to potential impacts to archaeological remains near the Brickworks. Extending the proposed cycleway along King Street further south to Campbell Street has also not been considered since it would significantly impact parking availability for businesses along Princes Highway and reduce opportunities to provide dynamic community spaces and landscaping.

Sydney Park Road cycleway

In July 2020, Transport for NSW in consultation with City of Sydney Council delivered the current temporary pop-up cycleway along Sydney Park Road, as part of the NSW Government's response to the COVID-19 pandemic to provide people with more safe, low-cost, healthy and physically distanced options to exercise and access local services and employment hubs. As described in **Section 4.1.8** of this submissions report, the proposal has been refined to include the retention of the existing pop-up cycleway along Sydney Park Road to facilitate access throughout the construction period. These pop-up cycleways would remain operational until construction of the proposal, when they would be replaced by the proposed permanent cycleways

Since the announcement of the temporary pop-up cycleway a range of communications were issued to provide information about the cycleway and invite feedback from the community, including community updates delivered to the local community, Facebook posts, signs along the cycleway and posts on the Transport for NSW Pop-up transport and NSW Government Have Your Say websites (Transport for NSW, 2021c). Feedback from the community on the pop-up cycleway were invited between 15 March 2021 and 29 March 2021 and over 400 community submissions were received during this time.

Usage of the temporary pop-up cycleway was a key issue raised by the community during this consultation period. Issues raised by the community in regard to the temporary pop-up cycleway, included the extension and connectivity of the route, the entry and exits of the cycleway, barrier issues and amenity, safety issues such as the pedestrian interface and separation and cycleway design, such as surface and drainage concerns. The proposal has been designed to increase usage of the proposed dedicated cycleways by addressing these issues.

The on-road two way segregated cycleway along Sydney Park Road is provided on the northern side of the road to provide a continuous safe connection with the shared path along the eastern side of King Street (north of the Sydney Park Road/King Street intersection) and the proposed on-road two way segregated cycleway along Mitchell Road, that would connect with the cycleways planned by City of Sydney Council along Mitchell Road and Huntley Street (City of Sydney Council, 2020).

Cyclists travelling on the Sydney Park Road cycleway would be able to cross Sydney Park Road safely at the Mitchell Road/Sydney Park Road and Sydney Park Road/Mitchell Road intersections, where signalised pedestrian and cyclist crossings would be provided on all legs, or at the existing signalised mid-block crossing along Sydney Park Road between Mitchell Road and King Street. The green colouring of the cycleway would be continued across the Mitchell Road intersection to improve visibility of people cycling and provide a visual cue to drivers that cyclists are given priority.

The Sydney Park cycleway terminates about 100 metres west of the Sydney Park Road/Euston Road intersection, where a kerb ramp is provided to connect to the shared path along the northern side of

Sydney Park Road which would allow cyclists to continue their journey without having to dismount. A gap in the median kerb is provided for eastbound cyclists to continue on road within the traffic lanes.

Compulsory acquisition of properties

The proposal has been designed and developed to represent a cost-efficient investment in public infrastructure that would maximise the long-term social and economic benefits, while minimising the long term negative impacts on communities and the environment. The proposal has therefore prioritised the use of Transport for NSW land and avoided property acquisitions to minimise impacts on the local community. The compulsory acquisition of properties is not considered to be a cost-effective means of improving cycling infrastructure in the proposal area.

Cycleway design

Cycleways have been designed in accordance with the Transport for NSW *Cycleway Design Toolbox* (Transport for NSW, 2020b) and would be paved with smooth surfaces using high quality materials as per Transport for NSW and Austroads specifications and design guidelines. The cycleways are designed to withstand varying weather conditions and would be well maintained at all times of year. Landscaping, lighting, street furniture and signage would be provided along cycleways to improve visual amenity and provide a safe, comfortable and aesthetically pleasing environment for cyclists.

Kerb ramps to access the cycleways would be provided at intersections and mid-block crossings to ensure a smooth transition between the cycleway and road/footpath and improve accessibility for cyclists.

None of the proposed cycleways would be next to car parking. Cycleways would be separated from the adjacent carriageway by a raised median that conforms to Transport for NSW safety standards. Safety risks for cyclists using the on-road segregated cycleways would be greatly reduced due to lower traffic volumes, lower traffic speeds, less heavy vehicles and additional signalised mid-block crossings and landscaping along King Street, Princes Highway and Sydney Park Road during operation of the proposal. Together with these additional traffic calming measures, the 40 kilometres per hour speed limit is considered adequate to reduce safety risks for cyclists.

Bicycle parking

Bicycle parking is currently provided along the laneway leading from King Street to St Peters Station, and at regular intervals on both sides of King Street between Lord Street and Alice Street and at Sydney Park. Up to six additional bike hoops would be provided along the laneway leading from King Street to St Peters Station and along Lord Street as part of the St Peters Station Upgrade works (Transport for NSW, 2021b). Additional bicycle parking is not proposed as part of the proposal as existing bicycle parking is considered to be sufficient.

Connecting cycling infrastructure with the road network

Improving cycling connectivity and improving cyclist movement and safety are two of the primary objectives of the proposal, as outlined in Section 2.4 of the REF. The proposal would provide dedicated cycleways along King Street, Sydney Park Road and Mitchell Road, new mid-block crossings along King Street and Princes Highway and improved shared paths and crossings to improve connectivity and safety for cyclists in all directions in the proposal area (refer to Section 6.1.4 of the REF).

The dedicated cycleway along Sydney Park Road and Mitchell Road would improve connectivity with planned and existing cycleways in Alexandria and Erskineville along Mitchell Road, Huntley Street, Ashmore Street, Harley Street and Bourke Street (City of Sydney Council, 2020a) and the dedicated cycleway along King Street would improve connectivity to the cycleway along Campbell Street/Campbell Road and well-used cycling routes along May Street, Lord Street and Concord Street.

Cyclists sharing road space with heavy vehicles

The proposal would reduce heavy vehicle traffic on Princes Highway, King Street and Sydney Park Road, due to the removal of the Princes Highway and Sydney Park Road corridors from the approved B-double

freight access network and the predicted decrease in traffic volumes due to the reduction in traffic lanes (refer to Section 6.1.4 of the REF). The decrease in heavy vehicle traffic, together with the proposed reduction in the speed limit, would improve safety for cyclists travelling through the proposal area.

Mitchell Road cycleway

The proposed on-road segregated cycleway at the southern end of Mitchell Road would connect with the planned on-road two way segregated cycleway along Mitchell Road and Huntley Street between the proposal area boundary on Mitchell Road and Belmont Street (City of Sydney Council, 2020b), to provide new safe cycleways on well-used cycling paths that would connect Alexandria and Erskineville to the broader bike network. These cycleways align with the NSW Government's plans to improve connections and access to major regional open spaces across Greater Sydney as part of the *Greater Sydney Green Grid* (Government Architect NSW, 2017) and make cycling a safer option for people who choose cycle to access local schools, parks, businesses or work places (refer to Section 2.1.1 of the REF).

Cycling connections between Sydney Park Road and Lord Street

Improving cycling connectivity between Sydney Park, St Peters Station (along Lord Street) and surrounding neighbourhoods is one of the key objectives of the proposal (refer to Section 1.1 and Section 2.4 of the REF). Cyclists heading west along Sydney Park Road on the on-road two way segregated cycleway would be able to continue onto the widened shared path along the eastern side of King Street and cross King Street at the signalised shared crossing at the Lord Street/King Street intersection to reach Lord Street, without having to dismount.

Cyclist safety and access at May Street

A number of traffic calming measures are proposed for May Street and the May Street/King Street intersection to improve safety and access for cyclists in this location, including:

- The removal of the right turns into and out of May Street from King Street and Princes Highway
- The reduction of May Street from four lanes (two in each direction) to two lanes (one in each direction) near its intersection with King Street/Princes Highway
- A raised crossing on May Street to provide priority crossing for cyclists and pedestrians and widened footpaths along King Street and Princes Highway at the May Street/King Street intersection to improve cyclist and pedestrian movement
- Additional landscaping along May Street and at the May Street/King Street intersection.

Cyclists travelling from May Street would be able to cross King Street at the new mid-block crossing on King Street between May Street and Goodsell Street or cross Princes Highway at the new signalised Barwon Park Road/Princes Highway intersection.

Shared paths

The existing footpath along the eastern side of King Street, from the signalised crossing north of May Street to the Sydney Park car park exit, would be reassigned as a shared path, as outlined in Section 3.2.3 of the REF. This shared path would enable cyclists to cycle continuously from the cycleway on King Street to the shared path in Sydney Park next to the Sydney Park car park.

Since the display of the REF, the design has been refined and the widened footpath on the western side of King Street between the cycleway and May Street would also be reassigned as a shared path (refer to **Section 4.1.7** of this submissions report).

Existing shared paths along the southern side of Sydney Park Road and along the eastern side of King Street would be maintained. Shared paths are not proposed in other areas along King Street or Princes Highway due to inadequate widths of footpaths.

2.7.7 Cycling connectivity

Submission number(s)

3, 6, 12, 62, 64, 70, 89, 98, 107, 122, 128, 153, 167, 178, 179, 217, 235, 241, 242, 257, 258, 259, 260, 267, 305, 319, 335, 417, 423, 445, 451, 461, 529, 539

Issue description

Thirty-four respondents made recommendations and raised concerns about the connectivity of the proposed cycling infrastructure, including:

- Recommendations to connect the proposal to existing cycling infrastructure in the Inner West to improve Sydney's cycling network and encourage greater use
- The proposed two way cycleways stop and start on one side of the road. Request continuous cycleways to enable better flow of bicycle traffic
- Recommendations to extend the proposed cycleway on King Street between St Peters Square and May Street as follows:
 - Further south along Princes Highway to connect with Barwon Park Road and the existing cycleway along Campbell Street
 - Further north to Lord Street to allow people to cycle safely cross St Peters Square and connect with important and well-used cycling routes along Lord Street, Daryl Street and Concord Street, to head west to Marrickville Metro, north west to Enmore Road and north east to Erskineville, Newtown, Sydney University and the city
- Recommendations to extend the separated cycleway along Sydney Park Road to St Peters Square, Lord Street and along King Street/Princes Highway
- Queries about how cyclists travelling eastbound on the cycleway along Sydney Park Road would safely and easily connect to the cycleways along Bourke Road and Huntley Street
- Concerns there are no connections for cyclists to other cycleways from May Street.

Response

Connectivity to existing cycling infrastructure in the Inner West

The proposal has been designed to improve connectivity to existing cycling infrastructure in the Inner West, including the existing cycleway along Campbell Street/Campbell Road and well-used cycling routes along May Street, Concord Street and Lord Street.

Cycling connectivity to Lord Street would be improved for cyclists travelling to Newtown, Enmore and Marrickville and other areas to the west and northwest in the Inner West, through the provision of:

- On-road two way cycleways on King Street and Sydney Park Road
- Improved pedestrian and cyclist crossings at the Sydney Park Road/King Street intersection
- Widening and resurfacing of the existing shared path on the eastern side of King Street.

The proposal would also improve connectivity to Campbell Street/Campbell Road and May Street, for cyclists travelling to St Peters, Sydenham and Marrickville and other areas to the south and southwest in the Inner West, through the provision of:

- An on-road two way cycleway on King Street
- New signalised shared mid-block crossings along King Street and Princes Highway
- Raised shared crossings at Goodsell Street, May Street and Short Street

- Shared paths along the western side of King Street (between the new cycleway on King Street and May Street) and along the eastern side of King Street (between the new mid-block crossing on King Street and the start of the shared path alongside the Sydney Park car park)
- Signalised pedestrian and cyclist crossings at the Barwon Park Road/Princes Highway intersection.

Continuous cycleways

The proposal has maximised opportunities to provide dedicated cycleways that would improve connectivity to Sydney Park, St Peters Station and existing local cycleways and cycling routes while retaining parking around Sydney Park and near businesses along Princes Highway, as discussed above and in **Section 2.7.5** of this submissions report.

Extension of the cycleway along the western side of King Street further northwards to Lord Street has not been considered as adequate road space is not available for a separate pedestrian footpath and cycleway north of Sydney Park Road. Extension of the the cycleway further southwards to Campbell Street is also not proposed as it would result in a reduction in car parking spaces, which would negatively impact businesses along Princes Highway.

Cyclists using the cycleway on Sydney Park Road would be able to continue onto the shared pathway along the eastern side of King Street to reach cycling routes along Lord Street, Darley Street and Concord Street. The Sydney Park Road cycleway also continues north along Mitchell Road, to link up with the planned on-road two way segregated cycleway along Mitchell Road and Huntley Street between Sydney Park Road and Belmont Street (City of Sydney Council, 2020b).

The proposal would provide cycling connectivity up to the border of the proposal area as described above, from where cyclists would travel onto the existing cycle networks shown in Figure 2-4 of the REF. The provision of cycling infrastructure beyond the proposal area to connect with cycleways or shared paths along Huntley Street, Bourke Road and May Street is considered to be outside the scope of the proposal.

2.7.8 Pedestrian and road safety

Submission number(s)

6, 14, 67, 75, 100, 107, 113, 172, 232, 236, 264, 268, 270, 276, 281, 297, 313, 319, 336, 376, 405, 407, 410, 411, 412, 448, 450, 490, 523, 531, 544, 546

Issue description

Thirty-two respondents raised concerns about pedestrian and road safety, including:

- Concerns about enabling more people to be closer to the highway
- Suggestions to implement traffic calming measures along Sydney Park Road to prevent heavy vehicles speeding on Sydney Park Road and posing a safety risk to other road users
- Requests to separate footpaths and bike paths as skateboarders and cyclists pose a safety risk to pedestrians on shared paths
- Cycleways pose a road safety risk due to cyclists speeding and riding recklessly
- Concerns that the removal of right turns at May Street and Mitchell Road would divert more traffic to areas in the west and south near schools, including St Peters Public School, St Pius Catholic Primary School and Camdenville Public School, and pose safety risks to children travelling to/from school
- The pedestrian crossing at the May Street/Princes Highway intersection would be unsafe for pedestrians due to the busy highway

- Concerns that potential increases in traffic on side roads due to rat running, including Lord Street, Coulson Street, Copeland Street, Henderson Road, Maddox Street and Harley Street, would increase safety risks for pedestrians, including children walking home from local schools in Erskineville and Alexandria, and drivers, including vehicles turning from Eve Street into Coulson Street
- Requests to reconfigure Goodsell Street as a one way street or remove the access from Goodsell Street into Princes Highway to improve pedestrian and cyclist safety
- The proposed bus stop on the northern side of Sydney Park Road west of Mitchell Road poses a risk to pedestrian safety as people would need to cross a busy unsignalised cycleway to access the bus stop
- Concerns about safety risks for pedestrians at the Mitchell Road/Sydney Park Road intersection where the cycleway merges with the footpath
- Concerns about safety risks for pedestrians and cyclists if vehicles would attempt U-turns at the Sydney Park Village entrance in Mitchell Road and the Sydney Park car park on Sydney Park Road to avoid the 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road
- Concerns about the safety of pedestrians and drivers at the entrance/exit of the BP service station at the Barwon Park Road/Princes Highway intersection, due to the increased radius resulting from the widened footpaths. Recommend further consideration of the management of vehicle access to and from the BP service station to ensure pedestrian, cyclist and driver safety.

Response

Speeding vehicles

The proposal would reduce the risk of vehicles, including heavy vehicles, speeding through the proposal area and posing a safety risk to pedestrians and cyclists by:

- Removing the Princes Highway and Sydney Park Road corridors from the approved B-double freight access network, thereby reducing heavy vehicle traffic in the proposal area
- Reducing the number of traffic lanes and reducing the design speed limit and posted speed limit to 40 kilometres per hour on Princes Highway, King Street and Sydney Park Road
- Widening shared paths and footpaths, which would increase separation between pedestrians and cyclists and traffic
- Providing additional signalised mid-block crossings along King Street and Princes Highway, which would improve safety by reducing the distance between formal crossing opportunities and reducing the risk of pedestrians and cyclists crossing these roads at unsafe locations
- Providing raised shared crossings at Goodsell Street, May Street and Short Street and reducing May Street from four lanes (two in each direction) to two lanes (one in each direction) at its intersection with King Street/Princes Highway to slow down traffic approaching the crossings
- Providing additional landscaping and buildouts along King Street, Princes Highway and Sydney Park Road and a landscaped central median along King Street and the northern end of Princes Highway, to provide traffic calming in the area.

Separation of pedestrians and cyclists

The proposal has maximised opportunities to provide separate footpaths and cycleways while meeting the proposal objectives and minimising impacts on parking, as discussed in **Section 2.7.6** of this submissions report. In addition, shared paths along the eastern side of King Street would be widened to increase safety and ease of use for pedestrians and cyclists using the shared paths.

Cycleways

The on-road cycleways would be separated from the adjacent carriageway by a raised median and separated from the pedestrian footpath by a kerb and dynamic community spaces and/or landscaping, which would reduce the risk of any potential conflicts occurring between these road users. The risk for potential conflicts to occur between cyclists and vehicles would also be greatly reduced due to lower traffic volumes, lower traffic speeds, less heavy vehicles and additional signalised mid-block crossings and landscaping along King Street, Princes Highway and Sydney Park Road.

Diverting traffic to the west and south near schools

The proposal would reinforce the replacement of Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) with Euston Road and Campbell Street/Campbell Road as part of the major east-west route linking areas west of the Princes Highway with areas east of the Princes Highway. Traffic modelling indicates that Campbell Street/Campbell Road would carry up to 11 per cent less vehicles in 2023 and up to 26 per cent more vehicles in 2033 with the proposal when compared to the scenario without the proposal.

Since Campbell Street and Campbell Road have recently been widened and intersections along these roads have been improved to ensure safe and efficient connections, as discussed in Section 2.1.2 of the REF, the proposal is not expected to increase safety risks for pedestrians or cyclists along this road corridor.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Pedestrian crossing at the May Street/Princes Highway intersection

The existing signalised intersection of May Street and the Princes Highway would be reconfigured from a three-leg signalised intersection catering for all movements, to an unsignalised left in/left out only intersection, to reduce traffic turning into and out of May Street, which would improve pedestrian safety.

A raised (“bent-out”) shared crossing would be provided on May Street at its intersection with Princes Highway/King Street and May Street would also be reduced from four lanes (two in each direction) to two lanes (one in each direction) on the approach to the crossing to improve safety for pedestrians and cyclists crossing the street.

The proposal would also result in a reduction in traffic volumes and traffic speeds along Princes Highway and King Street, which would further reduce safety risks for pedestrians using the crossing.

Safety risks due to rat running

The potential for the proposal to encourage rat running in the local road network is discussed in **Section 2.7.5** of this submissions report. The proposal is expected to reduce rat running by substantially reducing existing traffic volumes in the proposal area and providing separation of through traffic and local traffic, which would lead to less through traffic using local streets to avoid congestion. The proposal is therefore not expected to result in increased safety risks for pedestrians and drivers on local roads.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Goodsell Street/King Street

The proposal as described in the REF included the narrowing of the approach to the Goodsell Street/King Street intersection from two lanes to a centrally located single lane (refer to Section 3.2.3 of the REF). Since the display of the REF, the design has been refined to retain the current left in/left out access arrangement at the Goodsell Street/King Street intersection, including the two traffic lanes on the approach to the intersection, to improve access to facilitate local traffic movements (refer to **Section 4.1.5** of this submission report).

The Goodsell Street/King Street intersection would include a raised shared crossing that would improve pedestrian and cyclist safety at the intersection. Vehicles at this intersection would also be limited to a speed of 25 kilometres per hour, which would be enforced by signage.

Bus stop on northern side of Sydney Park Road west of Mitchell Road

Cycleways and pedestrian crossings have been designed in accordance with Austroads and Transport for NSW design guidelines to reduce potential conflicts and ensure safety for pedestrians and cyclists (refer to **Section 2.6.1** and **Section 2.7.6** of this submissions report). The pedestrian crossing across the cycleway near the bus stop on Sydney Park Road would be clearly marked and signposted to increase cyclists' awareness of pedestrians crossing. The cycleway would also be painted green to improve visibility of cyclists and people crossing the cycleway (Transport for NSW, 2020b).

Mitchell Road/Sydney Park Road intersection

The on-road two way cycleway would be separated from the pedestrian footpath along Sydney Park Road, including at the Mitchell Road/Sydney Park Road intersection, to avoid conflicts between pedestrians and cyclists. The green colouring of the cycleway would be continued across the Mitchell Road intersection to clearly distinguish the cycleway crossing from the pedestrian crossing.

Sydney Park village entrance

Transport for NSW, in consultation with City of Sydney Council, has responded to community concerns about the potential impacts of restricting the right turn from Mitchell Road into Sydney Park Road to buses only, and has removed this restriction from the proposal (refer to **Section 4.1.3** of this submissions report). This would prevent vehicles from attempting U-turns at the Sydney Park village entrance in Mitchell Road and improve safety for all road users.

Entrance/exit of BP service station along Princes Highway

Heavy vehicles would continue to enter and exit the BP service station from Princes Highway. The wider footpath would not impact the turning pathways of heavy vehicles, which would be unchanged. As a result, the safety of road users is not anticipated to be changed by the proposal at this location.

2.7.9 Parking

Submission number(s)

63, 96, 102, 111, 148, 156, 163, 215, 216, 246, 249, 291, 319, 322, 357, 363, 381, 407, 436, 442, 443, 482, 510, 520, 523, 531, 535, 542, 543, 545

Issue description

Thirty respondents raised concerns and made requests in relation to impacts to car parking as a result of the proposal, including:

- Suggestions to convert redundant traffic lanes into all day parking spaces and provide less planter boxes

- Recommendations to provide additional parking instead of a cycleway
- Queries asking why parking spaces would be removed
- Concerns that the removal of parking spaces in May Street would impact parking availability for local residents
- Recommendations to retain parking along King Street/Princes Highway since not everyone can cycle or use public transport and there is already limited parking availability in the area
- The reduction in parking spaces would impact businesses along Princes Highway/King Street that require parking for customers
- The reduction in parking spaces would impact access to the new dynamic community spaces and people living near Sydney Park Road that do not have access to a car parking space
- Requests for more parking spaces for people with mobility impairments and emergency services
- Concerns about the loss of parking spaces around Sydney Park, since people travel from a large region to visit the park, particularly the bike track and new skate park, and there is already a parking shortage around the park. Respondents recommend increasing parking at the Sydney Park car parks if on-street parking around the frontage of the park is going to be reduced
- Requests for underground parking to encourage pedestrians into the King Street precinct
- Suggestions to create delivery bays with automated cameras to fine people who park in parking bays all day or park across cycleways
- Concerns that the new parallel parking bays along the southern side of Sydney Park Road would result in the slowing down of traffic to allow cars to park in the parking bays
- Recommendations to provide parking along the northern side of Sydney Park instead to act as a buffer between the cycleway and the traffic lane to reduce traffic noise and pollution.

Response

Parking provisions

One of the primary objectives of the proposal is to transform King Street, Princes Highway and Sydney Park Road by improving pedestrian and cycling infrastructure to achieve better-balanced movement and place outcomes for pedestrians and cyclists. The proposal would therefore reduce traffic lanes in the proposal area to widen footpaths and shared paths and provide cycleways, dynamic community spaces and landscaping to improve amenity, safety and access for pedestrians and cyclists.

As described in Section 6.1.4 of the REF, the proposal would reduce kerbside parking in the following locations to allow for landscaping, the installation of mid-block crossings and kerb modifications required for the proposal:

- Eight car parking spaces on Sydney Park Road
- Three car parking spaces on the eastern side of Princes Highway
- Seven car parking spaces on the western side of Princes Highway
- Six car parking spaces along the western side of King Street between May Street and Goodsell Street.

No parking spaces would be removed along May Street.

The proposal would provide the following parking facilities, as described in Section 3.2.3 of the REF:

- Nine new angled parking bays and parallel parking bays on May Street
- New parallel parking bays along the southern side of Sydney Park Road, between the turn lanes on approach to King Street and the end of the dual lane departure at Mitchell Road.

Due to concerns raised by the community about the potential impacts of the reduction in parking spaces on residents and businesses along King Street and Princes Highway, the design has been refined to provide additional parking as follows (refer to **Section 4.1.9** of this submissions report):

- 11 parking spaces along the eastern side of King Street between Sydney Park Road and the proposed mid-block crossing between May Street and Goodsell Street (clearway restrictions to parking would apply)
- 14 parking spaces along the eastern side of King Street and Princes Highway between the Sydney Park car park exit and Barwon Park Road (clearway restrictions to parking would apply).

The design has also been updated to include the provision of one accessible car parking space on May Street to improve access for people with mobility impairments, as described in **Section 4.1.4** of this submissions report. Accessible car parking spaces are also currently located within the Sydney Park car parks.

Together with the additional accessible parking space that would be provided on May Street, the proposal would therefore result in an additional 11 parking spaces in the proposal area, which would improve access for residents and customers, staff and delivery drivers of businesses.

Current stopping and parking exemptions would continue to apply for breakdown assistance and emergency vehicles (ambulances, fire brigade or police vehicles) in accordance with the *NSW Road Rules 2014*.

Underground parking

The creation of underground parking would require substantial underground works resulting in significant environmental and community impacts, and therefore has not been considered for the proposal.

Enforcement of parking restrictions

Current parking restrictions are considered to be adequate. Enforcement of parking restrictions would be the responsibility of the relevant council. It is noted that no parking spaces would be provided next to dedicated cycleways.

Parallel parking along Sydney Park Road

The proposal would reduce the number of vehicles within the proposal area significantly compared to the scenario without the proposal as described in Section 6.1.4 of the REF. As a result, the provision of parallel parking along the southern side of Sydney Park Road is not anticipated to cause significant delays to traffic.

The noise and vibration assessment and air quality assessment carried out for the proposal indicate that there would be a reduction in traffic noise levels and roadside concentrations of air pollutants from traffic, including CO, NO₂ and PM₁₀, along King Street, Princes Highway and Sydney Park Road once the proposal is operational (refer to **Section 2.10.2** and **Section 2.11.2** of this submissions report). Providing car parking between the cycleway and traffic lanes is not expected to have any noticeable impacts on noise and air pollutant levels. In addition, providing car parking next to the cycleway would introduce safety risks to cyclists and drivers, and therefore has not been considered further.

2.7.10 Access

Submission number(s)

67, 101, 418, 444, 450, 520, 523, 533, 542, 544

Issue description

Ten respondents raised concerns about potential impacts on access to local destinations and services, including:

- The proposal would impact access for residents and workers in Sydenham, Tempe, Newtown, St Peters, Erskineville and Alexandria by restricting the right turn from Mitchell Road into Sydney Park Road
- The proposal would result in communities being cut off from each other
- The proposal would result in impacts on vehicular access which is still needed by local residents, for example, when shopping at Marrickville Metro or Woolworths/Bunnings in Alexandria
- Concerns about impacts on access to local streets for the local community
- The proposal would impact travel routes of the local community to WestConnex
- Local traffic would be impacted by construction traffic navigating circuitous routes to access local development sites
- Concerns that the proposal would not improve traffic flows/congestion at the entries/exits of the Sydney Park car parks, for example, local residents currently use the exit of the Sydney Park car park along Barwon Park Road to enter the car park. Question whether there are better options to access the Sydney Park car parks other than retaining the existing access points.

Response

Access to local streets, WestConnex and other destinations

Due to concerns raised by the community about the potential impacts of the 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road on access to and from Erskineville and Alexandria, Transport for NSW has removed this restriction, as discussed in **Section 4.1.3** of this submissions report.

The proposal would impact vehicular access and connectivity to local streets in St Peters Triangle by removing the right turns into and out of May Street at the King Street/Princes Highway intersection. Transport for NSW has carried out further traffic impact assessment (refer to Appendix C of this submissions report) to review the impacts of the removal of the right turns into and out of May Street and evaluate changes in access arrangements to address community concerns, as discussed in **Section 5.1** of this submissions report. To minimise impacts on vehicular access and connectivity to St Peters Triangle, Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street (refer to **Section 2.7.3** of this submissions report).

Consultation would be undertaken with Inner West Council to determine the timing of the implementation of these access arrangements. This has been reflected in additional environmental management measure TT13 (refer to **Section 6.2** of this submissions report).

Since drivers would still be able to access the WestConnex M8 Motorway and other destinations in the Inner West and City of Sydney local government areas by travelling via Campbell Street/Campbell Road and Euston Road, the proposal is not expected to impact access to these destinations.

The proposal would significantly improve pedestrian and cycling access and connectivity in the area through the upgrade of existing facilities (e.g. widening of footpaths and shared paths and improvement of crossings) and the provision of new facilities (eg mid-block shared crossings and cycleways). At a regional level, the proposal would provide connections to the existing regional cycle network and thereby improve cycling connectivity to key destinations within the study area and to employment destinations such as the Sydney Central Business District. The improved pedestrian and cycle facilities are likely to encourage a further shift away from private vehicles for some trips (especially local trips) and less reliance on private vehicles for commuting, helping to reduce traffic congestion within the study area and surrounding region.

Construction traffic

Redevelopment is currently taking place in St Peters Triangle, Erskineville and Alexandria. Access routes to construction sites in these locations are typically designed to maximise the use of State or regional roads and minimise the use of local roads in accordance with legislation and relevant Transport for NSW standards and guidelines.

During construction, the proposal may temporarily impact construction routes via Princes Highway, King Street and Sydney Park Road, due to lane closures or detours as a result of construction works. However, these changes would be temporary and standard traffic management measures would be implemented to minimise short term traffic impacts, as outlined in **Section 2.9.1** of this submissions report.

During operation, the proposal would impact construction routes to and from St Peters Triangle, due to the removal of the right turns into and out of May Street at the King Street/Princes Highway intersection. Transport for NSW has carried out further traffic impact assessment (refer to Appendix C of this submissions report) to review the impacts of the removal of the right turns into and out of May Street and evaluate changes in access arrangements to address community concerns, as discussed in **Section 5.1** of this submissions report. To improve access to St Peters Triangle, Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street (refer to **Section 2.7.3** of this submissions report).

Transport for NSW, in consultation with City of Sydney Council, has responded to community concerns about the potential impacts of restricting the right turn from Mitchell Road into Sydney Park Road to buses only, and has removed this restriction from the proposal. Therefore, construction routes to and from Erskineville and Alexandria via Mitchell Road are not likely to be impacted by the proposal.

Sydney Park car parks

The proposal would improve traffic flows at the Sydney Park car park entrance and exit on King Street/Princes Highway by modifying the access arrangements so that entry would be via Barwon Park Road and exit would be via King Street, as described in Section 3.2.3 of the REF. Since the display of the REF, the design has been refined so that the proposed mid-block crossing on King Street is situated further to the north to reduce potential conflicts between vehicles exiting the car park and traffic departing from the mid-block crossing (refer to **Section 4.1.6** of this submissions report).

The proposal would also improve access to the Sydney Park car park on Sydney Park Road by allowing a right turn into the car park from the eastbound approach of Sydney Park Road at the Mitchell Road/Sydney Park Road intersection, as described in Section 3.2.3 of the REF.

2.7.11 Public transport

Submission number(s)

100, 101, 329, 341, 409, 417, 446, 489, 510, 520, 543

Issue description

Eleven respondents raised concerns and made recommendations in relation to bus services, including:

- Concerns that the proposed bus stop location at the corner of Sydney Park Road and Mitchell Road would delay traffic turning left into Mitchell Road and increase existing congestion on Sydney Park Road. Suggests keeping the bus stop where it is and placing it on an island so there is no discontinuation of the cycleway
- Questions about where bus route 370 stops when heading west along Sydney Park Road since there appears to be no seat or weather protection for this bus stop

- Suggestions to provide a bus lane in each direction on King Street/Princes Highway to further prioritise public transport over car use
- Concerns that the reduction in traffic lanes along Princes Highway/King Street in combination with the removal of the right turn from King Street into May Street would impact bus routes 422, 348 and 370 to/from Tempe, that are the main regular bus routes that connect the Inner West with the Eastern suburbs and the city.

Response

Bus stops

The existing bus stop along the eastbound lane of Sydney Park Road, east of the Mitchell Road intersection would be relocated west of the Mitchell Road intersection, at the start of the left turn lane (refer to Section 3.2.3 of the REF). This bus stop is serviced by bus route 348 with buses departing from the stop every 15 – 30 minutes and maximum two buses stopping at the bus stop at a time. Since buses would only stop here for a few minutes at a time and drivers would still be able to use the other eastbound lane to travel through the intersection, the bus stop is not expected to result in significant congestion at this intersection. The bus stop would be located on a raised island between the on-road cycleway and the new kerb line, so there would be no discontinuation of the cycleway.

The existing bus stop for bus route 370 along the westbound lane of Sydney Park Road, west of the Mitchell Road/Sydney Park Road intersection, would remain and a bus shelter would be provided at this location to provide seating and weather protection.

Bus lanes

The proposal would reduce traffic lanes along King Street and Princes Highway to allow for a dedicated cycleway, widened shared paths, dynamic community spaces and landscaping while retaining parking for businesses (refer to Section 1.1 of the REF).

Although the reduction in traffic lanes may result in a minor increase in bus travel times, this increase would be relatively minor when considered in the context of overall door-to-door travel times, where typical journeys are multi-modal (eg walking and bus; or walking, bus and train). The provision of dedicated bus lanes are therefore not considered necessary for the proposal area.

Bus routes

The removal of the right turns at the King Street/May Street/Princes Highway intersection would not impact the routes of bus services 422, 348 and 370, as these routes either continue along Princes Highway without turning into May Street, or continue along Sydney Park Road and King Street (north of Sydney Park Road) without turning on to Princes Highway. As mentioned above, although the reduction in traffic lanes may result in a minor increase in bus travel times, this increase would be relatively minor when considered in the context of overall door-to-door travel times, where typical journeys are multi-modal (eg walking and bus; or walking, bus and train).

2.7.12 Removal of traffic lights at the May Street/Princes Highway intersection

Submission number(s)

14, 384, 439, 440, 469

Issue description

Five respondents raised concerns about the removal of traffic lights at the May Street/Princes Highway intersection, including:

- Questions asking why the traffic lights at the May Street/Princes Highway intersection would be removed since it would make it difficult to enter/exit May Street from/to King Street and Princes Highway and result in additional travel time for St Peters residents and rat running via Goodsell Street and Edgeware Road
- Concerns that removing the traffic lights at the May Street/Princes Highway intersection would increase safety risks at this intersection.

Response

The existing intersection of May Street and King Street/Princes Highway would be reconfigured from a three-leg signalised intersection catering for all movements, to an unsignalised left in/left out only intersection, to reinforce the replacement of Princes Highway (north of Campbell Street), King Street (south of Lord Street) and Sydney Park Road with Campbell Street/Campbell Road and Euston Road as part of the major east-west route linking areas west of the Princes Highway with areas east of the Princes Highway (refer to Section 6.1.4 of the REF). Traffic lights would therefore no longer be required at the King Street/May Street/Princes Highway intersection to facilitate safe right turns into and out of May Street.

Although the reduction in traffic lanes along Princes Highway, King Street and Sydney Park Road may result in increased travel times (refer to **Section 2.7.5** of this submissions report) these impacts on general traffic and freight customers would be relatively minor and manageable when considered in the context of the positive impacts of the proposal on the movement and place performance for pedestrians and cyclists, as described in Section 6.1.4 of the REF.

The proposal is expected to reduce rat running by substantially reducing existing traffic volumes in the proposal area and providing separation of through traffic and local traffic, which would lead to less through traffic using local streets to avoid congestion (refer to **Section 2.7.5** of this submissions report).

The proposal would improve safety for all road users at the King Street/May Street/Princes Highway intersection by:

- Providing a raised crossing for cyclists and pedestrians on May Street
- Reducing May Street from four lanes (two in each direction) to two lanes (one in each direction) on the approach to its intersection with King Street/Princes Highway to slow down traffic
- Reducing the design and posted speed limit on King Street and Princes Highway to 40 kilometres per hour.

2.7.13 Heavy vehicle traffic

Submission number(s)

237, 424, 440, 441, 520, 539

Issue description

Five respondents raised concerns and made recommendations in relation to heavy vehicle traffic, including:

- Measures should be implemented to discourage heavy vehicle through traffic in King Street
- Queries asking what type of heavy vehicles would be redirected to Campbell Street and Euston Road and how this will be enforced
- Requests to remove Princes Highway/King Street and Sydney Park Road from the approved B-double freight access network as soon as possible since Euston Road and Campbell Road are already available as alternative routes, and question how this will be enforced

- Concerns that the proposal would not result in a 50 per cent decrease in traffic due to heavy vehicles using Mitchell Road to and from the Woolworths in Fountain Street, Park Sydney Village shopping centre in Mitchell Road, construction sites in the area and the container yard business in Coulson Street
- Recommendations to restrict a wider range of heavy vehicles from using Sydney Park Road
- Request to not permit heavy vehicles on King Street
- Concerns that redirecting heavy vehicles traffic from Princes Highway to Campbell Street would increase heavy vehicle traffic along Edgeware Road to Enmore and Stanmore.

Response

The proposal is expected to reduce the volume of heavy vehicle traffic along Princes Highway, King Street and Sydney Park Road by removing the Princes Highway and Sydney Park Road corridors from the approved B-double freight access network and reducing traffic lanes along Princes Highway, King Street and Sydney Park Road (refer to Section 1.1 and Section 6.1.4 of the REF).

Since local areas surrounding the proposal area are subject to redevelopment due to population growth and/or zoned for light industrial uses, heavy vehicle access would need to be maintained for construction trucks needing to access construction sites and delivery trucks servicing businesses. Princes Highway and Sydney Park Road has therefore been designed to carry general access heavy vehicles with a maximum length of 12.5 metres.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network that feeds into Campbell Road and Euston Road, including Edgeware Road. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

2.7.14 Further modelling and assessment

Submission number(s)

100, 335, 442, 447, 492, 510, 523, 540, 543, 544

Issue description

Ten respondents requested additional modelling and impact assessment, including:

- Requests to adequately assess the impact of the proposal on the local road network and to implement additional traffic calming and safety measures on all impacted streets, including the following impacts:
 - Potential congestion impacts on local streets, including Coulson Street
 - The impact of the removal of the right turn into and out of May Street on the local road network, including Unwins Bridge Road, Bedwin Road, Campbell Street and Hutchinson Street
- Recommendations to trial altered traffic signal phasing to encourage traffic to use Campbell Street and Euston Road to allow for a review of intersection performance prior to construction
- Recommendations to model the level of service/delay for all transport modes, particularly pedestrian and bicycle level of service/delay, since pedestrian and bicycle level of service/delay must be at least equal to vehicle level of service/delay at all intersections/crossings in order to achieve the proposal objectives

- Recommendations to conduct a survey and gather statistics to investigate the use of the temporary pop-up cycleway due to concerns it is rarely used and currently increasing congestion.

Response

Assessment of impacts on local road network

The proposal would provide for a separation of through traffic and local traffic, which would lead to reduced through traffic using local streets for rat running, as discussed in **Section 2.7.5** of this submissions report. Additional traffic calming in local residential streets is therefore not considered necessary for the proposal.

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network that feeds into Campbell Road and Euston Road, including Unwins Bridge Road, Bedwin Road, and Campbell Street. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Traffic signal phasing and intersection performance

The proposal would encourage traffic to use Campbell Street and Euston Road by reducing traffic capacity on Princes Highway, King Street and Sydney Park Road. The traffic and transport assessment modelled intersection performance in the proposal area for the assumed year of opening (2023) and 10 years after opening (2033) and predicted impacts on intersection performance are outlined in Section 6.1.4 of the REF.

Traffic signal phasing would be reviewed during further design development to ensure optimal performance of the road network. Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

Modelling of pedestrian and bicycle level of service/delay

The overall assessment approach for the traffic and transport assessment, including a discussion on why modelling of pedestrian and bicycle level of service/delay is not appropriate for the proposal, is provided in **Section 2.7.1** of this submissions report.

Usage of temporary pop-up cycleway

Section 2.7.6 of this submissions report provides a summary of consultation carried out by Transport for NSW to invite feedback from the community about usage of the temporary pop-up cycleway and how the proposal has been designed to increase usage of the cycleway. As described in **Section 4.1.8**, the proposal has been refined to include the retention of the existing pop-up cycleway along Sydney Park Road to facilitate access throughout the construction period. These pop-up cycleways would remain operational until construction of the proposal, when they would be replaced by the proposed permanent cycleways.

2.8 Urban design and visual amenity

2.8.1 Landscaping

Submission number(s)

30, 44, 82, 83, 96, 104, 123, 191, 260, 268, 306, 325, 380, 400, 409, 415, 416, 442, 468, 525, 540, 543, 545

Issue description

Twenty-three respondents made requests and comments about the proposed landscaping, including:

- Concerns the proposal is not capitalising on opportunities to maximise tree planting and enhance the green corridor in the area, for example, no tree planting is proposed on either side of the Princes Highway near the Campbell Street intersection
- Queries asking whether recent trees planted along Princes Highway are being retained or replaced
- Recommendations to plant large mature native trees along Princes Highway/King Street and in the central median to assist with carbon sequestration, mitigate the urban heat island effect, offer plenty of shade and animal habitat and provide separation between pedestrians and traffic
- Recommendations to plant the proposed trees on Sydney Park Road along the southern side of the road, since the existing trees on the northern side block light from the apartments facing the road
- Recommendations to plant flowering gum trees or jacarandas since many streets in St Peters lack colour
- Recommendations to plant with species that would integrate the proposal area with the landscape of Sydney Park
- Requests for more and bigger planting bays, especially at St Peters Square and the Brickworks
- Recommendations to cover concrete walls with vines to improve visual amenity and discourage graffiti
- Requests for the proposal to include community garden beds
- Concerns that planting trees in heavily trafficked areas would impede the line of sight for pedestrians crossing the road
- Concerns that the additional landscaping would result in narrowing the roads to such a degree that passing cars would damage parked cars
- Queries as to who would maintain the landscaping, who would pay for maintenance and whether dead vegetation would be replaced
- Recommendations to maintain landscaping for a minimum period of 12 months after construction is completed to ensure the long term success of the new plantings
- Requests to clarify how soil volume for new trees would be calculated and whether soil vaults would be used to provide adequate soil volume, due to concerns that the existing soils would be highly compacted, devoid of nutrients and unable to sustain viable healthy trees
- Queries as to which water sensitive urban design principles or passive irrigation measures would be implemented to support the landscaping.

Response

Tree planting

The proposal has maximised opportunities to provide additional landscaping to improve the streetscape and includes the planting of grass, linear shrub beds and a large number (over 50) of new trees in the proposal area (refer to Section 3.2.3 of the REF). The proposal would also require the removal of three planted mature trees at the Princes Highway/Barwon Park Road intersection and the relocation of seven immature planted trees located within the pavement of Princes Highway, as outlined in Section 6.7.3 of the REF.

Areas for planting have been selected where space allows and where their presence does not interfere with underground utility assets, overhead powerlines or road users' line of sight.

Tree planting, including species and age of tree planted and the size of planting bays would be undertaken in accordance with the street tree masterplans of Inner West Council and City of Sydney Council. Spacing and positioning of the new trees would reflect those existing around Sydney Park to provide visual

continuity. Species selected for planting would include native species and species tolerant of urban conditions and climate change.

The planting of community garden beds is outside of the scope of the proposal, and would be determined by Inner West Council and City of Sydney Council.

Line of sight

New trees and landscaping in the proposal area would be maintained to ensure line of sight for all road users (including pedestrians) and is not expected to result in any physical obstruction of the line of sight to or from vehicles on the road.

Ownership and maintenance of landscaping

Draft terms of ownership and maintenance responsibilities are currently being negotiated between Transport for NSW and City of Sydney and Inner West Councils. When finalised, terms would cover the maintenance of landscaping.

Soil volume

The volume of soil required for each tree has been calculated by balancing the needs of the street tree masterplans with the restrictions of the design and safety requirements. The dynamic community spaces provided by the proposal would limit the total amount of soil that could be provided laterally. In addition, larger volumes of soil cannot be provided adjacent to the carriageway of the proposal, as this would impact the safety and stability of the carriageway.

The design of the proposal has considered the use of underground root cells where practicable. This would allow deeper soil quantities while minimising road stability issues. Piped drainage would be used to allow water flowing from hard surfaces, including the roadway, footpaths, the cycle and shared user paths to be piped into the stormwater network, avoiding soil waterlogging.

Where required, supplemental soil would be transported to the proposal area and used in tree plantings. Supplemental soils would be suitable for planting and would be able to sustain viable healthy trees.

Water sensitive urban design

Water sensitive urban design principles would be incorporated into the landscape design where possible, as outlined in Section 3.2.3 of the REF. As described in the REF, two broad typologies have been identified to date to ameliorate surface water flow:

- Tree pits within areas of hardstand such as pavements
- Rain garden beds, to physically and visually separate blocks of on-street parking on Sydney Park Road.

2.8.2 Urban design

Submission number(s)

69, 83, 96, 106, 124, 141, 158, 192, 268, 298, 300, 301, 325, 371, 393, 428, 442, 468, 505, 529, 546

Issue description

Twenty respondents raised questions and made recommendations in relation to the urban design for the proposal, including:

- Suggestions to work with Inner West Council to develop a design for St Peters Square that serves the needs of the community and improves the visual amenity of the area
- A concern that the proposal is too plain/standard

- Requests to consider more cafes with outdoor seating in the urban design for the proposal
- Recommendations to consider paving, high-quality mature landscaping, attractive street furniture, drinking fountains and bike racks to improve urban amenity
- Recommendations to extend the improvements along King Street further south to support the businesses in the mixed development area
- Requests for urban amenity to be improved along May Street
- A question about what the other half of the Sydney Park Road/King Street intersection not shown in the visualisations for the proposal would look like and whether it would have an island or have one large crossing
- Requests to clarify the location of the artist's impression of the dynamic community spaces near the Brickworks
- Queries about how big the dining precinct would be
- Requests advanced notice and further consultation with business owners prior to locations being secured for assets such as a food truck, bike rack or seating in front of or near businesses premises as part of the new dynamic community spaces
- Recommendations to screen dynamic community spaces and improved facilities for public transport from traffic with hard or vegetative barriers to avoid exposing people to traffic pollution and noise
- Recommendations to incorporate information on the Brickworks or the Aboriginal heritage of the area into the urban landscape design
- Recommendations to provide multiple levels and opportunities to install public art, including street art, murals and sculptures, and celebrations of local heritage at St Peters Square to emphasise the sense of place and reflect the character of the locality
- Suggestions to use the blank concrete wall on the building facing the St Peters Station entry for Sydney Park Junction information banners or a mural
- Recommendations to provide a place where musicians/actors can play/perform, signs to remind people to pick up after their dogs and dog bags and bins
- Requests for the proposal to include lighting, shade, seating and rubbish bins along footpaths
- Recommendations to add features that encourage drivers to slow down, such as trees and complexity.

Response

Urban design

The urban and landscape design for the proposal has been developed in extensive consultation with Inner West Council and City of Sydney Council, to serve the needs for the community and ensure consistency with the nine principles outlined in *Beyond the Pavement 2020* (Transport for NSW, 2020) (that aims to improve sense of place, connectivity, sense of journey, liveability and sustainability and increase canopy cover in the proposal area) while considering functional requirements of the road corridor (eg road alignment, lane and intersection configurations, road safety considerations), as outlined in Section 3.8 of Appendix J (Visual impact assessment) and Section 2.5.1 of the REF.

Streetscape improvements are proposed along King Street (south of Lord Street) and Princes Highway (north of Campbell Street/Campbell Road) and at the intersection of May Street and King Street/Princes Highway and includes the provision of dynamic community spaces, additional landscaping and the improvement of pedestrian footpaths, shared paths and crossings.

Sydney Park Road/King Street intersection

The proposed reconfiguration of the Sydney Park Road/King Street intersection is described in Section 3.2.3 of the REF and shown in Figure 3-8 of the REF. The northern half of the intersection not shown in the

3D visualisations on the Transport for NSW project website (caportal.com.au/tfnsw/Sydney-Park-Junction) would be reconfigured as follows:

- The northbound departure of King Street would be reduced from three through lanes to two through lanes
- The southbound approach from King Street would be reconfigured from three through lanes and one unsignalised left turn lane to one through lane and one through and left lane
- Existing signalised pedestrian crossing facilities would be replaced with signalised pedestrian and cyclist crossings.

Artist's impression of dynamic community spaces near Brickworks

The artist's impression of the dynamic community spaces near the Brickworks are located at the proposed St Peters Square, looking south east along King Street.

Public spaces and land use

Aspects of public spaces and privately owned land such as the type of activities they would be used for, screening, street furniture, rubbish bins, potential incorporation of heritage information or street art and non-traffic related signage would be the responsibility of City of Sydney Council and Inner West Council once the proposal has been constructed.

The proposal would provide lighting and areas of planting with grass, linear shrub beds and over 50 new trees, to provide shade and separation between pedestrians and traffic and improve the streetscape in the proposal area (refer to Section 3.2.3 of the REF).

Traffic calming measures

A discussion on traffic calming measures that have been incorporated into the design of the proposal is provided in **Section 2.6.2** of this submissions report.

2.8.3 Visualisations of the proposal

Submission number(s)

268, 416, 525

Issue description

Three respondents raised concerns about the artists' impressions of the proposal, including:

- Concerns that the artists' impressions are not true representations of what the proposal would look like in reality
- The artists' impressions do not provide enough detail to allow adequate assessment of the design of the proposal, including the tree planting layout.

Response

Artist's impressions have been prepared to represent the proposal as accurately as possible. Additional figures showing typical cross-sections and the proposal layout are provided in Figure 1-2 and Figures 3-1 to 3-9 of the REF and anticipated changes to viewpoints are shown in Table 6-39 of the REF. The precise location of the proposed tree planting would be undertaken in accordance with the City of Sydney's Street Tree Masterplan and the Marrickville Street Tree Masterplan.

2.8.4 Visual impacts

Submission number(s)

45

Issue description

One respondent is concerned about the visual impacts of the proposed new traffic lights at the Barwon Park Road/Princes Highway intersection, especially at night time, and would like additional clarification on the potential impacts.

Response

The new traffic lights at the intersection would be installed with louvred covers so that the lights can only be seen by traffic approaching the intersection. The existing variable messaging sign would also be relocated further north which would reduce visual impacts further in this location.

2.9 Socio-economic, property and land use

2.9.1 Socio-economic impacts

Submission number(s)

20, 155, 278, 299, 322, 344, 372, 405, 407, 439, 440, 446, 450, 475, 488, 517, 523, 527, 531, 542, 544

Issue description

Twenty-one respondents raised concerns about the socio-economic impacts of the proposal, including:

- Concerns that Transport for NSW do not care about negative impacts on the St Peters community
- Concerns about the impacts of the proposal on liveability for local residents, since recent infrastructure development in the area had unintended consequences for local residents
- The proposal would result in traffic congestion and increased travel times which would result in stress and greater losses of overall productivity and associated impacts on the economy, incomes and family
- The proposed changes to the Sydney Park Road/King Street intersection would increase traffic on King Street and impact small businesses at the southern end of King Street
- Concerns that businesses would be impacted due to impacts on access and parking, specifically due to the removal of the right turns into/out of May Street
- The proposal would decrease convenience and amenity for local residents
- Concerns about the impacts of the proposal on residents in May Street, Goodsell Street and Council Street
- Objects to the redirection of traffic towards Euston Road and McEvoy Street that could potentially result in impacts on peace and safety in nearby residential streets
- The proposal would impact the wider Inner West community, including Tempe, by impacting existing transport network connections to the Eastern suburbs.
- Concerns about impacts on the disabled and elderly due to impacts on access and parking for emergency vehicles

- It would result in delayed or lost deliveries or cancelled taxis or rideshares
- Concerns that travel costs would increase due to increases in travel distances
- Visitors would be discouraged from visiting the area due to complex access routes.

Response

Consideration of impacts on the community

The REF for the proposal has been prepared on behalf of Transport for NSW to describe the proposal, document the likely impacts of the proposal on the environment, including the community, and to detail mitigation and management measures to be implemented. In doing so, the REF helps to fulfill the requirements of Section 5.5 of the *Environmental Planning and Assessment Act 1979*, including that Transport for NSW examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the proposed activity.

Community and stakeholder engagement has been an integral component in the development of the proposal. The engagement process has proactively informed and engaged stakeholders and community members during proposal development. This approach aimed to increase public understanding of the proposal, encourage participation in the development process and promote the benefits of the proposal to local communities and stakeholders. The proposal has benefited from the input of local knowledge, insight, experience, goals and priorities and learnings from other major infrastructure projects, which has helped to identify issues, develop potential mitigation strategies and realise opportunities to improve project outcomes.

Traffic congestion and travel times

The reduction of traffic lanes and the speed limit in the proposal area would divert through traffic to Euston Road and Campbell Street/Campbell Road and result in reduced traffic volumes on Sydney Park Road, King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Mitchell Road. Modelled intersection performance indicates that some intersections would perform at a worse Level of Service in the assumed year of opening (2023) and at the same Level of Service 10 years after opening (2033) when compared to the scenario without the proposal, which could result in increased queuing and congestion, as discussed in Section 6.1.4 of the REF. However, traffic modelling presents a worst case scenario that does not account for the step-change in traffic flow which is predicted to occur with the opening of nearby transport infrastructure projects, including the WestConnex M4-M5 Link and Sydney Gateway (expected to open in 2023 and 2024 respectively), or behavioural changes such as rerouting or retiming of vehicle trips to avoid congestion or changing to other modes of transport such as active or public transport.

It is considered that the impacts of the decline in intersection performance on general traffic and freight customers would be relatively minor and manageable when considered in the context of the positive impacts of the proposal on the movement and place performance for pedestrians and cyclists, as described in Section 6.1.4 of the REF. Notwithstanding this, environmental management measures have been proposed which would address the impacts of the decrease in intersection performance on general traffic and freight customers (refer to **Table 6-1** of this submissions report).

Impacts on businesses

Potential impacts on businesses during operation of the proposal are outlined in Section 6.9.3 of the REF.

Traffic modelling indicates that the operation of the proposal would result in reduced traffic volumes on King Street (south of Lord Street), Princes Highway (north of Campbell Street), Sydney Park Road and Mitchell Street (refer to Section 6.1.4 of the REF). The nature of businesses along King Street and Princes Highway in the proposal area (service-related businesses such as financial services and automotive repairs, specialty retailers (such as bicycle and pet stores) and cafes and restaurants) means that they are likely to have a lower reliance on passing customers for their business and are more likely to attract customers that specifically choose to access these businesses due to factors such as convenience to home or work.

These businesses are likely to benefit from improved access for customers provided by reduced traffic volumes in the proposal area and enhancements to the overall urban amenity and streetscape such as widened footpaths and additional landscaping. The provision of community spaces along King Street and Princes Highway would also impact positively on the local business environment by contributing to the amenity, vitality and vibrancy of the streetscape and attracting new customers.

Due to the concerns raised by the community about the potential impacts of the reduction in parking spaces on businesses along King Street and Princes Highway, the design has been refined to provide additional parking along King Street and Princes Highway (refer to **Section 4.1.9** and **Section 2.7.9** of this submissions report). Overall, the proposal would result in the provision of 25 parking spaces within the proposal, an overall addition of 11 parking spaces. This would improve access for customers, staff and delivery drivers of businesses.

Impacts on convenience and amenity for local residents

Potential impacts on convenience and amenity for local residents during construction and operation of the proposal are outlined in Section 6.9.3 of the REF.

During construction, temporary changes to local amenity may be experienced by residents, staff and customers of local businesses, and users of social infrastructure near the proposal due to construction noise, vibration and dust, out of hours' construction work and the presence of construction work sites and activities. Reduced amenity may temporarily impact on the use and enjoyment of some residential properties, businesses and community facilities closed to the proposed works, particularly within outdoor areas.

The construction of the proposal may cause a level of inconvenience for pedestrians, cyclists, public transport users and motorists due to temporary impacts on access and connectivity, including:

- Traffic delays and disruptions for motorists, including from lane closures and an increase in construction vehicles
- Relocation of bus stops and minor increases in travel times for bus users
- Changes to road conditions, potentially impacting on perceptions of road safety
- Changes to pedestrian and cycle access near to construction works, including temporary changes to footpaths, resulting in possible disruptions or impacts on safety for some users
- Changes in access to private properties.

Construction works would mainly be undertaken during standard daytime work hours, although some construction activities associated with works in the road median and to support temporary traffic changes, would need to be undertaken outside of these hours, for example at night and weekends, to minimise traffic impacts. Noise and lighting from night works may temporarily impact on night time amenity or disrupt sleeping patterns for some residents closest to the construction works.

Potential impacts on bus users would mainly be associated with minor increases in travel times due to changed road conditions and increased congestion. Changes to public transport services, such as temporary relocation of bus stops, would be carried out in consultation with City of Sydney Council, Inner West Council, Transport for NSW and the local bus operator. Any proposed relocation of bus stops would be located as close as possible to the existing location to minimise potential impacts on local residents and commuters, although some bus users may be required to walk further to access bus services.

Environmental management measures outlined in **Table 6-1** of this submissions report would be implemented to minimise any amenity and convenience impacts on local residents during construction.

The operation of the proposal would contribute positively to visual amenity within the proposal area through landscaping and streetscape enhancements that would visually link new areas of landscaping with the existing Sydney Park parkland and extend and enhance existing avenues of canopy cover for pedestrians along the proposal area. The provision of dynamic community spaces along King Street and Princes

Highway would also contribute positively to the vibrancy and amenity of the streetscape by providing opportunities for social interaction and community events such as art installations.

The reduction in traffic volumes along King Street, Princes Highway and Sydney Park Road would help to reduce road traffic noise and improve air quality along the proposal corridor and thereby improve amenity for residents and businesses near the proposal. Less traffic noise would also improve night time amenity at residential properties along the proposal corridor by reducing the potential for disrupted sleeping patterns for residents.

The proposal would also improve the convenience of walking and cycling and quality of trips for people that rely on walking and cycling as their primary mode of transport or to access other transport modes such as public transport. The convenience of walking and cycling would be enhanced through the upgrade of existing facilities (eg widening of footpaths and shared paths), the provision of new facilities (such as shared paths, signalised/unsignalised pedestrian and cycle crossings and the on-road separated cycleway along Sydney Park Road) and the improvement of the pedestrian environment (eg by providing new landscaping).

The restriction of right-turn movements at some intersections would require some residents to use alternate routes to access local streets, which would result in a level of inconvenience for local residents. Transport for NSW has responded to community concerns about the potential impacts of restricting the right turn from Mitchell Road into Sydney Park Road to buses only, and has removed this restriction from the proposal to reduce impacts on access and convenience for local residents. In addition, further traffic modelling and assessment has been carried out to investigate and better understand the impacts on St Peters Triangle residents of the removal of the right turns into/out of May Street at the King Street/May Street/Princes Highway intersection, and to evaluate changes in access arrangements (refer to **Section 5.1** of this submissions report). To improve access to St Peters Triangle and minimise potential increases in travel times as far as is practicable, Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street, as discussed in **Section 5.1** of this submissions report.

Impacts on residents in May Street, Goodsell Street and Council Street

Construction works for the proposal would take place at the eastern end of Goodsell Street and May Street, from May Lane to King Street, as shown in and Figure 3-6 and Figure 3-7 of the REF.

Potential impacts on local residents during construction and operation of the proposal are discussed in Section 6 of the REF, including:

- Traffic and transport impacts (Section 6.1.4)
- Noise and vibration impacts (Section 6.2.4)
- Contamination impacts (Section 6.5.3)
- Flooding impacts (Section 6.6.3)
- Visual amenity impacts (Section 6.8.3)
- Socio-economic, land use and property impacts (Section 6.9.4)
- Air quality impacts and health and safety hazards and risks (Section 6.10.1)
- Cumulative impacts (Section 6.11.4).

Environmental management measures proposed to minimise and manage potential adverse impacts of the proposal are outlined in **Table 6-1** of this submissions report. As discussed above, due to concerns raised by the local community, new access arrangements have been proposed to improve access to St Peters Triangle (refer to **Section 5.1** of this submissions report).

During operation of the proposal, the reduction in traffic on King Street, Princes Highway and Sydney Park Road would help to reduce road traffic noise, improve air quality and improve day and night time amenity

for residents near the proposal area. The improved pedestrian and cycling pathways and crossings and additional formalised crossings would improve safety, access and connectivity for residents walking or cycling to Sydney Park, St Peters Station or the commercial precinct along King Street/Princes Highway. Landscaping and streetscape enhancements would enhance visual amenity along the proposal corridor and visually link residential areas with the Sydney Park parkland. The provision of dynamic community spaces along King Street and Princes Highway as part of the proposal would also contribute positively to the amenity and vibrancy of the streetscape and provide opportunities for social interaction.

Impacts on residents near Euston Road

The proposal would reinforce the replacement of Sydney Park Road and Princes Highway/King Street with Euston Road and Campbell Street/Campbell Road as part of the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo.

Euston Road between Huntley Street and Campbell Road would carry up to 15 per cent more vehicles in 2023 (assumed year of opening) and up to 16 per cent more vehicles in 2033 (10 years after opening) with the proposal when compared to the scenario without the proposal, as outlined in Section 6.1.4 of the REF. Euston Road has recently been widened and the Euston Road/Sydney Park Road/Huntley Street and Euston Road/Campbell Road intersections have been upgraded as part of the WestConnex M8 Motorway (Stage 2) works to accommodate larger volumes of traffic (refer to Section 2.1.2 of the REF).

There are no residential developments located along or near Euston Road between Campbell Street and Huntley Street. The nearest residential developments are located near the Sydney Park Road/Euston Road intersection and north of the Huntley Street intersection along Euston Road. These residents may experience a minor increase in noise and amenity impacts due to the predicted increases in traffic volumes on Euston Road. However, Euston Road is currently an arterial road with existing high levels of noise and any potential noise increases are expected to be small. Footpaths and intersections along Euston Road have recently been upgraded as part of the WestConnex M8 Motorway (Stage 2) works which has significantly improved safety for nearby residents. Increases in traffic on Euston Road as a result of the proposal would therefore have only minor impacts on safety and amenity for nearby residents.

Impacts on the wider Inner West community

The proposal would result in Euston Road and Campbell Street/Campbell Road replacing Sydney Park Road, King Street (south of Lord Street) and Princes Highway (north of Campbell Street) as part of the major east-west route linking St Peters and Moore Park via Alexandria and Waterloo.

During operation, the proposal and other road upgrades and infrastructure projects in the area, including the Princes Highway and Railway Road Intersection improvements (Sydenham), Mascot Intersections upgrade, WestConnex M8 Motorway (Stage 2), WestConnex M4-M5 Link and Sydney Gateway, would have a positive cumulative impact on traffic flows, road safety and trip reliability on the road network of the Inner West (refer to Section 5.2.8 of Appendix C (Traffic and transport assessment) and Section 6.11.4 of the REF). This would allow for the anticipated increase in traffic volumes as a result of future population growth in the area.

In addition, the proposal would provide the infrastructure that allows and encourages sustainable and affordable modes of transport (walking and cycling) to recreational and sporting facilities (within Sydney Park), public transport (e.g. St Peters Station and bus stops along Sydney Park Road) and the commercial precinct along King Street, while enhancing liveability, accessibility and local amenity in the Inner West. The new on-road segregated cycleways along Sydney Park Road and Mitchell Road would also improve cycling connections between the Inner West and the Eastern suburbs and the city, including urban renewal projects such as Green Square.

Impacts on parking for the mobile impaired and elderly

Impacts on access and convenience for local residents are discussed above and in **Section 2.7.10** of this submissions report. Parking provisions for the mobile impaired and elderly are discussed in **Section 2.7.9** of this submissions report.

Impacts on travel times and costs and access

During construction, the proposal may result in temporary delays and increases in travel costs, due to increased travel times resulting from additional construction traffic and lane closures or detours. However, these changes would be temporary and standard traffic management measures would be implemented to minimise short term traffic impacts, as outlined in **Table 6-1** of this submissions report. A detailed Construction Traffic Management Plan would be prepared in accordance with the *Traffic Control at Work Sites Technical Manual Version 5.0* (Roads and Maritime Services, 2018) and *Specification G10 – Traffic Management* (Transport for NSW, 2020) and would need to be approved by Transport for NSW before implementation (refer to environmental management measure TT1 in **Table 6-1** of this submissions report). The Traffic Management Plan would provide details of traffic management to be implemented during construction to ensure that traffic flow in the proposal area is maintained. Access to and from all roads intersecting with the proposal area will also be maintained where possible.

During operation, the proposal is anticipated to significantly reduce the number of vehicles within the proposal area compared to the scenario without the proposal, as described in Section 6.1.4 of the REF. The proposal, together with other relevant projects, would have a positive cumulative impact on traffic flow within the region as described above. While there would be a predicted decrease in intersection performance as discussed above, these impacts are considered to be relatively minor and manageable, and are not anticipated to significantly increase travel times or costs.

The proposal would impact access to St Peters Triangle due to the removal of the right turns into and out of May Street at the King Street/May Street/Princes Highway intersection. Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street, to minimise impacts on access and travel times and costs in this location as discussed in **Section 5.1** of this submissions report. With the implementation of these changes in access arrangements, the impacts on access and travel times and costs are expected to be minimal.

The proposal would improve pedestrian and cyclist access to recreational areas within Sydney Park, St Peters Station and the commercial precinct along King Street, while enhancing the landscape, visual and urban amenity within the proposal area through the reduction in traffic lanes and traffic volumes on Princes Highway, King Street and Sydney Park Road. This would improve access for visitors to the area.

Transport for NSW would undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review would be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

2.9.2 Property

Submission number(s)

416

Issue description

One respondent questioned who will accept ownership and responsibility for the maintenance of the 'dynamic community spaces' during operation.

Response

The dynamic community spaces would be owned and maintained by Inner West Council.

2.9.3 Land use

Submission number(s)

450, 505

Issue description

Two respondents raised questions about land use, including:

- A question asking whether new coffee shops or fast food outlets would be allowed along King Street/Princes Highway as it would impact the existing kiosk and shops on south King Street
- Concerns that improving the amenity along King Street and Princes Highway would not increase occupancy of commercial or retail spaces of buildings.

Response

Land along the western side of King Street between May Street and Goodsell Street is currently zoned as B5 (Business Development) under the *Marrickville Local Environmental Plan 2011*, which allows for a mix of business and warehouse uses, including food and drink premises. There is currently only a small number of food and drink premises located in or near the proposal area, including one restaurant along King Street, the BP service station shop, two cafes along May Street and a kiosk in Sydney Park.

The proposed urban amenity and streetscape improvements, including widened footpaths and additional landscaping, and reduced traffic along King Street and Princes Highway, are expected to increase pedestrian activity in the area and consequently, the number of potential customers in the area. In addition, the provision of dynamic community spaces would allow temporary commercial uses such as eateries (for example, food trucks) and other pop-up event spaces and activities to be established, and contribute to the amenity, vitality and vibrancy of the streetscape. These changes would revitalise the local business environment near the proposal, increase occupancy of commercial or retail spaces of buildings and benefit both existing and future businesses in the area.

2.9.4 Adequacy of assessment

Submission number(s)

518, 528

Issue description

Two respondents raised concerns that the REF does not address impacts on residents and businesses in the St Peters Triangle, as they would be directly impacted by the removal of the right turns into and out of May Street.

Response

Potential impacts on local residents during operation of the proposal are assessed in Section 6 of the REF, including:

- Traffic and transport impacts (Section 6.1.4)

- Noise and vibration impacts (Section 6.2.4)
- Contamination impacts (Section 6.5.3)
- Flooding impacts (Section 6.6.3)
- Visual amenity impacts (Section 6.8.3)
- Socio-economic, land use and property impacts (Section 6.9.4)
- Air quality impacts and health and safety hazards and risks (Section 6.10.1)
- Cumulative impacts (Section 6.11.4).

Due to concerns raised about the impacts of the removal of the right turns into and out of May Street on access for residents in St Peters Triangle, further traffic impact assessment (refer to Appendix C of this submissions report) has been carried out to review the impacts of the new access arrangements and address these concerns, as discussed in **Section 5.1** of this submissions report.

To improve access to St Peters Triangle, Transport for NSW is proposing to reverse the one way traffic direction on Applebee Street between Lackey Street and Hutchinson Street and extend the two way section on Applebee Street to the intersection with Hutchinson Street (refer to **Section 2.7.3** of this submissions report). Notifications of the proposed changes were letterbox dropped to residents in Hutchinson Street, Lackey Street and Applebee Street on 17 November 2021 and residents had the opportunity to provide feedback on the proposed changes via phone or email over a two week period. Transport for NSW is considering all community feedback to ensure that concerns are addressed.

2.10 Air quality and human health

2.10.1 Construction impacts

Submission number(s)

28

Issue description

One respondent is concerned about the potential dust impacts for residents in May Street during construction.

Response

The potential air quality impacts during construction of the proposal are assessed in Section 6.10.1 of the REF.

The proposal has the potential to generate dust emissions from earthworks, stockpiles and the use of imported fill during construction. Dust impacts would likely be localised, temporary and of relatively short duration, depending on the works taking place at the particular location and time and the atmospheric conditions.

Levels of airborne dust are expected to be low and unlikely to cause concern to sensitive receivers, provided the safeguards and environmental management measures outlined in **Table 6-1** of this submissions report are implemented. These measures include adjusting or managing dust generating activities during unfavourable weather conditions, such as windy conditions, where appropriate. A Construction Environmental Management Plan would also be prepared for the project which would include an air quality management plan containing specific management measures and procedures to minimise dust generation (refer to environmental management measure O4 in **Table 6-1** of this submissions report).

2.10.2 Operational impacts

Submission number(s)

344, 510, 539, 543

Issue description

Two respondents are of the view that outdoor dining areas should not be located next to the road where diners, including children, would be exposed to high concentrations of vehicle exhaust gases, as well as tyre, brake and clutch dust and other particulates resuspended from the road surface by traffic.

Two respondents are concerned that people, including children, waiting at the proposed bus shelter on the northern side of Sydney Park Road near the Mitchell Road/Sydney Park Road intersection would be exposed to harmful concentrations of exhaust emissions from cars waiting at the intersection. They recommend setting the bus stop further back from the traffic lane, or configuring it as a bus bay instead of an in-lane bus stop, and positioning the bus shelter so that people waiting at the bus stop are protected from traffic pollution.

One respondent is concerned that the current and projected concentrations of nitrogen dioxide (NO₂) along Sydney Park Road are approximately double the WHO recommended maximum, considering that exposure to NO₂ can exacerbate asthma in children and reduce lung function in the general population.

One respondent is concerned about the potential impacts on the respiratory health of pedestrians and cyclists if traffic would slow down in the area as a result of the proposal.

Response

Potential air quality impacts during operation of the proposal were quantified and assessed using the Transport for NSW Tool for Roadside Air Quality (TRAQ) prediction model, as described in Section 6.10.1 and Appendix L (Operational air quality assessment) of the REF.

Applicable air quality standards in NSW are set by the NSW Environment Protection Authority, having regard to national and international practice, and taking into account local conditions and regulatory requirements. Operational air quality impacts for the proposal were evaluated by comparing predictions against criteria developed using guidance from the NSW Environment Protection Authority (NSW EPA, 2016).

The main air pollutants from motor vehicles are carbon monoxide (CO), nitrogen dioxide (NO₂) and fine particles (PM₁₀) (particulate matter with equivalent aerodynamic diameters of less than 10 microns). The results from the TRAQ modelling carried out for the proposal indicate that near roadside concentrations of CO, NO₂ and PM₁₀ along King Street/Princes Highway (between Sydney Park Road and May Street) and Sydney Park Road (between Mitchell Road and King Street) are expected to reduce by up to 10 per cent from 2023 (the assumed year of opening) to 2033 (10 years after opening) as a result of the proposal, and would be well below the NSW Environment Protection Authority criteria in 2023 and 2033.

2.11 Noise

2.11.1 Construction impacts

Submission number(s)

28

Issue description

One respondent is concerned about the potential noise impacts for residents during construction.

Response

An assessment of the potential noise impacts associated with construction works for the proposal is provided in Section 6.2.4 and Appendix D (Noise and vibration assessment) of the REF. The assessment considers potential impacts during and outside standard construction hours, and for each type of noisy construction activity at each work area, including early works and site establishment, as applicable.

The number of receivers where construction noise levels are predicted to exceed noise management levels during the noisiest construction activities are detailed in Appendix C of the Noise and vibration assessment (Appendix D of the REF). Predicted worst case noise exceedances at residential receivers in the two construction zones for the proposal are summarised in Section 4.2.1 and Section 4.2.2 of Appendix D (Noise and vibration assessment).

The day, evening and night construction noise management levels would generally be exceeded at most residential receivers in each noise catchment area (NCA). Highly intrusive noise impacts are generally limited to residential receivers closest to the proposal and directly next to the construction works, meaning receivers in NCA01, NCA02 and NCA03 in construction zone A and receivers in NCA04 and NCA05 in construction zone B. While the works are intrusive, works would progress along the road and as such the duration of the noise impacts would be expected to be relatively short at a specific receiver location. The use of noise intensive equipment, such as concrete saws and rock breakers, would generally be limited to sporadic short periods. Receivers which are further away from the works and/or shielded from view would have substantially lower impacts.

Residential receivers closest to the proposal and directly next to the construction works are also predicted to be Highly Noise Affected, or likely to experience noise levels over 75 dB(A) during the day period. The number of receivers which could potentially be Highly Noise Affected during the worst case impacts from the proposal are summarised in Table 6-28 and shown in Figure 6-11 of the REF. The predictions assume the worst case scenarios are occurring at all locations and therefore present all the potentially Highly Noise Affected receivers over the construction period.

In most cases, the exceedances of the noise management levels and highly noise affected level of 75 dB(A) are based on the activity occurring at a point nearest to the receiver and with all plant and equipment operating concurrently. However, not all plant and equipment would typically operate concurrently and the use of noise intensive equipment would generally be limited to sporadic short periods.

Other sensitive receivers identified near the proposal are limited to public buildings within Sydney Park and Sydney Park itself, which is classified as a passive recreational area. Noise management level exceedances greater than 25 dB(A) are predicted when works are within close proximity to Sydney Park buildings, although noise levels across the general park area would only be approximately 5 dB above the noise management level daytime criteria of 60 dB(A). As mentioned before, the predicted impacts are based on all equipment working simultaneously in each assessed scenario. There would frequently be periods when construction noise levels are much lower than the worst case predictions and there would be times when no equipment is in use and no exceedances occur.

Where possible the proposal would be constructed during standard construction hours. However, activities such as drainage and civil works would be required to be carried out outside of standard construction hours to protect workers' safety and to avoid traffic disruption. The number of receivers predicted to experience exceedances of sleep disturbance criteria during night works are detailed in Appendix C of the Noise and vibration assessment (Appendix D of the REF). The requirements for night time works would be confirmed as the proposal progresses. The contractor would give the community prior notice of any work planned to be carried out outside of standard construction hours.

A construction noise and vibration management plan would be prepared prior to works commencing in accordance with environmental management measure NV2 (refer to **Table 6-1** of this submissions report) and would provide further detail on the approach that would be adopted to manage construction noise. The construction noise and vibration management plan would include standard environmental management measures as outlined in the *Construction Noise and Vibration Guideline* (Roads and Maritime Services, 2016a). The requirement for additional mitigation measures would be evaluated as the proposal progresses and detailed construction scheduling information becomes available.

2.11.2 Operational impacts

Submission number(s)

45, 222, 400, 436, 489

Issue description

Five respondents raised concerns about potential noise impacts on residents during operation, including:

- Concerns about the potential noise impacts of the pedestrian crossing of the proposed new traffic lights at the Barwon Park Road/Princes Highway intersection, especially at night time. One respondent requested a silent pedestrian signal at this intersection
- Concerns that the new parallel parking bays along the southern side of Sydney Park Road would result in noise impacts for nearby residents
- Concerns about potential noise impacts on residents in Sydney Park Village Sydney near the proposed bus stop at the Mitchell Road/Sydney Park Road intersection, due to traffic queuing behind the buses and buses accelerating from the bus stop.

Response

Barwon Park Road/Princes Highway traffic lights

A silent pedestrian signal at the pedestrian crossing at Barwon Park Road/Princes Highway would not allow pedestrians who are vision impaired to safely use this crossing, and therefore has not been considered for the proposal.

Overall, the proposal would reduce the operational noise levels of Princes Highway as described in Section 6.2.4 of the REF. Given the overall reduction in noise levels, the minor increased noise level of the pedestrian crossing is not anticipated to result in significant noise impacts when compared to the existing noise environment of the road corridor.

Parking along Sydney Park Road

The noise and vibration assessment carried out for the proposal indicates that there would be a decrease in traffic noise levels along King Street/Princes Highway and Sydney Park Road once the proposal is operational, as discussed in Section 6.2.4 of the REF. Noise from cars parking in the new parallel parking bays is also expected to be minor in comparison with other traffic noise along Sydney Park Road.

Bus stop near Mitchell Road/Sydney Park Road intersection

The existing bus stop along the eastbound lane of Sydney Park Road, east of the Mitchell Road intersection, would be relocated west of the Mitchell Road intersection, at the start of the left turn lane from Sydney Park Road into Mitchell Road. This bus stop is serviced by bus route 348 with buses departing from the stop every 15 – 30 minutes and maximum two buses stopping at the bus stop at a time. Buses would only stop for a few minutes before they depart and noise impacts from buses departing and traffic queuing behind the buses is expected to be minor in comparison with other traffic noise along the road.

Transport for NSW is currently in the process of transitioning the full NSW bus fleet of more than 8000 diesel and natural gas powered buses to zero emissions buses by 2030, as part of the NSW Government and Transport for NSW commitment to transition the transport sector to net zero greenhouse gas emissions by 2050 (Transport for NSW, 2021d). To date, a total of 89 battery electric buses have been ordered to arrive by mid to late, with 22 of these now in passenger service across Greater Sydney. Zero emissions buses are quieter than diesel and natural gas powered buses, and would reduce any noise impacts from bus traffic on nearby residents.

2.12 Biodiversity

2.12.1 Trees and wildlife corridors

Submission number(s)

476, 505

Issue description

One respondent queried whether any trees would be removed to create more road surfaces.

One respondent requested wildlife corridors to be incorporated to provide more green space.

Response

Three small-leaved fig trees (*Ficus obliqua*) would be removed at the intersection of Princes Highway and Barwon Park Road, as described in Section 6.7.3 of the REF. The proposal would also involve the relocation of seven immature planted trees located within the pavement of Princes Highway. The proposal would replace cleared trees with over 50 new trees as well as landscaping, which is expected to improve the habitat value of the area significantly over the long term.

2.13 Cumulative impacts

2.13.1 Cumulative construction impacts

Submission number(s)

387, 520, 529, 542

Issue description

Three respondents raised concerns about cumulative construction impacts on the local community, since local residents have been impacted for many years by the construction of the WestConnex development and other recent works.

One respondent questioned whether the cumulative traffic impacts of construction works in McDonald Street and at the Ashmore Estate in Ashmore Street during construction of the proposal have been considered.

Response

Cumulative construction impacts have been considered as a key issue for the proposal due to the number of recent, current and planned major development projects near the proposal, particularly the WestConnex M8 Motorway, WestConnex M4-M5 Link and Sydney Gateway projects, and the length of the construction program. It is recognised that the works for the proposal are smaller in scale relative to many other major transport and urban development projects that have recently been constructed, are being constructed or will be constructed near the proposal. As such, the contribution of the proposal to potential cumulative impacts relating to such issues as noise, air quality, traffic, changes to land use and visual amenity are expected to be relatively minor compared to other developments recently completed, under construction or proposed in the study area.

The cumulative impacts of the proposal with the Ashmore Precinct were considered in Section 6.11.3 of the REF. At the time of writing the REF, the Macdonald Street Trunk Drainage and Road Widening upgrade project was anticipated to be completed by the time of construction of the proposal. It is now anticipated that construction of that project would briefly overlap with the construction of the proposal. There is potential for some of the Ashmore Precinct construction works to overlap with that of the proposal and as such cumulative construction impacts such as increased congestion and travel times on the local road network would be possible during construction. Cumulative operation impacts are expected to include additional demand for travel for all customer groups on roads in and near the proposal area, particularly near developments to the north of the proposal.

Potential cumulative construction impacts, including traffic, noise and air quality impacts, will be managed through the implementation of relevant construction environmental management measures for each project. Cumulative impacts will be managed by consulting with proponents of other projects prior to construction to ensure all contributors to impacts are working together to minimise adverse impacts or enhance benefits of multiple projects occurring concurrently or consecutively, in accordance with environmental management measure C3 (refer to **Table 6-1** of this submissions report). The Construction Environmental Management Plan will be updated as required to address cumulative impacts as other projects or activities begin, which would include a process to review and update safeguards and management measures as new work begins or if complaints are received (refer to environmental management measure C1 in **Table 6-1** of this submissions report). A Traffic Management Plan would be prepared in consultation with Transport for NSW, City of Sydney Council and Inner West Council to minimise any potential cumulative impacts on traffic and transport (refer to environmental management measure C2 in **Table 6-1** of this submissions report). Transport for NSW will continue to engage with stakeholders before implementing this portion of the proposal.

2.14 Climate change

2.14.1 Climate change

Submission number(s)

167, 442

Issue description

One respondent is concerned that the transport network prioritises cars at the beginning of a climate emergency. The respondent is of the view that the proposal requires an in-depth review if it is to make a meaningful change to address climate change and provide value for money in terms of people's health and the environment.

Another respondent is concerned that black road surfaces in the proposal area would contribute to the urban heat island effect.

Response

The proposal would make a meaningful change to address climate change by re-allocating road space in a key commuter corridor to give priority to the more sustainable transport modes of walking and cycling. The proposal would also provide value for money by upgrading an existing road corridor, which would avoid land acquisitions and minimise long-term disruption, economic impacts on residents, businesses and road users and environmental impacts on the community, land, ecosystems and watercourses.

The proposal would also reduce the urban heat island effect through the provision of additional landscaping and the reduction of black road surfaces in the proposal area through the reduction of traffic lanes.

2.15 Issues outside the proposal area or outside the proposal scope

2.15.1 Cycling and pedestrian infrastructure

Submission number(s)

6, 10, 12, 13, 31, 37, 56, 59, 62, 69, 71, 79, 82, 107, 120, 127, 134, 143, 156, 203, 208, 258, 305, 319, 323, 332, 370, 422, 423, 427, 520, 525, 529, 539

Issue description

Thirty-four respondents suggested improvements or changes to pedestrian and/or cycling infrastructure outside the proposal area or proposal scope, including:

- Requests to consider the broader need for cycling connectivity across the Inner West and provide cycling connections to the Inner West suburbs of Marrickville, Dulwich Hill, Hurlstone Park, Petersham and Leichhardt
- Recommendations to roll out similar improvements and promote pedestrian/cyclist networks across Sydney and NSW as there are a multitude of similar corridors that need this type of improvement
- Recommendations to extend the cycleway along King Street further north to Newtown, Sydney University and the Sydney CBD and south along Princes Highway to Sydenham, the Cooks River cycleway and Kyeemagh
- Requests for the cycleway along Mitchell Road to be extended further north to connect with the planned cycleway from the Ashmore precinct along MacDonald Street and the Henderson Road cycleway
- Cycle paths should be added to Sydney Park instead of Sydney Park Road and King Street/Princes Highway
- Recommendations to continue the cycleway on Sydney Park Road along Huntley Street to Bourke Road and Belmont Street
- A recommendation to provide safe bicycle paths along May Street from the King Street/May Street intersection to Marrickville, since Section 2.3 of the REF reports high pedestrian and cyclist activity generally occurs at the Princes Highway/May Street intersection and Figure 2-4 of the REF shows May Street as part of the existing cycling network
- A suggestion to create a cycleway along Euston Road in the nature strip

- Questions about whether cyclists would travel to Sydenham and Marrickville via Lord Street and, in the opposite direction, if cyclists would have to cross the railway line at Bedwin Street and then travel along May Street and Goodsell Street
- A question asking how bicycle paths would connect from Tempe Station to Sydney Park
- Requests for a continuous network of safe separated cycleways throughout Sydney
- Requests for bicycle parking rails/racks or bicycle shelters with green roofs to be installed at St Peters Station to facilitate multi-modal journeys
- Concerns that cycling and pedestrian paths between Camdenville Park, Simpson Park and Sydney Park as part of the St Peters Interchange project have not been completed
- Recommendations to provide continuous footpaths on side streets instead of pedestrian crossings to improve pedestrian safety
- Requests for raised pedestrian crossings along Lord Street, Concord Street and Coulson Street
- Suggestions to install more pedestrian crossings further down Princes Highway, especially between Campbell Road and Railway Road
- A request to provide safe pedestrian and cycling crossings from Sydney Park Junction to the new Smidmore Street dining hub near Marrickville Metro
- A suggestion to address pedestrian issues at Bedwin bridge
- A question about whether an underground pedestrian tunnel between Sydney Park and St Peters Station could be considered as part of the St Peters Station Upgrade
- The current exit bridge from St Peters Station is narrow and uncovered up to King Street and the Princes Highway and the current entry from the King Street/Sydney Park intersection to the station lead directly to uneven steps and a closed, impeded entry
- A recommendation to review the Development Control Plan to ensure that bike storage and end-of-trip facilities are provided in all new buildings
- A suggestion to fine cyclists that are not using cycleways.

Response

Works outside the proposal area

The proposal aims to improve the southern 'gateway' to King Street, Newtown and is focused on improving pedestrian and cyclist access on King Street, Princes Highway and Sydney Park Road. As a result, cycling and pedestrian infrastructure located outside the proposal area have not been further considered. Broader cycling connectivity across the Inner West and other areas of Sydney would continue to be the subject of separate planning approvals as practicable in the future in accordance with the strategies and plans described in Section 2.1 of the REF.

Environmental planning instruments

Changes to environmental planning instruments, including development control plans and local environmental management plans, would be the responsibility of the relevant council.

Enforcement of road rules

Cyclists are obliged to comply with the same road rules as other vehicle drivers under the NSW *Road Rules 2014*. Enforcement of these rules are not within scope of the proposal.

2.15.2 Traffic and transport

Submission number(s)

5, 30, 34, 97, 112, 152, 178, 216, 222, 226, 295, 298, 307, 319, 332, 335, 358, 359, 393, 400, 408, 409, 417, 424, 433, 439, 440, 441, 443, 451, 520, 539, 540

Issue description

Thirty-three respondents made suggestions in relation to traffic and transport that are outside the proposal area or proposal scope, including:

- Suggestions to create a shared car and pedestrian zone along Lord Street between King Street and the Lord Street entrance to St Peters Station
- A request to not remove parking along Edgeware Road since it is used by residents and parents dropping/picking up children from the two schools along Edgeware Road
- A suggestion to close Barwon Park Road, change the parking rules to timed zones or only allow residents to access Barwon Park Road and Crown Street since there are already limited parking availability for residents
- Requests to provide additional parking spaces on Euston Road and Barwon Park Road
- A suggestion to implement a congestion charge in inner Sydney to reduce vehicle use
- The speed limit on King Street and Princes Highway would be reduced to 40 kilometres per hour when the speed limit is 50 kilometres per hour on Campbell Street (with a park and school nearby), King Street (north of Sydney Park Road) (a narrower road with higher pedestrian volumes), May Street and Mitchell Road. Concerns that having multiple speed limit changes over a relatively short distance is inconsistent and potentially unsafe
- Requests to reduce the speed limit to 40 kilometres per hour on roads surrounding the proposal area to support the overall traffic calming objectives of the proposal
- A request to implement a 40 kilometres per hour speed limit along the entire length of King Street to City Road and Enmore Road and also along Princes Highway through to Tempe
- Concerns that cars and heavy vehicles often run the red light at the Mitchel Road/Coulson Street/Huntley Street intersection
- Request to enforce speed limits with speed cameras
- A suggestion to provide signage on major roads, including at the Campbell Street/Princes Highway intersection, to reflect the new routes around St Peters and Alexandria
- Traffic signals at the Sydney Park Road/Euston Road and Euston Road/Campbell Street intersections should be updated to prioritise Euston Road traffic as currently Sydney Park Road traffic is prioritised
- Suggestions to provide a dedicated left turn at the Huntley Street/Euston Road intersection to encourage drivers to use Euston Road and Campbell Street to access Princes Highway
- Concerns that the central median on Euston Road results in a large volume of traffic using Sydney Park Road since traffic travelling east from the M8 Motorway or Princes Highway can only access the eastern side of Euston Road via Princes Highway, Sydney Park Road and Euston Road and traffic travelling to the M8 Motorway from the western side of Euston Road can only travel via Euston Road, Sydney Park Road and Princes Highway. Suggest improving access via Bourke Road or Burrows Road
- A recommendation to reconfigure the intersection of Unwins Bridge Road and Bedwin Road to one through and right turn lane and one left turn lane, since the majority of traffic are heading to the city or the Metro and traffic travelling via WestConnex would have already entered the tunnels earlier
- Requests for the installation of a sign at Bedwin Road to indicate no access to King Street

- Congestion would increase in the turning lanes on Princes Highway at Railway Road, Sydenham
- Concerns that having no exit from Bunnings Tempe to Princes Highway would result in traffic from Bunnings on Union Street past Tempe Public School which is a narrow one way street
- Concerns that heavy vehicle restrictions on Mitchell Road are not currently adhered to
- Provide 'Keep Clear' road marking at the Sydney Park Village entrance in Mitchell Road to ensure safe access for residents and safety of cyclists on the cycleway
- Concerns that nobody uses toll roads since they're too expensive
- A request to consider a Light Rail extension at Newtown, including accessible shared light rail/bus stops, wider footpaths, outdoor dining, shared bicycle paths and more landscaping, to connect to the city which would greatly improve access to Newtown, Sydney University, Victoria Park, Broadway, Central Park, University of Technology Sydney, Railway Square, Central Station and the Sydney CBD
- Of the view that people are likely to avoid using public transport due to public health concerns
- A recommendation to provide more trains to encourage people to use public transport rather than cars
- Recommendations to implement electric rickshaws so that local people who used taxis previously, such as the elderly, can use the new cycle lanes safely
- Traffic signals should automatically prioritise bus passengers without having to push a button using features such as transponders (for buses).

Response

The proposal aims to improve the southern 'gateway' to King Street, Newtown and is focused on improving pedestrian and cyclist access on King Street, Princes Highway and Sydney Park road. Improvements or changes to traffic and transport infrastructure that are not located within the proposal area, including changes to parking arrangements, speed limits, lane configurations and intersections, are not within the scope of the proposal and have not been further considered. It is noted that no changes to parking are proposed along Edgeware Road.

The implementation of city-wide congestion charges is beyond the scope of this proposal. It is noted that the proposal would not form part of a tolled road.

While the proposal would relocate bus stops and access to St Peters Station would be improved, there would be no significant changes to public transport as a result of the proposal. As a result, public transport options, the usage of public transport and changes to the Inner West Light Rail have not been further considered.

The implementation of a High Priority Request system for buses at intersections has not been considered as part of this proposal.

2.15.3 Community spaces and facilities

Submission number(s)

50, 75, 83, 124, 198, 223, 230, 233, 308, 315, 325, 380, 425, 432, 450, 526, 540, 543

Issue description

Eighteen respondents suggested improvements to public space and community facilities outside the proposal area or proposal scope, including:

- Suggestions to convert the Brickworks kilns and chimneys into cafes and a restaurant

- Requests to reopen the Brickworks chimneys
- A question about whether St Peters Hotel would benefit from an outdoor dining area
- Requests for the proposal to include an off leash dog park
- Requests for more sport facilities such as tennis courts, basketball courts, ping pong tables and an indoor/outdoor pool complex
- Queries about whether there would be public spaces created opposite the southern end of Sydney Park between Campbell Road and Canal Road once the St Peters Interchange is complete
- Recommendations to establish a community garden, bee project or recycling and composting area for residents near St Peters Square, as well as a craft beer brewery and barbeque areas within Sydney Park
- A recommendation to allow retail/active frontage uses in the buildings along King Street between May Street and Goodsell Street
- A request for more cafes, restaurants and a mini supermarket that are easy to access
- A question asking which measures are being implemented to ensure occupancy of commercial or retail spaces of buildings
- A request to install electric vehicle chargers to encourage the use of electric vehicles and improve air quality
- Requests to upgrade Camdenville Park and provide trees and street plantings between Camdenville Park and King Street.

Response

The proposal aims to improve the southern 'gateway' to King Street, Newtown and is focused on improving pedestrian and cyclist access on King Street, Princes Highway and Sydney Park Road. Community spaces and facilities located outside the proposal area have not been further considered.

Public spaces and community facilities such as cafes, restaurants, heritage items, hotels, occupancy of commercial and retail spaces, dog parks, sports facilities, electric vehicle chargers, community gardens, bee projects, recycling and composting facilities, breweries and barbeque areas do not form part of this proposal and have not been further considered. Public spaces and community facilities in the proposal area would be the responsibility of City of Sydney and Inner West Councils following the completion of the proposal.

The occupancy of commercial and retail spaces would also be the responsibility of City of Sydney Council and Inner West Council in accordance with their respective Local Environmental Plans and Development Control Plans.

2.15.4 Extension of proposal area

Submission number(s)

127, 141, 184, 332, 356, 416, 540

Issue description

Seven respondents requested extension of the proposal area further southwards or northwards:

- Requests to expand the scope of works to include improvements to the Lord Street/King Street intersection, which is the true 'entry' to the King Street precinct and currently an unattractive and difficult space to navigate
- A request to improve amenity along Lord Street and Concord Street

- Recommendations to improve amenity, reduce traffic lanes and provide separated cycleways further along Princes Highway to Tempe.

Response

Submissions related to areas located outside the proposal area do not form part of this proposal and have not been further considered.

2.15.5 Other

Submission number(s)

18, 45, 50, 117, 158, 231, 319, 331, 433, 495, 502, 521, 527, 543

Issue description

Fourteen respondents have raised concerns about the following general issues that are outside the scope of the proposal:

- Requests to complete the work at the St Peters Interchange before starting new projects in the area
- Concerns that the proposal does not include integration of the green space and bike tracks at the St Peters Interchange
- A 100 year old building was demolished at St Peters Station and people are now exposed to the elements
- A suggestion to consider redevelopment of the BP service station site
- Requests to move electricity cables along Princes Highway and King Street under the ground.
- Complaints about the use of Sydney Park by personal trainers
- A request to carry out the same type of interventions on Cleveland Street
- A request to stabilise the Brickworks, which is currently fenced off due to safety concerns.

Response

The St Peters Interchange forms part of the WestConnex Stage 2 (M8 Motorway) project that opened in July 2020 and does not form part of the proposal. As part of the St Peters Interchange works, shared paths through the public parkland being created at the St Peters Interchange will connect to Sydney Park. Cyclists will be able to travel from St Peters Interchange through Sydney Park to the proposed mid-block crossing that would be aligned with the existing entrance to Sydney Park on King Street, facilitating cyclist movement from St Peters Interchange to King Street. Cyclists would be able to travel between the St Peters Interchange and King Street as a result of the proposal, integrating existing green space and cycling tracks.

The demolition of buildings prior to the proposal being constructed is has not been further considered. Similarly, as no changes to the BP service station site are proposed, the redevelopment of this site is outside the scope of this proposal and has not been further considered. Cleveland Street in Surry Hills is also not within the proposal area.

Since the proposal does not require any electricity cables to be relocated, the undergrounding of electricity cables does not form part of the proposal.

The existing uses of Sydney Park are not proposed to be impacted by the proposal and the use of Sydney Park by businesses does not form part of the proposal. As the park is located within the City of Sydney local government area, the administration of Sydney Park is the responsibility of City of Sydney Council.

Works to stabilise the Brickworks buildings and works on Cleveland Street do not form part of the proposal.

3. Response to government agency issues

In addition to the 546 community submissions addressed in **Chapter 2** of this submissions report, Transport for NSW received two government agency submissions.

3.1 Overview of issues raised and advice provided

Two government agency submissions were received in response to the display of the REF, from the City of Sydney Council and the Inner West Council. Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Each submission is outlined verbatim and individual responses have been provided specific to each submission. The issues raised by government agencies and Transport for NSW’s response to these issues forms the basis of this chapter.

The most common issues raised by government agencies are listed in **Table 3-1**.

Table 3-1 Summary of government agency issues

Respondent	Submission number	Issue raised	Section addressed
City of Sydney Council	547	<ul style="list-style-type: none"> Support for the proposal 	Section 3.2.1
		<ul style="list-style-type: none"> Right turn lane from King Street into Sydney Park Road 	Section 3.2.2
		<ul style="list-style-type: none"> Eastbound kerbside lane of Sydney Park Road 	Section 3.2.3
		<ul style="list-style-type: none"> Westbound kerbside lane of Sydney Park Road 	Section 3.2.4
		<ul style="list-style-type: none"> Radius of kerbs at Mitchell Road/Sydney Park Road intersection 	Section 3.2.5
		<ul style="list-style-type: none"> Traffic calming controls on King Street and Sydney Park Road 	Section 3.2.6
		<ul style="list-style-type: none"> Motorway design guide 	Section 3.2.7
		<ul style="list-style-type: none"> Graphic design treatment of road surface at Sydney Park Road/King Street intersection 	Section 3.2.8
		<ul style="list-style-type: none"> Signalised shared crossing on King Street 	Section 3.2.9
		<ul style="list-style-type: none"> Paving treatment at St Peters Square 	Section 3.2.10
		<ul style="list-style-type: none"> Landscaping 	Section 3.2.11
Inner West Council	548	<ul style="list-style-type: none"> Support for the proposal 	Section 3.3.1
		<ul style="list-style-type: none"> Consideration of community and stakeholder feedback 	Section 3.3.2

Respondent	Submission number	Issue raised	Section addressed
		<ul style="list-style-type: none"> Extension of proposal area 	Section 3.3.3
		<ul style="list-style-type: none"> Further traffic impact assessment 	Section 3.3.4
		<ul style="list-style-type: none"> Removal of right turn restriction from May Lane into Goodsell Street 	Section 3.3.5
		<ul style="list-style-type: none"> Shared paths along King Street 	Section 3.3.6
		<ul style="list-style-type: none"> Separation between cyclists and pedestrians 	Section 3.3.7
		<ul style="list-style-type: none"> Renaming of Princes Highway 	Section 3.3.8
		<ul style="list-style-type: none"> Right turn lane from King Street into Sydney Park Road 	Section 3.3.9
		<ul style="list-style-type: none"> Graphic design treatment of road surface at Sydney Park Road/King Street intersection 	Section 3.3.10
		<ul style="list-style-type: none"> Design speed for King Street 	Section 3.3.11
		<ul style="list-style-type: none"> Urban design 	Section 3.3.12
		<ul style="list-style-type: none"> Landscaping 	Section 3.3.13
		<ul style="list-style-type: none"> Non-Aboriginal heritage 	Section 3.3.14
		<ul style="list-style-type: none"> Cumulative construction impacts 	Section 3.3.15
		<ul style="list-style-type: none"> Ownership and maintenance 	Section 3.3.16

3.2 City of Sydney Council

3.2.1 Support for the proposal

Issue description

The Sydney Park Junction proposal represents a key partnership milestone between the City of Sydney Council, Transport for NSW and Inner West Council. City of Sydney Council supports the proposal's key objectives to improve local connectivity through improvements to walking and cycling infrastructure, reduce the number of traffic lanes on King Street, Princes Highway and Sydney Park Road and improve safety through lower speed limits and reduced traffic volumes.

Response

City of Sydney Council's support is noted.

3.2.2 Right turn lane from King Street into Sydney Park Road

Issue description

City of Sydney Council recommends reducing the length of the right turn lane from King Street into Sydney Park Road to discourage eastbound vehicles from using Sydney Park Road.

Council notes that King Street is a State road.

Response

The proposal has been designed to maximise operational traffic performance. A reduction in the length of the right turn lane from King Street into Sydney Park Road would increase vehicle queuing in the through lanes leading up to this intersection, impacting the operational performance of the King Street/Sydney Park Road intersection. As a result, this option has not been further considered.

Council's comment that King Street is a State road is noted.

3.2.3 Eastbound kerbside lane of Sydney Park Road

Issue description

City of Sydney Council recommends modifying the eastbound kerbside lane of Sydney Park Road west of Mitchell Road to allow left turns only and to reduce its length to less than 30 metres and removing the eastbound kerbside departure lane on Sydney Park Road, east of Mitchell Road, to:

- Ensure single lane traffic flow on Sydney Park Road while still providing a left turn
- Discourage through vehicles from driving around vehicles that have stopped to make a right turn into the Sydney Park car park
- Reduce the pedestrian crossing distance on the eastern leg of the intersection and reduce any risks associated with "undertaking" at the pedestrian crossing.

Council notes that Sydney Park Road will be a local road.

Response

Traffic modelling indicates that modifying the eastbound kerbside lane of Sydney Park Road west of Mitchell Road to allow left turns only and to reduce its length to less than 30 metres would impact the efficient operation of the bus bay and reduce the efficiency of vehicle movement on Sydney Park Road, resulting in vehicle queuing. As a result, this modification has not been further considered.

Council's comment that Sydney Park Road will be a local road is noted.

3.2.4 Westbound kerbside lane of Sydney Park Road

Issue description

City of Sydney Council recommends modifying the westbound kerbside lane on Sydney Park Road, east of Mitchell Road, to be left turn only (buses exempt), to:

- Ensure single lane traffic flow on Sydney Park Road
- Reduce risks associated with "undertaking" at pedestrian crossing.

Response

Traffic modelling indicates that modifying the westbound kerbside lane on Sydney Park Road, east of Mitchell Road, to be left turn only (buses exempt) would result in increased vehicle queuing towards Euston Road and would result in impacts to the surrounding road network. While an option to implement this modification was considered, it would require modification of traffic signals to reduce the predicted vehicle queuing, which would negatively impact pedestrian and cyclist movements. As a result, this modification has not been further considered.

3.2.5 Radius of kerbs at Mitchell Road/Sydney Park Road intersection

Issue description

City of Sydney Council recommends reducing the radius of kerbs at the intersection of Sydney Park Road and Mitchell Road to prevent cars from turning at high speeds at the intersection and improve safety for pedestrians and cyclists.

Response

The design of the proposal has reduced the radius of kerbs at the intersection of Sydney Park Road and Mitchell Road as far as practicable while still allowing for buses to turn at this intersection. Further reduction in the kerb radius would restrict bus turning paths. Further reduction would also result in left turning swept paths encroaching those of the right turn out of the Mitchell Road. As a result, this modification has not been further considered.

3.2.6 Traffic calming controls on King Street and Sydney Park Road

Issue description

City of Sydney Council recommends implementing traffic calming controls on King Street and Sydney Park Road to ensure additional safety for pedestrians and cyclists and to discourage vehicles from exceeding the 40 kilometres per hour speed limit. Council is of the view that the design speeds of 60 and 50 kilometres per hour are too high for roads with a 40 kilometres per hour speed limit.

Response

Since the display of the REF, the design has been further refined and the design speeds along King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Sydney Park Road have been reduced to 40 kilometres per hour to match the proposed posted speed limit. Traffic calming measures to discourage vehicles from exceeding this speed limit have been included in the design of the proposal, including the reduction of traffic lanes, mid-block shared crossings, a central median along King Street and additional landscaping.

3.2.7 Motorway design guide

Issue description

City of Sydney Council notes that the Austroads Road Design Guide is more appropriate for motorway design than for local, high pedestrian areas.

Response

The following design guides and policies were considered during the development of the proposal, as described in Section 3.2.1 of the REF:

- Transport for NSW Technical Directions
- Transport for NSW design supplements for the Austroads Road Design Guide
- *Beyond the Pavement 2020* (Transport for NSW, 2020a)
- Australian Standards and Transport for NSW supplements.

Relevant guidelines and policies would continue to be considered throughout further development and construction of the proposal.

3.2.8 Graphic design treatment of road surface at Sydney Park Road/King Street intersection

Issue description

City of Sydney Council recommends reinstating the graphic design on the road surface for the crossings at the intersection of King Street and Sydney Park Road (as shown in the Council Briefing on Sydney Park Junction on 12 July 2021) to improve safety and driver behaviour. Council would like to be consulted on this design.

Response

The application of graphic design on the road surface would be the subject of a separate approval sought by Transport for NSW. City of Sydney Council will be consulted on the design if the approval is sought.

3.2.9 Signalised shared crossing on King Street

Issue description

City of Sydney Council recommends relocating the proposed signalised pedestrian and cyclist crossing on King Street to the south of the Sydney Park car park exit, to reduce conflict between pedestrians, cyclists and vehicles and move the pedestrian and cyclist crossing closer to May Street.

Response

The proposal has been designed so that the new mid-block crossing on King Street between May Street and Goodsell Street would be aligned with the shared path leading to Sydney Park (next to the Sydney Park car park exit) as far as is practicable, to provide direct access Sydney Park for pedestrians and cyclists from the shared crossing.

Since the display of the REF, the design has been refined so that the proposed mid-block crossing on King Street is situated further to the north to reduce potential conflicts between vehicles exiting the car park and traffic departing from the mid-block crossing (refer to **Section 4.1.6** of this submissions report). Relocating the crossing further south would bring the crossing closer to the intersection of May Street and King Street, which would result in the disruption of traffic at this intersection.

3.2.10 Paving treatment at St Peters Square

Issue description

City of Sydney Council recommends coordinating with the St Peters Railway Station works project team to ensure the paving treatment proposed for St Peters Square is extended towards the start of St Peters Station to provide a clear connection from St Peters Station to St Peters Square.

Response

Transport for NSW is currently coordinating with the St Peters Station Upgrade project team, and would continue to do so to ensure that a clear connection is provided from St Peters Station to St Peters Square.

3.2.11 Landscaping

Issue description

City of Sydney Council noted that tree planting has not been included within each of the parking lane garden beds on Sydney Park Road. There are two additional tree planting locations on the southern side of Sydney Park Road between the relocated bus shelter and the existing tree to the west.

Transport for NSW advised that trees are not planted at all locations due to the depth and location of below ground utilities. Council has asked for detail to demonstrate this constraint but has not received any further information.

Council requests that trees are included within each of the parking lane garden beds on Sydney Park Road.

Response

Tree planting would not be carried out at all locations to minimise safety impacts that would result from the restriction of line of sight from vehicles, and to avoid impacts to overhead powerlines and underground utility assets, including high voltage power. Transport for NSW has liaised with utility authorities to maximise tree planting within the proposal area.

Proposed tree planting would reference the City of Sydney's Street Tree Masterplan and the Marrickville Street Tree Masterplan, as described in Section 6.8 of the REF. It is also noted that City of Sydney Council may plant additional trees once the proposal has been completed.

3.3 Inner West Council

3.3.1 Support for the proposal

Issue description

Inner West Council continues to support the objectives of this project.

Response

Inner West Council's support is noted.

3.3.2 Consideration of community and stakeholder feedback

Issue description

Inner West Council sought community comments, specifically from St Peters, Tempe and Sydenham, on the potential impacts of the Sydney Park Junction proposal on local walking, cycling and motor vehicle access between 1 October 2021 to 18 October 2021. From this consultation, Council received 57 written submissions directly via the Your Say Inner West webpage, three comments by phone, 19 written submissions via e-mail, 112 written comments via Facebook and three written submissions as letters. These submissions have been copied in full (without personal details) into the Engagement Outcomes Report included in Council's submission. Council notes that these and other issues were expressed by residents at the Transport for NSW online community information session held on 22 September 2021.

The consultation indicated that one of the main concerns for Inner West residents and business operators is the removal of the right turn from King Street into May Street. The community is concerned that the removal of this right turn would impact access in and around the St Peters Triangle (ie Hutchinson Street, Applebee Street and Lackey Street) by increasing travel times, travel distances and the complexity of journeys, as well as impacting access to Tempe via Unwins Bridge Road and increasing traffic in other streets.

Council requests that comments from the community and Council be carefully assessed and all issues resolved in partnership with Council and the community.

Response

Consequences of the removal of the right turn ban would include:

- Removal of the proposed mid-block shared crossing to the north of May Street
- Removal of landscaping, shared path and community space between May and Goodsell Street
- Removal of the proposed signalised intersection at Barwon Park Road
- Removal of the proposed raised crossing at May Street.

As a result of these consequences, the removal of this restriction has not been further considered.

Due to community concerns raised about the removal of the right turns into and out of May Street, further traffic impact assessment (refer to Appendix C of this submissions report) has been carried out to review the impacts of the removal of the right turns and evaluate changes in access arrangements (eg reversing the one way traffic direction on certain streets) to address these concerns. The methodology and findings of the assessment are presented in **Section 5.1** of this submissions report.

The assessment considered eight different options in access arrangements to St Peters Triangle, including the access arrangements for the current design, to evaluate their potential impacts on accessibility, travel distance and safety. The following modification in access arrangements was found to be the most beneficial for residents within the St Peters Triangle and was recommended as the preferred option:

- Creating a right turn from May Street into Applebee Street, extending the two way section on Applebee Street to the intersection with Hutchinson Street, and reversing the one way traffic directions on Lackey Street and Applebee Street only. The remaining identified one way roads are to be maintained as per the existing direction of traffic flow.

The assessment indicates that travel times to the St Peters Triangle from Newtown and Tempe are expected to remain similar to the existing conditions for both the current design and the preferred option scenarios, as the potential routes to access the area would be generally unchanged. Residents travelling from these locations may also experience improved travel times due to better accessibility within the St Peters Triangle as per the preferred option.

The assessment further indicates that travel times for residents travelling to the St Peters Triangle from Erskineville may increase by up to five minutes during the AM peak period and up to seven minutes during the PM peak period when access arrangements proposed by the current design or the preferred option are implemented. However, when access arrangements proposed by the preferred option are implemented, travel times under the current design would reduce by up to 40 per cent for some journeys (refer to **Section 5.1** of this submissions report).

Transport for NSW will undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network that feeds into Campbell Road and Euston Road. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report. Transport for NSW will continue to engage with stakeholders before implementing this portion of the proposal.

3.3.3 Extension of proposal area

Issue description

Inner West Council recommends that the works be extended to the north to include the Lord Street/King Street intersection, which is the true 'entry' to King Street, as the proposal could significantly improve this space.

Response

While this comment is noted, the suggested work does not form part of the proposal and has not been further considered.

3.3.4 Further traffic impact assessment

Issue description

Inner West Council requests that Transport for NSW carry out a traffic study to assess the traffic issues raised and funds all design and implementation work necessary to resolve the issues, whether they are within or outside the proposal area.

Response

As mentioned above, further traffic impact assessment (refer to Appendix C of this submissions report) has been carried out to review the impacts of the removal of the right turns into and out of May Street and evaluate changes in access arrangements to address concerns raised by Inner West Council and the local community. The methodology and findings of the assessment are presented in **Section 5.1** of this submissions report.

Transport for NSW will also undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network that feeds into Campbell Road and Euston Road. This review will be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 (M8 Motorway) project, in accordance with environmental management measure TT12 in **Table 6-1** of this submissions report.

In accordance with additional environmental management measure TT13 (refer to **Section 6.2** of this submissions report), consultation would be undertaken with Inner West Council to determine the timing of the implementation of these access arrangements.

3.3.5 Removal of right turn restriction from May Lane into Goodsell Street

Issue description

Inner West Council recommends removing the right turn restriction from May Lane northbound into Goodsell Street if the traffic signals at the King Street/May Street intersection are removed. If this is to be implemented, Council would like Transport for NSW to provide background information so it can be assessed by Council's Local Traffic Committee.

Response

Transport for NSW notes Inner West Council's suggestion to remove the right turn restriction from May Lane northbound into Goodsell Street. The suggested option has been considered during further traffic impact assessment carried out for the proposal to improve access into St Peters Triangle (refer to Appendix C of this submissions report and **Section 5.1** of this submissions report). The assessment found that although the suggested option would slightly improve connectivity within St Peters Triangle by providing access from May Lane towards Princes Highway, it would not have any direct impact on accessibility for residents towards St Peters Triangle.

The preferred option for changes in access arrangements to St Peters Triangle are discussed in **Section 5.1** of this submissions report.

Residents within the relevant streets of the St Peters Triangle were informed of the potential changes that would result from the preferred option as described in **Section 5.1.1** of this submissions report. Transport for NSW has considered and would continue to consider all community feedback.

3.3.6 Shared paths along King Street

Issue description

Inner West Council queries whether the widened pedestrian areas to the north of May Street and within St Peters Square would be formal shared paths for pedestrians and cyclists.

Inner West Council recommends considering design options to ensure that cyclists pass through shared zones at low speed. This could include a graphic design treatment of the separated cycleway on King Street as a way of signalling that this is a lower speed environment.

Response

Existing shared paths along the southern side of Sydney Park Road and along the eastern side of King Street would be retained. The shared path along the eastern side of King Street, on both sides of the Sydney Park Road intersection, would be widened as described in Section 3.2.3 of the REF. In addition, the existing footpath along the eastern side of King Street, from the signalised crossing north of May Street to the Sydney Park car park exit, would be reassigned as a shared path, as outlined in Section 3.2.3 of the REF.

Since the display of the REF, the design has been refined and the widened footpath on the western side of King Street between the cycleway and May Street would also be reassigned as a shared path to improve access and connectivity for cyclists (refer to **Section 4.1.7** of this submissions report).

Shared paths are not proposed in other areas along King Street or Princes Highway to encourage use of the cycleways and since some sections of the footpaths do not have adequate widths to be reassigned as shared paths.

Options for graphic design treatments to minimise cyclist speeds are currently being investigated and would be developed further in collaboration with Inner West Council and City of Sydney Council.

3.3.7 Separation between cyclists and pedestrians

Issue description

Inner West Council recommends considering options for maintaining separation between cyclists and pedestrians from May Street through to the northern end of St Peters Square and at all signalised crossings.

Response

King Street between May Street and Lord Street does not have the adequate width to provide separated pedestrian and cycle paths along this section of the road. The provision of a cycleway on King Street between May Street and Lord Street was considered during design development and it was determined that the mid-block crossing between Goodsell Street and May Street would be an ideal location to reintroduce the shared path, as it is expected that some cyclists would diverge from the shared path at this location to access Sydney Park.

3.3.8 Renaming of Princes Highway

Issue description

Inner West Council recommends Princes Highway should be renamed King Street from May Street to Campbell Street to assist with creating a sense of place.

Response

The naming of Princes Highway will continue to be discussed between Transport for NSW, City of Sydney Council, Inner West Council and other relevant stakeholders and agencies.

3.3.9 Right turn lane from King Street into Sydney Park Road

Issue description

Inner West Council recommends reducing the length of the right turn lane from King Street into Sydney Park Road to act as a further disincentive for traffic to use this route and encourage drivers to use the Campbell Road and Euston Road route.

Response

Modelling undertaken indicates that the full length of the proposed right turn lane from King Street into Sydney Park Road is required to prevent queuing on the surrounding State road network.

3.3.10 Graphic design treatment of road surface at Sydney Park Road/King Street intersection

Issue description

Inner West Council recommends a graphic design treatment of the roadway at St Peters Square and the cycleway on King Street, to assist with speed reduction of vehicles and bicycles.

Response

The application of graphic design on the road surface would be the subject of a separate approval sought by Transport for NSW. Inner West Council will be consulted on the design if the approval is sought.

3.3.11 Design speed for King Street

Issue description

Inner West Council recommends the design speed for King Street should be consistent with the proposed 40 kilometres per hour posted speed limit to assist with self-enforcement of speed.

Response

Since the display of the review of the environmental factors, the design has been further refined and the design speed along King Street (south of Lord Street), Princes Highway (north of Campbell Street) and Sydney Park Road has been reduced to 40 kilometres per hour to match the proposed posted speed limit. Traffic calming measure such as the reduction in traffic lanes, a central median, mid-block crossings and additional landscaping have been implemented to discourage vehicles from exceeding this speed limit.

3.3.12 Urban design

Issue description

Inner West Council recommends the Sydney Park Junction designs and treatments should be well integrated with designs and treatments for the St Peters Station Upgrade.

Council requests detailed plans for locations where new development is occurring or will occur along King Street and Princes Highway to ensure the streetscape plans of these new developments are coordinated with the Sydney Park Junction proposal. Council can provide information on relevant locations.

Response

Sydney Park Junction designs and treatments would be well integrated with designs and treatments for the St Peters Station Upgrade (Transport for NSW, 2021b).

Plans for the Sydney Park Junction designs and treatments have been developed in consultation with Inner West Council and have been provided to council where available. Transport for NSW welcomes detailed input from Inner West Council on relevant locations where new developments are being coordinated.

3.3.13 Landscaping

Issue description

Inner West Council acknowledges it is appropriate that tree planting would reference the street tree masterplans of Inner West Council and City of Sydney Council, as stated in the REF. Council requests that detailed landscape plans, including a tree planting layout, be provided to both councils to allow for a full assessment.

Council is of the view that tree planting looks sparse in some areas and grouped in other areas. Council recommends a more even and dense planting regime for the proposal to achieve 'green corridor' status. Council recommends the design should include tree planting on both sides of the Princes Highway at the southern end of the proposal area near Campbell Street.

Council notes that trees recently planted by developers along the Princes Highway in accordance with conditions of approval have been planted in structural soil. Council recommends determining how many of these trees can be incorporated into the design.

Council requests clarification of the method by which soil volumes for the new trees would be calculated, and whether soil vaults would be used to provide adequate soil volumes. Council notes that existing soils across the proposal area are highly compacted, devoid of nutrients and unable to sustain viable healthy trees.

Council recommends water sensitive urban design and passive irrigation measures should be adopted to support the green infrastructure.

Council requests further consultation with Inner West Council and City of Sydney Council to ensure the proposed landscaping designs and plant species would minimise maintenance required by the councils.

Response

Tree planting

The street tree masterplans of Inner West Council and City of Sydney Council have been considered throughout the development of the proposal, and City of Sydney and Inner West Councils have been extensively consulted regarding landscaping. Consultation with both Councils would continue throughout the development and construction of the proposal.

Trees would be retained where practicable, and tree planting would not be carried out at all locations to minimise safety impacts from restriction of line of sight from vehicles, and to avoid impacts to overhead powerlines and underground utility assets, including high voltage power. Street trees would also not be planted where they would impede access to and line of sight from driveways and intersections.

Soil

The volume of soil required for each tree has been calculated by balancing the needs of the street tree masterplans with the restrictions of the design and safety requirements. The dynamic community spaces provided by the proposal would limit the total amount of soil that could be provided laterally. In addition, larger volumes of soil cannot be provided adjacent to the carriageway of the proposal, as this would impact the safety and stability of the carriageway.

The design of the proposal has considered the use of underground root cells where practicable. This would allow deeper soil quantities while minimising road stability issues. Piped drainage would be used to allow water flowing from hard surfaces, including the roadway, the cycle and shared user paths, and footpaths, to be piped into the stormwater network, avoiding soil waterlogging.

Where required, supplemental soil would be transported to the proposal area and used in tree plantings. Supplemental soils would be suitable for planting and would be able to sustain viable healthy trees.

Water sensitive urban design

Water sensitive urban design principles would be incorporated into the landscape design, where possible. As described in the REF, two broad typologies have been identified to date to ameliorate surface water flow:

- Tree pits within areas of hardstand such as pavements
- Rain garden beds, to physically and visually separate blocks of on-street parking on Sydney Park Road.

Consultation

City of Sydney Council and Inner West Council have been extensively consulted regarding landscaping for the proposal. Consultation with both councils would continue throughout the development and construction of the proposal.

3.3.14 Non-Aboriginal heritage

Issue description

Inner West Council has previously noted that the Statement of Heritage Impact did not identify whether any stone kerbs and gutters would be affected by the proposed works. If such stonework is to be affected, consideration should be given to retaining it in-situ in the locations where pedestrian pathways are to be widened to allow for an interpretation of the historic road alignment.

Response

While retention of in-situ stone kerbs and gutters would be considered, this may not be possible without impacting the functionality and drainage of the proposal. If the in-situ stone kerbs and gutters would be removed, Transport for NSW would attempt to retain the integrity of the stonework removed during construction, and return any retained stonework to Inner West Council if requested.

3.3.15 Cumulative construction impacts

Issue description

Inner West Council acknowledges the REF includes an assessment of cumulative construction impacts, and that most works would be undertaken during daytime work hours and according to relevant standards. Nonetheless, Council would like to see an ongoing commitment to minimising impacts given the St Peters community is already fatigued from construction of the WestConnex project and other construction activities.

Response

Transport for NSW would minimise cumulative impacts where practicable to minimise construction fatigue experienced by the St Peters community.

Potential cumulative impacts will be managed by consulting with proponents of other projects prior to construction to ensure all contributors to impacts are working together to minimise adverse impacts or enhance benefits of multiple projects occurring concurrently or consecutively, in accordance with environmental management measure C3 (refer to **Table 6-1** of this submissions report). The Construction Environmental Management Plan will be updated as required to address cumulative impacts as other projects or activities begin, which would include a process to review and update safeguards and management measures as new work begins or if complaints are received (refer to environmental management measure C1 in **Table 6-1** of this submissions report). A Traffic Management Plan will be prepared in consultation with Transport for NSW, City of Sydney Council and Inner West Council to minimise any potential cumulative impacts on traffic and transport (refer to environmental management measure C2 in **Table 6-1** of this submissions report).

3.3.16 Ownership and maintenance

Issue description

Inner West Council requests further consultation about ownership and maintenance responsibilities across the King Street road reserve, with a view to a formal agreement. For the 'dynamic community spaces' this agreement would need to cover funding for purchase, installation and maintenance of the 'parklets' and associated infrastructure.

Response

Draft terms of ownership and maintenance responsibilities are currently being negotiated between Transport for NSW and Inner West Council and City of Sydney Council. When finalised, terms would cover funding for purchase, installation and maintenance of the 'parklets' and associated infrastructure.

4. Changes to the proposal

Transport for NSW displayed the Sydney Park Junction REF from 6 September 2021 until 4 October 2021. Since then, Transport for NSW has refined the proposal design in response to issues raised in public submissions and during design development. These refinements to the proposal are described below.

4.1 Refinements to the proposal in the REF

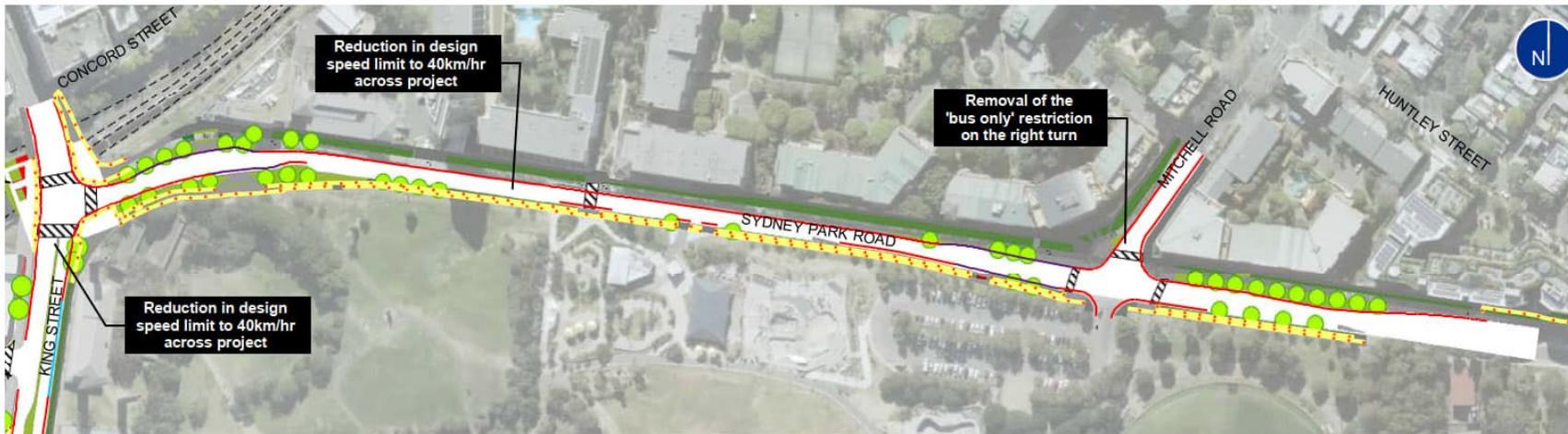
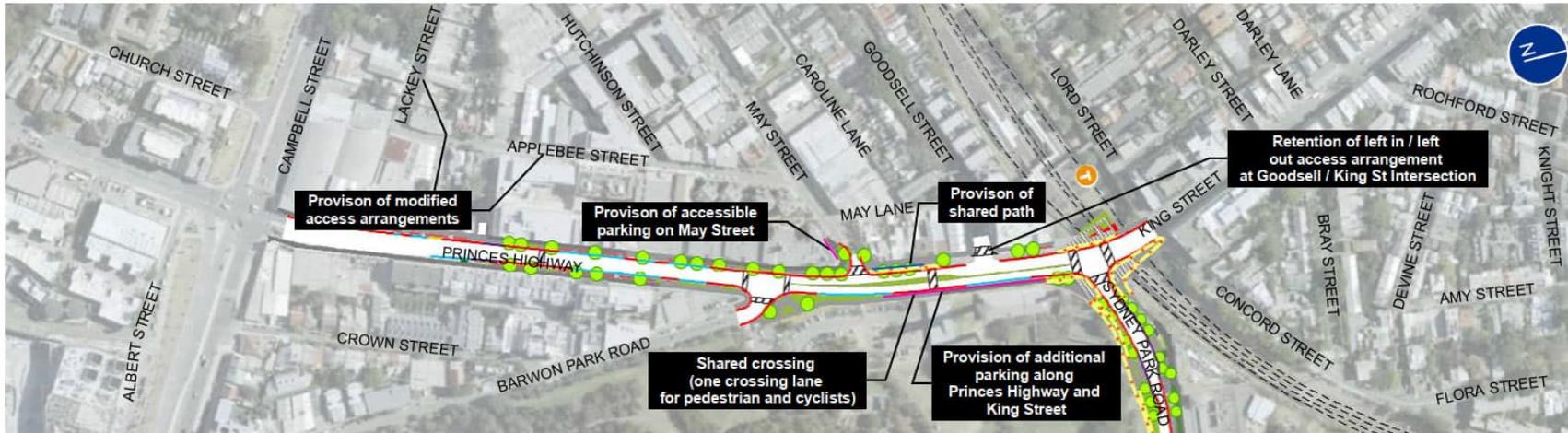
4.1.1 Overview of refinements

The environmental assessment carried out for the REF was based on the detailed design. Since display of the REF further refinements have been made to the final design. These changes to the proposal are minor and do not extend outside of the proposal area assessed in the REF and do not affect the environmental assessment. The design refinements to the final design include:

- Reduction of the design speed limit to match the posted speed limit of 40 kilometres per hour (refer to **Section 4.1.2**)
- Removal of the 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road (refer to **Section 4.1.3**)
- Provision of one accessible parking space on May Street (refer to **Section 4.1.4**)
- The Goodsell Street/King Street intersection would retain its current left in/left out access arrangement and the approach to the intersection would have two traffic lanes (refer to **Section 4.1.5**)
- The new mid-block shared crossing on Princes Highway between May Street and Goodsell Street has been moved further to the north and would be a shared crossing instead of a separated crossing for pedestrians and cyclists (refer to **Section 4.1.6**)
- The existing footpath along the western side of King Street between the cycleway and May Street would be reassigned as a shared path (refer to **Section 4.1.7**)
- An additional 25 car parking spaces would be provided along the southbound carriageway between Sydney Park Road and Barwon Park Road. Off peak 3 hour parking would be permitted and 'Clearway 3pm-7pm' parking restrictions would be installed on the Princes Highway (refer to **Section 4.1.9**)
- The existing pop-up cycleway along Sydney Park Road would remain operational until construction of the proposal
- Creating a right turn from May Street into Applebee Street, reversal of one-way traffic directions on Lackey Street and Applebee Street, with an extension of the two way direction on Applebee Street up to Hutchinson Street to improve access arrangements into the St Peters Triangle for residents (refer to **Section 4.1.10**).

Key refinements to the proposal are shown in **Figure 4-1** below.

Prior to the start of construction, the construction design will be considered for consistency with the determined project (consisting of the REF and this submissions report) and its conclusions.



JACOBS NSW SPATIAL - GIS MAP file : I4218710_KSG_REFSubRep_F003_KeyFeatures_Data1_R1 | 28/02/2022

Legend

- Railway line
- Bus zone
- Parking permitted
- New crossings
- Mail zone
- Proposed shared path
- New tree plantings
- No stopping zone

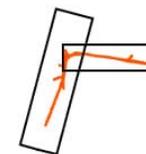


Figure 4-1 | Refinements to the proposal
Sydney Park Junction

4.1.2 Reduction in design speed limit

In the REF, the design speed limit on King Street/Princes Highway is 60 kilometres per hour and the design speed limit on Sydney Park Road is 50 kilometres per hour (refer to Section 3.2.1 of the REF). The proposed posted speed limit on both King Street/Princes Highway and Sydney Park Road is 40 kilometres per hour.

Transport for NSW has reduced the design speed limit on King Street, Princes Highway and Sydney Park Road to 40 kilometres per hour to improve road safety for all road users in the proposal area.

4.1.3 Removal of the 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road

The proposal described in the REF included the reconfiguration of the Mitchell Road approach of the Mitchell Road/Sydney Park Road intersection from one all-movements (through, left and right turn) lane and one right turn lane, to one through and left turn lane, and one right turn lane for buses only (refer to Section 3.2.3 of the REF). Vehicles other than buses would therefore not be allowed to turn right from Mitchell Road into Sydney Park Road.

Due to concerns raised about the impacts of the 'bus only' restriction on the right turn from Mitchell Road into Sydney Park Road on access for the local community, Transport for NSW, in consultation with City of Sydney Council, has removed this restriction. The Mitchell Road approach of the Mitchell Road/Sydney Park Road intersection would therefore be configured from one all-movements (through, left and right turn) lane and one right turn lane to one through/left turn lane and one right turn lane for all vehicles.

4.1.4 The provision of accessible parking on May Street

The proposal as described in the REF did not include the provision of accessible parking spaces. Due to concerns raised about the availability of parking spaces for people with less mobility, the design has been updated to include the provision of one accessible car parking space on May Street, as shown in **Figure 4-1**.

4.1.5 Access arrangements at the Goodsell Street/King Street intersection

The proposal as described in the REF included the narrowing of the approach to the Goodsell Street/King Street intersection from two lanes to provide a centrally located single lane and the removal of the left turn from King Street into Goodsell Street (refer to Section 3.2.3 of the REF).

The proposal has been updated to retain the current left in/left out access arrangement at the Goodsell Street/King Street intersection, including one traffic lane in each direction, to improve access to and from Goodsell Street.

4.1.6 Mid-block crossing on King Street between May Street and Goodsell Street

In the REF, the new mid-block crossing on King Street between May Street and Goodsell Street is located near the existing Sydney Park car park entrance on King Street to align with the shared path leading to Sydney Park and is indicated as a separated crossing for pedestrians and cyclists.

As there is no cycleway on the eastern side of King Street, the mid-block crossing would become a shared crossing (one crossing lane for pedestrians and cyclists) instead of a separated crossing (separate crossing lanes for pedestrians and cyclists).

4.1.7 Shared path along western side of King Street

There are currently no shared paths along the western side of King Street south of Sydney Park Road. With the proposal as described in the REF, cyclists would have to use the road to cycle between May Street and the proposed cycleway on King Street.

The existing footpath along the western side of King Street between the proposed on-road two way cycleway and May Street has been reassigned as a shared path to allow cyclists to cycle off road between the cycleway and May Street and improve safety and connectivity for cyclists. The location of the shared path is shown in **Figure 4-1**.

4.1.8 Pop-up cycleway along Sydney Park Road

On 25 March 2020, the NSW Government introduced the *COVID-19 Legislation Amendment (Emergency Measures) Bill 2020*, which made changes to the *Environmental Planning and Assessment Act 1979*. This allowed the Minister for planning and public spaces to make an order for development to be carried out without normal planning approval. As a result, six temporary pop-up cycleways were installed, including the one along Sydney Park Road. The prescribed period for these temporary planning measures will expire on 31 March 2022.

To facilitate access throughout the construction period, the proposal has been refined to include the retention of the existing pop-up cycleway along Sydney Park Road. These pop-up cycleways would remain operational until construction of the proposal, when they would be replaced by the proposed permanent cycleways.

4.1.9 Additional parking along King Street and Princes Highway

The proposal as described in the REF included the loss of 24 car parking spaces and the provision of nine car parking spaces, resulting in a net loss of 15 parking spaces (refer to Section 3.2.3 of the REF).

Due to concerns raised about the potential impacts of the reduction in parking spaces on residents and businesses along King Street and Princes Highway, the design has been refined to provide additional parking spaces as follows:

- 11 parking spaces along the eastern side of King Street between Sydney Park Road and the proposed mid-block crossing between May Street and Goodsell Street (clearway restrictions to parking would apply)
- 14 parking spaces along the eastern side of King Street and Princes Highway between the Sydney Park car park exit and Barwon Park Road (clearway restrictions to parking would apply).

The location of these additional parking spaces are shown in **Figure 4-1**. Together with the additional accessible parking space that would be provided on May Street (refer to **Section 4.1.4** above), the proposal would therefore result in the provision of 25 parking spaces within the proposal, an overall addition of 11 parking spaces. This would improve access for residents and customers, staff and delivery drivers of businesses.

4.1.10 Extension of one-way traffic directions on Lackey Street and Applebee Street

As described in **Chapter 5** of this submissions report, access arrangements into the St Peters Triangle were reviewed to consider community concerns raised about the removal of the right turns into/out of May Street from/into King Street and Pacific Highway as a result of the proposal.

An options assessment (Jacobs, 2021) identified a preferred option (Option 8) to improve accessibility for residents within the St Peters Triangle, while minimising congestion and changes to travel times. This

option involves extending the one-way traffic directions on Lackey Street and Applebee Street only. The remaining one-way roads would be maintained as per the existing direction of traffic flow.

As a result of these access arrangement, residents would experience improved accessibility travelling towards the St Peters Triangle, with better connectivity from May Street, Hutchinson Street and Short Street. Euston Road, Campbell Street, Short Street and Applebee Street would have increased utilisation, supporting larger volumes of traffic while minimising congestion.

These access arrangements are further described in **Chapter 5** of this submissions report.

5. Environmental assessment

5.1 Traffic and transport

Due to community concerns raised about the removal of the right turns into/out of May Street from/into King Street and Princes Highway, a traffic impact assessment memorandum (Jacobs, 2021) was completed to review the access arrangements into the St Peters Triangle as a result of the proposal. The memorandum is included as Appendix C and a summary of the assessment is provided below.

5.1.1 Summary of additional assessment and consultation

The traffic impact assessment involved an options assessment to review the impact of the proposed access arrangements into St Peters Triangle and to identify additional access arrangements that would address community and stakeholder concerns.

Eight options for access arrangements were identified to improve access to St Peters Triangle (refer to **Table 5-1** below). All options included the removal of the right turns into/out of May Street from/into King Street and Princes Highway as per the current design. Seven of the options (Options 2 to 8 in **Table 5-1** below) included additional changes in access arrangements and one option (Option 1 in **Table 5-1** below) represented the current design with no additional changes in access arrangements.

The assessment focused on accessibility impacts for residents towards St Peters Triangle only, as the impacts on vehicles leaving St Peters Triangle would be minimal. General traffic moving through the St Peters area would remain relatively unaffected by the proposal and have not been investigated.

In accordance with Inner West Council's request to provide background information regarding the removal of right turn restrictions from May Street and Goodsell Street (refer to **Section 3.3.5** of this submissions report) safeguard TT13 has been implemented to commit to consultation with Inner West Council regarding the timing of implementing proposed access arrangements (refer to **Section 6.2** of this submissions report).

Residents within the relevant streets of the St Peters Triangle were informed of the potential changes that would result from the preferred option. A copy of the notification is provided in Appendix A. Following notification, residents had the opportunity to provide feedback. Transport for NSW has considered and would continue to consider all community feedback.

5.1.2 Methodology

Options considered

Eight options were identified to improve access to St Peters Triangle. These options are presented in detail in Appendix C, and are summarised in **Table 5-1**.

Table 5-1 Summary of options considered

Option	Description
Option 1: Current design	This option does not include any modifications to the traffic direction, with the one-way traffic on the identified roads remaining as described in the REF
Option 2: Removal of right turn ban on May Lane	This includes the removal of the right turn ban from May Lane (northbound) onto Goodsell Street (eastbound).

Option	Description
Option 3: New right turn facility on Campbell Street	This option includes a new right turn facility from Campbell Street (northbound) onto Hutchinson Street (Eastbound).
Option 4: One-way traffic directions reversed	This option reverses the one-way traffic directions on Hutchinson Street, Lackey Street, Applebee Street and Council Street.
Option 5: One-way traffic directions reversed (excluding Council Street)	This option reverses the one-way traffic directions on Hutchinson Street, Lackey Street, Applebee Street, maintaining the one-way traffic direction on Council Street as per existing conditions.
Option 6: New right turn facility onto Princes Highway	This option includes the reversed one-way traffic directions included in Option 5, with the addition of a new permittable right turn from Princes Highway (southbound) onto Short Street (westbound).
Option 7: One-way traffic directions converted to two-way	This option converts the one-way traffic direction to two-way on Hutchinson Street, Council Street and May Lane.
Option 8: Extension of two-way traffic on Applebee Street	This option involves extending the one-way traffic directions on Lackey Street and Applebee Street only. The remaining one-way roads would be maintained as per the existing direction of traffic flow.

Options assessment

A qualitative options assessment was undertaken to provide a generalised understanding of the travel distances, accessibility for residents and safety for all road users within and surrounding the St Peters Triangle. Each of the options shown in **Table 5-1** was considered in terms of the accessibility and distance travelled for residences of the St Peters Triangle, and the safety of all road users. The results of this options assessment are shown in **Table 5-2**, with red indicating poor outcomes, yellow indicating moderate outcomes and green indicating preferred outcomes.

From the options assessment, Option 8 was identified as the preferred option that would improve accessibility for residents within the St Peters Triangle, while minimising congestion and changes to travel times and maintaining safety. Option 8 also avoids the potentially negative impacts on commuters identified with the other options and redistributes the residential traffic more effectively, with better accessibility to the St Peters Triangle and minimised impacts on the low volume residential areas.

Table 5-2 Preliminary options assessment

Option	Accessibility	Distance travelled	Safety
Option 1			
Option 2			
Option 3			
Option 4			
Option 5			

Option	Accessibility	Distance travelled	Safety
Option 6			
Option 7			
Option 8			

Modelling

To understand the impacts of the preferred option for residents of the St Peters Triangle in terms of travel time, traffic modelling was carried out for the existing scenario, the current proposal design (Option 1) and the preferred option (Option 8) in 2023 (the assumed year of opening).

Traffic modelling for the assessment was carried out by utilising the transport model (VISSIM) previously developed as part of the traffic and transport assessment for the REF (Appendix C of the REF). The model was updated to include the Bedwin Road/May Street/Unwins Bridge Road/Campbell Street signalised intersection and access intersections at May Lane and the St Peters Triangle. Where available, traffic volumes for the additional intersections were obtained from SCATS (Sydney Coordinated Adaptive Traffic System) signal data received from Transport for NSW. These were further validated using observed data from a site visit undertaken during the AM and PM peak periods on 4 November 2021. Traffic volumes for the remaining sections of the model were kept consistent with previous modelling. Travel time outputs were independently validated against Google travel time data. Residents arriving to the St Peters Triangle were distributed throughout the network as per the existing model.

5.1.3 Potential impacts

Travel times for residents to the St Peters Triangle from Newtown are expected to remain similar to the existing conditions for both the current proposal design (Option 1) and preferred option (Option 8) scenarios, as the potential routes to access the area would be generally unchanged. Similarly, residents arriving from Tempe are expected to not be impacted by the right turn closure, and may potentially benefit from better accessibility within the St Peters Triangle as per the preferred option.

Travel times were modelled for residents arriving from Erskineville to two locations as follows:

- May Lane – provides access to the northern section of the St Peters Triangle
- St Peters Triangle (Hutchinson Street, Short Street and Applebee Street) – assessed based on the likely preferred entry points associated with different travel routes.

The different travel routes from Erskineville to St Peters Triangle that were assessed are shown in Figure 24 to Figure 29 of Appendix C (Traffic and transport impact assessment memorandum) of this submissions report.

The modelled travel times for residents commuting to the St Peters Triangle from Erskineville in the AM and PM peak periods respectively are presented in **Table 5-3**.

Table 5-3 Modelled travel times for residents commuting to the St Peters Triangle from Erskineville

Travel path	Existing access arrangements	Access arrangements described in REF	Modified access arrangements (Option 8)
AM peak			
Euston Road / Mitchell Road to May Lane	2-4 minutes	5-9 minutes	5-9 minutes
Euston Road / Mitchell Road to St Peters Triangle	3-6 mins to Hutchinson Street	7-11 minutes to Hutchinson Street	7-11 minutes to Hutchinson Street 4-7 minutes to Short Street 5-9 minutes to Applebee Street
PM peak			
Euston Road / Mitchell Road to May Lane	2-4 minutes	8-11 minutes	8-11 minutes
Euston Road / Mitchell Road to St Peters Triangle	3-6 minutes to Hutchinson Street	9-12 minutes to Hutchinson Street	9-12 minutes to Hutchinson Street 8-10 minutes to Short Street 8-11 minutes to Applebee Street

The modelling results indicate that the modified access arrangements for the preferred option would be an improvement on the access arrangements as described in the REF to access St Peters Triangle, using the following available routes:

- From Tempe, residents would continue to access the St Peters Triangle as per existing conditions, with no anticipated resulting impacts on travel times. There would be potential for improvement in travel times with the proposed modifications to the one way roads within the St Peters Triangle
- From Newtown, residents would primarily access the St Peters Triangle via Bedwin Road, with minimal expected impacts on travel times. Some residents may experience improvements in travel times due to the provision of access into Applebee Street from May Street (eastbound)
- From Erskineville, residents would primarily access the St Peters Triangle via the upgraded Euston Road and Campbell Street, which would allow residents to travel at higher posted speed limits compared to Princes Highway and Sydney Park Road, while potentially avoiding congestion on these roads. Additionally, some residents arriving from Erskineville are expected to utilise a similar travel route to those from Newtown, commuting through the north of St Peters Station.

In addition, it is important to note that residents requiring access to St Peters Triangle would likely utilise various alternative routes, thereby distributing the increased loading throughout the network rather than one concentrated route.

In summary, the proposed changes in access arrangements are anticipated to result in:

- Improved accessibility for residents travelling towards St Peters Triangle with better connectivity from May Street (eastbound) onto Applebee Street (southbound), as well as the existing entry at Hutchinson Street (eastbound) and Short Street (westbound)
- Increased utilisation of Euston Road and Campbell Street where the upgraded road facilities support larger volumes of traffic, allowing residents to access St Peters Triangle efficiently
- Increased utilisation of Euston Road and Campbell Street to allow residents to travel at higher posted speed limits compared to Princes Highway and Sydney Park Road, while potentially avoiding congestion on these roads. This would reduce impacts on travel times for St Peters Triangle residents under the current proposal design
- Increased utilisation of Short Street and Applebee Street for residents by improving the cyclical movements within the study area
- Residents arriving to the St Peters Triangle from Tempe and Newtown may benefit from improved accessibility.

5.1.4 Safeguards and management measures

To assess the performance of the modifications in access arrangements during operation, environmental management measure TT12 (refer to **Table 6-1** in this submissions report) identified in the REF would continue to be implemented, which involves an operational traffic review to confirm the operational traffic impacts of the proposal.

5.2 Noise

At the time of writing of the REF, noise monitoring was unable to be taken along Sydney Park Road due to technical constraints the noise and vibration assessment presented as Appendix D of the REF adopted the Princes Highway background noise levels for this location. Additional background noise monitoring has since been undertaken along Sydney Park Road, in November and December 2021, to confirm existing noise levels and that the noise and vibration safeguards and management measures described in Section 6.2.5 of the REF are considered adequate to manage noise impacts.

As a result of this additional noise monitoring, the rating background noise levels of Sydney Park Road have been amended. The rating background levels measured at the residential property of Sydney Park Road remained the same during the daytime, decreased by 1 decibel (dB) during the evening and decreased by 5dB during the night-time when compared to the previously adopted noise levels that were measured along Princes Highway (refer to **Table 5-4**).

Table 5-4 Amended measured noise levels at Sydney Park Road

	Measured noise level (dB)					
	Background noise			Average noise		
	Day	Evening	Night	Day	Evening	Night
As used in the REF	54	52	42	70	69	67
As used in this submissions report	54	51	37	66	65	61

This change has not resulted in any changes to the proposed vibration mitigation measures from those described in the REF. Some additional noise mitigation measures, potentially including alternative accommodation, respite periods and individual notifications, briefings and phone calls, would be adopted at locations along Sydney Park Road as further described in Appendix D.

The resulting updated representative background noise levels (RBL) for the proposal area are shown in **Table 5-5**. The noise management levels (NML) derived for the proposal using these updated measured background noise levels at each noise catchment area (NCA) are shown in **Table 5-6**, with NCAs mapped in Appendix D. It is noted that, as there are no residential receivers within NCA06, there are no residential receiver noise management levels for this NCA.

Table 5-5 Updated representative noise background levels

	Measured noise level (dB)					
	Background noise			Average noise		
	Day	Evening	Night	Day	Evening	Night
Princes Highway	54	52	42	70	69	67
Sydney Park Road	54	51	37	66	65	61

Table 5-6 Updated residential receiver noise management levels

NCA	Standard construction (RBL+10dB)		Out of hours (RBL+5dB)		Sleep disturbance (RBL+15dB)
	Day	Day	Evening	Night	
NCA01	64	59	56	42	52
NCA02	64	59	57	47	57
NCA03	64	59	57	47	57
NCA04	64	59	56	42	52
NCA05	64	59	56	42	52
NCA07	64	59	57	47	57

6. Environmental management

The REF for the Sydney Park Junction proposal identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (refer to Section 7 of the REF).

After consideration of the issues raised in the public submissions and changes to the proposal, the safeguard and management measures have been revised. One additional environmental management measure, safeguard TT13, has been implemented to commit to consultation with Inner West Council regarding the timing of implementing proposed access arrangements (refer to **Section 6.2** of this submissions report).

Should the proposal proceed, environmental management will be guided by the framework and measures outlined below.

6.1 Environmental management plans (or system)

A number of safeguards and management measures have been identified in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Construction Environmental Management Plan (CEMP) will be prepared to describe the safeguards and management measures identified. The CEMP will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The CEMP will be prepared prior to construction of the proposal and must be reviewed and certified by by the Transport for NSW Senior Environment & Sustainability Officer, Eastern Harbour & Central River office, prior to the commencement of any on-site works. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in the QA Specification *G36 – Environmental Protection (Management System)*, QA Specification *G38 – Soil and Water Management (Soil and Water Plan)*, QA Specification *G10 – Traffic Management* and QA Specification *R179 – Landscape Planting*.

6.2 Summary of safeguards and management measures

The REF for the Sydney Park Junction proposal identified a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.

After consideration of the issues raised in the public submissions, the environmental management measures for the proposal (refer to Section 7.2 of the REF) have been revised. Should the proposal proceed, the environmental management measures in **Table 6-1** will guide the subsequent phases of the proposal. Additional and/or modified environmental safeguards and management measures to those presented in the REF have been made bold, while deleted measures, or parts of measures, have been struck out.

Table 6-1 Summary of environmental safeguards and management measures

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
General					
GEN1	General - minimise environmental impacts during construction	<p>A CEMP will be prepared and submitted for review and endorsement of the Transport for NSW Environment Manager prior to commencement of the activity.</p> <p>As a minimum, the CEMP will address the following:</p> <ul style="list-style-type: none"> • any requirements associated with statutory approvals • details of how the project will implement the identified safeguards outlined in the REF • issue-specific environmental management plans • roles and responsibilities • communication requirements • induction and training requirements • procedures for monitoring and evaluating environmental performance, and for corrective action • reporting requirements and record-keeping • procedures for emergency and incident management • procedures for audit and review. <p>The endorsed CEMP will be implemented during the undertaking of the activity.</p>	Contractor / Transport for NSW project manager	Pre-construction/ detailed design	<p>Core standard safeguard GEN1</p> <p>Section 3.1 of QA G36 <i>Environment Protection</i></p>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
GEN2	General - notification	All businesses, residential properties and other key stakeholders (e.g. schools, local councils) affected by the activity will be notified at least five days prior to commencement of the activity.	Contractor / Transport for NSW project manager	Pre-construction	Additional standard safeguard GEN2

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
GEN3	General – environmental awareness	<p>All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. This will include up-front site induction and regular ‘toolbox’ style briefings.</p> <p>Site-specific training will be provided to personnel engaged in activities or areas of higher risk. These include:</p> <ul style="list-style-type: none"> • areas of non-Aboriginal heritage sensitivity (including the St Peters Railway Station Group, the Former brickworks Group and adjacent areas of archaeological potential, the former tramways area of archaeological potential, Electricity Substation No. 549, Goodsell Estate Heritage Conservation Area, St Peters Hotel, King Street and Enmore Road Heritage Conservation Area, Former St Peters Theatre Façade, King Street Heritage Conservation Area and Sydney Park AIDS Memorial Groves) and heritage management including unexpected finds • potential contamination (including acid sulfate soils, potential AEI’s identified in this REF) • adjoining residential areas requiring particular noise and vibration management measures • adjoining structures and buildings, including heritage structures and buildings, requiring vibration management measures • dust and air quality management 	Contractor / Transport for NSW project manager	Pre-construction/ detailed design	<p>Core standard safeguard GEN3</p> <p>Section 3.5 of QA G36 <i>Environment Protection</i></p>
GEN4	Utilities	<p>Prior to the commencement of works:</p> <ul style="list-style-type: none"> • The location of existing utilities and relocation details will be confirmed following consultation with the affected utility owners • If the scope or location of proposed utility relocation works falls outside of the assessed proposal scope and footprint, further assessment will be carried out. 	Contractor	Pre-construction/ detailed design	Additional standard safeguard U1

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
Traffic and transport					
TT1	Traffic and transport	<p>Prepare and implement a Traffic Management Plan (TMP) in accordance with the Transport for NSW <i>Traffic Control at Work Sites Manual</i> (RTA, 2010) and <i>QA Specification G10 Traffic Management</i> (Transport for NSW, 2020) as part of the CEMP. The TMP should include:</p> <ul style="list-style-type: none"> • Confirmation of haulage routes • Measures to maintain access to local roads and properties • Site specific traffic control measures (including signage) to manage and regulate traffic movement • Measures to maintain pedestrian and cyclist access • Requirements and methods to consult and inform the local community of impacts on the local road network • Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads • A response plan for any construction traffic incident • Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic <p>Monitoring, review and amendment mechanisms.</p>	Contractor	Pre-construction/ detailed design	Core standard safeguard TT1 Section 2.2 of <i>QA G10 Traffic Management</i>
TT2	Local community notification	<p>Undertake consultation with potentially affected residences prior to the commencement of and during works in accordance with the Transport for NSW's community engagement policy. Consultation should include but not be limited to door knocks, newsletters or letter box drops providing information on the proposal, working hours and a contact name and number for more information or to register complaints.</p>	Transport for NSW	Pre-construction/ construction	Core standard safeguard TT2 Section 2.2 of <i>QA G10 Traffic Management</i>
TT3	Access	<p>Maintain access to properties during construction. Where that is not possible or necessary, provide temporary alternative access arrangements in consultation with affected landowners and the relevant local road authority.</p>	Contractor	Pre-construction/ construction	Additional standard safeguard TT3

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
TT4	Impacts to pedestrians and cyclists	Maintain pedestrian and cyclist access throughout construction. Where that is not possible or necessary, provide temporary alternative access arrangements in consultation with affected landowners and the local road authority.	Contractor	Construction	Additional standard safeguard TT4
TT5	Community information	Provide road users and local communities with timely, accurate, relevant and accessible information about changed traffic arrangements and delays owing to construction activities.	Contractor	Construction	Additional standard safeguard TT5
TT6	Public transport network changes during construction	Maintain access for public transport services. Consult with bus operators, Transport for NSW, the City of Sydney Council and Inner West Council (as relevant) and inform the community of any temporary changes to bus stop operation.	Contractor	Construction	Additional standard safeguard TT6
TT7	General traffic and freight performance during construction	Undertake ongoing consultation with Transport Coordination, City of Sydney Council, Inner West Council, emergency services and bus operators to minimise transport and traffic impacts during construction.	Contractor	Construction	Additional standard safeguard TT7
TT8	General traffic and freight performance during construction	Implement a variable message sign strategy to encourage through and regional traffic to use Euston Road and Campbell Street / Campbell Road instead of Princes Highway and Sydney Park Road.	Contractor	Construction	Additional standard safeguard TT8
TT9	General traffic and freight performance during construction	Minimise construction vehicle movements during peak periods.	Contractor	Construction	Additional standard safeguard TT9
TT10	Safety around construction site accesses	Manage vehicle access to and from construction sites to ensure pedestrian, cyclist and driver safety. This may require manual supervision, physical barriers and / or temporary traffic control.	Contractor	Construction	Additional standard safeguard TT10
TT11	Construction personnel parking	Provide construction personnel parking at compound sites and not on local streets.	Contractor	Construction	Additional standard safeguard TT11
TT12	General traffic and freight performance during operation	Undertake an operational traffic review to confirm the operational traffic impacts of the proposal on the surrounding road network. This review would be undertaken as part of the ongoing post-opening operational traffic review that has been committed to as part of the WestConnex Stage 2 project.	Transport for NSW	Operation	Additional standard safeguard TT12

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
TT13	Traffic and Transport	Consult with Inner West Council regarding the timing of implementing option 8 of the proposed access arrangements into the St Peters Triangle as described in Chapter 5 of the submissions report	Transport for NSW	Pre-construction/ Construction	Additional safeguard TT13
Noise and vibration					
NV1	Noise	Undertake further noise monitoring to confirm existing noise levels within the area of the proposal, to inform the Noise and Vibration Management Plan.	Transport for NSW	Detailed design	Additional safeguard NV1
NV2	Noise and vibration	<p>A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in the Interim <i>Construction Noise Guideline</i> (ICNG) (DECC, 2009) and identify:</p> <ul style="list-style-type: none"> • all potential significant noise and vibration generating activities associated with the activity • feasible and reasonable safeguards and management measures to be implemented, taking into account <i>Beyond the Pavement: urban design policy, process and principles</i> (Roads and Maritime, 2014). • a monitoring program to assess performance against relevant noise and vibration criteria • arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • contingency measures to be implemented in the event of non-compliance with noise and vibration criteria. 	Contractor	Pre-construction/ detailed design	<p>Core safeguard NV2</p> <p>Section 4.6 of QA G36 <i>Environment Protection</i></p>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NV3	Noise and vibration	<p>All sensitive receivers (e.g. schools, local residents) likely to be affected would be notified at least five days prior to commencement of any work associated with the activity that may have an adverse noise or vibration impact. The notification would provide details of:</p> <ul style="list-style-type: none"> • The project • The construction period and construction hours • Contact information for project management staff • Complaint and incident reporting • How to obtain further information. 	Contractor	Pre-construction/ detailed design	Additional safeguard NV3
NV4	Construction hours and scheduling	Where feasible and reasonable, construction will be carried out during the standard daytime working hours and work generating high noise levels will be scheduled during less sensitive time periods.	Contractor	Construction	Additional safeguard NV4
NV5	Construction respite period during normal hours and out of hours	<p>The duration and respite of high noise generating activities will be carried out in accordance with the CNVG, and in consultation with the community.</p> <p>As a guide, high noise generating activities near receivers will be carried out in blocks that do not exceed three hours each, with a minimum respite period of one hour between each block. The duration of each block of work and respite will be flexible to accommodate the usage and amenity at nearby receivers.</p>	Contractor	Pre-construction/ detailed design/ construction	Additional safeguard NV5
NV6	Plant noise levels	<p>The noise levels of plant and equipment will have operating Sound Power or Sound Pressure Levels compliant with the criteria in Appendix F of the CNVG.</p> <p>A noise monitoring audit program will be implemented to ensure equipment remains within the more stringent of the manufacturer's specifications or Appendix F of the CNVG.</p> <p>Only the necessary size and power of equipment will be used.</p>	Contractor	Pre-construction/ detailed design	Additional safeguard NV6
NV7	Equipment selection	<p>Use quieter and less noise emitting construction methods where feasible and reasonable.</p> <p>Ensure plant, including the silencer, is well maintained.</p>	Contractor	Pre-construction/ detailed design	Additional safeguard NV7

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NV8	Use and siting of plant	The offset distance between noisy plant and adjacent sensitive receivers will be maximised. Plant used intermittently will be throttled down or shut down. Noise-emitting plant will be directed away from sensitive receivers. Only have necessary equipment on site.	Contractor	Pre-construction/ detailed design	Additional safeguard NV8
NV9	Plan work sites and activities to minimise noise	Locate compounds away from sensitive receivers and discourage access from local roads where possible. Parking and loading/unloading areas will be planned to minimise reversing movements within the site. Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible. Very noisy activities will be scheduled for normal working hours. If the work cannot be undertaken during the day, it should be completed before 11:00pm where possible.	Contractor	Pre-construction/ detailed design	Additional safeguard NV9
NV10	Non-tonal and ambient sensitive reversing alarms	Non-tonal reversing beepers (or an equivalent mechanism) will be fitted and used on all construction vehicles and mobile plant regularly used on site and for out of hours work. The use of ambient sensitive alarms that adjust output relative to the ambient noise level will be considered.	Contractor	Pre-construction/ detailed design	Additional safeguard NV10
NV11	Additional noise mitigation measures	Where the NML at a receiver is exceeded after the standard mitigation measures listed in Appendix B of the Noise and Vibration Assessment (Appendix D) have been implemented, additional noise mitigation measures as per Appendix C of the CNVG will be considered.	Contractor	Pre-construction/ detailed design	Additional safeguard NV11
NV12	Vibration	Dilapidation surveys should be conducted at all residential and other sensitive receivers (including heritage buildings) identified to be impacted by vibration from the construction site to identify any existing damage and damage due to the construction works.	Contractor	Pre-construction	Core safeguard NV12 Section 4.7 of QA G36 <i>Environment Protection</i>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NV13	Construction vibration	<p>Consider including the following measures into the CVMP to limit construction vibration levels:</p> <ul style="list-style-type: none"> • Use lower vibration generating items of excavation plant and equipment where feasible • Suitably program the hours of operation of major vibration generating plant and equipment • Minimise consecutive work in the same locality • Use dampened rock breakers and/or “city” rock breakers • Undertake attended vibration monitoring where vibration-intensive work is required to be undertaken within the safe working distances • Complete building condition surveys before and after vibration-intensive work to identify existing damage and any damage due to the works schedule and localised geotechnical conditions are known. 	Contractor	Pre-construction/ detailed design	<p>Core safeguard NV13</p> <p>Section 4.7 of QA G36 <i>Environment Protection</i></p>
Non-Aboriginal heritage					
NAH1	Non-Aboriginal heritage	Prepare and implement a Non-Aboriginal Heritage Management Plan (NAHMP) as part of the CEMP. It will provide specific guidance on measures and controls to be implemented to avoid and mitigate impacts to non-Aboriginal heritage.	Contractor	Pre-construction/ detailed design	<p>Core safeguard NAH1</p> <p>Section 4.10 of QA G36 <i>Environment Protection</i></p>
NAH2	St Peters Railway Station Group	Submit a Section 57 Exemption Notification to the Heritage Council of NSW for approval prior to construction for temporary construction activities within the curtilage of the SHR listed 'St Peters Railway Station Group'.	Transport for NSW	Pre-construction/ detailed design	Additional standard safeguard NAH2
NAH3	Areas of archaeological potential associated with the Former Brickworks Group	<ul style="list-style-type: none"> • Apply for a Section 140 Excavation Permit prior to construction for any subsurface disturbances or excavations deeper than 200 millimetres within the footpath area of archaeological potential next to the Former Brickworks Group. 	Contractor	Pre-construction/ detailed design	Additional standard safeguard NAH3

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NAH4	Areas of archaeological potential associated with the Former Brickworks Group	<ul style="list-style-type: none"> For any subsurface disturbances or excavations deeper than 200 millimetres within the footpath area of archaeological potential, undertake archaeological monitoring by an appropriately qualified historical archaeologist in accordance with the Excavation Permit, under the supervision of an historical archaeologist who meets the NSW Heritage Council's Excavation Director criteria. For any ground-disturbance works occurring within the roadway area of archaeological potential associated with the brickworks, ensure that an appropriately qualified historical archaeologist is on call in the advent that any unexpected historical archaeological sites or items are found. The <i>Transport for NSW Standard Management Procedure: Unexpected Heritage Items</i> (Roads and Maritime 2015) should be implemented if any relics are uncovered. The archaeologist that will take undertake archaeological monitoring during the works should prepare a detailed research design and methodology in accordance with <i>Archaeological Assessments: Archaeological Assessment Guidelines</i> (NSW Heritage Office 1996) to support the proposed safeguards and management measures for archaeological investigation. During works, they will monitor, investigate and record all archaeological features and deposits. 	Contractor	Construction	Additional standard safeguard NAH4
NAH5	Tramways area of archaeological potential	<ul style="list-style-type: none"> For any works within the tramways area of archaeological potential, undertake archaeological monitoring by an appropriately qualified historical archaeologist, under the supervision of an historical archaeologist who meets the NSW Heritage Council's Excavation Director criteria. Non-Aboriginal heritage Further, if sandstone kerb and gutters are impacted within the proposal area during construction, they must be properly recorded and reinstated to the original condition post construction. 	Contractor	Construction	Additional standard safeguard NAH5

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NAH6	Non-Aboriginal heritage	Follow the <i>Standard Management Procedure - Unexpected Heritage Items</i> (Roads and Maritime, 2015) in during construction in the event that any unexpected heritage items, archaeological remains, human remains or potential relics of Non-Aboriginal origin are encountered. Work will only re-commence once the requirements of that Procedure have been satisfied.	Contractor	Pre-construction/ detailed design	Core safeguard NAH6 Section 4.10 of QA G36 <i>Environment Protection</i>
NAH7	Site induction	Train all personnel working on site to ensure they are aware of the requirements of the NAHMP and relevant statutory responsibilities. Provide site-specific training to personnel when working in the vicinity of identified non-Aboriginal heritage items.	Contractor	Pre-construction	Additional safeguard NAH7
NAH8	Non-Aboriginal heritage	Consult City of Sydney Council, Inner West Council and Ausgrid prior to construction to ensure any requirements about their heritage assets are identified and incorporated into the proposal.	Transport for NSW	Pre-construction/ detailed design	Additional safeguard NAH8
NAH9	Non-Aboriginal heritage	To prevent inadvertent impacts to significant heritage listed buildings and fabric during construction, implement temporary protection measures such as fencing, delineation of 'no-go' areas or placing visual bunting tape around the following heritage items: <ul style="list-style-type: none"> • Brick walls on either side of rail overbridge of St Peters Railway Station Group • Kilns and chimneys of the Former Brickworks Group • Electricity Substation No. 549 • Awnings and building of St Peters Hotel • Awnings and buildings of King Street and Enmore Road Heritage Conservation Area • Awnings and building of Former St Peters Theatre Façade • Awnings and buildings of King Street Heritage Conservation Area • Sydney Park AIDS Memorial Groves 	Contractor	Pre-construction	Additional safeguard NAH9

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
NAH10	Non-Aboriginal heritage	<p>Choose materials for signage, kerbs, and other road infrastructure that are compatible and complimentary to the surrounding heritage character of the study area.</p> <p>Landscaping elements along King Street and Sydney Park Road should be in keeping with the current industrial landscape of the area. They should not block the following elements of Exceptional heritage significance of the Former Bedford Brickworks Group:</p> <ul style="list-style-type: none"> the views and vistas along King Street and Sydney Park Road the views and vistas to and from Sydney Park. 	Transport for NSW	Pre-construction/ detailed design	Additional safeguard NAH10
NA11	Non-Aboriginal heritage	Further, if sandstone kerb and gutters are impacted within the proposal area during construction, they must be properly recorded and reinstated to the original condition post construction.	Contractor	Construction	Additional safeguard NA11

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
Aboriginal heritage					
AH1	Aboriginal heritage	<p><i>The Standard Management Procedure - Unexpected Heritage Items</i> (Roads and Maritime, 2015) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. This applies where Transport for NSW does not have approval to disturb the object/s or where a specific safeguard for managing the disturbance (apart from the Procedure) is not in place.</p> <p>Work will only re-commence once the requirements of that Procedure have been satisfied.</p>	Contractor	Pre-construction/ detailed design	<p>Core safeguard AH1</p> <p>Section 4.9 of QA G36 <i>Environment Protection</i></p>
Contaminated land					
CL1	Contaminated land – moderate/high risk areas	<p>For areas that have been identified as having a moderate or high contamination impact potential (within and adjacent to Sydney Park at the Service Station at 2 Princes Highway), undertake a further data review.</p> <p>If the additional data review confirms that contamination is likely to have a very low or low impact potential, manage these areas in accordance with the Soil and Water Management Plan. This would typically occur where there is minor, isolated contamination that can be readily remediated through standard construction practices such as excavation and off-site disposal.</p>	Transport for NSW	Pre-construction/ detailed design	Additional safeguard CL1
CL2	Contaminated land	<p>Where data from the additional review (CL1) is insufficient to understand the contamination impacts, undertake a Detailed Site Investigation (Stage 2 assessment) (DSI) in accordance with the NEPM (2013) and other EPA guidelines.</p> <p>The areas requiring Detailed Site Investigation would be confirmed by the additional data review (CL1).</p>	Transport for NSW	Pre-construction/ detailed design	Additional safeguard CL2

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
CL3	Contaminated land	<p>Develop a Contamination Management Plan (CMP) for the area of the construction footprint if data from the additional data review (CL1) or the Detailed Site Investigation (CL2) confirms a moderate to very high potential for contamination impacts. The CMP would detail the management works required to mitigate impacts from contamination throughout and following completion of construction. The CMP would be prepared in accordance with relevant NSW EPA guidelines and where applicable, detail management methodologies in accordance with Australian Standards and other relevant government guidelines and codes of practice.</p> <p>Management would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.</p> <p>The requirements for a CMP would be confirmed following the additional data review (CL1) and Detailed Site Investigation (CL2).</p>	Transport for NSW	Pre-construction/ detailed design	<p>Core standard safeguard CL3</p> <p>Section 4.2 of QA G36 <i>Environment Protection</i></p>
CL4	Contaminated land	Further investigations for waste classification are recommended to obtain thorough data	Contractor	Pre-construction/ detailed design	Additional safeguard CL4

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
CL5	Contaminated land	<p>The Contamination Management Plan (CMP) should be prepared in accordance with the <i>Guideline for the Management of Contamination</i> (Roads and Maritime, 2013) and implemented as part of the CEMP. The plan should include, but not be limited to:</p> <ul style="list-style-type: none"> • Capture and management of any surface runoff contaminated by exposure to the contaminated land • Further investigations required to determine the extent, concentration and type of contamination, as identified in the Detailed Site Investigation (CL2) • Management of the remediation and subsequent validation of the contaminated land, including any certification required • Measures to ensure the safety of site personnel and local communities during construction <p>Ongoing monitoring measures during construction.</p>	Contractor	Pre-construction/ detailed design	<p>Core standard safeguard CL5</p> <p>Section 4.2 of QA G36 <i>Environment Protection</i></p>
CL6	Unexpected finds	<p>If contaminated areas (not previously identified) are encountered during construction, implement appropriate control measures to manage the immediate risks of contamination. Cease all other work that may impact on the contaminated area until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Transport for NSW Environment Manager and/or EPA.</p>	Contractor	Construction	<p>Core standard safeguard CL6</p> <p>Section 4.2 of QA G36 <i>Environment Protection</i></p>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
CL7	Accidental spills	<p>Develop spill management measures in accordance with the <i>Code of Practice for Water Management</i> (RTA, 1999) and relevant EPA guidelines and include the measures in the Soil and Water Management Plan. Measures should include, but not be limited to:</p> <ul style="list-style-type: none"> • Store chemicals and fuels within an impervious bunded area • Protect downstream drains prior to refuelling taking place • Ensure all operators and delivery drivers undertaking refuelling are trained in the site refuelling procedure • All refuelling of vehicles and equipment would be undertaken off site or within an impervious bunded area at the compound site at least 40 metres from drainage lines. Where this cannot occur, mobile fuel trucks should be equipped with a self-bunded tank, spill prevention equipment and spill kits • Requirement for an emergency spill kit to be kept on site at all times and be easily accessible and staff awareness and training in its use <p>Removal of contaminated material (soils, water, clean up materials) offsite by a licensed contractor and disposed of at an appropriately licensed facility.</p>	Contractor	Pre-construction/ detailed design	Core standard safeguard CL7 Section 4.3 of QA G36 <i>Environment Protection</i>
CL8	Removal of excavated material	Classify all waste material excavated and removed from the proposal area in accordance with the NSW <i>Waste Classification Guidelines</i> (EPA, 2004)	Contractor	Construction	Additional safeguard CL8
CL9	Acid Sulfate Soils	<p>Prepare and implement an ASS Management Plan in accordance with the Roads and Maritime Services Guidelines for the Management of Acid Sulfate Materials (RTA, 2005) and the ASSMAC <i>Acid Sulfate Soils Manual</i> (Stone, Ahern & Blunden, 1998) as part of the CEMP for the following works within the eastern portion of Sydney Park Road:</p> <ul style="list-style-type: none"> • any works which extend beyond one metre below the natural ground surface or that could lower the water table beyond one metre below the natural ground surface • any works which could lower the water table below one metre AHD on adjacent Class 3 areas. 	Contractor	Pre-construction	Additional safeguard CL9

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
CL10	Remaining contamination during operation	Information about any areas where contamination remains after construction should be documented in an appropriate form and provided to the relevant council for potential inclusion into the OEMP. This would include areas where the potential for vapour and ground gas emissions remains.	Transport for NSW	Construction	Additional safeguard CL10
Flooding and hydrology					
GW1	Groundwater	Establish dewatering requirements and formulate groundwater protection measures (e.g. protect water quality, minimise aquifer extraction volumes, determine if a licence is required under the <i>Water Management Act 2000</i>) prior to construction. Obtain any dewatering or aquifer interference permits required if the construction groundwater dewatering volume exceeds three megalitres per year.	Contractor	Pre-construction	Additional safeguard GW1
GW2	Groundwater	Prepare a Groundwater Management Plan, which would include information on the groundwater levels, excavation dimensions, the treatment of potentially contaminated groundwater, as well as a Dewatering Sub-plan. The Dewatering Sub-plan would quantify the amount of dewatering required and the method of disposal of dewatered groundwater.	Contractor	Pre-construction	Additional safeguard GW2
GW3	Flooding	Ancillary facility sites should: <ul style="list-style-type: none"> • Include provision of appropriate site drainage requirements to convey overland flows around the sites • Be graded (or facilities erected) to a minimum ground level of 2.7m AHD, which includes an appropriate freeboard (0.5m). 	Contractor	Construction	Additional safeguard GW3
Biodiversity					
B1	Protect native flora and fauna, minimise edge effects and avoid inadvertent impacts	Site-specific training will be given to personnel when working in the vicinity of areas of identified biodiversity value that are to be protected.	Contractor	Construction	Core standard safeguard B1 Section 4.8 of QA G36 <i>Environment Protection</i>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
B2	Minimise risks to native flora and fauna during construction	Consult with an arborist to confirm the depth and extent of existing tree root systems in the vicinity of the works and to advise if the proposed works would cause any harm to the tree roots.	Contractor	Pre-construction/ detailed design	Additional safeguard B2
B3	Minimise risks to native flora and fauna during construction	Protect trees nominated for retention in line with Australian Standard <i>AS 4970-2009 Protection of Trees on Development Sites</i> (Standards Australia, 2010). Exclusion zones will be established in area of construction and ancillary sites and identified in CEMP. Vehicle parking, machinery, construction compounds and material stockpiles will be located in cleared or disturbed areas.	Contractor	Construction	Additional safeguard B3
B4	Fauna handling	<p>Consistent with the <i>Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects</i>, and any specific requirements of the approved Flora and Fauna Management Plan, Implement management arrangements consistent with the <i>Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects</i>, will be implemented to ensure safe fauna handling. As a minimum that will include:</p> <ul style="list-style-type: none"> • Fauna handling being carried out by appropriately licenced ecologists or wildlife carers • Liaison with local animal rescue agency, wildlife carer group or vet to establish agreed arrangements for fauna rescue or injured animal assistance <p>Induction information for construction staff.</p>	Contractor	Construction	Additional safeguard B4

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
B5	Minimise weed, pest species and pathogen risks	<p>Manage Wweed, pest species and pathogen are to be managed in accordance with the <i>Biodiversity Guidelines - Protecting and managing biodiversity on RTA projects</i>, and any specific requirements of the approved Flora and Fauna Management Plan, will be implemented to manage environmental risks associated with weeds, pest species and pathogens. As a minimum that will include:</p> <ul style="list-style-type: none"> Implementation of appropriate weed control methods and weed disposal <p>Implementation of appropriate hygiene protocols where there are potential or known pathogen risks.</p>	Contractor	Construction	Additional safeguard B5
Landscape character and visual impact					
L1	Existing trees	Keep tree removal to a minimum.	Contractor	Pre-construction/ detailed design	<p>Core standard safeguard L1</p> <p>Section 3.3 of QA <i>Specification R179</i></p>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
L2	Tree planting	<p>Proposed tree planting should reference the City of Sydney's Street Tree Masterplan and the Marrickville Street Tree Masterplan.</p> <p>City of Sydney's Street Tree Masterplan identifies the proposal site within the Southern Industrial precinct and proposes the planting of:</p> <ul style="list-style-type: none"> • <i>Lophostemon confertus</i> (Brush Box) • <i>Banksia integrifolia</i> (Coast Banksia) • <i>Angophora costata</i> (Smooth Barked Apple) • <i>Corymbia maculata</i> (Spotted Gum) • <i>Platanus acerifolia</i> (London Plane) • <i>Robinia pseudocacia</i> "Frisia" (Golden Robinia) • <i>Backhousia citriodora</i> (Lemon Scented Myrtle) • <i>Fraxinus pennsylvanica</i> (Green Ash) • <i>Jacaranda mimosifolia</i> (Jacaranda) • <i>Melaleuca quinquenervia</i> (Broad Leaf Paperbark) • <i>Eucalyptus microcorys</i> (Tallowwood) • <i>Eucalyptus sideroxylon</i> (Red Ironbark) <p>The Marrickville Street Tree Masterplan identifies the proposal site within the Sydenham & St Peters precinct and proposes the planting of <i>Lophostemon confertus</i> (Brush Box) along the Princes Highway between Belmore Street and Goodsell Street.</p>	Contractor	Pre-construction/ detailed design	Additional safeguard L2

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
Socio-economic, land use and property					
SE1	Community engagement	<p>Prepare and implement a Communication and Stakeholder Engagement Plan (CSEP) as part of the CEMP to help provide timely and accurate information to the community during construction. The CSEP should include (as a minimum):</p> <ul style="list-style-type: none"> • Mechanisms to provide details, timing and likely impact of proposed activities to affected residents, businesses and the community, including changed traffic and access conditions and interruptions to utility services • Complaints handling procedure, including the contact name and number for complaints. 	Contractor	Pre-construction	<p>Core safeguard SE1</p> <p>Section 3.7 of QA G36 <i>Environment Protection</i></p>
SE2	Community engagement	Notify local residents and potentially affected businesses before the work starts regarding the timing, duration and likely impact of construction activities, including interruptions to utility services.	Contractor	Pre-construction/ Construction	<p>Core safeguard SE2</p> <p>Section 3.7 of QA G36 <i>Environment Protection</i></p>
SE3	Business impacts	Maintain pedestrian and vehicle access to businesses near to construction works for the duration of construction. Where temporary changes are required, these will be identified in consultation with the property owner and business owner.	Contractor	Construction	Additional safeguard SE3
Other impacts					
O1	Topography, geology and soils	Prepare and implement a Soil and Water Management Plan (SWMP) as part of the CEMP. The SWMP should identify all reasonably foreseeable risks relating to soil erosion and water pollution and describe how these risks will be addressed during construction.	Contractor	Pre-construction	<p>Additional safeguard O1</p> <p>Section 2.1 of QA G38 <i>Soil and Water Management</i></p>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
O2	Topography, geology and soils	Prepare and implement a site-specific Erosion and Sediment Control Plan (ESCP) in accordance with the <i>'Blue Book' Managing Urban Stormwater: Soils and Construction</i> (Landcom, 2004) as part of the SWMP. The ESCP should be updated throughout construction so it remains relevant to the activities. The ESCP measures should be implemented prior to commencement of works and maintained throughout construction.	Contractor	Pre-construction	Additional safeguard O2 Section 2.2 of QA G38 <i>Soil and Water Management</i>
O3	Topography, geology and soils	Prepare and implement spoil and fill management measures as part of the CEMP. The CEMP should identify the locations of spoil and fill stockpiles, sources of imported fill, and methods to re-use or dispose of excess or unsuitable spoil material including estimated volumes and disposal sites. Any excess soil or excavated material that cannot be used on site should be classified and managed in accordance with the EPA <i>Waste Classification Guidelines</i> (NSW EPA, 2014) and disposed of at an appropriately licensed waste facility.	Contractor	Pre-construction	Additional safeguard O3
O4	Air quality	Prepare and implement an Air Quality Management Plan (AQMP) as part of the CEMP. The AQMP should include, but not be limited to: <ul style="list-style-type: none"> • a map identifying locations of sensitive receivers • identification of potential risks/impacts due to work/activities • mitigation and suppression measures to be implemented, including a progressive rehabilitation strategy for exposed surfaces. • methods to manage work during strong winds or other adverse weather conditions a process for altering management measures as required	Contractor	Pre-construction/ detailed design	Core standard safeguard O4 Section 4.2 of QA G36 <i>Environment Protection</i>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
O5	Waste and resource use	<p>Prepare and implement a Waste Management Plan (WMP) as part of the CEMP. The WMP should include, but not be limited to:</p> <ul style="list-style-type: none"> • measures to avoid and minimise waste associated with the project • classification of wastes and management options (re-use, recycle, stockpile, disposal) • statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions • procedures for storage, transport and disposal • monitoring, record keeping and reporting. <p>The WMP should be prepared taking into account the <i>Environmental Procedure - Management of Wastes on Roads and Maritime Services Land</i> (Roads and Maritime Services, 2014b) and Transport for NSW Waste Fact Sheets.</p>	Contractor	Pre-construction/ detailed design	<p>Core standard safeguard O5</p> <p>Section 4.2 of QA G36 <i>Environment Protection</i></p>
O6	Existing condition of ancillary sites	<p>Undertake a pre-construction land assessment prior to land being used for ancillary construction purposes (compounds, storage, parking, etc) to identify the presence of any pre-existing wastes or stored materials.</p> <p>The assessment should be prepared in accordance with the Transport for NSW <i>Management of road construction and maintenance wastes</i> (Roads and Maritime Services, 2016).</p>	Contractor	Pre-construction	<p>Core standard safeguard O6</p> <p>Section 4.15 of QA G36 <i>Environment Protection</i></p>
O7	Waste and resource use	<p>Sample and manage waste materials (such as soils and aggregates) generated during the construction of the proposal that would be exported for use on another construction site or project in accordance with relevant resource recovery orders and exemptions as issued by the NSW EPA.</p>	Contractor	Construction	<p>Core standard safeguard O7</p> <p>Section 4.11 of QA G36 <i>Environment Protection</i></p>

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
O8	Utilities	<p>Prior to the commencement of work:</p> <ul style="list-style-type: none"> Confirm the location of existing utilities and relocation details in consultation with the affected utility owners <p>Undertake further assessment if the scope or location of proposed utility relocation work falls outside the assessed proposal scope and footprint</p>	Contractor	Pre-construction/ detailed design	Additional safeguard O8
O9	Hazards and risk management	<p>Prepare and implement a Hazard and Risk Management Plan (HRMP) as part of the CEMP in accordance with relevant guidelines and standards, including relevant Safe Work Australia Codes of Practice, and EPA or NSW Department of Planning, Industry and Environment (DPIE) (DPE) publications. The HRMP should include, but not be limited to:</p> <ul style="list-style-type: none"> Details of hazards and risks associated with the activity Measures to be implemented during construction to minimise these risks Record keeping arrangements, including information on the materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials A monitoring program to assess performance in managing the identified risks Contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations. 	Contractor	Pre-construction/ detailed design	Additional safeguard O9
O10	Hazards and risk management	<p>Manage health and safety risks during construction by implementing standard workplace health and safety requirements. Manage construction sites in accordance with the requirements of the Safe Work Australia, the <i>Work Health and Safety Act 2011</i> and the <i>Work Health and Safety Regulation 2011</i>.</p>	Contractor	Construction	Additional safeguard O10

No	Impact	Environmental safeguards and management measures	Responsibility	Timing	Reference
Cumulative impacts					
C1	Cumulative impacts from construction of multiple projects	Update the CEMP as required to address cumulative impacts as other projects/activities begin. This should include a process to review and update safeguards and management measures as new work begins or if complaints are received.	Contractor	Pre-construction/ construction	Additional Safeguard C1
C2	Cumulative traffic and access impacts	Prepare the Traffic Management Plan in consultation with Transport for NSW and the City of Sydney and Inner West councils.	Contractor	Pre-construction/ construction	Additional Safeguard C2
C3	Cumulative construction impacts	<p>Include consultation with proponents of projects in the vicinity of the proposal in the Communication and Stakeholder Engagement Plan to:</p> <ul style="list-style-type: none"> • Increase awareness of construction timeframes and impacts <p>Coordinate impact mitigation and management (e.g. respite periods).</p>	Transport for NSW	Pre-construction/ construction	Additional Safeguard C3

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Appendix A – Community updates

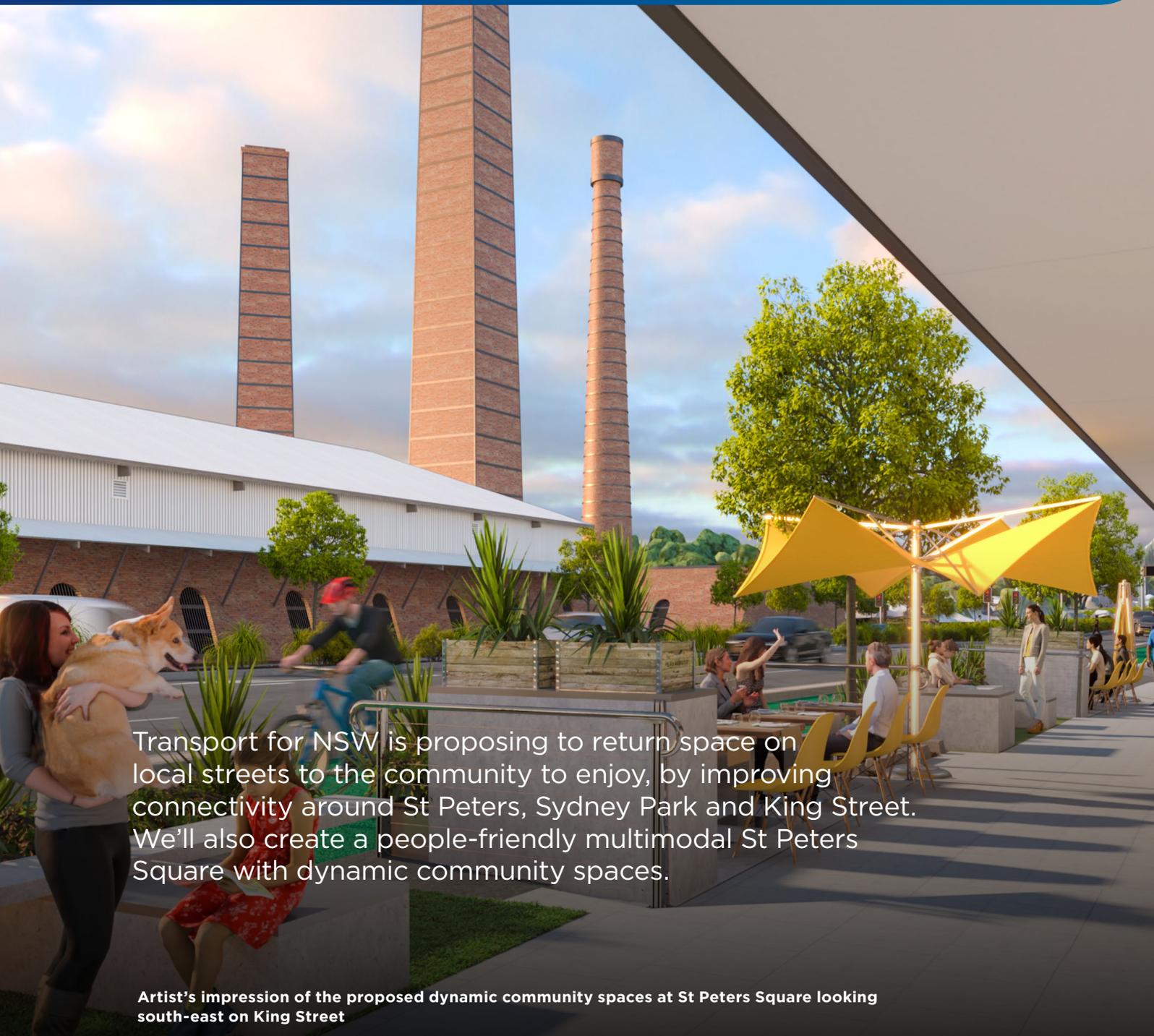


Have your say

Sydney Park Junction

Walking, cycling and public domain improvements

Transport for NSW | September 2021



Transport for NSW is proposing to return space on local streets to the community to enjoy, by improving connectivity around St Peters, Sydney Park and King Street. We'll also create a people-friendly multimodal St Peters Square with dynamic community spaces.

Artist's impression of the proposed dynamic community spaces at St Peters Square looking south-east on King Street



Linking Sydney Park Road cycleway to the broader bike network at Mitchell Road

Thanks for your feedback on Sydney Park Road Pop-Up Cycleway

Transport invited your feedback on the Pop-up Cycleway we installed in July 2020 as an emergency response to COVID-19. We received 400 submissions giving us your ideas in June 2021. That's why Transport is proposing to redesign Sydney Park Road, incorporating the cycleway as part of the Sydney Park Junction project, in collaboration with the City of Sydney and Inner West Council.

Our new proposal addresses your feedback by:

- Removing and replacing the current temporary plastic barriers with concrete separators to make the cycleway safer and separate from people walking and vehicles.
- Extending the cycleway to King Street, Goodsell Street and Mitchell Road, to better connect with Sydney's cycleway network.

With reduced speed limits and traffic, improved landscaping, and better active transport links across the local area - it will improve outcomes for all.

This is a new opportunity to tell us what you think about this comprehensive proposal to bring public space back to the people.



Creating a separated, dedicated and safer Sydney Park Road cycleway using concrete separators

Sydney Park Junction - the proposal

Transport for NSW proposes to improve connectivity at St Peters along the Princes Highway, King Street and Sydney Park Road. A key feature is a people-friendly multimodal St Peters Square with links to St Peters Station, bus stops, dynamic community spaces, Sydney Park's green space and the King Street precinct. We'll be reducing speed limits to 40km/h and adding cycleways and extra pedestrian crossings.



Currently, high traffic and freight volumes on Princes Highway, the southern end of King St and Sydney Park Road, combined with limited crossings for walking and bike riding create an unsafe environment for all road users.

Key features

Transport proposes to improve connectivity, movement and place by:

- Introducing new walking and cycling links on Princes Highway, King Street, Sydney Park Road
- Replacing traffic lanes with space for people to walk and cycle and building dynamic spaces for recreation and entertainment along King Street and Princes Highway
- Reducing speed limits to 40 km/h on Princes Highway between Campbell Street and May Street
- Reducing traffic volumes on Princes Highway, King Street, Sydney Park Road and Mitchell Road by up to 50 per cent by:
 - Redirecting freight vehicles off the Princes Hwy and Sydney Park Rd, to use Campbell Road and Euston Road
 - Reducing lanes from six to four on Princes Highway between Campbell Street and Goodsell Street
 - Reducing lanes from four to two on Sydney Park Road.
- Upgrading bus stops on Sydney Park Road and Princes Highway
- Improving landscaping from Princes Highway to Sydney Park Road through to Euston Road.

The Sydney Park Junction fulfills a planning condition for the M8 Motorway, which required traffic calming, accessibility and cycling initiatives to be implemented. Transport for NSW has taken that further and has collaborated with the Inner West Council and City of Sydney to propose a transformational urban amenity project that will make it easier to walk, cycle and spend time around King Street, Princes Highway and Sydney Park Road.



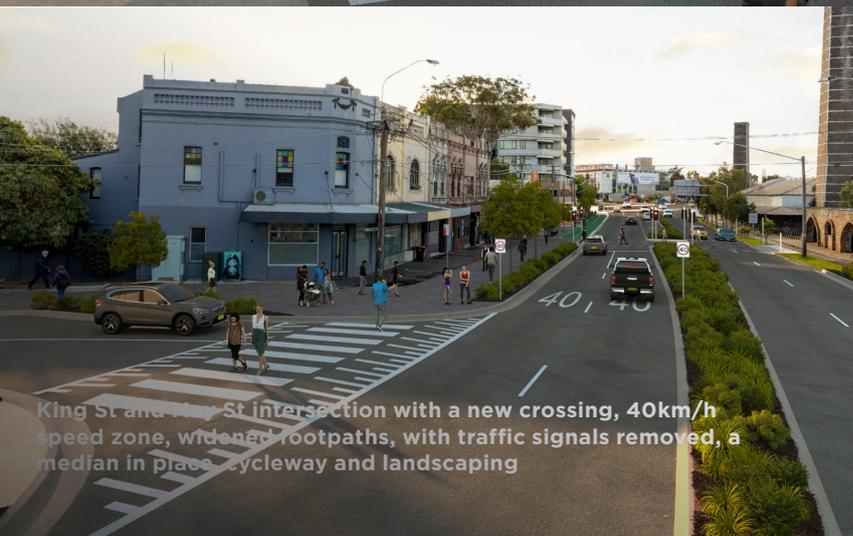
St Peters Square looking south - with new separated cycleways, widened footpaths, dynamic community spaces and landscaping



Barwon Park and King St intersection with new traffic signals, widened footpaths and landscaping



Short St and Princes Highway intersection with a new mid-block crossing, 40 km/h speed zone, and dynamic community spaces



King St and May St intersection with a new crossing, 40km/h speed zone, widened footpaths, with traffic signals removed, a median in place, cycleway and landscaping

Environmental assessment of impacts

Transport has carried out a Review of Environmental Factors (REF) now displayed on our website. The REF describes the Sydney Park Junction proposal and any likely impacts, including those listed below.

Traffic calming

To reduce traffic volumes and improve pedestrian and cyclist safety, Transport proposes to:

- Reroute freight vehicles from Princes Highway and King St to Campbell Road and Euston Road
- Restrict the right turn from Mitchell Road onto Sydney Park Road to buses only
- Remove the right turn into and out of May Street.

Changes to parking

Transport proposes to:

- Increase parking on May Street (nine more parking spaces) and decrease parking on Princes Highway (10 less parking spaces), King St (six less parking spaces) and Sydney Park Road (8 less parking spaces).

Transport aims to increase the overall number of parking spaces as the project progresses if the proposal is approved.

View the REF display and have your say at caportal.com.au/tfnsw/Sydney-Park-Junction

Note: Images on this page are artist's impressions to illustrate the project proposal.

Have your say

The Sydney Park Junction's Review of Environmental Factors is on display until **Monday 4 October 2021**.

If approved, construction on the project is expected to begin in early 2022 and will take up to 20 months to complete.

View Transport's vision to improve connectivity and liveability around St Peters, Sydney Park and King Street. Visit caportal.com.au/tfnsw/Sydney-Park-Junction

Contact us



1800 951 212



ni@transport.nsw.gov.au



nswroads.work/Sydney-Park-Junction



Join us for a Facebook Live information session

Stay COVID-safe and have all your questions answered by our project team on Facebook Live from 15 September 2021.

RSVP ni@transport.nsw.gov.au or watch out for our invites on social media.

Note: All the images in this community update are artist's impressions to illustrate the project proposal.



Translating and Interpreting Service

If you need an interpreter, please call the Translating and Interpreting Service (TIS National) on **131 450** and ask them to telephone Transport for NSW on 1800 951 212.

Arabic

إذا كنتم بحاجة إلى مترجم شفهي، يرجى الاتصال بخدمة الترجمة الخطية والشفهية (TIS National) على الرقم **131 450** واطلبوا منهم الاتصال هاتفياً بوكالة Transport for NSW على الرقم 1800 951 212.

Cantonese

若你需要口譯員，請致電**131 450**，聯絡翻譯口譯服務署 (TIS National)，要求他們致電1800 951 212，聯絡Transport for NSW。

Mandarin

如果你需要口译员，请致电**131 450**，联系翻译口译服务署 (TIS National)，要求他们致电1800 951 212，联系Transport for NSW。

Greek

Αν χρειάζεστε διερμηνέα, παρακαλείστε να τηλεφωνήσετε στην Υπηρεσία Μεταφραστών και Διερμηνέων (TIS National) στο **131 450** και ζητήστε να τηλεφωνήσουν στο Transport for NSW στο 1800 951 212.

Italian

Se hai bisogno di un interprete, chiama il Servizio di traduzione e interpretariato (TIS National) al numero **131 450** e chiedi di telefonare a Transport for NSW al numero 1800 951 212.

Korean

통역사가 필요하시면 통번역서비스 (TIS National)에 **131 450**으로 전화하여 Transport for NSW에 1800 951 212 번으로 전화하도록 요청하십시오.

Vietnamese

Nếu cần thông ngôn viên, xin quý vị gọi cho Dịch vụ Thông Phiên dịch (TIS Toàn quốc) qua số **131 450** và yêu cầu họ gọi cho Transport for NSW qua số 1800 951 212.



September 2021
TfNSW 21.221

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Appendix B – Respondents

Respondent	Submission number	Section number where issues are addressed
Individual	1	2.2.2
Individual	2	2.7.5, 2.7.6
Individual	3	2.7.7
Individual	4	2.7.3
Individual	5	2.3.1, 2.7.4, 2.15.3
Individual	6	2.2.1, 2.2.2, 2.6.1, 2.7.7, 2.7.8, 2.15.1
Individual	7	2.7.3
Individual	8	2.2.1, 2.2.2, 2.3.1, 2.7.3
Individual	9	2.2.2
Individual	10	2.7.4, 2.15.1
Individual	11	2.2.2, 2.5.1
Individual	12	2.2.1, 2.2.2, 2.5.3, 2.6.5, 2.7.6, 2.7.7, 2.15.1
Individual	13	2.2.1, 2.7.3, 2.15.1
Individual	14	2.7.3, 2.7.4, 2.7.8, 2.7.12
Individual	15	2.2.2
Individual	16	2.2.2, 2.7.3, 2.7.4
Individual	17	2.2.1
Individual	18	2.15.5
Individual	19	2.2.1, 2.2.2
Individual	20	2.3.1, 2.5.1, 2.9.1
Individual	21	2.5.1
Individual	22	2.7.4
Individual	23	2.2.1
Individual	24	2.7.4
Individual	25	2.3.1, 2.7.4
Individual	26	2.7.2
Individual	27	2.7.4
Individual	28	2.3.1, 2.7.3, 2.10.1, 2.11.1
Individual	29	Copy of submission 28
Individual	30	2.7.6, 2.8.1, 2.15.3
Individual	31	2.2.2, 2.15.1
Individual	32	2.7.3
Individual	33	2.2.2
Individual	34	2.7.11, 2.15.3
Individual	35	2.2.2

Respondent	Submission number	Section number where issues are addressed
Individual	36	2.2.2, 2.7.6
Individual	37	2.6.1, 2.15.1
Individual	38	2.2.1
Individual	39	2.7.3
Individual	40	Copy of submission 39
Individual	41	Copy of submission 39
Individual	42	2.7.3
Individual	43	2.7.3
Individual	44	2.2.1, 2.8.1
Individual	45	2.2.2, 2.7.3, 2.8.4, 2.11.2, 2.15.5
Individual	46	2.2.1, 2.2.2
Individual	47	2.2.2
Individual	48	2.2.1, 2.2.2
Individual	49	2.2.1, 2.2.2
Individual	50	2.2.2, 2.6.2, 2.6.4, 2.15.2, 2.15.5
Individual	51	2.2.2, 2.7.3, 2.7.6
Individual	52	2.2.1, 2.2.2
Individual	53	2.2.2
Individual	54	2.7.3
Individual	55	2.7.2
Individual	56	2.2.1, 2.6.1, 2.15.1
Individual	57	2.2.2, 2.7.3
Individual	58	2.2.2
Individual	59	2.7.3, 2.15.1
Individual	60	Copy of submission 59
Individual	61	No issues raised
Individual	62	2.2.2, 2.6.1, 2.7.7, 2.15.1
Individual	63	2.7.9
Individual	64	2.2.2, 2.7.7
Individual	65	2.7.3
Individual	66	2.2.2
Individual	67	2.7.3, 2.7.5, 2.7.8, 2.7.10
Individual	68	Copy of submission 67
Individual	69	2.2.2, 2.7.4, 2.7.6, 2.8.2, 2.15.1
Individual	70	2.2.1, 2.7.7

Respondent	Submission number	Section number where issues are addressed
Individual	71	2.2.2, 2.15.1
Individual	72	2.2.2
Individual	73	2.7.3
Individual	74	2.2.1, 2.2.2
Individual	75	2.2.1, 2.7.8, 2.15.2
Individual	76	2.2.2, 2.7.3
Individual	77	2.2.2
Individual	78	2.7.3
Individual	79	2.2.2, 2.15.1
Individual	80	Copy of submission 79
Individual	81	2.2.2, 2.7.3
Individual	82	2.2.1, 2.2.2, 2.8.1, 2.15.1
Individual	83	2.2.2, 2.5.2, 2.8.1, 2.8.2, 2.15.2
Individual	84	2.7.2, 2.7.4
Individual	85	Copy of submission 84
Individual	86	Copy of submission 84
Individual	87	Copy of submission 84
Individual	88	Copy of submission 84
Individual	89	2.2.2, 2.7.7
Individual	90	2.2.2, 2.6.1, 2.7.4
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Individual	93	2.7.3
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Individual	103	2.2.1, 2.7.3
Individual	104	2.2.2, 2.7.6, 2.8.1
Individual	105	2.2.2

Respondent	Submission number	Section number where issues are addressed
Individual	106	2.2.1, 2.2.2, 2.8.2
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Individual	109	2.7.2
Individual	110	2.7.3
Individual	111	2.5.1, 2.5.2, 2.7.9
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Individual	113	2.2.3, 2.7.3, 2.7.8
Individual	114	Copy of submission 113
Individual	115	2.2.1
Individual	116	2.2.2, 2.3.22.6.1, 2.7.4
Individual	117	2.2.2, 2.15.5
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Individual	120	2.2.2, 2.7.2, 2.15.1
Individual	121	Copy of submission 120
Individual	122	2.2.1, 2.7.7
Individual	123	2.2.2, 2.8.1
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Individual	125	2.2.1, 2.2.2
Individual	126	2.2.2
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Individual	130	2.2.2
Individual	131	2.2.1, 2.6.1, 2.7.4
Individual	132	Copy of submission 131
Individual	133	2.7.2
Individual	134	2.2.1, 2.15.1
Individual	135	2.2.1
Individual	136	Copy of submission 135
Individual	137	2.2.1
Individual	138	2.2.2
Individual	139	2.2.2
Individual	140	2.6.2

Respondent	Submission number	Section number where issues are addressed
Individual	141	2.8.2, 2.15.4
Individual	142	2.7.4
Individual	143	2.2.2, 2.7.6, 2.15.1
Individual	144	2.2.2
Individual	145	Copy of submission 144
Individual	146	Copy of submission 144
Individual	147	2.2.2
Individual	148	2.2.1, 2.7.9
Individual	149	Copy of submission 148
Individual	150	2.2.1, 2.2.2
Individual	151	2.2.2, 2.7.2
Individual	152	2.2.2, 2.3.2, 2.15.3
Individual	153	2.2.2, 2.7.7
Individual	154	2.5.1
Individual	155	2.3.1, 2.7.2, 2.7.3, 2.9.1
Individual	156	2.6.2, 2.7.1, 2.7.4, 2.7.5, 2.7.6, 2.7.9, 2.15.1
Individual	157	2.2.1
Individual	158	2.8.2, 2.15.5
Individual	159	2.2.1, 2.7.10
Individual	160	2.2.2
Individual	161	Copy of submission 160
Individual	162	2.7.4, 2.7.6
Individual	163	2.7.9
Individual	164	2.2.2
Individual	165	2.2.2
Individual	166	2.2.1, 2.7.2
Individual	167	2.3.1, 2.7.6, 2.7.7, 2.14.1
Individual	168	2.2.1, 2.7.5
Individual	169	2.7.2
Individual	170	2.2.2
Individual	171	2.7.5
Individual	172	2.7.2, 2.7.8
Individual	173	2.2.2
Individual	174	2.7.2
Individual	175	2.7.2

Respondent	Submission number	Section number where issues are addressed
Individual	176	2.7.2
Individual	177	2.7.2
Individual	178	2.2.1, 2.7.5, 2.7.7, 2.15.1, 2.15.3
Individual	179	2.7.7
Individual	180	2.2.2
Individual	181	2.2.1
Individual	182	2.7.2
Individual	183	2.7.2
Individual	184	2.15.4
Individual	185	2.2.1, 2.7.1
Individual	186	2.2.2
Individual	187	2.2.1, 2.7.3
Individual	188	2.2.2, 2.7.2
Individual	189	2.2.1, 2.7.2
Individual	190	2.2.2
Individual	191	2.2.1, 2.2.2, 2.7.6, 2.8.1
Individual	192	2.2.2, 2.6.1, 2.7.4, 2.8.2
Individual	193	2.2.2, 2.6.1
Individual	194	2.7.2
Individual	195	2.7.2, 2.7.5
Individual	196	2.7.2
Individual	197	2.2.2, 2.7.3
Individual	198	2.2.2, 2.15.2
Individual	199	Copy of submission 198
Individual	200	2.7.2
Individual	201	2.3.1, 2.4.1
Individual	202	2.2.1
Individual	203	2.2.2, 2.6.1, 2.15.1
Individual	204	2.3.1, 2.7.4
Individual	205	Copy of submission 204
Individual	206	2.7.4
Individual	207	Copy of submission 206
Individual	208	2.3.1, 2.7.2, 2.7.4, 2.15.1
Individual	209	2.2.1
Individual	210	2.2.2

Respondent	Submission number	Section number where issues are addressed
Individual	211	2.7.2
Individual	212	Copy of submission 211
Individual	213	2.2.2
Individual	214	2.2.2
Individual	215	2.2.1, 2.7.3, 2.7.9
Individual	216	2.2.1, 2.7.5, 2.7.9, 2.15.3
Individual	217	2.2.2, 2.7.7
Individual	218	2.7.6
Individual	219	2.7.2
Individual	220	2.7.1
Individual	221	No issues raised
Individual	222	2.2.2, 2.5.2, 2.11.2, 2.15.3
Individual	223	2.2.2, 2.7.2, 2.15.2
Individual	224	2.7.3
Individual	225	2.7.3
Individual	226	2.2.1, 2.7.2, 2.7.3, 2.15.3
Individual	227	2.2.2
Individual	228	2.3.1, 2.7.6
Individual	229	2.7.2, 2.7.5, 2.7.6
Individual	230	2.2.1, 2.15.2
Individual	231	2.15.5
Individual	232	2.2.1, 2.7.8
Individual	233	2.2.1, 2.15.2
Individual	234	2.2.2, 2.7.6
Individual	235	2.2.1, 2.7.7
Individual	236	2.2.2, 2.7.2, 2.7.8
Individual	237	2.7.13
Individual	238	2.7.3
Individual	239	2.2.2
Individual	240	Copy of submission 239
Individual	241	2.2.1, 2.7.7
Individual	242	2.7.2, 2.7.7
Individual	243	2.3.1, 2.7.4
Individual	244	2.7.2
Individual	245	2.2.1, 2.7.2

Respondent	Submission number	Section number where issues are addressed
Individual	246	2.2.1, 2.7.2, 2.7.9
Individual	247	2.2.1, 2.7.6
Individual	248	Copy of submission 247
Individual	249	2.7.2, 2.7.9
Individual	250	2.2.2
Individual	251	2.7.2
Individual	252	Copy of submission 251
Individual	253	2.2.2
Individual	254	2.2.1
Individual	255	2.2.2
Individual	256	2.7.2
Individual	257	2.7.7
Individual	258	2.2.1, 2.7.7, 2.15.1
Individual	259	2.2.2, 2.7.7
Individual	260	2.2.1, 2.7.7, 2.8.1
Individual	261	2.2.1
Individual	262	Copy of submission 261
Individual	263	2.2.2, 2.6.1, 2.7.6
Individual	264	2.2.2, 2.7.6, 2.7.8
Individual	265	2.2.2
Individual	266	2.2.1
Individual	267	2.2.1, 2.7.7
Individual	268	2.3.1, 2.7.2, 2.7.3, 2.7.4, 2.7.5, 2.7.8, 2.8.1, 2.8.2, 2.8.3
Individual	269	No issues raised
Individual	270	2.7.2, 2.7.8
Individual	271	2.7.2
Individual	272	2.7.2
Individual	273	2.7.2
Individual	274	2.3.1, 2.3.3, 2.7.2, 2.7.3
Individual	275	2.7.2
Individual	276	2.7.8
Individual	277	2.2.2, 2.3.1, 2.3.3, 2.7.5
Individual	278	2.7.5, 2.9.1
Individual	279	Copy of submission 278
Individual	280	2.7.2

Respondent	Submission number	Section number where issues are addressed
Individual	281	2.7.2, 2.7.8
Individual	282	2.7.2
Individual	283	2.7.2
Individual	284	2.7.2, 2.7.3
Individual	285	2.7.5
Individual	286	2.7.2
Individual	287	2.7.2, 2.7.4
Individual	288	2.2.1, 2.7.2
Individual	289	2.7.2
Individual	290	2.7.2, 2.7.5
Individual	291	2.5.2, 2.7.9
Individual	292	2.2.2
Individual	293	2.7.6
Individual	294	2.6.2, 2.7.6
Individual	295	2.2.1, 2.7.2, 2.15.3
Individual	296	2.7.2
Individual	297	2.7.4, 2.7.8
Individual	298	2.2.1, 2.7.9, 2.8.2
Individual	299	2.3.1, 2.7.2, 2.7.4, 2.9.1
Individual	300	2.2.2, 2.7.2, 2.7.10, 2.8.2
Individual	301	2.2.1, 2.2.2, 2.3.1, 2.3.2, 2.8.2
Individual	302	2.2.2
Individual	303	2.2.1, 2.7.2
Individual	304	Copy of submission 303
Individual	305	2.2.2, 2.6.1, 2.7.6, 2.7.7, 2.15.1
Individual	306	2.2.2, 2.8.1
Individual	307	2.2.2, 2.7.5, 2.15.3
Individual	308	2.2.2, 2.15.2
Individual	309	Copy of submission 308
Individual	310	2.2.1, 2.7.3
Individual	311	2.2.2
Individual	312	2.5.1
Individual	313	2.7.1, 2.7.2, 2.7.8
Individual	314	2.2.2
Individual	315	2.2.2, 2.15.2

Respondent	Submission number	Section number where issues are addressed
Individual	316	Copy of submission 315
Individual	317	2.2.1, 2.7.5
Individual	318	2.7.2
Individual	319	2.7.5, 2.7.7, 2.7.8, 2.7.9, 2.7.10, 2.15.1, 2.15.3, 2.15.5
Individual	320	Copy of submission 319
Individual	321	2.6.2
Individual	322	2.2.2, 2.3.1, 2.5.1, 2.7.5, 2.7.9, 2.9.1
Individual	323	2.2.1, 2.3.1, 2.7.2, 2.7.6, 2.15.1
Individual	324	2.7.3
Individual	325	2.7.6, 2.8.1, 2.8.2, 2.15.2
Individual	326	Copy of submission 325
Individual	327	2.7.2
Individual	328	2.7.6
Individual	329	2.3.1, 2.7.1, 2.7.5, 2.7.11
Individual	330	2.2.1
Individual	331	2.2.1, 2.15.5
Individual	332	2.2.2, 2.7.3, 2.15.1, 2.15.3, 2.15.4
Individual	333	2.7.5, 2.7.6
Individual	334	2.2.2
Individual	335	2.2.1, 2.2.2, 2.6.1, 2.6.2, 2.7.7, 2.7.14, 2.15.3
Individual	336	2.2.2, 2.7.1, 2.7.8
Individual	337	2.2.2, 2.7.2, 2.7.4, 2.7.5, 2.7.6
Individual	338	Copy of submission 337
Individual	339	2.2.2
Individual	340	2.7.2
Individual	341	2.7.11
Individual	342	2.2.1
Individual	343	2.7.2, 2.7.3
Individual	344	2.3.1, 2.5.2, 2.7.1, 2.7.5, 2.7.6, 2.9.1, 2.10.2
Individual	345	2.7.2
Individual	346	2.2.2
Individual	347	2.2.1
Individual	348	2.2.1
Individual	349	2.2.2
Individual	350	2.2.2

Respondent	Submission number	Section number where issues are addressed
Individual	351	2.2.1, 2.7.4
Individual	352	Copy of submission 351
Individual	353	2.2.2
Individual	354	2.7.2
Individual	355	Copy of submission 354
Individual	356	2.2.2, 2.3.1, 2.5.2, 2.15.4
Individual	357	2.7.9
Individual	358	2.2.1, 2.7.2, 2.7.6, 2.15.3
Individual	359	2.15.3
Individual	360	2.7.3
Individual	361	2.2.2, 2.7.5
Individual	362	No issues raised
Individual	363	2.3.1, 2.7.9
Individual	364	Copy of submission 363
Individual	365	2.7.3
Individual	366	Copy of submission 365
Individual	367	2.7.3
Individual	368	2.3.1, 2.7.4
Individual	369	2.3.1, 2.7.4
Individual	370	2.6.2, 2.15.1
Individual	371	2.2.1, 2.8.2
Individual	372	2.9.1
Individual	373	2.7.3
Individual	374	2.7.3
Individual	375	Copy of submission 374
Individual	376	2.7.2, 2.7.8
Individual	377	2.2.2
Individual	378	Copy of submission 377
Individual	379	2.2.2
Individual	380	2.2.2, 2.8.1, 2.15.2
Individual	381	2.5.2, 2.7.6, 2.7.9
Individual	382	Copy of submission 381
Individual	383	2.3.2, 2.7.4, 2.7.6
Individual	384	2.7.12
Individual	385	Copy of submission 384

Respondent	Submission number	Section number where issues are addressed
Individual	386	2.7.5
Individual	387	2.7.3, 2.7.4, 2.13.1
Individual	388	2.7.3
Individual	389	Copy of submission 388
Individual	390	2.7.2, 2.7.3
Individual	391	2.7.3, 2.7.4
Individual	392	Copy of submission 391
Individual	393	2.2.2, 2.8.2, 2.15.3
Individual	394	2.7.2
Individual	395	2.7.5
Individual	396	2.7.4
Individual	397	2.7.3
Individual	398	2.7.2
Individual	399	2.2.1, 2.7.3
Individual	400	2.2.1, 2.2.2, 2.6.1, 2.8.1, 2.11.2, 2.15.3
Individual	401	2.2.2
Individual	402	2.7.3
Individual	403	2.7.3
Individual	404	2.2.2
Individual	405	2.2.2, 2.3.1, 2.7.1, 2.7.2, 2.7.3, 2.7.8, 2.9.1
Individual	406	Copy of submission 405
Individual	407	2.2.2, 2.7.1, 2.7.2, 2.7.3, 2.7.8, 2.7.9, 2.9.1
Individual	408	2.2.1, 2.15.3
Individual	409	2.2.2, 2.4.12.6.1, 2.6.2, 2.6.3, 2.7.4, 2.7.11, 2.8.1, 2.15.3
Individual	410	2.2.1, 2.7.5, 2.7.8
Individual	411	2.2.1, 2.7.2, 2.7.3, 2.7.5, 2.7.8
Individual	412	2.2.2, 2.3.1, 2.7.2, 2.7.3, 2.7.8
Individual	413	2.2.1
Individual	414	Copy of submission 413
Individual	415	2.2.2, 2.8.1
Individual	416	2.3.1, 2.8.1, 2.8.3, 2.9.3, 2.15.4
Individual	417	2.2.2, 2.4.12.6.2, 2.7.7, 2.7.11, 2.15.3
Individual	418	2.2.2, 2.5.1, 2.7.3, 2.7.10
Individual	419	2.2.1, 2.7.5
Individual	420	2.2.2

Respondent	Submission number	Section number where issues are addressed
Individual	421	Copy of submission 407
Individual	422	2.2.2, 2.15.1
Individual	423	2.2.2, 2.7.6, 2.7.7, 2.15.1
Individual	424	2.2.2, 2.7.13, 2.15.3
Individual	425	2.15.2
Individual	426	Copy of submission 425
Individual	427	2.2.2, 2.15.1
Individual	428	2.2.2, 2.8.2
Individual	429	Copy of submission 428
Individual	430	2.7.4
Individual	431	2.2.2
Individual	432	2.2.1, 2.15.2
Individual	433	2.2.2, 2.15.3, 2.15.5
Individual	434	2.7.3
Individual	435	2.2.2
Individual	436	2.7.4, 2.7.9, 2.11.2,
Individual	437	2.2.2
Individual	438	2.2.2
Individual	439	2.2.2, 2.7.2, 2.7.3, 2.7.5, 2.7.12, 2.9.1, 2.15.3
Individual	440	2.2.2, 2.7.2, 2.7.3, 2.7.5, 2.7.12, 2.7.13, 2.9.1, 2.15.3
Individual	441	2.2.2, 2.7.13, 2.15.3
Individual	442	2.2.1, 2.2.2, 2.6.1, 2.7.4, 2.7.6, 2.7.9, 2.7.14, 2.8.1, 2.8.2, 2.14.1
Individual	443	2.7.9, 2.15.3
Individual	444	2.5.1, 2.7.10
Individual	445	2.2.2, 2.7.6, 2.7.7
Individual	446	2.5.1, 2.7.2, 2.7.3, 2.7.4, 2.7.11, 2.9.1
Individual	447	2.2.1, 2.2.2, 2.6.1, 2.7.5, 2.7.6, 2.7.14
Individual	448	2.2.1, 2.2.2, 2.7.8
Individual	449	2.7.2
Individual	450	2.2.2, 2.7.1, 2.7.2, 2.7.3, 2.7.5, 2.7.8, 2.7.10, 2.9.1, 2.9.2, 2.15.2
Individual	451	2.2.2, 2.7.6, 2.7.7, 2.15.3
Individual	452	2.3.2
Individual	453	Copy of submission 452
Individual	454	2.2.1
Individual	455	Copy of submission 454

Respondent	Submission number	Section number where issues are addressed
Individual	456	2.7.4, 2.7.5
Individual	457	2.7.3
Individual	458	2.2.1, 2.2.2
Individual	459	2.3.1, 2.7.2, 2.7.6
Individual	460	2.2.1, 2.7.4
Individual	461	2.2.2, 2.7.6, 2.7.7
Individual	462	2.7.2
Individual	463	2.2.1, 2.7.2
Individual	464	No issues raised
Individual	465	2.7.3
Individual	466	2.7.3
Individual	467	No issues raised
Individual	468	2.8.1, 2.8.2
Individual	469	2.3.1, 2.7.3, 2.7.12
Individual	470	No issues raised
Individual	471	No issues raised
Individual	472	No issues raised
Individual	473	No issues raised
Individual	474	2.7.3
Individual	475	2.2.1, 2.3.2, 2.9.1
Individual	476	2.7.6, 2.12.1
Individual	477	2.2.1
Individual	478	No issues raised
Individual	479	No issues raised
Individual	480	No issues raised
Individual	481	Copy of submission 156
Individual	482	2.7.4, 2.7.5, 2.7.9
Individual	483	No issues raised
Individual	484	2.7.2
Individual	485	2.2.2
Individual	486	No issues raised
Individual	487	No issues raised
Individual	488	2.9.1
Individual	489	2.7.11, 2.11.2
Individual	490	2.7.2, 2.7.6, 2.7.8

Respondent	Submission number	Section number where issues are addressed
Individual	491	No issues raised
Individual	492	2.7.5, 2.7.14
Individual	493	No issues raised
Individual	494	No issues raised
Individual	495	2.5.1, 2.15.5
Individual	496	No issues raised
Individual	497	No issues raised
Individual	498	2.2.2
Individual	499	No issues raised
Individual	500	2.7.2
Individual	501	No issues raised
Individual	502	2.3.2, 2.15.5
Individual	503	No issues raised
Individual	504	2.5.2, 2.7.2
Individual	505	2.2.2, 2.5.2, 2.6.2, 2.7.3, 2.7.5, 2.8.2, 2.9.2, 2.12.1
Individual	506	Copy of submission 489
Individual	507	No issues raised
Individual	508	2.5.1
Individual	509	No issues raised
Individual	510	2.2.1, 2.2.2, 2.4.12.6.1, 2.6.3, 2.7.1, 2.7.4, 2.7.5, 2.7.9, 2.7.11, 2.7.14, 2.10.2
Individual	511	2.2.1, 2.7.2
Individual	512	No issues raised
Individual	513	2.2.2, 2.7.2
Individual	514	2.7.3, 2.7.5
Individual	515	2.5.1
Individual	516	2.2.2, 2.4.1
Individual	517	2.7.3, 2.9.1
Individual	518	2.5.1, 2.9.4
Individual	519	2.5.1
Individual	520	2.2.1, 2.3.1, 2.7.1, 2.7.2, 2.7.3, 2.7.5, 2.7.6, 2.7.9, 2.7.10, 2.7.11, 2.7.13, 2.13.1, 2.15.1
Individual	521	2.2.1, 2.15.5
Individual	522	2.2.2
Individual	523	2.2.1, 2.2.2, 2.7.1, 2.7.3, 2.7.5, 2.7.8, 2.7.9, 2.7.10, 2.7.14, 2.9.1
Individual	524	2.5.1

Respondent	Submission number	Section number where issues are addressed
Individual	525	2.2.2, 2.3.1, 2.3.22.5.1, 2.7.1, 2.7.5, 2.8.1, 2.8.3, 2.15.1
Individual	526	2.2.2, 2.6.1, 2.6.2, 2.15.2
Individual	527	2.7.3, 2.9.1, 2.15.5
Individual	528	2.2.2, 2.7.3, 2.9.4
Individual	529	2.2.1, 2.2.2, 2.3.1, 2.4.1, 2.4.3, 2.4.4, 2.6.1, 2.6.2, 2.6.3, 2.7.1, 2.7.5, 2.7.7, 2.8.2, 2.13.1, 2.15.1
Individual	530	2.2.2, 2.7.3, 2.7.6
Individual	531	2.5.1, 2.7.3, 2.7.8, 2.7.9, 2.7.10, 2.9.1
Individual	532	2.2.2
Individual	533	2.6.2, 2.7.5, 2.7.6, 2.7.10
Individual	534	2.6.2
Individual	535	2.7.3, 2.7.9
Individual	536	2.3.1
Individual	537	2.6.2
Individual	538	2.2.2, 2.7.3
Individual	539	2.2.2, 2.6.1, 2.6.2, 2.7.7, 2.7.13, 2.10.2, 2.15.1, 2.15.3
Individual	540	2.2.2, 2.7.3, 2.7.5, 2.7.14, 2.8.1, 2.15.2, 2.15.3, 2.15.4
Individual	541	2.2.2, 2.7.5
Individual	542	2.3.1, 2.5.1, 2.7.3, 2.7.5, 2.7.9, 2.7.10, 2.9.1, 2.13.1
Individual	543	2.2.1, 2.2.2, 2.4.12.6.1, 2.6.3, 2.7.1, 2.7.4, 2.7.5, 2.7.9, 2.7.11, 2.7.14, 2.8.1, 2.10.2, 2.15.2, 2.15.5
Individual	544	2.7.1, 2.7.3, 2.7.5, 2.7.8, 2.7.10, 2.7.14, 2.9.1
Individual	545	2.3.1, 2.3.3, 2.5.2, 2.6.1, 2.7.2, 2.7.4, 2.7.6, 2.7.9, 2.8.1
BP Service Station	546	2.2.2, 2.6.2, 2.7.8, 2.8.2
City of Sydney Council	547	3.2
Inner West Council	548	3.3

Appendix C – Traffic impact assessment memorandum

Subject Traffic Assessment – Access to St Peters Triangle
Project Name Sydney Program Alliance (SPA – WP10) **Date** 26/11/2021

1. Introduction

1.1 Purpose of this Memorandum

The Sydney Park Junction project is being implemented in response to the redistribution of traffic following the opening of WestConnex Stage 2 (New M5). The project is aimed at improving the network connectivity and amenities surrounding Sydney Park, which includes reducing traffic volumes along Princes Highway between Campbell Street and Sydney Park Road.

The purpose of this Memorandum is to review the impacts of the new access arrangements into the St Peters Triangle as a result of the Sydney Park Junction project. This includes addressing stakeholder key issues and concerns, in particular **a)** access to residential properties on Hutchinson Street, Lackey Street, and Applebee Street, and **b)** changes to vehicle routes to and from the St Peters Triangle.

The project proposes to remove the traffic signals at the May Street / Princes Highway intersection, and continue the median through the intersection, allowing for a left-in / left-out treatment. See Figure 1 below.



Figure 1: May Street and Princes Highway new intersection arrangement.

2. Traffic Assessment Options

To understand the potential impacts of the project on the St Peters Triangle, eight options were identified. All options include the removal of the right turn from Princes Highway (southbound) onto May Street (westbound) as per the current design.

The key changes explored in this section involve the reversal of the one-way traffic direction on Hutchinson Street, Lackey Street, Applebee Street, and Council Street. These are identified in Figure 2, depicting the existing direction of one-way traffic flow.



Figure 2: The St Peters Triangle, including the existing traffic direction on the identified one-way roads.

Option 1 to Option 3 examine traffic movements if these one-way roads remain in their current state, whilst Option 4 to Option 8 explore reversing the one-way traffic direction.

The assessments are focused on accessibility impacts for residents towards the St Peters Triangle only, as the impacts on vehicles leaving will be minimal. Additionally, general traffic moving throughout the St Peters area will remain relatively unaffected by the project and are not explored in this section.

A summary of the options has been provided in Table 1.

Table 1. Summary of options explored for the St Peters Triangle.

Option	Description
1 – Current Design	Intended current design, with no additional network modifications. One-way traffic direction on Hutchinson Street, Lackey Street, Applebee Street, and Council Street remain as per existing.
2 – Removal of Right Turn Ban on May Lane	Extension of the current design with the removal of the right turn ban from May Lane (northbound) onto Goodsell Street (eastbound). One-way traffic direction on Hutchinson Street, Lackey Street, Applebee Street, and Council Street remain as per existing.

Option	Description
3 – New Right Turn Facility on Campbell Street	Extension of the current design with a new right turn from Campbell Street (northbound) onto Hutchinson Street (eastbound). One-way traffic direction on Hutchinson Street, Lackey Street, Applebee Street, and Council Street remain as per existing.
4 – One-Way Traffic Directions Reversed	One-way traffic direction on Hutchinson Street, Lackey Street, Applebee Street, and Council Street reversed.
5 – One-Way Traffic Directions Reversed (Excluding Council Street)	One-way traffic direction on Hutchinson Street, Lackey Street, and Applebee Street reversed. Existing traffic direction on Council Street maintained.
6 – New Right Turn Facility on Princes Highway	New right turn from Princes Highway (southbound) onto Short Street (westbound). One-way traffic direction on Hutchinson Street, Lackey Street, Applebee Street, and Council Street reversed.
7 – One-Way Traffic Directions Converted to Two-Way	One-way traffic direction on Hutchinson Street, Council Street, and May Lane converted to two-way.
8 – Extension of Two-Way Traffic on Applebee Street	Extension of the two-way section of Applebee Street. One-way traffic direction on Hutchinson Street, Council Street, and May Lane remain as per existing. One-way traffic direction on Lackey Street and Applebee Street reversed.

2.1 Option 1 – Current Design

This option does not include any modifications to the traffic direction, with the one-way traffic on the identified roads remaining as per existing conditions. The anticipated vehicle movements are presented in Figure 3 and the key impacts are summarised below.

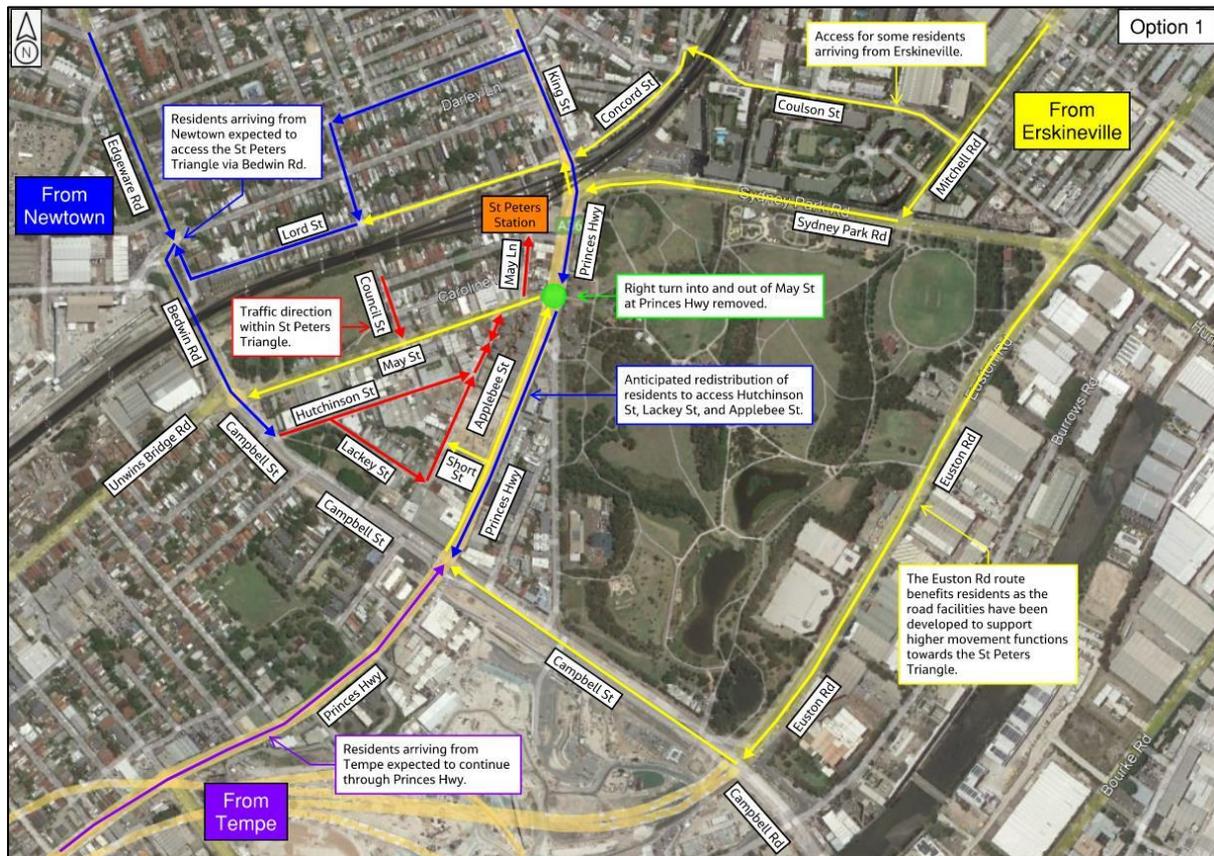


Figure 3: Traffic assessment of Option 1.

- Due to the removal of the right turn from Princes Highway (southbound) onto May Street (westbound), residents may be redistributed towards the western side of the St Peter's Triangle as this will become the most direct point of access onto Hutchinson Street.
- Whilst the volume of vehicles utilising the left turn manoeuvre from Campbell Street (southbound) onto Hutchinson Street (eastbound) will remain unchanged, some residents accessing this movement via May Street (westbound) under the existing conditions will be redistributed through adjusted travel paths.
- Potential for traffic originating from Newtown to detour through the low-volume residential area north of St Peter's Station, identified by the pink hatch in Figure 4. These vehicles will travel southbound along Campbell Street via Bedwin Road to access the St Peter's Triangle from Hutchinson Street.



Figure 4: Additional traffic expected in the identified low-volume residential area.

- Residents accessing the St Peters Triangle from Tempe are expected to not be affected with this option as vehicles can continue to access from Princes Highway.
- As Erskineville is situated north-east of the St Peters Triangle, some residents arriving from this region may utilise Sydney Park Road and Coulson Street. They may follow a similar path to vehicles from Newtown via the residential roads north of St Peters Station.
- It is expected that residents accessing the St Peters Triangle from Erskineville will also utilise an alternative route via Euston Road. This may be preferred by commuters in lieu of Princes Highway and Sydney Park Road due to reduced congestion and the higher posted speed limit (i.e. 60km/h along Euston Road compared to 40km/h along a segment of Princes Highway / King Street and 40km/h along a segment of Sydney Park Road). Euston Road has been developed with the necessary facilities to cater for a high volume of vehicles turning onto Campbell Street (westbound), with three right-turning lanes. This is expected to provide efficient access for residents towards the St Peters Triangle.
- The alternative routes to access the St Peters Triangle may experience changed travel times. Commuters originating from Erskineville and utilising the Euston Road route may experience increased travel times and longer waiting times at signalised intersections. However, the higher posted speed limit along Euston Road compared to the existing route via Princes Highway may minimise or even improve the impacts on travel time of this detour.
- It is expected that some additional residents will perform left turn movements from Princes Highway (northbound) onto Short Street (westbound) and May Street (westbound). This will include vehicles originating from Erskineville and Tempe.
- Due to the detour routes for residents towards the St Peters Triangle, there will be slightly increased volumes along Campbell Street between Euston Road and May Street. Small increases in volumes are also expected on Princes Highway (northbound) between Campbell Street and May Street, as well as the residential area north of St Peters Station.

2.2 Option 2 – Removal of Right Turn Ban on May Lane

Option 2 is identical to Option 1, but also includes the removal of the right turn ban from May Lane (northbound) onto Goodsell Street (eastbound), shown in Figure 5. The removal of this ban would slightly improve connectivity for commuters within the St Peters Triangle by providing access from May Lane towards Princes Highway. This option would improve connectivity for the one-way roads, although would not have any direct impact on accessibility for residents towards the St Peters Triangle as a solution for the removal of the right turn from Princes Highway (southbound) onto May Street (westbound).

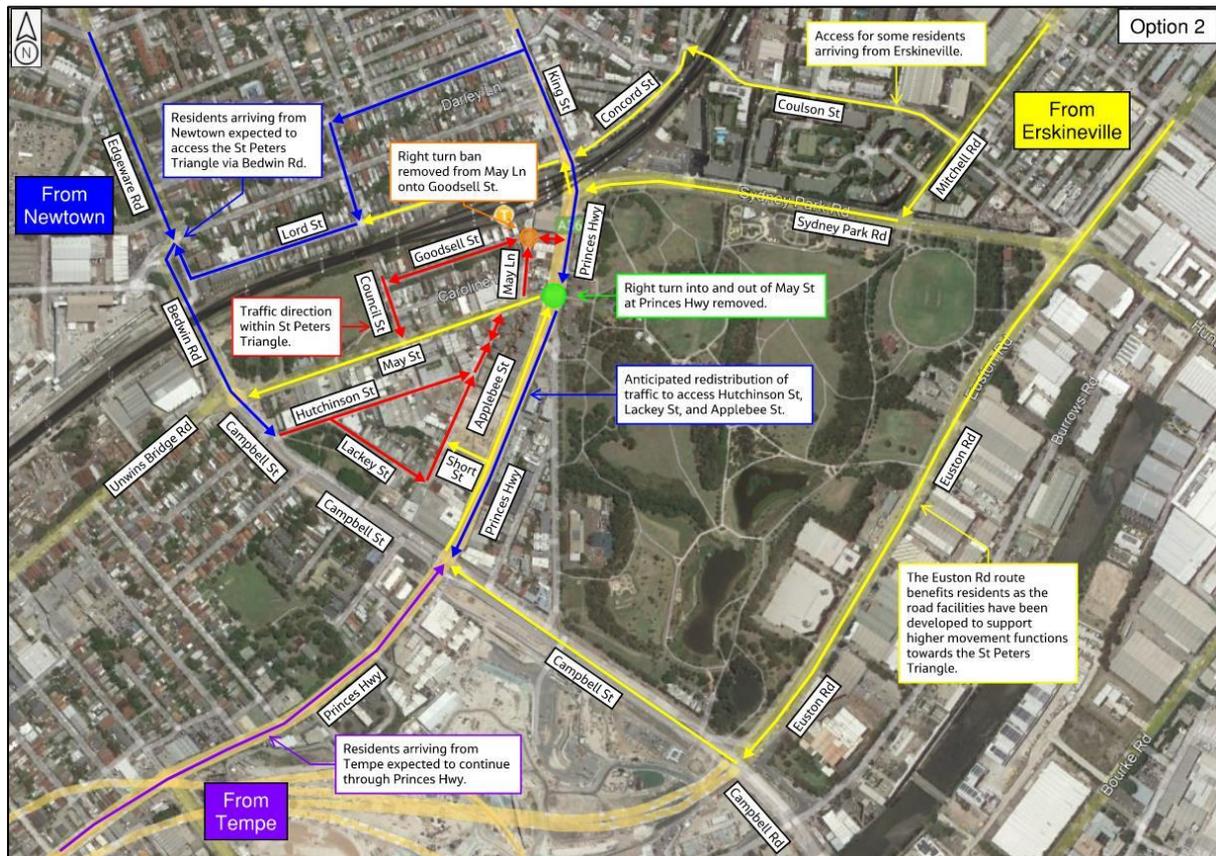


Figure 5: Traffic assessment of Option 2.

2.3 Option 3 – New Right Turn Facility on Campbell Street

Similar to Option 1, this option does not include any modifications to the traffic direction, with the one-way traffic on the identified roads remaining as per existing conditions. However, it does include a new right turn facility from Campbell Street (northbound) onto Hutchinson Street (eastbound). The addition of the new right turn facility is anticipated to assist residents accessing the St Peters Triangle and minimise the additional traffic volumes to the north of St Peters Station as described in Option 1. This option is further summarised in Figure 6 and as follows.

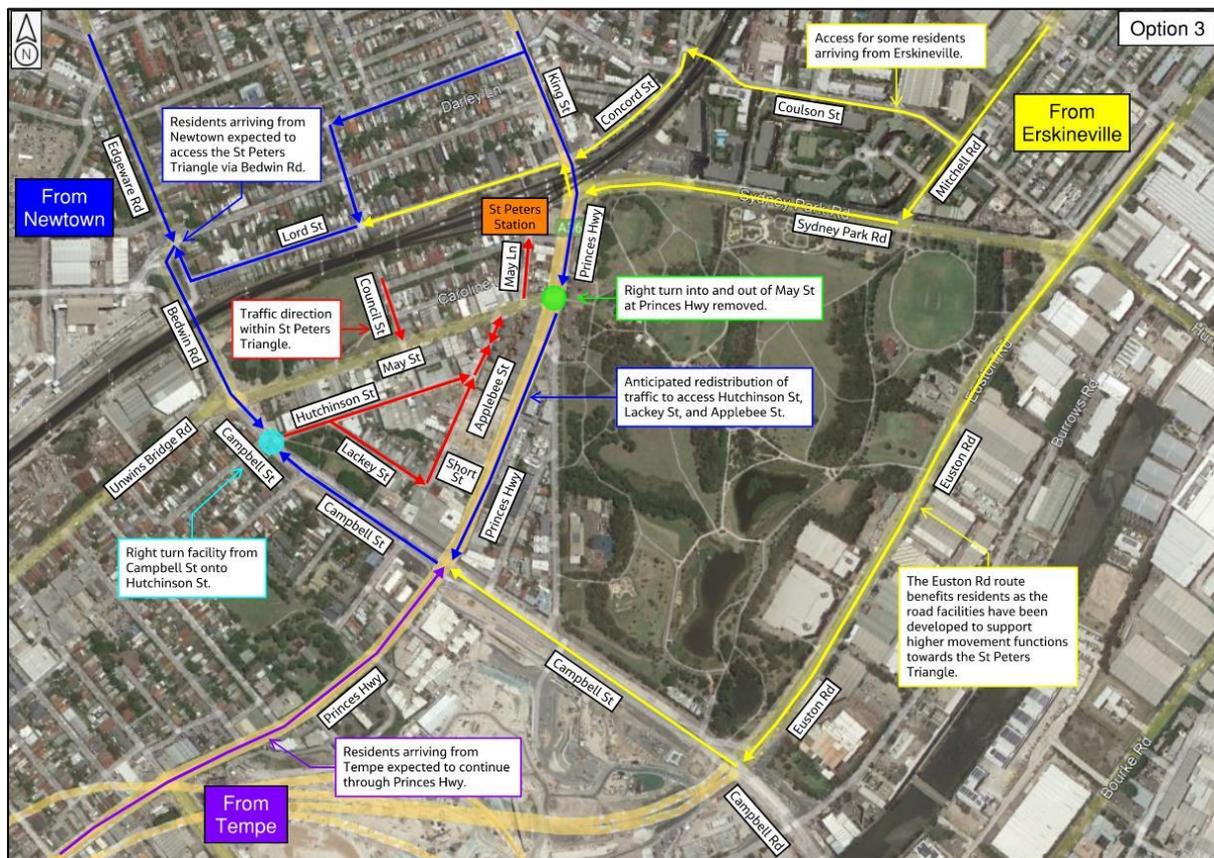


Figure 6: Traffic assessment of Option 3.

- Due to the removal of the right turn from Princes Highway (southbound) onto May Street (westbound), residents may be redistributed towards the western side of the St Peters Triangle as this will become the most direct point of access onto Hutchinson Street.
- The addition of the right turn facility is expected to improve accessibility for residents. Without this facility, residents accessing Hutchinson Street, Lackey Street, and Applebee Street from Campbell Street can do so in the southbound direction only. Figure 7 depicts the current turning movement onto Hutchinson Street from Campbell Street, as well as the proposed new right turn facility. The addition of this right turn will avoid additional traffic through the residential area north of St Peters Station, whilst improving accessibility for residents of the St Peters Triangle.

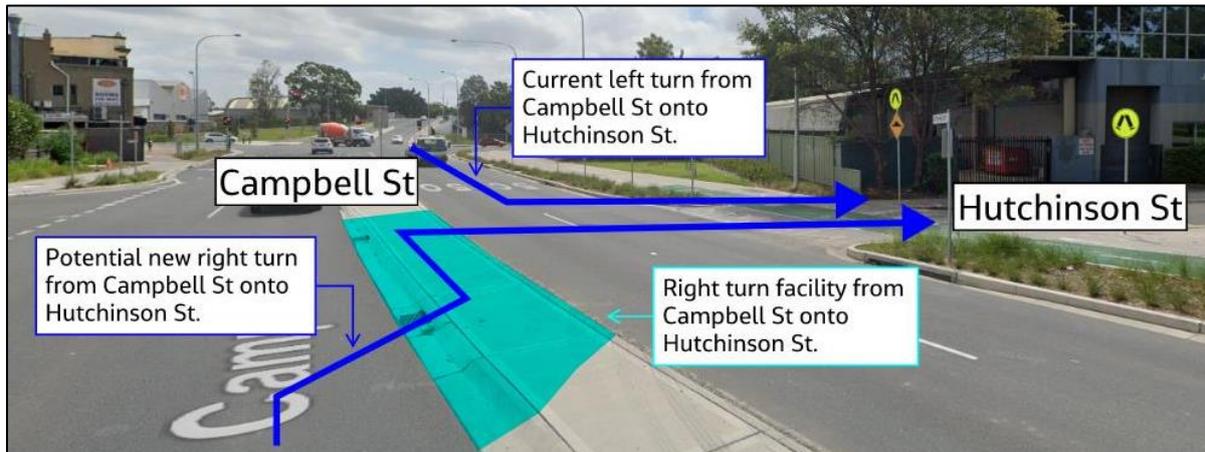


Figure 7: Proposed new right turn facility from Campbell Street onto Hutchinson Street.

- Potential for traffic originating from Newtown to detour through the low-volume residential area north of St Peters Station. These vehicles will travel southbound along Campbell Street via Bedwin Road to access the St Peters Triangle from Hutchinson Street.
- Residents commuting to the St Peters Triangle from Tempe may benefit from this option, with the right turn facility on Campbell Street providing an alternative and more direct point of access. Vehicles will also continue to access the St Peters Triangle from Princes Highway.
- As Erskineville is situated north-east of the St Peters Triangle, some residents arriving from this region may utilise Sydney Park Road and Coulson Street. They may follow a similar path to vehicles from Newtown via the residential roads north of St Peters Station.
- It is expected that residents accessing the St Peters Triangle from Erskineville will also utilise an alternative route via Euston Road. This may be preferred by commuters in lieu of Princes Highway and Sydney Park Road due to reduced congestion and the higher posted speed limit (i.e. 60km/h along Euston Road compared to 40km/h along a segment of Princes Highway / King Street and 40km/h along a segment of Sydney Park Road). Euston Road has been developed with the necessary facilities to cater for a high volume of vehicles turning onto Campbell Street (westbound), with three right-turning lanes. This is expected to provide efficient access for residents towards the St Peters Triangle.
- The alternative routes to access the St Peters Triangle may experience changed travel times. Commuters originating from Erskineville and utilising the Euston Road route may experience increased travel times and longer waiting times at signalised intersections. However, the higher posted speed limit along Euston Road compared to the existing route via Princes Highway may minimise or even improve the impacts on travel time of this detour.
- Due to the detour routes for residents towards the St Peters Triangle, there will be slightly increased volumes along Campbell Street between Euston Road and May Street. Small increases in volumes are also expected in the residential area north of St Peters Station.
- However, the introduction of this right turn would conflict with the existing active transport cycleway and pedestrian crossing at the entrance to Hutchinson Street. Following consideration of safety in the network, this option was not supported as a suitable solution.

2.4 Option 4 – One-Way Traffic Directions Reversed

This option reflects the anticipated impacts of reversing the one-way traffic directions on Hutchinson Street, Lackey Street, Applebee Street, and Council Street, which are highlighted in Figure 8.



Figure 8: Existing and reversed one-way traffic direction within ‘St Peters Triangle’.

The outcomes associated with this design are summarised below and in Figure 9.

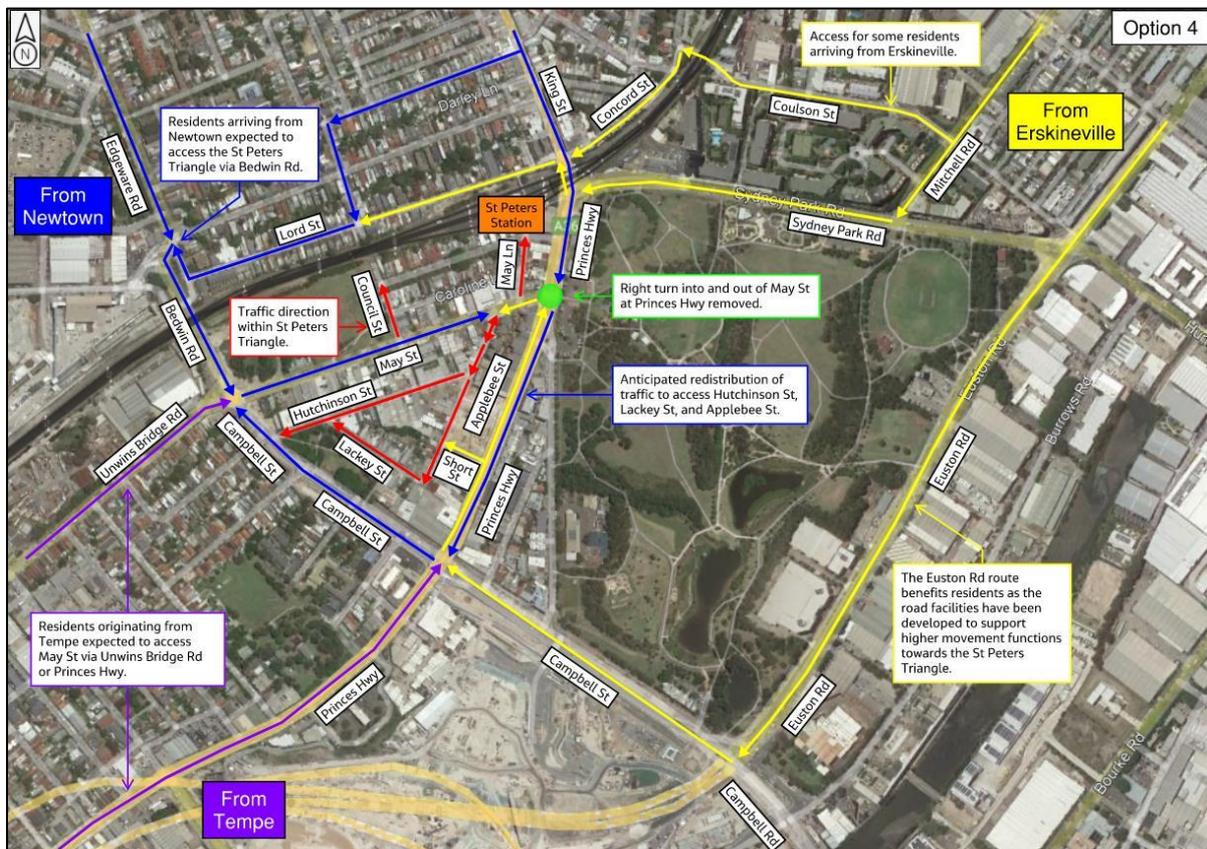


Figure 9: Traffic assessment of Option 4.

- Due to the removal of the right turn from Princes Highway (southbound) onto May Street (westbound), residents may be redistributed towards the western side of the St Peters Triangle as this will become the most direct point of access onto Hutchinson Street.
- This may result in some residents turning onto May Street (eastbound) from Bedwin Road (southbound) and Campbell Street (northbound), as shown in Figure 10. The increased traffic from residents performing left turn movements from Bedwin Road (southbound) onto May Street (eastbound) is expected to be minimal and the existing storage space should be sufficient to cater for the slight increase in demand.

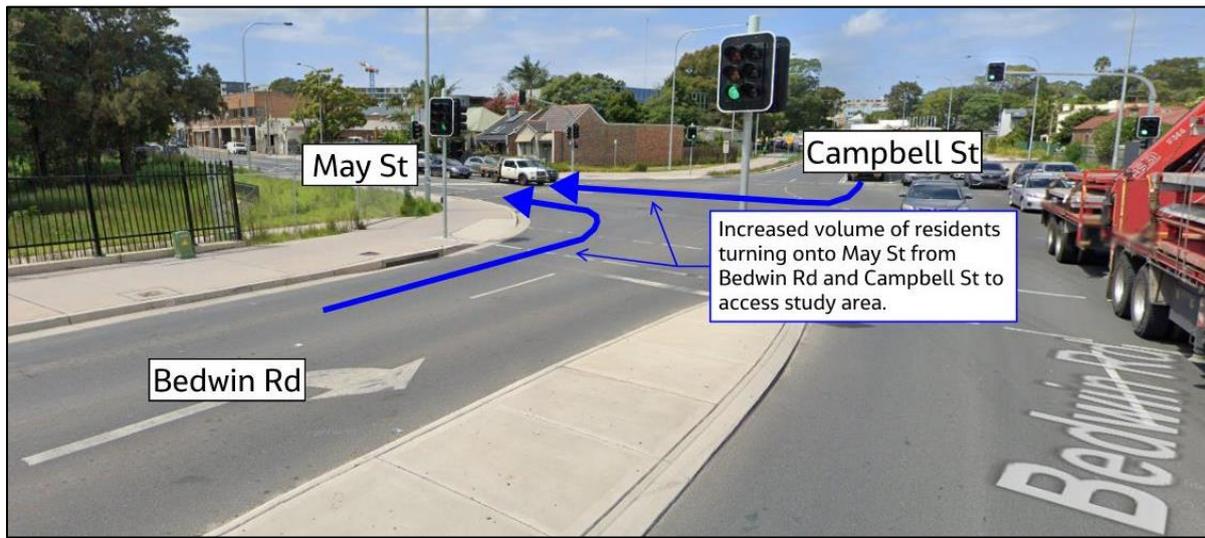


Figure 10: Increased turning volumes from Bedwin Road and Campbell Street onto May Street.

- Due to increased right turn traffic from Campbell Street (northbound) onto May Street (eastbound), it may be suitable to increase the length of the existing right turn lane (Figure 11). This would provide additional storage space for the right turn, minimising the likelihood of vehicles queuing into the through lanes and disrupting other traffic movements. However, this increased volume from residents is anticipated to be minimal and it is expected that the existing right turn would be sufficient to cater for these residents.

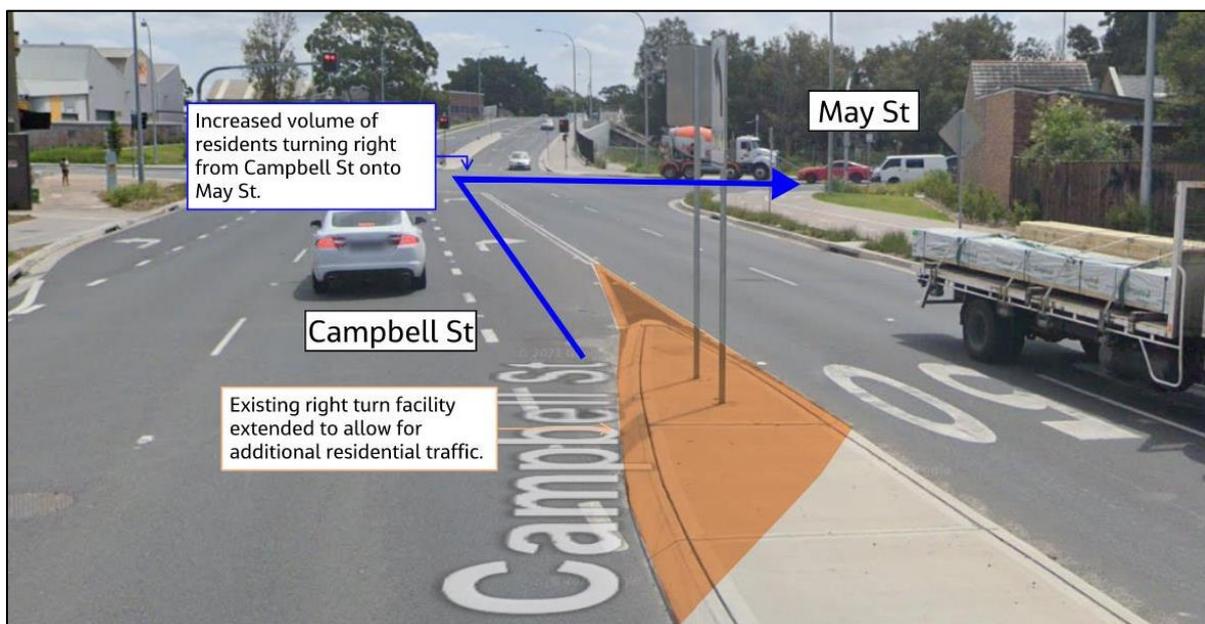


Figure 11: Increased right turn volumes from Campbell Street onto May Street.

- Potential for traffic originating from Newtown to detour through the low-volume residential area north of St Peters Station. These vehicles will travel southbound along Campbell Street via Bedwin Road to access the St Peters Triangle from Hutchinson Street.
- As Erskineville is situated north-east of the St Peters Triangle, some residents arriving from this region may utilise Sydney Park Road and Coulson Street. They may follow a similar path to vehicles from Newtown via the residential roads north of St Peters Station.
- It is expected that residents accessing the St Peters Triangle from Erskineville will also utilise an alternative route via Euston Road. This may be preferred by commuters in lieu of Princes Highway and Sydney Park Road due to reduced congestion and the higher posted speed limit (i.e. 60km/h along Euston Road compared to 40km/h along a segment of Princes Highway / King Street and 40km/h along a segment of Sydney Park Road). Euston Road has been developed with the necessary facilities to cater for a high volume of vehicles turning onto Campbell Street (westbound), with three right-turning lanes. This is expected to provide efficient access for residents towards the St Peters Triangle.
- The alternative routes to access the St Peters Triangle may experience changed travel times. Commuters originating from Erskineville and utilising the Euston Road route may experience increased travel times and longer waiting times at signalised intersections. However, the higher posted speed limit along Euston Road compared to the existing route via Princes Highway may minimise or even improve the impacts on travel time of this detour.
- Due to the detour routes for residents towards the St Peters Triangle, there will be slightly increased volumes along Campbell Street between Euston Road and May Street. Small increases in volumes are also expected on Princes Highway (northbound) between Campbell Street and May Street, as well as the residential area north of St Peters Station.
- Reversing the direction of the one-way traffic on Council Street to be in the northbound direction may restrict access to the neighbouring area as May Lane is already orientated one-way northbound. Consideration should be given to reversing the direction on May Lane to southbound to ensure accessibility is maintained, shown in Figure 12. This modification is important to facilitate access for a potential Kiss and Ride zone at the northern end of May Lane, adjacent to St Peters Station.



Figure 12: Identification of May Lane and the potential reversal of the one-way traffic direction.

- Modifications will be required to enable the right turn for residents from May Street (eastbound) onto Applebee Street (southbound), as there is currently a ban for this movement. There is sufficient space available for the modifications to occur, therefore minimising impacts on other traffic movements in the area whilst improving accessibility for residents onto Applebee Street. These are summarised in Figure 13 and may include the following:
 - Removal of the right turn ban from May Street (eastbound) onto Applebee Street.
 - Shifting the pedestrian refuge island on Applebee Street to increase the lane width for entering vehicles.
 - Shortening of the existing parking bay on May Street (eastbound) to minimise impacts of potential queuing from the right turn onto Applebee Street.

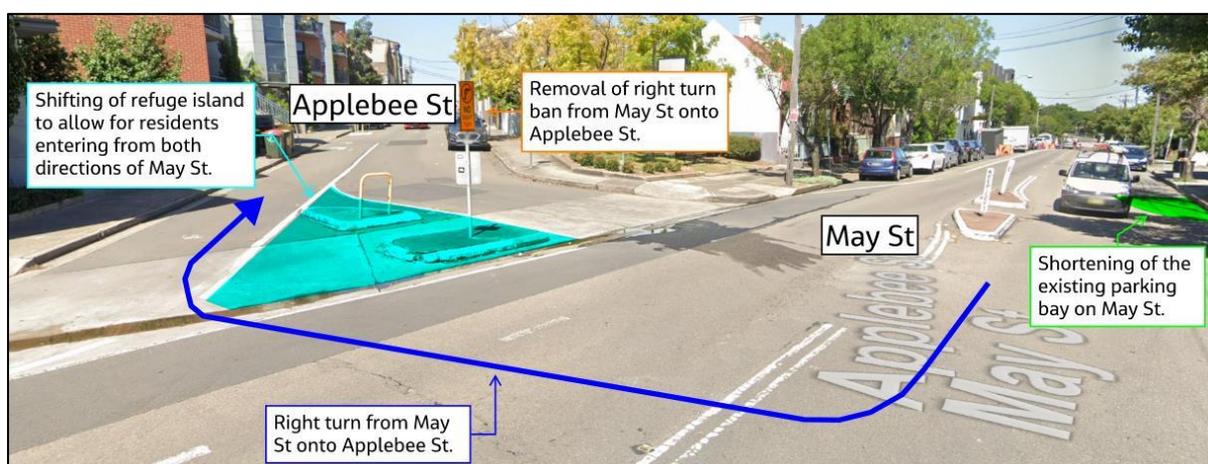


Figure 13: Right turn ban to be removed from May Street onto Applebee Street.

- It is expected that some additional vehicles will perform left turn movements from Princes Highway (northbound) onto Short Street (westbound) and May Street (westbound). This will include vehicles originating from Erskineville and Tempe.
- Due to the detour routes for residents towards the St Peters Triangle, there will be slightly increased volumes along Campbell Street between Euston Road and May Street. Small increases in volumes are also expected on Princes Highway (northbound) between Campbell Street and May Street, as well as the residential area north of St Peters Station.

2.5 Option 5 – One-Way Traffic Directions Reversed (Excluding Council Street)

Option 5 is identical to Option 4, with the exception of the one-way traffic direction on Council Street remaining as per the existing conditions, shown in Figure 14. By keeping the one-way direction as it is currently, accessibility for residents to the Council Street area may be improved in comparison to Option 4. This approach will ensure connectivity is maintained in the area, providing access for a potential Kiss and Ride zone at the northern end of May Lane, adjacent to St Peters Station.

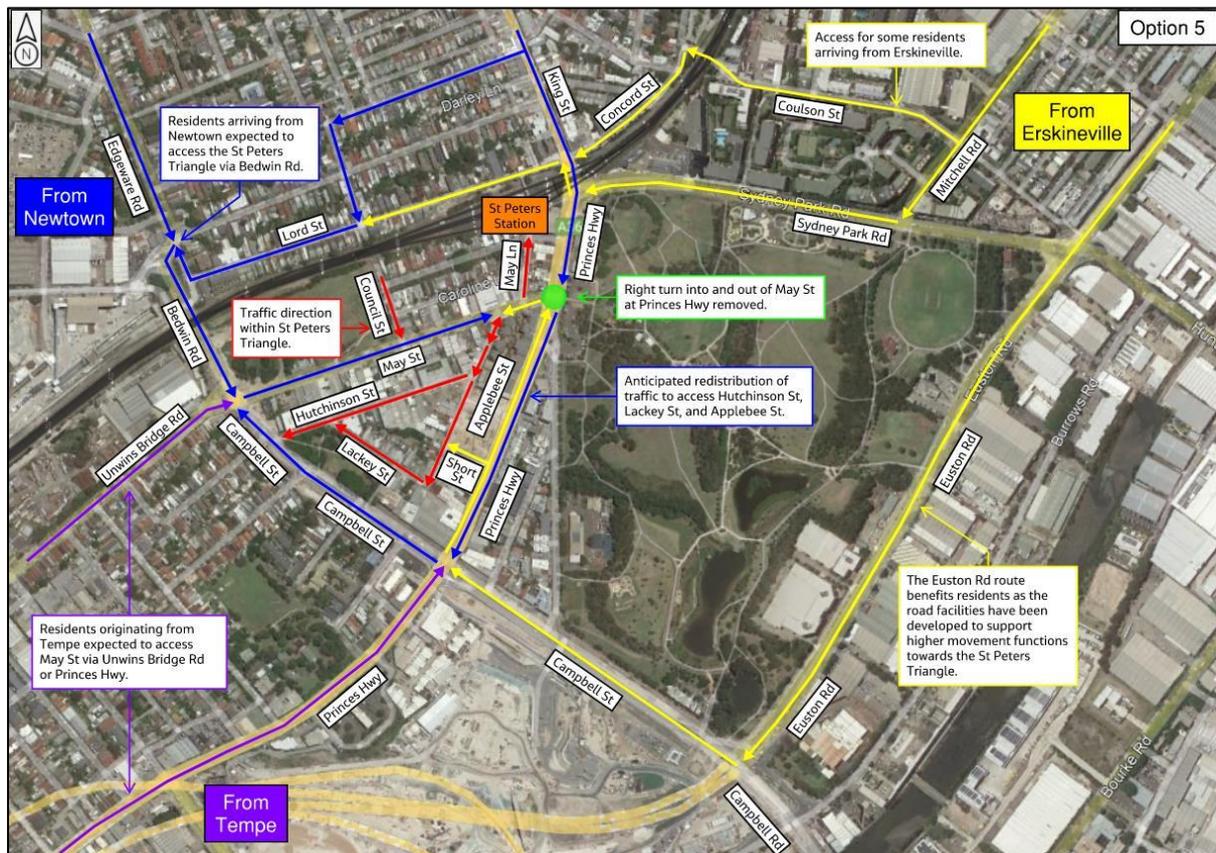


Figure 14: Traffic assessment of Option 5.

2.6 Option 6 – New Right Turn Facility on Princes Highway

Option 6 includes the reversed one-way traffic directions as per Option 5, with the addition of a new permissible right turn from Princes Highway (southbound) onto Short Street (westbound), shown in Figure 15 and Figure 16. The addition of this movement will allow some of the redistributed residents to access the St Peters Triangle more directly from this new right turn instead of a detour towards May Street from Campbell Street.

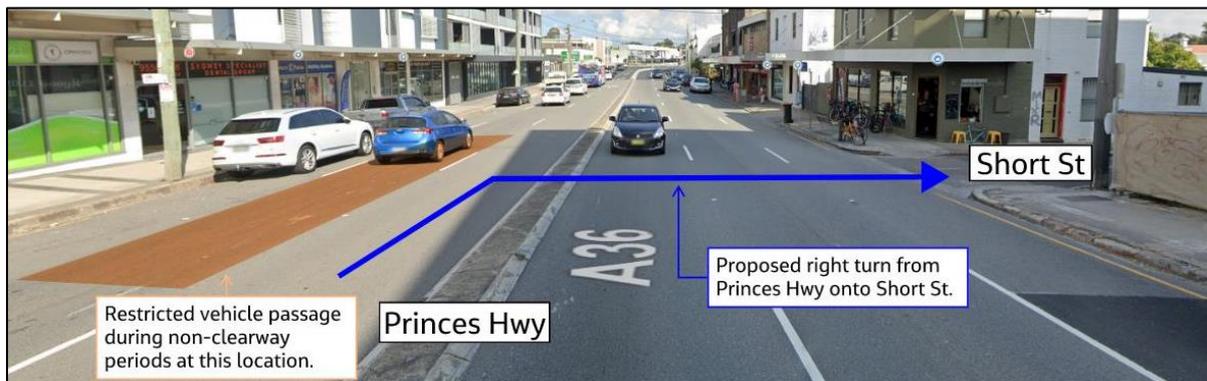


Figure 15: Right turn from Princes Highway onto Short Street.

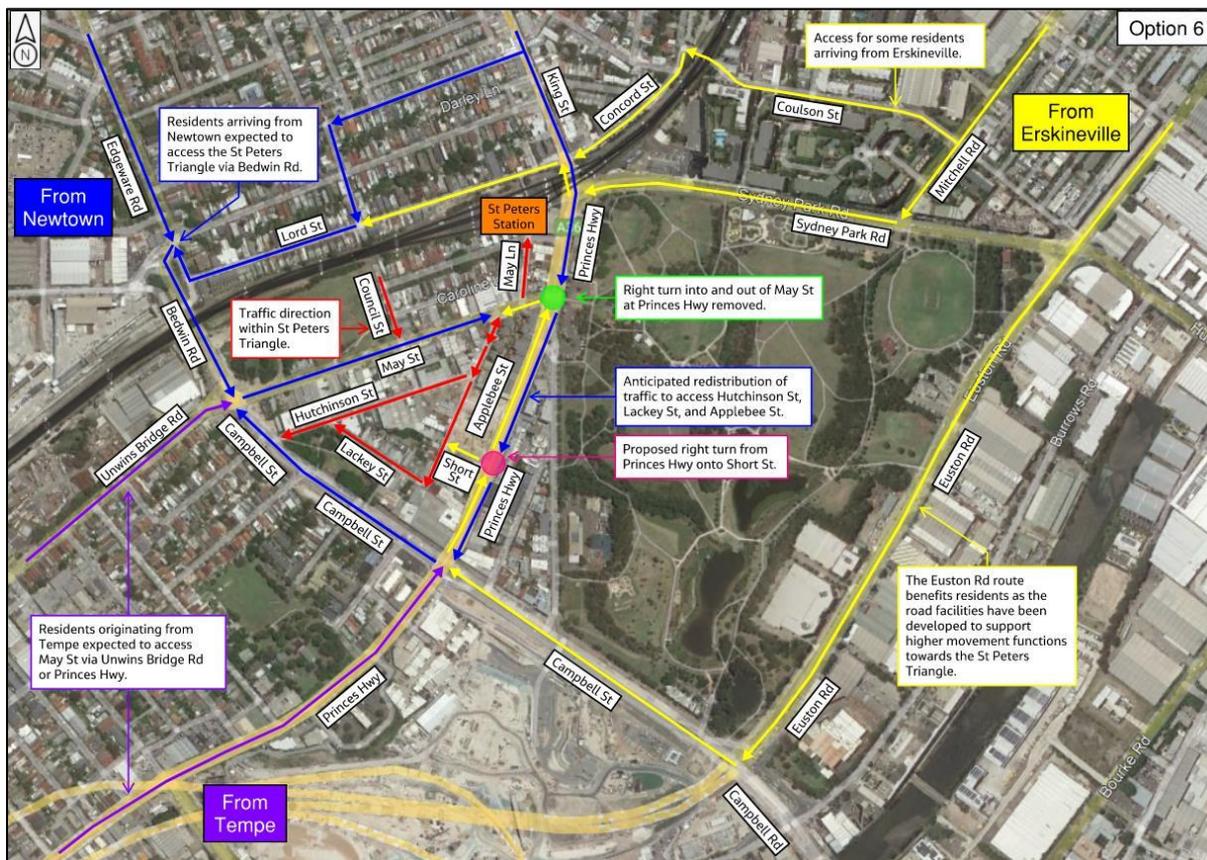


Figure 16: Traffic assessment of Option 6.

However, this option does pose potential safety concerns. There is an increased risk of rear-end type collisions, and vehicles must cross 3 lanes of oncoming traffic during clearway times from an unprotected right turn to enter Short Street. The inclusion of a right turn would also impact the efficiency of the road performance during non-clearway periods, potentially channelling southbound traffic into one lane at this location between kerbside parked cars and right-turning vehicles. Following consideration of safety in the network, this option was not supported as a suitable solution.

2.7 Option 7 – One-Way Traffic Directions Converted to Two-Way

Option 7 includes converting the one-way traffic direction to two-way on Hutchinson Street, Council Street, and May Lane. These roads have sufficient available space for vehicles in both directions of travel, where vehicles can pull to the kerb for passing traffic when required. Although kerbside parking is currently permitted along these roads, there are sections that would allow vehicles to give way to opposing traffic if required. The one-way sections on Lackey Street and Applebee Street are to be reversed, but assumed to remain one-way due to the limited road width. An example along Hutchinson Street is shown in Figure 17, and Option 7 is summarised in Figure 18.

The outcomes of this option will be similar to Option 4, although it will provide better connectivity for residents within the St Peters Triangle. This approach will also improve accessibility for a potential Kiss and Ride zone at the northern end of May Lane, adjacent to St Peters Station.

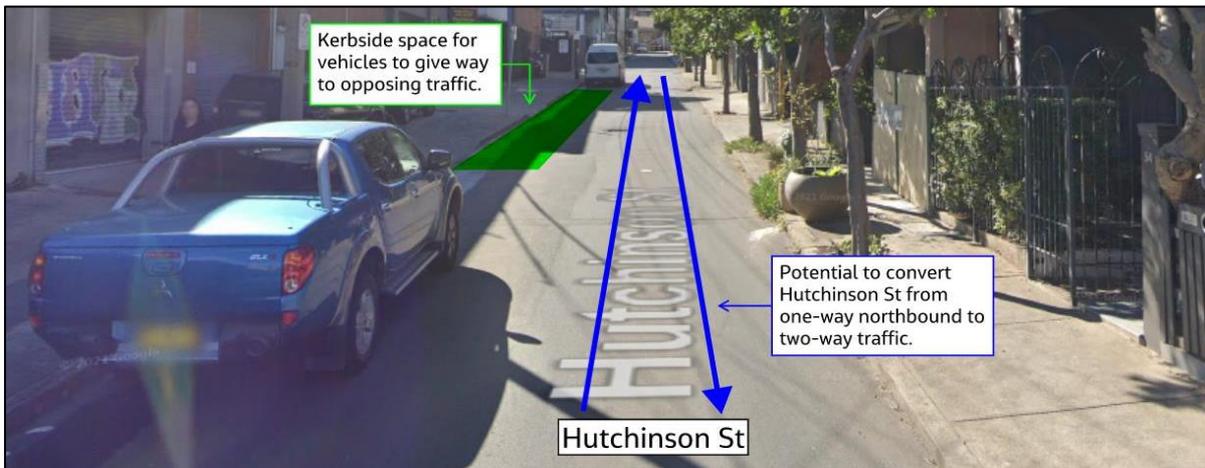


Figure 17: Two-way traffic example on Hutchinson Street.

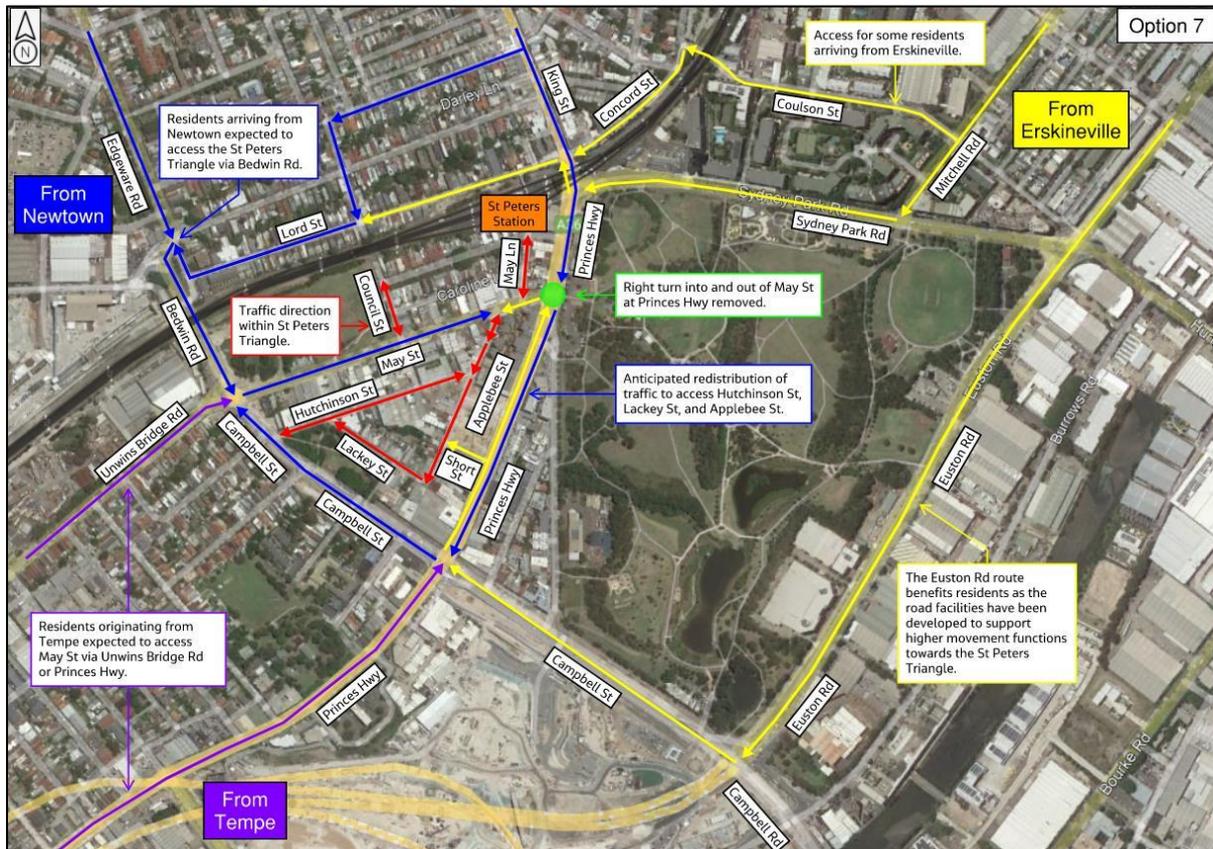


Figure 18: Traffic assessment of Option 7.

2.8 Option 8 – Extension of Two-Way Traffic on Applebee Street

Option 8 aims to maximise accessibility for residents both towards and within the St Peters Triangle. It involves extending the two-way section on Applebee Street to the intersection with Hutchinson Street, as well as reversing the one-way traffic directions on Lackey Street and Applebee Street only. The remaining identified one-way roads are to be maintained as per the existing direction of traffic flow. These changes are presented in Figure 19 and Figure 20. This option will benefit residents arriving via Euston Road and Campbell Street, and improve connectivity for residents on Lackey Street and Applebee Street by providing an additional access point via May Street.

Currently, the two-way section only includes the northern end of Applebee Street to provide residential access into an apartment complex driveway. The extension of the two-way section will require the removal of a small number of kerbside parking spaces. As identified in Option 4, the right turn ban from May Street onto Hutchinson Street will also need to be removed to maximise accessibility.

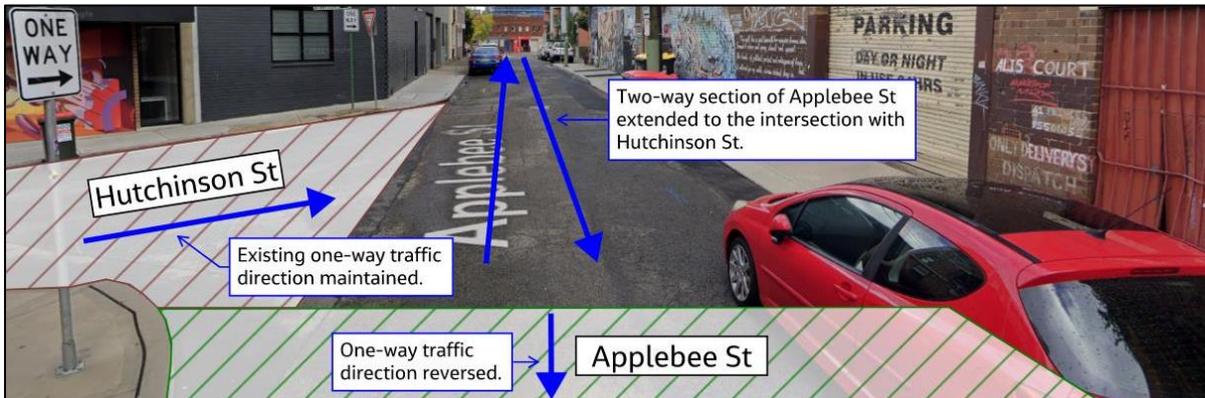


Figure 19: Extension of two-way traffic section on Applebee Street.

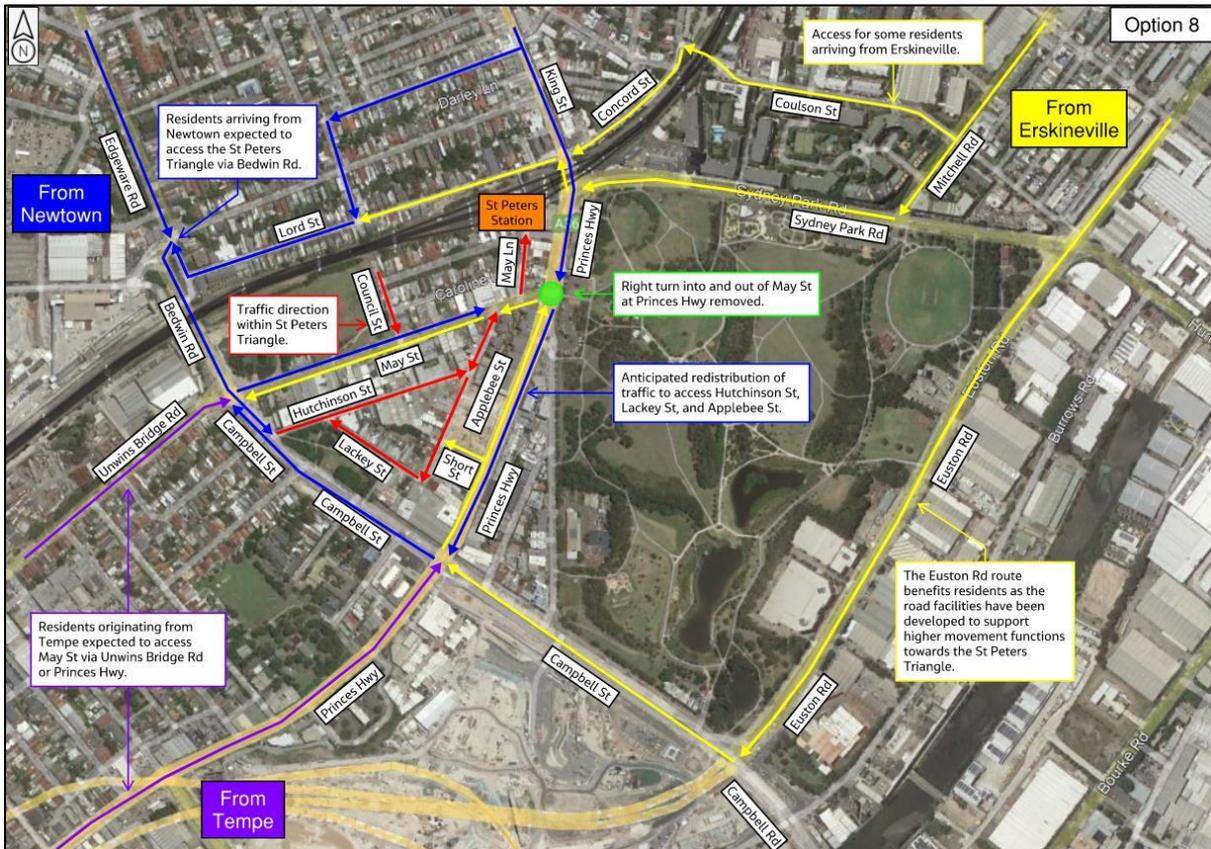


Figure 20: Traffic assessment of Option 8.

The traffic movements and proposed modifications to the key roads within the St Peters Triangle are further presented in Figure 21. This compares the proposed changes against the existing traffic movements across Hutchinson Street, Lackey Street, Applebee Street, and Short Street. These modifications are anticipated to support accessibility for residents and improve connectivity within the St Peters Triangle.



Figure 21: Proposed traffic movements within the St Peters Triangle for Option 8.

2.9 Recommendation

From the alternatives explored, Option 8 will be the most beneficial for residents within the St Peters Triangle and is recommended as the preferred option.

The modifications identified in Option 8 achieve a balance between the current design in Option 1 to Option 3 and the one-way reversals identified in Option 4 to Option 7. The proposed modifications to the traffic directions within the St Peters Triangle as per Option 8 are expected to assist residents with improved access points at Short Street and Applebee Street. Whilst these access points can still be utilised in the other options, the traffic directions in these options limit their use to accessing small sections of the St Peters Triangle only. Option 8 provides improved accessibility for residents within the St Peters Triangle when compared to the alternatives, whilst minimising disruptions and maintaining safety. This option also avoids the potentially negative impacts on commuters identified with the other options and redistributes the residential traffic more effectively, with better accessibility to the St Peters Triangle and minimised impacts on the low-volume residential areas.

A summary of the options and the notable outcomes are provided in Table 2.

Table 2: Summary of the discussed options and the associated outcomes.

Option	Outcome
1	<ul style="list-style-type: none"> ▪ Maintain the one-way traffic directions as per existing conditions on Hutchinson Street, Lackey Street, Applebee Street, and Council Street. Provides accessibility for a Kiss and Ride zone adjacent to St Peters Station. ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Changed travel times for most redistributed vehicles. ▪ Potential for increased traffic on Princes Highway (northbound) between Campbell Street and May Street, as well as Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe unaffected.
2	<ul style="list-style-type: none"> ▪ Maintain the one-way traffic directions as per existing conditions on Hutchinson Street, Lackey Street, Applebee Street, and Council Street. Provides accessibility for a Kiss and Ride zone adjacent to St Peters Station. ▪ Removal of right turn ban from May Lane (northbound) onto Goodsell Street (eastbound) improves connectivity for the one-way roads. ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Changed travel times for most redistributed vehicles. ▪ Potential for increased traffic on Princes Highway (northbound) between Campbell Street and May Street, as well as Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe unaffected.
3	<ul style="list-style-type: none"> ▪ Maintain the one-way traffic directions as per existing conditions on Hutchinson Street, Lackey Street, Applebee Street, and Council Street. Provides accessibility for a Kiss and Ride zone adjacent to St Peters Station. ▪ New right turn facility from Campbell Street (northbound) onto Hutchinson Street (eastbound). However, the right turn would conflict with the existing active transport cycleway and pedestrian crossing at the entrance to Hutchinson Street. ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Changed travel times for most redistributed vehicles. ▪ Potential for increased traffic on Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe may benefit due to more direct access.

Option	Outcome
4	<ul style="list-style-type: none"> ▪ Reversal of one-way traffic directions on Hutchinson Street, Lackey Street, Applebee Street, and Council Street. ▪ Potential to reverse the one-way traffic direction on May Lane for improved accessibility, particularly for a Kiss and Ride zone adjacent to St Peters Station. ▪ Higher volume of residents utilising existing movement facilities to access the St Peters Triangle from Bedwin Road (southbound) and Campbell Street (northbound) onto May Street (eastbound). ▪ Potential for additional traffic storage space by extending the length of the right turn lane from Campbell Street (northbound) onto May Street (eastbound). ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Potential for some residents to experience changed travel times ▪ Potential for increased traffic on Princes Highway (northbound) between Campbell Street and May Street, as well as Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe unaffected.
5	<ul style="list-style-type: none"> ▪ Reversal of one-way traffic directions on Hutchinson Street, Lackey Street, and Applebee Street. ▪ Maintain the one-way traffic direction on Council Street for improved accessibility, particularly for a Kiss and Ride zone adjacent to St Peters Station. ▪ Potential to remove the right turn ban from May Lane (northbound) onto Goodsell Street (eastbound), improving connectivity for the one-way roads. ▪ Higher volume of residents utilising existing movement facilities to access the St Peters Triangle from Bedwin Road (southbound) and Campbell Street (northbound) onto May Street (eastbound). ▪ Potential for additional traffic storage space by extending the length of the right turn lane from Campbell Street (northbound) onto May Street (eastbound). ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Potential for some residents to experience changed travel times ▪ Potential for increased traffic on Princes Highway (northbound) between Campbell Street and May Street, as well as Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe unaffected.

Option	Outcome
6	<ul style="list-style-type: none"> ▪ Reversal of one-way traffic directions on Hutchinson Street, Lackey Street, and Applebee Street. ▪ Maintain the one-way traffic direction on Council Street for improved accessibility, particularly for a Kiss and Ride zone adjacent to St Peters Station. ▪ New right turn from Princes Highway (southbound) onto Short Street (westbound). Potential safety concerns and impacts on the efficiency of road performance associated with this right turn. ▪ Higher volume of residents utilising existing movement facilities to access the St Peters Triangle from Bedwin Road (southbound) and Campbell Street (northbound) onto May Street (eastbound). ▪ Potential for additional traffic storage space by extending the length of the right turn lane from Campbell Street (northbound) onto May Street (eastbound). ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Potential for some residents to experience changed travel times ▪ Potential for increased traffic on Princes Highway (northbound) between Campbell Street and May Street, as well as Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe unaffected.
7	<ul style="list-style-type: none"> ▪ Conversion of one-way traffic direction to two-way on Hutchinson Street, Council Street, and May Lane. This will improve connectivity within the St Peters Triangle and accessibility for a Kiss and Ride zone adjacent to St Peters Station. ▪ Reversal of one-way traffic directions on Lackey Street and Applebee Street. ▪ Higher volume of residents utilising existing movement facilities to access the St Peters Triangle from Bedwin Road (southbound) and Campbell Street (northbound) onto May Street (eastbound). ▪ Potential for additional traffic storage space by extending the length of the right turn lane from Campbell Street (northbound) onto May Street (eastbound). ▪ Some vehicles will access Hutchinson Street (eastbound) from Campbell Street (southbound). ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Potential for some residents to experience changed travel times ▪ Potential for increased traffic on Princes Highway (northbound) between Campbell Street and May Street, as well as Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe unaffected.
8	<ul style="list-style-type: none"> ▪ Extension of the two-way traffic section at the northern end of Applebee Street. ▪ Reversal of one-way traffic directions on Lackey Street and Applebee Street. ▪ Maintain the one-way traffic directions as per existing conditions on Hutchinson Street and Council Street. Provides accessibility for a Kiss and Ride zone adjacent to St Peters Station. ▪ Potential for increased traffic in the low-volume residential area north of the St Peters Triangle. ▪ Potential for some residents to experience changed travel times ▪ Potential for increased traffic on Princes Highway (northbound) between Campbell Street and May Street, as well as Campbell Street between Euston Road and May Street. ▪ Traffic originating from Tempe unaffected.

2.10 Traffic Modelling

To understand the impacts for residents of the St Peters Triangle in terms of travel time, traffic modelling was undertaken. Three scenarios were tested for the opening year of 2023 as follows:

- Existing conditions – no modifications to the traffic movements and the right turn between Princes Highway and May Street is permitted.
- Option 1 – current design with the right turn closure between Princes Highway and May Street.
- Option 8 – proposed preferred option design.

2.10.1 Model Development

Traffic modelling for this assessment was undertaken by Jacobs by utilising a transport model (VISSIM) previously developed as part of the King Street Gateway project. Although a qualitative review is typically appropriate for this type of assessment, the traffic modelling results provide a generalised understanding of travel times expected within the study area network.

The previously developed model was calibrated, validated, reviewed, and has been accepted by Transport for NSW (TfNSW) as fit for purpose. As directed by TfNSW, this model has been adopted for the assessment presented in this Memorandum.

In agreement with TfNSW, the model was updated to include the Bedwin Road/May Street/Unwins Bridge Road/Campbell Street signalised intersection and access intersections at May Lane and the St Peters Triangle. Where available, traffic volumes for the additional intersections were obtained from SCATS signal data received from TfNSW. These were further validated using observed data from a site visit undertaken during the AM and PM peaks on Thursday 4th November 2021. Travel time outputs were independently validated against Google travel time data. Traffic volumes for the remaining sections of the model were kept consistent with previous modelling. Residents arriving to the St Peters Triangle were distributed throughout the network as per the existing model.

Although the modelling results are effective as a guide to understand the relative change in travel time between options, it is recommended that the outputs are validated against independently obtained survey data.

2.10.2 Modelling Results

Travel times for residents to the St Peters Triangle from Newtown are expected to remain similar to the existing conditions for both the Option 1 and Option 8 scenarios, as the potential routes to access the area will be generally unchanged. Similarly, residents arriving from Tempe are expected to not be impacted by the right turn closure, and may potentially benefit from better accessibility within the St Peters Triangle as per Option 8.

Travel times were tested for residents arriving from Erskineville to two locations as follows:

- May Lane – provides access to the northern section of the St Peters Triangle.
- St Peters Triangle – assessed based on the likely preferred entry points associated with the different travel routes.

Table 3 and Table 4 present the modelled travel times for residents commuting to the St Peters Triangle from Erskineville in the AM and PM peak periods respectively. Different routes were assessed and are supported by Figure 22 to Figure 27.

Travel times to Short Street and Applebee Street have only been included for the Option 8 model which captures the proposed traffic direction modifications within the St Peters Triangle, improving accessibility via these locations. Under the existing conditions and Option 1, these locations would provide access for only a limited number of residents within the St Peters Triangle, and it was assumed that residents would primarily utilise Hutchinson Street instead.

Table 3: AM peak travel time modelling results from Erskineville to the St Peters Triangle.

Travel Path	Existing Conditions	Option 1 – Current Design	Option 8
Euston Road / Mitchell Road (A) to May Lane (B)	2-4 mins	5-9 mins	5-9 mins
Euston Road / Mitchell Road (A) to St Peters Triangle (C)	3-6 mins to Hutchinson Street (C1)	7-11 mins to Hutchinson Street (C1)	7-11 mins to Hutchinson Street (C1) 4-7 mins to Short Street (C2) 5-9 mins to Applebee Street (C3)

Table 4: PM peak travel time modelling results from Erskineville to the St Peters Triangle.

Travel Path	Existing Conditions	Option 1 – Current Design	Option 8
Euston Road / Mitchell Road (A) to May Lane (B)	2-4 mins	8-11 mins	8-11 mins
Euston Road / Mitchell Road (A) to St Peters Triangle (C)	3-6 mins to Hutchinson Street (C1)	9-12 mins to Hutchinson Street (C1)	9-12 mins to Hutchinson Street (C1) 8-10 mins to Short Street (C2) 8-11 mins to Applebee Street (C3)



Figure 22: Modelled travel time for the existing conditions for residents from Erskineville to May Lane.



Figure 23: Modelled travel time for Option 1 and Option 8 for residents from Erskineville to May Lane.



Figure 24: Modelled travel time for the existing conditions for residents from Erskineville to Hutchinson Street.



Figure 25: Modelled travel time for Option 1 and Option 8 for residents from Erskineville to Hutchinson Street.



Figure 26: Modelled travel time for Option 8 for residents from Erskineville to Short Street.



Figure 27: Modelled travel time for Option 8 for residents from Erskineville to Applebee Street.

The results presented highlight the impacts of the current design as per Option 1 and the proposed Option 8 when compared against the existing conditions. The outcomes presented in Table 3 and Table 4 further support the selection of Option 8 as the preferred solution to improve accessibility for residents to the St Peters Triangle.

The modelling results highlight the potential for increased travel times to the St Peters Triangle for residents arriving from Erskineville. The travel time for residents is expected to increase by about 5 minutes in the AM peak and about 7 minutes in the PM peak under the current design in Option 1. However, the proposed modifications to the traffic directions within the St Peters Triangle for Option 8 are expected to benefit residents. With Option 8, the improved connectivity within the St Peters Triangle will encourage residents to utilise more direct access points such as Short Street and Applebee Street. Consequently, the changes in travel times for Option 8 when compared against Option 1 may be improved for some residents. Travel times to May Lane remain relatively high for Option 8 when compared to the existing conditions, increasing by about 7 minutes in the PM peak. This is primarily due to the longer travel distance, and residents accessing May Lane are not expected to benefit from the modifications to the traffic directions on Applebee Street and Lackey Street.

The travel time changes for residents arriving from Erskineville are especially important when considering that the alternative route may be significantly longer than the most direct access under the existing conditions, and involves travelling through an additional two signalised intersections. Even with these factors, the Euston Road route could potentially achieve travel times similar to the existing conditions during the AM peak. This can be attributed to the better efficiencies of the road infrastructure on Euston Road and Campbell Street when compared to the alternative routes such as Princes Highway and Sydney Park Road. However, increased travel times are still expected during the PM peak.

The results for Option 8 particularly support residents utilising the available routes to access the St Peters Triangle as follows:

- Tempe – Continue to access as per existing conditions, with no expected impacts on travel times. There is potential for improvements to travel times due to the modifications to the one-way roads within the St Peters Triangle.
- Newtown – Primarily will access via Bedwin Road, with minimal expected impacts on travel times. The addition of an access point onto Applebee Street from May Street (eastbound) may offer travel time improvements for some residents.
- Erskineville – Primarily will access via Euston Road and Campbell Street, utilising the infrastructure that has been developed to efficiently cater for traffic through this route. Some residents are likely to experience higher travel times to access the St Peters Triangle due to the longer route distance. However, the road infrastructure and higher posted speed limits may be preferable for some residents. Additionally, some residents arriving from Erskineville are expected to utilise a similar travel route to those from Newtown, commuting through the north of St Peters Station.

As Option 8 is recommended, the benefits associated with this option for residents accessing the St Peters Triangle have been qualitatively summarised in Table 5.

Table 5: Summary of the benefits associated with Option 8.

Option 8 Benefits

- Improved accessibility for residents travelling towards the St Peters Triangle with better connectivity from May Street (eastbound) onto Applebee Street (southbound), as well as the existing entry at Hutchinson Street (eastbound) and Short Street (westbound).
- Encourages the utilisation of Euston Road and Campbell Street where the upgraded road facilities support higher movement functions, allowing residents to access the St Peters Triangle efficiently.
- Utilisation of Euston Road and Campbell Street will allow residents to travel at higher posted speed limits compared to Princes Highway and Sydney Park Road, whilst potentially avoiding congestion on these roads. This will support residents to access the St Peters Triangle with minimal impacts on travel time when compared to Princes Highway and Sydney Park Road. It should be noted that Princes Highway and Sydney Park Road now have posted speed limits reduced to 40km/h.
- Increases the attraction of Short Street and Applebee Street for residents by improving the cyclical movements within the St Peters Triangle.
- Residents arriving to the St Peters Triangle from Tempe and Newtown may benefit from improved accessibility.

2.11 Conclusion

The traffic assessment of the St Peters Triangle indicates that some residents arriving from Erskineville are likely to be affected by the closure of the right turn between Princes Highway and May Street. By completing the modelling process, potentially high impacts on travel times for these residents were identified for some movements, particularly during the PM peak. Residents arriving from Newtown and Tempe are likely to be unaffected, with minimal changes to travel times.

To assess the performance during operation and as per the review of environmental factors prepared for the Sydney Park Junction project, the additional standard safeguard TT12 would continue to be implemented and includes an operational traffic review. As identified, Option 8 appears to provide the most effective solution to minimise impacts on road performance, safety, and accessibility for residents with the project development.

Appendix D – Noise and Vibration Assessment

SYDNEY PARK JUNCTION

Noise and Vibration Assessment

Prepared for:

Sydney Program Alliance
52 Alfred Street
Milsons Point NSW

SLR Ref: 610.19205-R01
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EXECUTIVE SUMMARY

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Sydney Program Alliance (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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1 Introduction

1.1 Proposal Identification

Transport for NSW (TfNSW) proposes to improve the southern 'gateway' to King Street, Newtown by reducing the capacity of King Street, Princes Highway and Sydney Park Road and enhancing pedestrian and cyclist access between King Street, St Peters Station and Sydney Park (the proposal).

The proposal objectives align with the strategic objectives articulated in the Greater Sydney Region Plan (Greater Sydney Commission, 2018), the Road Safety Plan 2021 (Transport for NSW, 2018) and the Future Transport Strategy 2056 (Transport for NSW, 2018). The location of the proposal and the identification of nearby sensitive receivers is shown in **Figure 1**.

Key features of the proposal would include:

- Reducing the Princes Highway/King Street carriageway from six lanes (generally) to four lanes (two lanes off-peak) from Campbell Street to Sydney Park Road, to accommodate a two way on-road segregated cycleway (on the western side of King Street between May Street and St Peters square), additional landscaping and community spaces to increase urban amenities
- Reducing the Sydney Park Road carriageway from four lanes to two lanes to accommodate a permanent solution for the existing temporary two-way on-road segregated cycleway (northern side), parking and additional landscaping to increase urban amenities,
- New mid-block pedestrian shared crossings to improve access across the Princes Highway/King Street and into Sydney Park, including:
 - A new mid-block pedestrian crossing on Princes Highway north of Short Street.
 - A new mid-block pedestrian and cyclist crossing on Princes Highway between May Street and Goodsell Street.
- Traffic signal and intersection reconfiguration works to improve safety, including:
 - Princes Highway/King Street and Sydney Park Road intersection:
 - King Street southbound approach: Reduce existing three through lanes and one left turn slip lane to a one through lane and one through/left turn lane
 - King Street northbound approach: Maintain existing two through lanes and reduce existing two dedicated right turn lanes to one lane
 - Sydney Park Road approach: Reduce existing two left turn lanes and two right turn lanes to one left turn lane and one right turn lane
 - Replacing existing signalised pedestrian crossing facilities with signalised shared crossing facilities on all approaches
 - Princes Highway/King Street and Goodsell Street intersection:
 - New raised zebra crossing to prioritise pedestrians at the entrance of Goodsell Street
 - Princes Highway/King Street and May Street intersection:
 - Removing traffic signals and re-configuring May Street to left in and left out only movements with a new raised zebra crossing to prioritise pedestrians at the entrance of May Street

- Princes Highway/King Street and Barwon Park Road intersection:
 - Installing new traffic signals with new pedestrian crossings
- Sydney Park Road and Mitchell Road intersection:
 - Eastbound approach: Reduce existing two through lanes and one left turn lane to one through lane and a through/left turn lane
 - Westbound approach: Reduce existing one right turn lane, one through lane and one through/left turn lane to one through/right turn lane and one through/left turn lane
 - Mitchell Road approach: Change existing one right turn lane and one right/through/left turn lane to one bus dedicated right turn lane and one through/left turn lane
- Reducing the posted speed limit on Princes Highway from 50 kilometres per hour to 40 kilometres from Campbell Street to Goodsell Street
- Sydney Park carpark access on Kings St will be modified so that Barwon Park Road access will be entry only into the carpark, and King Street will be exit only from the carpark
- Adjustments and relocation of parking spaces along the road corridor
- Road re-surfacing at signalised intersections and along road corridor where required
- Providing dynamic community spaces on both sides of Princes Highway
- Providing landscaped buildouts on Sydney Park Road and Princes Highway
- Relocating the bus stops on Princes Highway near the Short Street intersection, and on Sydney Park Road near the Mitchell Road intersection
- Relocating utilities and adjustments to streetlights where required
- Removing the Princes Highway and Sydney Park Road corridors from the approved B-double freight access network
- Adjusting stormwater to accommodate designed works
- Relocating existing VMS and CCTV camera
- Relocating road signs and line marking works
- Temporary construction facilities, including site compounds and an ancillary facility at Burrows Road and Venice Street, Mascot.

1.2 Purpose of this report

This Noise and Vibration Technical Working Paper has been prepared by SLR Consulting Australia Pty Ltd on behalf of Sydney Program Alliance. For the purposes of these works, TfNSW is the proponent and the determining authority under Division 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The purpose of the assessment is to describe the proposal, to document the potential noise and vibration impacts from construction and operation of the proposal on the environment, and to detail mitigation and management measures to be implemented. This assessment forms part of the overarching Review of Environmental Factors (REF) in accordance with TfNSW requirements under the EP&A Act, section 5.5.

The scope and objectives of the proposal are as follows:

- Detail the existing environment
- Identify noise and vibration sensitive receivers in the area around the proposal
- Detail the relevant guidelines and determine suitable criteria for construction and operational noise and vibration
- Detail the assessment methodology and representative construction activities
- Detail the assessment methodology and operational features of the proposal
- Undertake a high-level construction noise and vibration assessment
- Assess the potential for operational road traffic noise impacts

TfNSW have advised that these works are to be considered as ‘minor works’ for the purposes of the noise assessment. Minor works are defined in the TfNSW Noise Criteria Guideline as works which are primarily to improve safety. This includes minor straightening of curves, installing traffic control devices, intersection widening and turning bay extensions or making minor road realignments. In relation to the assessment of operation noise, these works are not considered as redeveloped or new as they are not intended to increase the traffic carrying capacity of the overall road or accommodate a significant increase in heavy vehicle traffic. The project is intended to be a place making exercise which will result in a reduction in traffic.

This report has been updated since V1.1 dated 14 July 2021 to include additional background noise monitoring undertaken along Sydney Park Road. All tables and figures have been updated accordingly to reflect these corresponding changes.

1.3 Terminology

The assessment uses specific acoustic terminology and an explanation of common terms is included in **Appendix A**. A glossary is also at the end of this document which lists the various terms used.

2 Existing Environment

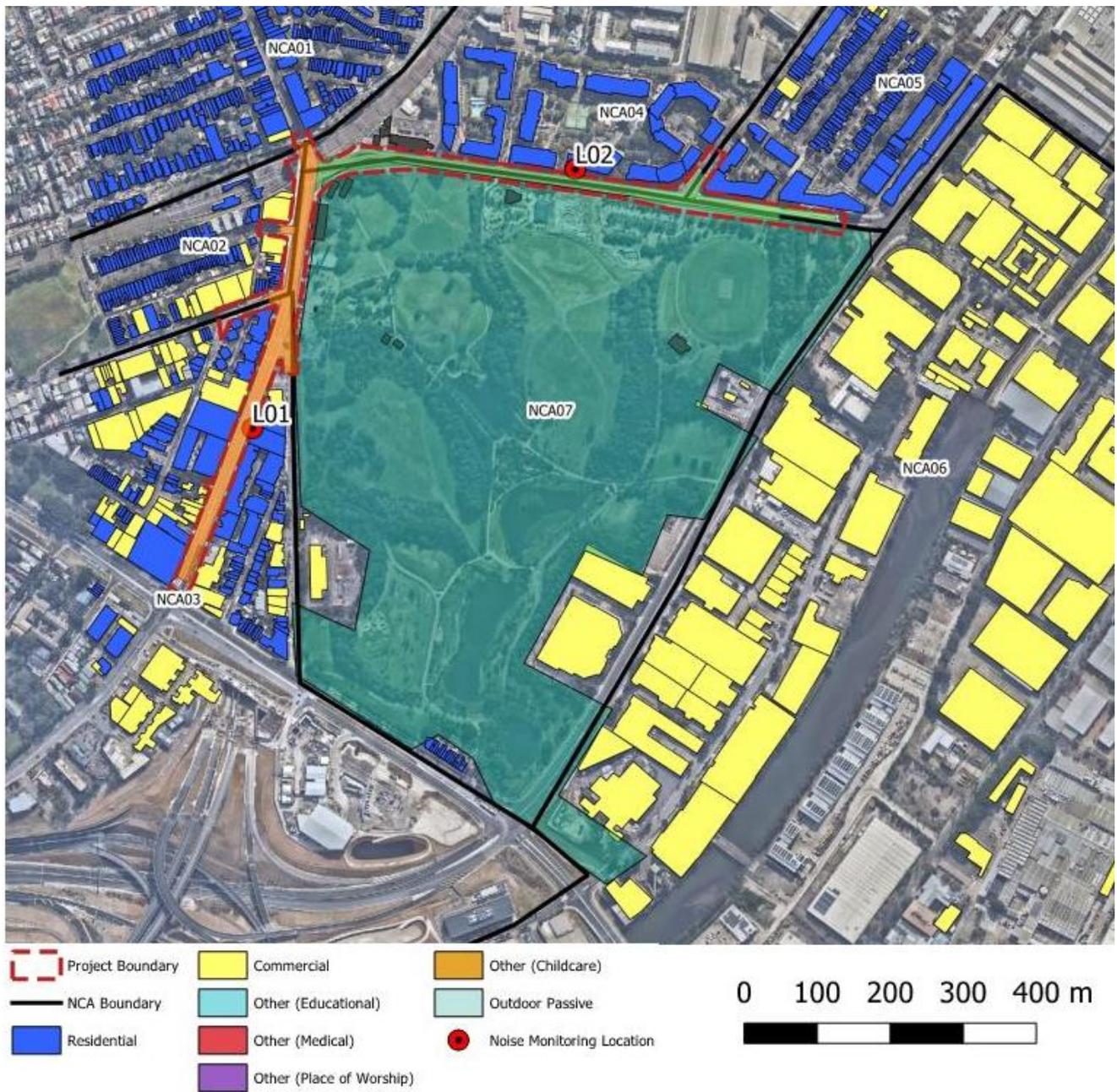
The proposal is located about four kilometres south west of the Sydney Central Business District (CBD), in the suburbs of St Peters, Newtown, Erskineville and Alexandria along the boundary between the Inner West and Sydney Local Government Areas (LGAs).

Major roads within or near to the proposal include Campbell Road, Princess Highway, King Street and Euston Road. The St Peters Interchange component of the M8 Motorway (M8) project is located to the south of the proposal. As a result of the construction of the New M5 project, Campbell Road and Euston Road have been recently upgraded to support vehicle access to the new tunnels.

The proposal is surrounded by a mix of commercial and residential receivers. Directly to the north of the proposal are several residential apartment buildings between King street and Euston Road. To the east of the proposal along Euston Road, receivers are predominantly of commercial use. Adjoining King Street between Campbell Road and Sydney Park Road receivers are a mix of commercial and residential use. The proposal adjoins the western and northern boundary of Sydney Park.

The locality of the proposal along with nearby sensitive receivers is shown in **Figure 1**. Receivers potentially sensitive to noise and vibration have been categorised as residential dwellings, commercial/industrial buildings, or 'other sensitive' land uses which includes educational institutions, child care centres, medical facilities, places of worship, outdoor recreation areas. The project area has been divided into seven noise catchments (NCAs) which are based on the building use (i.e residential / commercial) and logical boundaries to help describe construction noise impacts.

Figure 1 Site Overview Map and Noise Monitoring Location



2.1 Existing Noise Surveys and Monitoring Location

Unattended noise monitoring was undertaken at location 1 during June 2021 and at location 2 in November/December 2021. The measured noise levels have been used to determine the existing noise environment and to set the criteria used to assess the potential impacts from the proposal.

The measured existing noise levels are representative of the background noise levels at receiver that would likely be most affected by the construction of the proposal across the project.

The noise monitoring equipment continuously measured existing noise levels in 15-minute periods during the daytime, evening and night-time. All equipment carried current National Association of Testing Authorities (NATA) calibration certificates and calibration was checked before and after each measurement.

The results of the noise monitoring have been analysed to exclude noise from extraneous events and data affected by adverse weather conditions, such as strong wind or rain (taken from the Bureau of Meteorology weather station located at Sydney Airport), to establish representative existing noise levels for the project area.

The noise monitoring location is shown in **Figure 1** and the results are summarised in **Table 1**. Details of the monitoring location together with graphs of the measured daily noise levels are provided in **Appendix B**.

Table 1 Summary of Unattended Noise Logging Results

ID	Address	Measured Noise Level (dBA)					
		Background Noise (RBL)			Average Noise (LAeq)		
		Day	Evening	Night	Day	Evening	Night
L01	206/44-43 Princes Hwy, St Peters	54	52	42	70	69	67
L02	11305/177 Mitchell Street, Erskineville	54	51	37	66	65	61

2.2 Attended Noise Measurements

Short-term attended noise monitoring was also completed at each monitoring location. The attended measurements allow the contributions of the various noise sources at each location to be determined. Detailed observations from the attended measurements are provided in **Appendix B**.

The attended measurements were generally found to be consistent with the results of the unattended noise monitoring and show that existing noise levels are dominated by road traffic noise from the surrounding road network.

3 Legislative and Policy Context

3.1 Construction Noise and Vibration Guidelines

The guidelines and standards used to assess and manage noise and vibration from the construction of the proposal are listed in **Table 2**. The guidelines aim to protect the community and environment from excessive adverse noise and vibration impacts through the consideration and implementation of feasible and reasonable measures to mitigate impacts

Table 2 Construction Noise and Vibration Guidelines

Guideline/Policy Name	Where Guideline Used
<i>Interim Construction Noise Guideline (ICNG) (DECC, 2009)</i>	Assessment of airborne noise and ground-borne noise impacts on sensitive receivers
<i>AS2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors</i>	Provides recommended design sound levels for internal areas of occupied spaces
<i>Road Noise Policy (RNP) (DECCW, 2011)</i>	Assessment of construction traffic impacts
<i>BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2, BSI, 1993</i>	Assessment of vibration impacts (structural damage) to non-heritage sensitive structures
<i>DIN 4150:Part 3-2016 Structural vibration – Effects of vibration on structures, Deutsches Institute fur Normung, 1999</i>	Screening assessment of vibration impacts (structural damage) to heritage sensitive structures, where the structure is found to be unsound
<i>Assessing Vibration: a technical guideline (DEC, 2006)</i>	Assessment of vibration impacts on sensitive receivers
<i>Construction Noise and Vibration Guideline (CNVG) (Roads and Maritime Services, 2016)</i>	Assessment and management protocols for airborne noise, ground-borne noise and vibration impacts for road infrastructure projects

3.1.1 NSW Interim Construction Noise Guideline

The NSW *Interim Construction Noise Guideline (ICNG)* is used to assess and manage impacts from construction noise on residences and other sensitive land uses.

The ICNG contains procedures for determining project specific Noise Management Levels (NMLs) for sensitive receivers based on the existing background noise in the area. The typical ‘worst-case’ noise levels from the construction of a project are determined and then compared to the NMLs in a 15 minute assessment period to determine the likely impact of the project at identified sensitive receivers.

The NMLs are applied as noise trigger levels not mandatory noise limits. Where construction noise levels are predicted or measured to be above the NMLs, feasible and reasonable work practices to minimise noise emissions are to be investigated and implemented.

3.1.2 Residential Receivers

The ICNG provides an approach for determining $L_{Aeq(15\text{minute})}$ NMLs at adjacent residential receivers based on measured $L_{A90(15\text{minute})}$ rating background noise levels (RBL), as described in **Table 3**.

Table 3 Determination of NMLs for Residential Receivers

Time of Day	NML LAeq(15minute)	How to Apply
Standard hours Monday to Friday 7:00 am to 6:00 pm Saturday 8:00 am to 1:00 pm No work on Sundays or public holidays	RBL + 10 dBA	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practises to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly Noise Affected 75 dBA	The Highly Noise Affected (HNA) level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours that the very noisy activities can occur, taking into account: <ul style="list-style-type: none"> • Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools or mid-morning or mid-afternoon for works near residences. • If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	RBL + 5 dBA	<ul style="list-style-type: none"> • A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practises have been applied and noise is more than 5 dBA above the noise affected level, the proponent should negotiate with the community.

Note 1 The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW Industrial Noise Policy.

3.1.3 Sleep Disturbance

Where night works are located close to residential receivers there is potential for sleep disturbance impacts. The ICNG lists five categories of works that might be undertaken outside of Standard Construction Hours:

- The **delivery of oversized equipment or structures** that require special arrangements to transport on public roads
- **Emergency work** to avoid the loss of life or damage to property, or to prevent environmental harm
- **Maintenance and repair of public infrastructure** where disruption to essential services or considerations of worker safety do not allow work within standard hours
- **Public infrastructure works** that shorten the length of the project and are supported by the affected community
- Works where a proponent demonstrates and justifies a **need to operate outside the recommended standard hours**.

Where construction works are planned to extend over more than two consecutive nights, the ICNG recommends that an assessment of sleep disturbance impacts should be completed. The ICNG refers to the NSW *Environmental Criteria for Road Traffic Noise* for assessing the potential impacts, which notes that to limit the level of sleep disturbance the LA1 level should not exceed the existing L90 noise level by more than 15 dB. If this does occur, additional mitigation measures would be considered and implemented, where appropriate.

Other Sensitive' Land Uses and Commercial Receivers

A number of non-residential land uses have been identified in the study area. These include 'other sensitive' land uses such as educational institutes, medical facilities, outdoor recreational areas and commercial properties. The ICNG NMLs for 'other sensitive' receivers are shown in **Table 4**.

Table 4 ICNG NMLs for 'Other Sensitive' Receivers

Land Use	Noise Management Level LAeq(15minute) (Applied when the property is in use)
Classrooms at schools and other education institutions	Internal noise level 45 dBA
Hospital wards and operating theatres	Internal noise level 45 dBA
Places of Worship	Internal noise level 45 dBA
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants)	External noise level 65 dBA
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion)	External noise level 60 dBA
Community centres	Refer to the recommended 'maximum' internal levels in AS 2107 for specific uses
Commercial	External noise level 70 dBA

For certain receiver types, criteria presented in **Table 4** above is specified as an internal noise level. As the noise model predicts external noise levels, it has been conservatively assumed that all schools and places of worship have openable windows and external noise levels are 10 dB higher than the corresponding internal level, which is representative of windows being partially open to provide ventilation. Hospital wards are assumed to have fixed windows with 20 dB higher external levels.

3.2 NML Summary

Using the measured background noise levels in **Section 2.1**, the NMLs derived for the project are detailed in **Table 5**.

Table 5 Residential Receiver NMLs for Construction

NCA	Representative Background Monitoring Location	Standard Construction (RBL+10dB)	Out of Hours (RBL+5dB)			Sleep Disturbance (RBL+15dB)
			Daytime	Daytime	Evening		Night-time
NCA01	L.02	64	59	56	42	52
NCA02	L.01	64	59	57	47	57
NCA03	L.01	64	59	57	47	57
NCA04	L.02	64	59	56	42	52
NCA05	L.02	64	59	56	42	52
NCA06 ¹	N/A	N/A	N/A	N/A	N/A	N/A
NCA07	L.01	64	59	57	47	57

Note 1: No residential receivers within this NCA.

3.3 Construction Vibration Criteria

The effects of vibration from construction works can be divided into three categories:

- Those in which the occupants of buildings are disturbed (human comfort)
- Those where building contents such as sensitive equipment may be affected (building contents)
- Those where the integrity of the building may be compromised (structural or cosmetic damage).

3.3.1 Human Comfort Vibration

People can sometimes perceive vibration impacts when vibration generating construction works are located close to occupied buildings.

Vibration from construction works tends to be intermittent in nature and the EPA's *Assessing Vibration: a technical guideline* (2006) provides criteria for intermittent vibration based on the Vibration Dose Value (VDV). The 'preferred' and 'maximum' VDV's for human comfort impacts are shown in **Table 6**.

Table 6 Vibration Dose Values for Intermittent Vibration

Building Type	Assessment Period	Vibration Dose Value ¹ (m/s ^{1.75})	
		Preferred	Maximum
Critical Working Areas (eg operating theatres or laboratories)	Day or night-time	0.10	0.20
Residential	Daytime	0.20	0.40
	Night-time	0.13	0.26
Offices, schools, educational institutions and places of worship	Day or night-time	0.40	0.80
Workshops	Day or night-time	0.80	1.60

Note 1: The VDV accumulates vibration energy over the daytime and night-time assessment periods, and is dependent on the level of vibration as well as the duration.

While the construction activities for this proposal are generally not expected to result in continuous or impulsive vibration impacts, it is noted that the construction activities are subject to refinement during detailed design. Continuous and impulsive criteria are shown in **Table 7**.

Table 7 Preferred and Maximum Weighted Root Mean Square Values for Continuous and Impulsive Vibration Acceleration (m/s²) 1–80 Hz

Location	Assessment period	Preferred values		Maximum values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Continuous vibration					
Critical working areas ¹ (eg operating theatres or precision laboratories where sensitive operations are occurring)	Day or night-time	0.0050	0.0036	0.010	0.0072
Residential	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
Workshops	Day or night-time	0.04	0.029	0.080	0.058
Impulsive vibration					
Critical working areas ¹ (eg operating theatres or precision laboratories where sensitive operations are occurring)	Day or night-time	0.0050	0.0036	0.010	0.0072
Residential	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Note 1: No critical working areas have been identified in the study area. This should be confirmed during the detailed design stage.

3.3.2 Effects on Building Contents

People perceive vibration at levels well below those likely to cause damage to building contents. For most receivers, the human comfort vibration criteria are the most stringent and it is generally not necessary to set separate criteria for vibration effects on typical building contents.

Exceptions to this can occur when vibration sensitive equipment, such as electron microscopes, are located in buildings near to construction works. Criteria for vibration sensitive equipment are discussed in **Section 3.3.7**.

3.3.3 Structural and Cosmetic Damage Vibration

If vibration from construction works is sufficiently high it can cause damage to structural elements of affected buildings. The levels of vibration required to cause cosmetic damage tend to be at least an order of magnitude (10 times) higher than those at which people can perceive vibration.

Examples of damage that can occur includes cracks or loosening of drywall surfaces, cracks in supporting columns and loosening of joints. Structural damage vibration limits are contained in British Standard BS 7385 and German Standard DIN 4150.

3.3.4 BS 7385

British Standard BS 7385 recommends vibration limits for transient vibration judged to give a minimal risk of vibration induced damage to affected buildings. The limits for residential and industrial buildings are shown in **Table 8**.

Table 8 BS 7385 Transient Vibration Values for Minimal Risk of Damage

Group	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures. Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Note 1: Where the dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values may need to be reduced by up to 50%.

For heritage buildings, the standard states that *“a building of historical value should not (unless it is structurally unsound) be assumed to be more sensitive”*.

3.3.5 DIN 4150

German Standard DIN 4150 also provides guideline vibration limits for different buildings and buried pipework. Damage is not expected to occur where the values are complied with and the values are generally recognised to be conservative. The DIN 4150 values for buildings and structures are shown in **Table 9**.

Table 9 DIN 4150 Guideline Values for Short-term Vibration on Structures

Group	Type of Structure	Guideline Values Vibration Velocity (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified as Group 1 or 2 and are of great intrinsic value (eg heritage listed buildings)	3	3 to 8	8 to 10	8	20 ¹

Note 1: It may be necessary to lower the relevant guideline value markedly to prevent minor damage.

3.3.6 Heritage Items

Heritage buildings and structures should be considered on a case-by-case basis but as noted in BS 7385 should not be assumed to be more sensitive to vibration, unless structurally unsound. Where a heritage building is deemed to be sensitive, the more stringent DIN 4150 Group 3 guideline values in **Table 9** can be applied.

3.3.7 Sensitive Scientific and Medical Equipment

Some scientific equipment, such as electron microscopes and microelectronics manufacturing equipment, can require stringent vibration goals.

Where vibration sensitive equipment is potentially affected by construction works, vibration limits for the operation of the equipment should be taken from manufacturer’s data. Where this is not available the generic Vibration Criterion (VC) curves in **Table 10** can be used.

Table 10 VC Curves for Vibration Sensitive Equipment

Criterion Curve	Max Level (µm/sec, rms) ¹	Detail Size (microns) ²	Description of Use
VC-A	50	8	Adequate in most instances for optical microscopes to 400X, microbalances, optical balances, proximity and projection aligners, etc.
VC-B	25	3	An appropriate standard for optical microscopes to 1000X, inspection and lithography equipment (including steppers) to 3 micron line widths.
VC-C	12.5	1	A good standard for most lithography and inspection equipment to 1 micron detail size.
VC-D	6	0.3	Suitable in most instances for the most demanding equipment including electron microscopes (TEMs and SEMs) and E-Beam systems, operating to the limits of their capability.
VC-E	3	0.1	A difficult criterion to achieve in most instances. Assumed to be adequate for the most demanding of sensitive systems including long path, laser-based, small target systems and other systems requiring extraordinary dynamic stability.

Note: Vibration Criterion curves as published by the Society of Photo-Optical Instrumentation Engineers (Colin G. Gordon – 28 September 1999).

3.3.8 Minimum Working Distances for Vibration Intensive Works

Minimum working distances for typical vibration intensive construction equipment are provided in the CNVG and are shown in **Table 11**. The minimum working distances are for both cosmetic damage (from BS 7385 and DIN 4150) and human comfort (from the NSW EPA Vibration Guideline). They are based on empirical data which suggests that where works are further from receivers than the quoted minimum distances then impacts are not considered likely.

Table 11 Recommended Minimum Working Distances from Vibration Intensive Equipment

Plant Item	Rating/Description	Minimum Distance		
		Cosmetic Damage		Human Response (NSW EPA Guideline)
		Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	
Vibratory Roller	<50 kN (1–2 tonne)	5 m	11 m	15 m to 20 m
	<100 kN (2–4 tonne)	6 m	13 m	20 m
	<200 kN (4–6 tonne)	12 m	15 m	40 m
	<300 kN (7–13 tonne)	15 m	31 m	100 m
	>300 kN (13–18 tonne)	20 m	40 m	100 m
	>300 kN (>18 tonne)	25 m	50 m	100 m
Small Hydraulic Hammer	300 kg (5 to 12 t excavator)	2 m	5 m	7 m
Medium Hydraulic Hammer	900 kg (12 to 18 t excavator)	7 m	15 m	23 m
Large Hydraulic Hammer	1,600 kg (18 to 34 t excavator)	22 m	44 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	20 m
Piling Rig – Bored	≤ 800 mm	2 m (nominal)	5 m	4 m
Jackhammer	Hand held	1 m (nominal)	3 m	2 m

The minimum working distances are indicative and would vary depending on the particular item of equipment and local geotechnical conditions. The distances apply to cosmetic damage of typical buildings under typical geotechnical conditions.

3.4 Construction Traffic

When construction related traffic moves onto the public road network, vehicle movements are regarded as ‘additional road traffic’ and the CNVG refers to criteria in the NSW EPA *Road Noise Policy* (RNP, 2011).

For Transport for NSW projects, an initial screening test is first applied by evaluating whether noise levels would increase by more than 2 dB (an increase in the number vehicles of approximately 60%) due to construction traffic. The screening assessment has been included in **Section 4.7**.

Where noise levels increase by more than 2 dB (ie 2.1 dB or greater) further assessment is required using the criteria presented in the Transport for NSW’s *Noise Criteria Guideline*.

3.5 Operational Noise and Vibration Guidelines

The guidelines used to assess the potential operational road traffic impacts from the proposal are listed in **Table 12**. The guidelines aim to protect the community and environment from excessive noise and vibration impacts from the long-term operation of the proposal.

Table 12 Operational Road Traffic Noise and Vibration Guidelines

Guideline/Policy Name	When Guideline is Used
Road Noise Policy (RNP) (DECCW, 2011)	Operational road traffic noise assessment
Noise Criteria Guideline (NCG) (Roads and Maritime, 2015)	Defines Roads and Maritime’s interpretation of the RNP and details how criteria is applied to sensitive receivers

3.5.1 Noise Criteria Guideline and NSW Road Noise Policy

Where a development has the potential to result in an increase in operational road traffic noise levels, the impacts on sensitive receivers are assessed under the NSW *Road Noise Policy* (RNP, 2011).

The *Noise Criteria Guideline* (NCG) provides Transport for NSW’ interpretation of the RNP. The NCG provides a consistent approach to identifying road noise criteria for Transport for NSW projects.

Although it is not mandatory to achieve the noise assessment criteria in the NCG, project proponents need to provide justification if it is not considered feasible or reasonable to achieve them.

The Project is regarded as ‘minor works’. The NCG notes the following with regard to minor works:

“Some works may be primarily to improve safety. This may include minor straightening of curves, installing traffic control devices, intersection widening and turning bay extensions or making minor road realignments.

These works are not considered redeveloped or new as they are not intended to increase the traffic carrying capacity of the overall road or accommodate a significant increase in heavy vehicle traffic.”

3.5.2 Minor Works

The NCG applies existing road criteria where minor works increase noise levels by more than 2 dB at receivers from the ‘No Build’ to ‘Build’ scenarios.

For traffic operating on public roads the noise criteria for existing residences affected by additional traffic on existing sub-arterial roads are set out in **Table 13**.

Table 13 Target Noise Abatement Levels for Existing Road not Subject to Redevelopment

Existing Road Category	Target Noise Level (dBA) ¹	
	Daytime (7 am - 10 pm)	Night-time (10 pm - 7 am)
Freeway/arterial/sub-arterial road	LAeq(15hour) 60	LAeq(9hour) 55

Note 1: All criteria are external, applicable at the facade of the affected residence.

An assessment against the target noise levels as shown in **Table 13** would be undertaken where the proposal increased road traffic noise levels by more than 2 dB.

4 Construction Noise Assessment

4.1 Construction Airborne Noise Assessment Methodology

A noise model of the study area has been used to predict noise levels from the proposed construction works to all surrounding receivers. The model uses ISO 9613 algorithms in SoundPLAN software 8.0.

The noise prediction model included a detailed terrain model to develop a 3-dimensional (3D) representation of the study area. The terrain datasets comprised elevation contours of the existing ground along with the surrounding environment.

Building heights were determined from the referenced geospatial database. Receiver locations were located on all facades of every floor. The construction assessment presents the highest noise level per building.

The construction noise model considers:

- 3D ground terrain and the shielding attenuation provided topography and structures
- The location of construction works.
- All facades and floors of sensitive buildings have been considered as receiver points.
- The sound power levels of all plant and equipment which have the potential to operate simultaneously within any 15 minute period.
- Noise propagation calculated on the implementation of the noise propagation algorithm ISO 9613-2 (1996), which incorporates moderately adverse meteorological conditions, implemented in accordance with ISO/TR 17534-3 (2015), based on a typical ground absorption of 0.5, and zero for hard/acoustically reflective areas such as water

4.1.1 Working Hours

Where possible, construction of the proposal would be carried out during 'Standard Construction Hours'. Construction Hours are defined in the ICNG and shown in **Table 14**.

Table 14 Standard and Out of Hours Construction Hours¹

Hour commencing	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Monday																								
Tuesday																								
Wednesday																								
Thursday																								
Friday																								
Saturday																								
Sunday																								
Public Holiday																								

Note 1: Taken from the TfNSW *Construction Noise and Vibration Strategy*.

Note 2: Standard Construction Hours are Monday to Friday 7 am to 6 pm and Saturdays from 8 am to 1 pm, as defined in the ICNG.

Note 3: OOH = Out of Hours (ie not during Standard Construction Hours).

However, the proposals specific constraints mean that evening and night-time works would be required to minimise impacts on road traffic, and for safety reasons.

Works would be required outside of Standard Construction Hours to:

- Minimise unacceptable traffic impacts on and disruptions to the road network and local utilities such as water, power and gas.
- Ensure the safety of the construction workers, motorists and the general public

The periods in which the construction works are expected to be required along with the compounding construction activity are shown in **Table 15**.

4.1.2 Construction Activities

The activities likely to be required to construct the project involve conventional road infrastructure construction equipment such as jackhammers, earth moving equipment, concreting equipment, paving plant, and small cranes.

A number of indicative scenarios have been developed to assess potential impacts associated with construction of the project and are shown in **Table 15**.

The individual items of equipment which form each construction scenario presented in **Table 15** along with the corresponding sound power levels are presented in **Appendix C**.

Table 15 Construction Activities and Period of Construction

Works ID	Scenario	Activity (dBA SWL)	Hours of Works ¹			
			Standard Day	Day OOH	Evening	Night
1	Mobilisation and Site Establishment	107	✓	-	-	-
2	Traffic Switches	116	✓	✓	✓	✓
3	Tree Felling	117	✓	-	✓	✓
4	Utility Locating	116	✓	-	✓	✓
5	Utility Relocation (noisy works)	117	✓	✓	✓	✓
6	Utility Relocation	108	✓	✓	✓	✓
7	Drainage infrastructure	115	✓	✓	✓	✓
8	Road Works – General Civil	119	✓	✓	✓	✓
9	Road Works – Milling Works	119	✓	✓	✓	✓
10	Paving Works – Pavement Works	118	✓	✓	✓	✓
11	Finishing Works	113	✓	✓	✓	✓

Note 1: OOH = Out of hours. During the daytime this refers to the period on Saturday between 7 am - 8 am and 1 pm - 6 pm, on Sunday and public holidays between 8 am - 6 pm.

4.1.3 Project Staging, Duration and Locality

The proposal would be constructed in two main construction zones over approximately 24 months from mid to late 2022 to Mid-2024. The two zones are noted as the following:

- Zone A: King Street and Princes Highway – Campbell Street to Sydney Park Road
- Zone B: Sydney Park Road – Princes Highway to Euston Road.

Airborne construction impacts have been modelled separately for Zone A and Zone B. All works activities shown in **Table 15** would be required in both Zone A and Zone B. The general works locations are shown in **Figure 2**.

Figure 2 Construction Works Locations

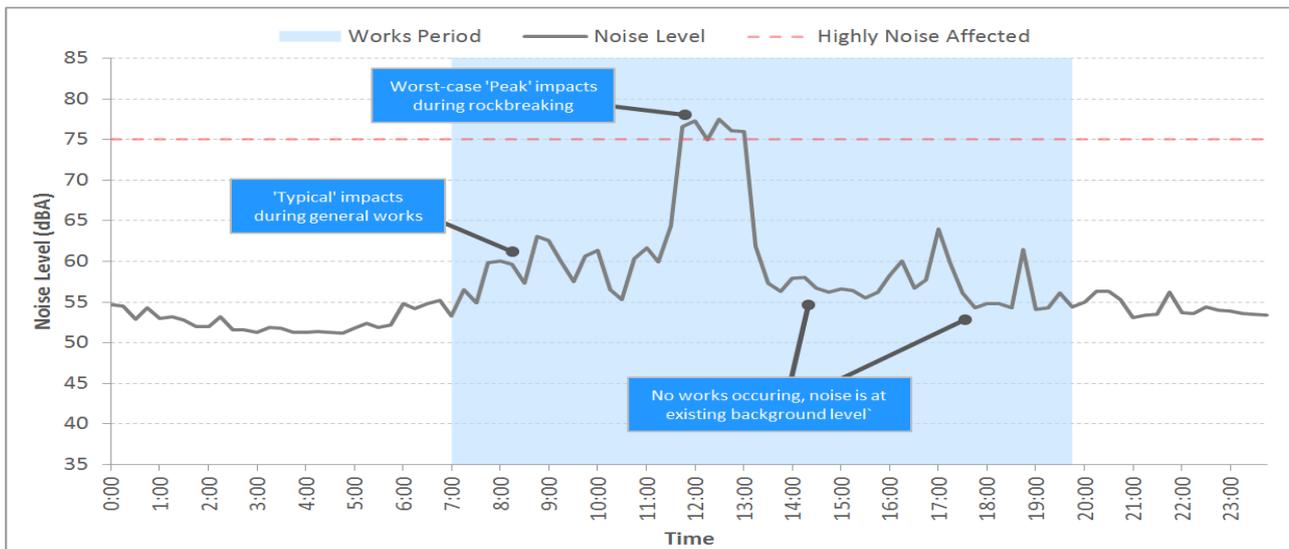


4.2 Overview of Construction Impacts at Residential Receivers

The following overview is based on the predicted noise impacts at the most affected receivers in each NCA and is representative of the worst-case situation where construction equipment is at the closest point to each receiver.

For most works, the construction noise impacts would frequently be lower than predicted as the worst-case situation is typically only apparent for a relatively short period when noisy equipment is in use nearby. This concept is illustrated indicatively in **Figure 3** which shows noise levels measured next to major construction works during a period of 'Peak' impact and shows how construction noise levels can vary over the works period. The example below uses the noise impacts associated with a rock breaker to demonstrate the variability of construction noise levels.

Figure 3 Example of Indicative Construction Noise Levels



Note: The measurement location was around 40 m away from the works.

In the above example, while the worst-case noise levels result in Highly Noise Affected impacts, these only last for part of the works period and the noise levels during ‘Typical’ activities are much lower. There are also periods when no works are occurring and noise levels are at existing background level (eg road traffic and general urban hum).

The following assessment shows the predicted noise impacts based on the exceedance of the NML, as per the perception categories in **Table 16** which are taken from the CNVG. Residential receivers that are subject to noise levels of 75 dBA or greater are considered Highly Noise Affected by the ICNG and have been identified in **Section 4.2.3**.

Table 16 NML Exceedance Bands and Corresponding Subjective Response to Impacts

CNVG Perception Categories	Daytime –Standard Construction Hours		Out of Hours Periods	
	Symbol	NML Exceedance	Symbol	NML Exceedance
Noticeable	.	⁻¹	◆	1 to 5 dB
Clearly Audible	●	1 to 10 dB	●	6 to 15 dB
Moderately Intrusive	◆	11 dB to 20 dB	◆	16 dB to 25 dB
Highly Intrusive	■	>20 dB	■	>25 dB

Note 1: Applicable for noise levels of 5-10 dB above RBL.

The predicted construction noise impacts are presented for the most affected receivers. Receivers which are further away from the works and/or shielded from view would have substantially lower impacts. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within individual scenarios.

A summary of the predicted construction noise impacts in each NCA for residential receivers located in Zone A (King Street and Princes Highway – Campbell Street to Sydney Park Road) and Zone B (Sydney Park Road – Princes Highway to Euston Road) is shown in **Table 17** and **Table 18**, respectively.

Where impacts are predicted, the methods for controlling the impacts through the use of mitigation measures and management techniques are discussed in more detail in **Section 6**.

4.2.1 Zone A – King Street and Princes Highway – Campbell Street to Sydney Park Road

Table 17 Predicted Worst-case Construction Noise Exceedances – Residential Receivers

Period	ID	Scenario	NCA01	NCA02	NCA03	NCA04	NCA05	NCA06	NCA07
Daytime	1	Mobilisation and Site Establishment	●	●	◆	•	•	•	•
	2	Traffic Switches	◆	■	■	•	•	•	•
	3	Tree Felling	◆	■	■	●	•	•	•
	4	Utility Locating	◆	■	■	•	•	•	•
	5	Utility Relocation (noisy works)	◆	■	■	●	•	•	•
	6	Utility Relocation	●	◆	◆	•	•	•	•
	7	Drainage Infrastructure	◆	■	■	•	•	•	•
	8	Road Works – General Civil	◆	■	■	●	•	•	•
	9	Road Works – Milling Works	◆	■	■	●	•	•	•
	10	Paving Works – Pavement Works	◆	■	■	●	•	•	•
	11	Finishing Works	●	◆	■	•	•	•	•
Evening	1	Mobilisation and Site Establishment	•	•	•	•	•	•	•
	2	Traffic Switches	◆	■	■	●	•	•	•
	3	Tree Felling	◆	■	■	●	•	•	•
	4	Utility Locating	◆	■	■	●	•	•	•
	5	Utility Relocation (noisy works)	◆	■	■	●	•	•	•
	6	Utility Relocation	●	◆	◆	•	•	•	•
	7	Drainage Infrastructure	◆	■	■	●	•	•	•
	8	Road Works – General Civil	◆	■	■	●	•	•	•
	9	Road Works – Milling Works	◆	■	■	●	•	•	•
	10	Paving Works – Pavement Works	◆	■	■	●	•	•	•
	11	Finishing Works	◆	■	■	◆	•	•	•
Night time	1	Mobilisation and Site Establishment	•	•	•	•	•	•	•
	2	Traffic Switches	■	■	■	◆	●	•	◆
	3	Tree Felling	■	■	■	◆	●	•	◆
	4	Utility Locating	■	■	■	◆	●	•	◆
	5	Utility Relocation (noisy works)	■	■	■	◆	●	•	◆
	6	Utility Relocation	■	■	■	●	◆	•	•
	7	Drainage Infrastructure	■	■	■	◆	●	•	◆
	8	Road Works – General Civil	■	■	■	◆	●	•	●
	9	Road Works – Milling Works	■	■	■	◆	●	•	●
	10	Paving Works – Pavement Works	■	■	■	◆	●	•	◆
	11	Finishing Works	■	■	■	◆	●	•	•
Key to impacts	Daytime (Standard Hours) ● Clearly Audible 1 dB to 10 dB NML Exceedance ◆ Moderately Intrusive 11 dB to 20 dB NML Exceedance ■ Highly Intrusive > 20 dB NML Exceedance		Outside standard hours (Evening and night-time) ◆ Noticeable (Evening and Night) 1 dB to 5 dB NML Exceedance ● Clearly Audible 6 dB to 15 dB NML Exceedance ◆ Moderately Intrusive 16 dB to 25 dB NML Exceedance ■ Highly Intrusive > 25 dB NML Exceedance Grey shading indicates no work during that time period						

4.2.2 Zone B – Sydney Park Road – Princes Highway to Euston Road.

Table 18 Predicted Worst-case Construction Noise Exceedances – Residential Receivers

Period	ID	Scenario	NCA01	NCA02	NCA03	NCA04	NCA05	NCA06	NCA07
Daytime	1	Mobilisation and Site Establishment	.	.	.	◆	◆	.	.
	2	Traffic Switches	●	●	.	■	◆	.	.
	3	Tree Felling	●	●	.	■	■	.	.
	4	Utility Locating	●	●	.	■	◆	.	.
	5	Utility Relocation (noisy works)	●	●	.	■	■	.	.
	6	Utility Relocation	●	.	.	◆	◆	.	.
	7	Drainage Infrastructure	●	●	.	■	◆	.	.
	8	Road Works – General Civil	◆	●	.	■	■	.	.
	9	Road Works – Milling Works	◆	●	.	■	■	.	.
	10	Paving Works – Pavement Works	◆	●	.	■	■	.	.
	11	Finishing Works	●	.	.	◆	◆	.	.
Evening	1	Mobilisation and Site Establishment	.	.	.	.	.	.	.
	2	Traffic Switches	◆	●	◆	■	■	.	.
	3	Tree Felling	◆	●	◆	■	■	.	.
	4	Utility Locating	◆	●	◆	■	■	.	.
	5	Utility Relocation (noisy works)	◆	●	◆	■	■	.	.
	6	Utility Relocation	●	◆	.	◆	◆	.	.
	7	Drainage Infrastructure	◆	●	◆	■	■	.	.
	8	Road Works – General Civil	◆	●	●	■	■	.	.
	9	Road Works – Milling Works	◆	●	●	■	■	.	.
	10	Paving Works – Pavement Works	◆	●	◆	■	■	.	.
	11	Finishing Works	●	●	.	■	◆	.	.
Night time	1	Mobilisation and Site Establishment	.	.	.	.	.	.	.
	2	Traffic Switches	■	◆	●	■	■	.	◆
	3	Tree Felling	■	◆	●	■	■	.	◆
	4	Utility Locating	■	◆	●	■	■	.	◆
	5	Utility Relocation (noisy works)	■	◆	●	■	■	.	◆
	6	Utility Relocation	◆	●	◆	■	■	.	.
	7	Drainage Infrastructure	■	◆	●	■	■	.	.
	8	Road Works – General Civil	■	◆	◆	■	■	.	◆
	9	Road Works – Milling Works	■	◆	◆	■	■	.	◆
	10	Paving Works – Pavement Works	■	◆	●	■	■	.	◆
	11	Finishing Works	■	◆	●	■	■	.	.
Key to impacts	Daytime (Standard Hours) ● Clearly Audible 1 dB to 10 dB NML Exceedance ◆ Moderately Intrusive 11 dB to 20 dB NML Exceedance ■ Highly Intrusive > 20 dB NML Exceedance		Outside standard hours (Evening and night-time) ◆ Noticeable (Evening and Night) 1 dB to 5 dB NML Exceedance ● Clearly Audible 6 dB to 15 dB NML Exceedance ◆ Moderately Intrusive 16 dB to 25 dB NML Exceedance ■ Highly Intrusive > 25 dB NML Exceedance Grey shading indicates no work during that time period						

Table 17 and **Table 18** summaries the highest impact at the worst-case receiver for each NCA. Receivers which are further away from the works and/or shielded from view would have substantially lower impacts than what are summarised in the tables above. Further breakdown of the level of NML exceedances per NCA is provided in **Appendix C** for each works scenario.

Receivers within NCA01, NCA02 and NCA03 experience higher noise levels when construction works are located within Zone A. NCA04 and NCA05 are predicted to experience the highest noise levels when works are located within Zone B.

Highly intrusive noise impacts are generally limited to the first row of receivers within both Zone A and B. Whilst the works are intrusive, works would progress along the road and as such the duration of the noise impacts would be expected to be relatively short at a specific receiver location.

As a result of works being located near to receivers in both Zone A and Zone B, highly intrusive (>25 dB NML exceedances) are predicted at the front row receivers when noise intensive equipment such as concrete saws and jackhammers are used. The use of noise intensive equipment would generally be limited to sporadic short periods. Noise levels and NML exceedances would drop by approximately 15 dB when the concrete saw is not in use.

Specific mitigations measures such as mobile plant screening (temporary noise barriers) and limiting the use of noise intensive equipment to before midnight would help mitigate noise levels and associated impacts. These specific mitigation measures should be specifically employed when works are conducted outside of standard hours.

4.2.3 Highly Noise Affected Residential Receivers

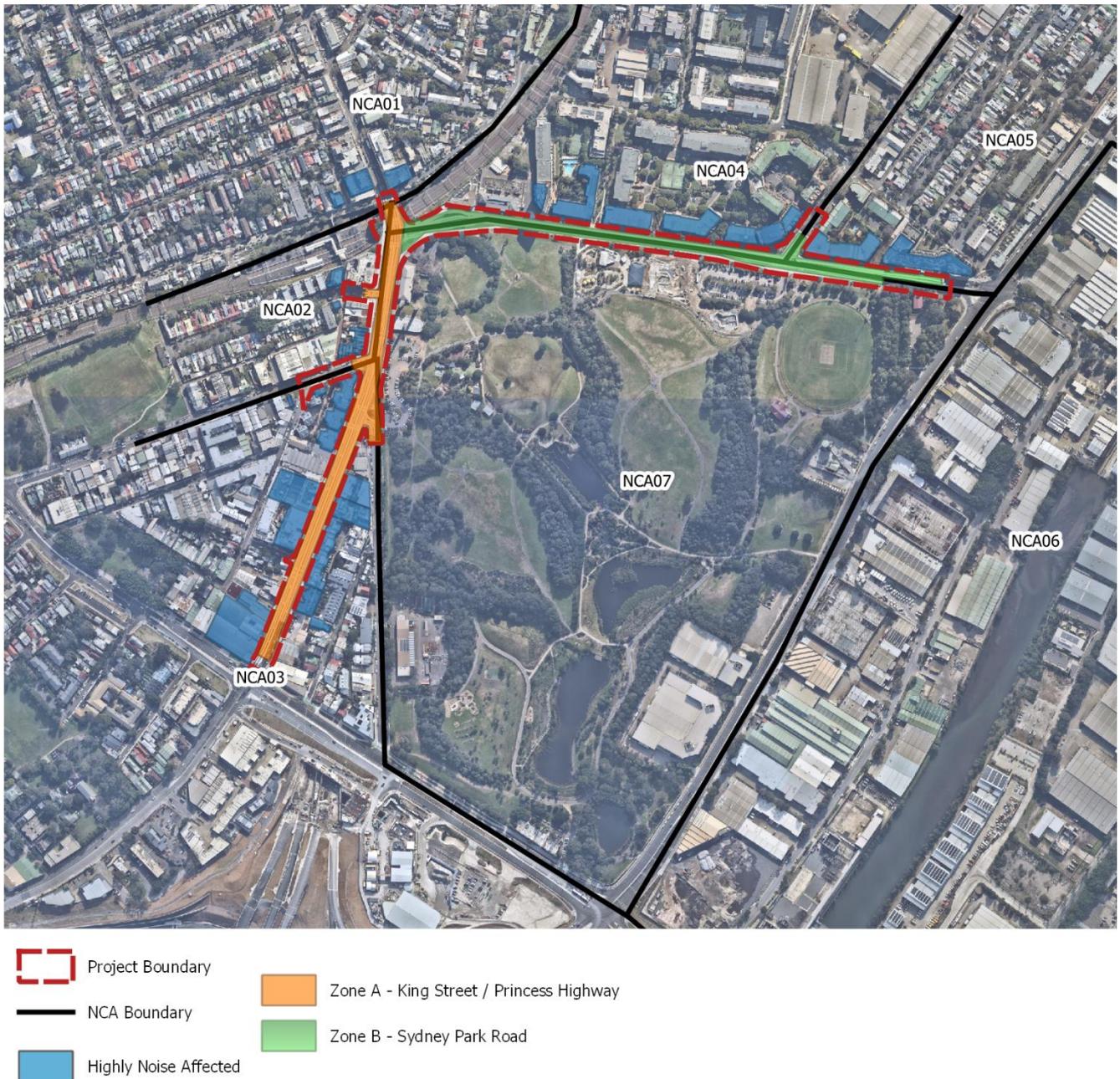
Residential receivers that are subject to noise levels of 75 dBA or greater are considered Highly Noise Affected by the ICNG. Receivers can be Highly Noise Affected when noisy works are occurring close to residents. The receivers which could potentially be Highly Noise Affected during the worst-case impacts from the project are summarised in **Table 19** and shown in **Figure 4**.

The predictions assume the worst-case scenarios are occurring at all locations and therefore present all Highly Noise Affected receivers in one assessment.

Table 19 Predicted Number of Highly Noise Affected Residential Receivers (Zone A and Zone B)

ID	Scenario	Count of Night-time Highly Noise Affected Receivers						
		NCA01	NCA02	NCA03	NCA04	NCA05	NCA06	NCA07
Zone A – Princes Highway – Campbell Street to Sydney Park Road								
1	Mobilisation and Site Establishment	-	7	11	-	-	-	-
2	Traffic Switches	1	13	13	-	-	-	-
3	Tree Felling	1	13	13	-	-	-	-
4	Utility Locating	1	13	13	-	-	-	-
5	Utility Relocation (noisy works)	1	13	13	-	-	-	-
6	Utility Relocation	-	8	12	-	-	-	-
7	Drainage Infrastructure	1	13	13	-	-	-	-
8	Road Works – General Civil	3	13	14	-	-	-	-
9	Road Works – Milling Works	3	13	14	-	-	-	-
10	Paving Works – Pavement Works	1	13	13	-	-	-	-
11	Finishing Works	-	12	12	-	-	-	-
Zone B – Sydney Park Road – Princes Highway to Euston Road								
1	Mobilisation and Site Establishment	-	-	-	3	-	-	-
2	Traffic Switches	-	-	-	7	2	-	-
3	Tree Felling	-	-	-	7	2	-	-
4	Utility Locating	-	-	-	7	2	-	-
5	Utility Relocation (noisy works)	-	-	-	7	2	-	-
6	Utility Relocation	-	-	-	5	1	-	-
7	Drainage Infrastructure	-	-	-	7	2	-	-
8	Road Works – General Civil	1	-	-	7	2	-	-
9	Road Works – Milling Works	1	-	-	7	2	-	-
10	Paving Works – Pavement Works	1	-	-	7	2	-	-
11	Finishing Works	-	-	-	7	2	-	-

Figure 4 Highly Noise Affected Receivers for both Zone A and Zone B



4.3 Other Sensitive Receivers

Other sensitive receivers identified near to the project are limited to public buildings within Sydney Park and the Park itself which is classified as a passive recreational area. NML exceedances greater than 25 dBA are predicted when works are within close proximity to Sydney Park Buildings, although noise levels across the general park area would only be approximately 5 dB above the NML daytime criteria of 60 dBA. The impacts presented above are based on all equipment working simultaneously in each assessed scenario. There would frequently be periods when construction noise levels are much lower than the worst-case predictions and there would be times when no equipment is in use and no exceedances occur.

4.4 Sleep Disturbance

A Review of the predictions shows that the sleep disturbance screening criterion is likely to be exceeded when night works occur near residential receivers. The receivers which would potentially be affected by sleep disturbance impacts are generally the same receivers where ‘highly intrusive’ night-time impacts have been predicted. The number of receivers predicted to exceed the sleep disturbance screening criteria has been included in **Appendix C** for each works scenario and NCA.

The requirements for night-time works would be confirmed as the project progresses. Construction mitigation and management measures are discussed further in **Section 6**.

4.5 Construction Compounds

Two pre-existing compounds located off Burrows Road (previously utilised by WestConnex) would be used by the proposal, as shown in **Figure 5**. Compounds would be used for stockpiling and storage of equipment/materials and may be used during out-of-hours periods to support evening and night-time work. The nearest residential receiver to the compounds is around 350 m away to the west on the corner of Gardners Road and Kent Road and the potential noise impacts are expected to be negligible.

Figure 5 Construction Compound Locations



4.6 Construction Vibration Assessment

The main potential sources of vibration during construction would be from vibratory rollers and rock breakers. The construction scenarios which require vibration intensive equipment are shown in **Table 20**.

Table 20 Requirement for Vibration Intensive Equipment

ID	Scenario	Vibration Intensive Equipment
W.05	Utility Works – Relocation	Jackhammer
W.08	Road Works – Roadworks and Tie ins	Jackhammer, Vibratory Roller

Vibration offset distances have been determined from the CNVG minimum working distances for cosmetic damage, heritage and human response in **Table 11** for a medium vibratory roller (<300 kN (7–13 tonne)) and the assessment is summarised in **Figure 6** which indicates the minimum working distances for the selected items of plant. Where larger items of plant are required, such as a larger vibratory roller, the minimum distances would be as per the distances outlined in **Table 11**.

Figure 6 Construction Vibration Assessment – Medium Vibratory Roller



4.6.1 Cosmetic Damage Assessment

The above figure shows that the distance between the construction works and the nearest receivers are within the recommended minimum working distances. Buildings which are within the minimum working distances are shown in the figure.

Where works are within the minimum working distances and considered likely to exceed the cosmetic damage objectives, construction works would not proceed unless:

- A different construction method with lower source vibration levels is used, where feasible. This would include the use of smaller items of plant which would result in a lower level of vibration.
- Attended vibration measurements are carried out at the start of the works to determine the risk of exceeding of the vibration objectives and confirm the minimum working distances.

Where buildings are potentially affected by vibration, building condition surveys would be completed before and after works. Following confirmation of the specific location of vibration intensive works, building condition surveys should be considered for all buildings that are within the minimum working distances.

4.6.2 Human Comfort Vibration Assessment

As shown in the above figure, numerous receivers in the study area are also within the human comfort minimum working distance and occupants of affected buildings may be able to perceive vibration impacts at times when vibration intensive equipment is in use. Where impacts are perceptible, they would likely only be apparent for relatively short durations when equipment such as rock breakers or vibratory rollers are nearby.

4.6.3 Heritage Structures

The St Peters Public Space Project Statement of Heritage Impact report (Heritage Report) prepared by Jacobs has identified ten heritage items that are located within the study area. Items that have been deemed to be of heritage significance in the heritage report and are likely to be impacted by vibration are listed below:

- St Peters Railway Station Group
- Electricity Substation No. 549
- Goodsell Estate Heritage Conservation Area
- St Peters Hotel, including interiors
- Former Brickworks Group
- King Street and Enmore Road Heritage Conservation area
- Former St Peters Theatre Façade
- King Street Heritage Conservation Area
- Tramways Road Corridor

The location of these heritage items in relation to the project is shown in Section 3 of the Heritage Report. All heritage items are within the minimum working distances for DIN 4150 group 3 for a medium size vibratory roller.

BS 7385 states that “a building of historical value should not (unless it is structurally unsound) be assumed to be more sensitive” and therefore buildings or structures should not be assumed to be sensitive to vibration on the basis of being classed a heritage item.

Heritage buildings are to be considered on a case by case basis and further investigation would be carried out during detailed design for all potentially affected structures. Where buildings or structures are considered sensitive to vibration, appropriate vibration criteria would be determined after detailed inspections have been completed. A dilapidation survey should be carried out to confirm the sensitivity of the item to vibration induced damage and the appropriate criteria applied.

4.7 Construction Traffic Noise Assessment

The existing traffic volumes along Princes Highway and Sydney Park Road is expected to be significantly greater than the proposed construction traffic volumes generated by the project and therefore an increase in traffic noise due to the construction traffic associated with the project of greater than 2dB is not considered likely. No mitigation is likely to be required as a result.

5 Operational Noise and Vibration Assessment

Transport for NSW proposes to improve the southern 'gateway' to King Street, Newtown by reducing the capacity of King Street, Princes Highway and Sydney Park Road and enhancing pedestrian and cyclist access between King Street, St Peters Station and Sydney Park (the proposal).

As a result of the improvements, an assessment of the residual traffic noise impacts from the redistributed traffic is required to be assessed for the surrounding roads outlined below:

- Princes Highway/King Street,
- Sydney Park Road,
- Campbell Road/Campbell Street,
- Euston Road,
- Mitchell Road, and
- Huntley Street

The improvements are considered to fall under a minor works assessment and therefore the change in noise levels associated with the redistributed traffic volumes have been assessed using spreadsheet calculations using the CoRTN algorithm.

The predicted change in noise level for each section of road is outlined in **Table 21** with the traffic volumes used for the assessment detailed in **Appendix D**.

Table 21 Change in Operational Noise Levels

Road Section	Predicted Increase in Operational Noise - LAeq (dBA)			
	2023		2033	
	Day 15hr	Night 9 hr	Day 15hr	Night 9 hr
King Street, north of Sydney Park Road Northbound	-1.4	-1.4	-0.2	-0.2
King Street, north of Sydney Park Road Southbound	-0.4	-0.4	-1.6	-1.6
Princes Highway, between Sydney Park Road and May Street Northbound	-2.1	-2.1	-5.1	-5.1
Princes Highway, between Sydney Park Road and May Street Southbound	-2.0	-2.0	-3.8	-3.8
Princes Highway, between May Street and Campbell Street Northbound	-2.9	-2.9	-2.2	-2.2
Princes Highway, between May Street and Campbell Street Southbound	-2.6	-2.6	-4.5	-4.5
Sydney Park Road, between Euston Road and Mitchell Road Eastbound	-0.3	-0.3	-0.3	-0.3
Sydney Park Road, between Euston Road and Mitchell Road Westbound	-0.6	-0.6	-0.7	-0.7
Sydney Park Road, between Mitchell Road and King Street / Princes Highway Eastbound	-2.0	-2.0	-1.8	-1.8
Sydney Park Road, between Mitchell Road and King Street / Princes Highway Westbound	-2.5	-2.5	-3.2	-3.2
Mitchell Road, north of Sydney Park Road Northbound	-0.9	-0.9	-1.0	-1.0
Mitchell Road, north of Sydney Park Road Southbound	-2.0	-2.0	-3.2	-3.2
Euston Road, between Huntley Street / Sydney Park Road and Campbell Road Northbound	0.0	0.0	0.3	0.3
Euston Road, between Huntley Street / Sydney Park Road and Campbell Road Southbound	-0.3	-0.3	0.3	0.3
Campbell Street / Campbell Road, between Euston Road and Princes Highway Eastbound	-0.5	-0.5	0.3	0.3
Campbell Street / Campbell Road, between Euston Road and Princes Highway Westbound	-0.3	-0.3	0.6	0.6
Huntley Street, east of Euston Road Eastbound	0.3	0.3	0.2	0.2
Huntley Street, east of Euston Road Westbound	-0.7	-0.7	0.0	0.0

The results indicate that there is a decrease in noise level on Princes Highway and Sydney Park Road as expected and a minor increase in redistributed traffic along Euston Road and Campbell Street/Campbell Road. The RNP notes that an increase of up to 2.0 dB represents a minor impact that is considered to be barely perceptible to the average person.

Given the marginal increase in operational traffic noise, no further assessment is required of the impacts of redistributed traffic.

6 Mitigation

6.1 Construction Noise Impacts

The ICNG acknowledges that due to the nature of construction works it is inevitable that there would be impacts where construction is near to sensitive receivers. Examples of potential mitigation and management measures which could be applied to the proposal to minimise the impacts are provided below.

6.1.1 Standard Mitigation Measures

The Transport for NSW *Construction Noise and Vibration Guideline* (CNVG) contains a number of 'standard mitigation measures' for mitigating and managing construction impacts. The measures are shown in **Appendix C** and should be applied to the works where feasible and reasonable.

6.1.2 Additional Mitigation Measures

Where noise impacts remain after the use of 'standard mitigation measures', the CNVG requires the use of 'additional mitigation measures' where feasible and reasonable. The 'additional mitigation measures' are determined on the basis of the exceedance of the appropriate management levels. Descriptions of the various measures are in **Appendix C**. The CNVG defines how 'additional mitigation measures' are applied to airborne noise impacts and the approach is shown in **Table 22**.

Table 22 CNVG Triggers for Additional Mitigation Measures – Airborne Noise

Predicted LAeq(15minute) Airborne Noise Level at Receiver			Additional Mitigation Measures	
Perception	dBA above RBL	dBA above NML	Type ¹	Mitigation Levels ²
All hours				
75 dBA or greater			N, V, PC, RO	HNA
Standard Hours: Mon – Fri (7am – 6pm), Sat (8am – 1pm), Sun/Public Holiday (Nil)				
Noticeable	5 to 10	0	-	NML
Clearly Audible	10 to 20	<10	-	NML
Moderately Intrusive	20 to 30	10 to 20	N, V	NML+10
Highly Intrusive	>30	>20	N, V	NML+20
OOHW Period 1: Mon – Fri (6pm – 10pm), Sat (7am – 8am & 1pm – 10pm), Sun/Public Holiday (8am – 6pm)				
Noticeable	5 to 10	<5	-	NML
Clearly Audible	10 to 20	5 to 15	N, R1, DR	NML+5
Moderately Intrusive	20 to 30	15 to 25	V, N, R1, DR	NML+15
Highly Intrusive	>30	>25	V, IB, N, R1, DR, PC, SN	NML+25
OOHW Period 2: Mon – Fri (10pm – 7am), Sat (10pm – 8am), Sun/Public Holiday (6pm – 7am)				
Noticeable	5 to 10	<5	N	NML
Clearly Audible	10 to 20	5 to 15	V, N, R2, DR	NML+5
Moderately Intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR	NML+15
Highly Intrusive	>30	>25	AA, V, IB, N, PC, SN, R2, DR	NML+25

Note 1: N = Notification, SN = Specific Notification, PC = Phone Calls, IB = Individual Briefings, R1 = Respite Period 1, R2 = Respite Period 2, RO = Project Specific Respite Offer, DR = Duration Respite, AA = Alternative Accommodation, V = Verification.

Note 2: NML = Noise Management Level, HNA = Highly Noise Affected (ie 75 dBA or greater for residential receivers).

The requirement for ‘additional mitigation measures’ would be further evaluated as the proposal progresses and detailed construction scheduling information becomes available. A Construction Noise and Vibration Management Plan would be prepared prior to works commencing which would detail the approach to providing mitigation during construction.

Indicative Additional Mitigation Measures

Using the airborne noise construction predictions in **Section 4**, indicative worst-case ‘additional mitigation measures’ for all construction works on the project have been determined as per the requirements of the CNVG (see **Table 22**). The required ‘additional mitigation measures’ are shown for night-time construction noise in **Figure 7**.

The figure show the required ‘additional mitigation measures’ based on the CNVG ‘perception’ categories in **Table 22**.

Figure 7 Indicative Worst-case Additional Mitigation Measures for All Construction Activities during the Night-time



CNVG Additional Mitigation Measures

- V,N,R2,DR
- V,IB,N,PC,SN,R2,DR
- AA,V,IB,N,PC,SN,R2,DR

Note: The night-time 'Additional Mitigation Measures' are: Clearly Audible = V, N, R2, DR, Moderately Intrusive = V, IB, N, PC, SN, R2, DR, Highly Intrusive = AA, V, IB, N, PC, SN, R2, DR (see **Table 22** for requirement definitions).

6.2 Construction Vibration Impacts

The separation distance(s) between the proposed works and the nearest receivers are likely to fall below the safe working distances with regard to '*Cosmetic Damage*' for the proposed construction equipment.

Where works are within the minimum working distances and are considered likely to exceed the cosmetic damage objectives, construction works would not proceed unless a different construction method with lower source vibration levels is used, where feasible. This would include the use of smaller items of plant which would result in a lower level of vibration.

Attended vibration monitoring or vibration trials would be undertaken when the proposed works are below the safe working distances to ensure that levels remain below the criterion. If there is a risk that buildings may be impacted by the proposed works building condition surveys would be undertaken both before and after the works at all potentially affected properties to identify existing damage and any project related damage.

6.3 Recommended Operational Road Traffic Noise Mitigation Measures

No mitigation for operational road traffic noise is required as the increase in noise level is predicted to be less than 2.0 dB at all receivers.

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APPENDIX A

Acoustic Terminology

1. Sound Level or Noise Level

The terms ‘sound’ and ‘noise’ are almost interchangeable, except that ‘noise’ often refers to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure. The human ear responds to changes in sound pressure over a very wide range with the loudest sound pressure to which the human ear can respond being ten million times greater than the softest. The decibel (abbreviated as dB) scale reduces this ratio to a more manageable size by the use of logarithms.

The symbols SPL, L or LP are commonly used to represent Sound Pressure Level. The symbol LA represents A-weighted Sound Pressure Level. The standard reference unit for Sound Pressure Levels expressed in decibels is 2×10^{-5} Pa.

2. ‘A’ Weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an ‘A-weighting’ filter. This is an electronic filter having a frequency response corresponding approximately to that of human hearing.

People’s hearing is most sensitive to sounds at mid frequencies (500 Hz to 4,000 Hz), and less sensitive at lower and higher frequencies. Different sources having the same dBA level generally sound about equally loud.

A change of 1 dB or 2 dB in the level of a sound is difficult for most people to detect, whilst a 3 dB to 5 dB change corresponds to a small but noticeable change in loudness. A 10 dB change corresponds to an approximate doubling or halving in loudness. The table below lists examples of typical noise levels.

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely noisy
110	Grinding on steel	
100	Loud car horn at 3 m	Very noisy
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

Other weightings (eg B, C and D) are less commonly used than A-weighting. Sound Levels measured without any weighting are referred to as ‘linear’, and the units are expressed as dB(lin) or dB.

3. Sound Power Level

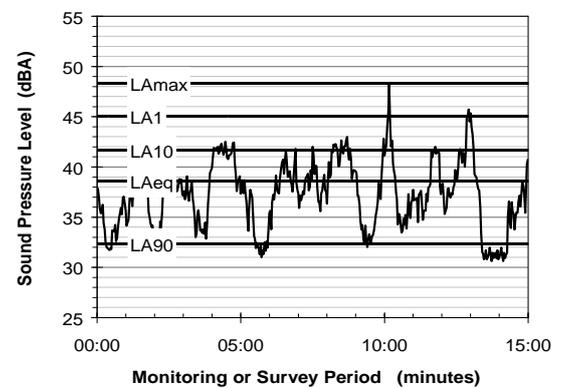
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit 10^{-12} W.

The relationship between Sound Power and Sound Pressure is similar to the effect of an electric radiator, which is characterised by a power rating but has an effect on the surrounding environment that can be measured in terms of a different parameter, temperature.

4. Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels LAN, where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

- LA1 The noise level exceeded for 1% of the 15 minute interval.
- LA10 The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.
- LA90 The noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.
- LAeq The A-weighted equivalent noise level (basically, the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.

5. Frequency Analysis

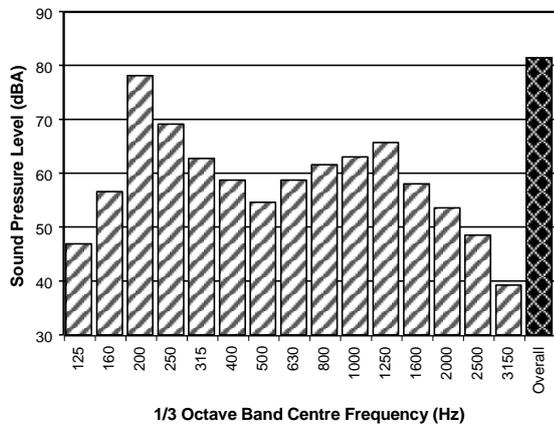
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

The units for frequency are Hertz (Hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (three bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)

The following figure shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands.



6. Annoying Noise (Special Audible Characteristics)

A louder noise will generally be more annoying to nearby receivers than a quieter one. However, noise is often also found to be more annoying and result in larger impacts where the following characteristics are apparent:

- **Tonality** - tonal noise contains one or more prominent tones (ie differences in distinct frequency components between adjoining octave or 1/3 octave bands), and is normally regarded as more annoying than 'broad band' noise.
- **Impulsiveness** - an impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.
- **Intermittency** - intermittent noise varies in level with the change in level being clearly audible. An example would include mechanical plant cycling on and off.
- **Low Frequency Noise** - low frequency noise contains significant energy in the lower frequency bands, which are typically taken to be in the 10 to 160 Hz region.

7. Vibration

Vibration may be defined as cyclic or transient motion. This motion can be measured in terms of its displacement, velocity or acceleration. Most assessments of human response to vibration or the risk of damage to buildings use measurements of vibration velocity. These may be expressed in terms of 'peak' velocity or 'rms' velocity.

The former is the maximum instantaneous velocity, without any averaging, and is sometimes referred to as 'peak particle velocity', or PPV. The latter incorporates 'root mean squared' averaging over some defined time period.

Vibration measurements may be carried out in a single axis or alternatively as triaxial measurements (ie vertical, longitudinal and transverse).

The common units for velocity are millimetres per second (mm/s). As with noise, decibel units can also be used, in which case the reference level should always be stated. A vibration level V , expressed in mm/s can be converted to decibels by the formula $20 \log(V/V_0)$, where V_0 is the reference level (10^{-9} m/s). Care is required in this regard, as other reference levels may be used.

8. Human Perception of Vibration

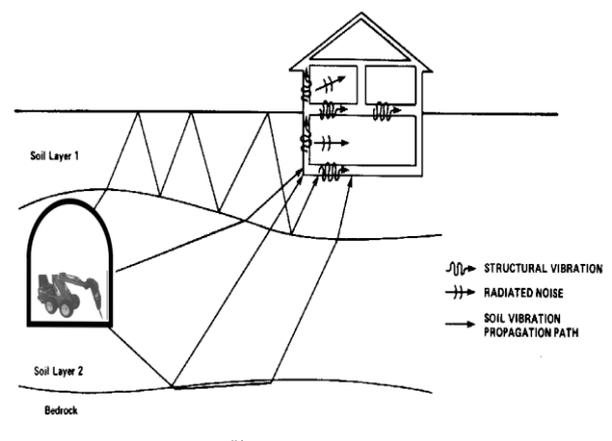
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience and expectations, and on other connotations associated with the perceived source of the vibration. For example, the vibration that a person responds to as 'normal' in a car, bus or train is considerably higher than what is perceived as 'normal' in a shop, office or dwelling.

9. Ground-borne Noise, Structure-borne Noise and Regenerated Noise

Noise that propagates through a structure as vibration and is radiated by vibrating wall and floor surfaces is termed 'structure-borne noise', 'ground-borne noise' or 'regenerated noise'. This noise originates as vibration and propagates between the source and receiver through the ground and/or building structural elements, rather than through the air.

Typical sources of ground-borne or structure-borne noise include tunnelling works, underground railways, excavation plant (eg rockbreakers), and building services plant (eg fans, compressors and generators).

The following figure presents an example of the various paths by which vibration and ground-borne noise may be transmitted between a source and receiver for construction activities occurring within a tunnel.



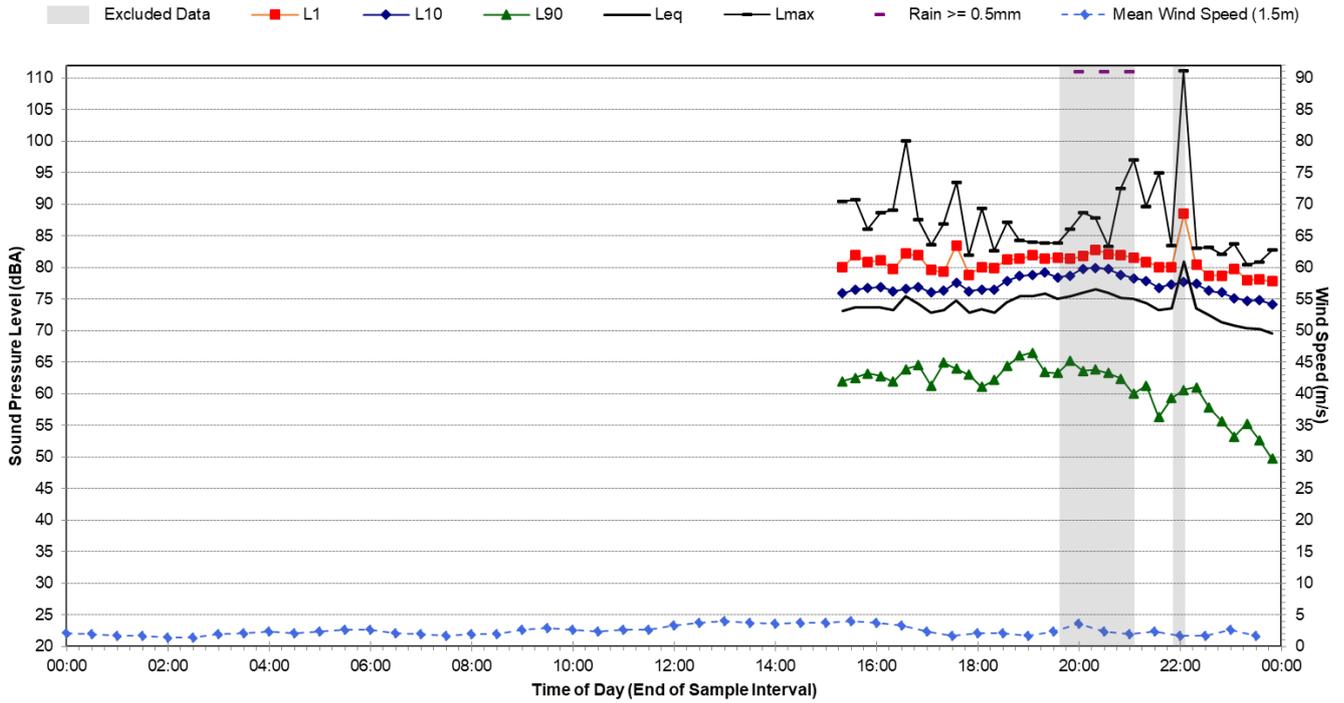
The term 'regenerated noise' is also used in other instances where energy is converted to noise away from the primary source. One example would be a fan blowing air through a discharge grill. The fan is the energy source and primary noise source. Additional noise may be created by the aerodynamic effect of the discharge grill in the airstream. This secondary noise is referred to as regenerated noise.

APPENDIX B

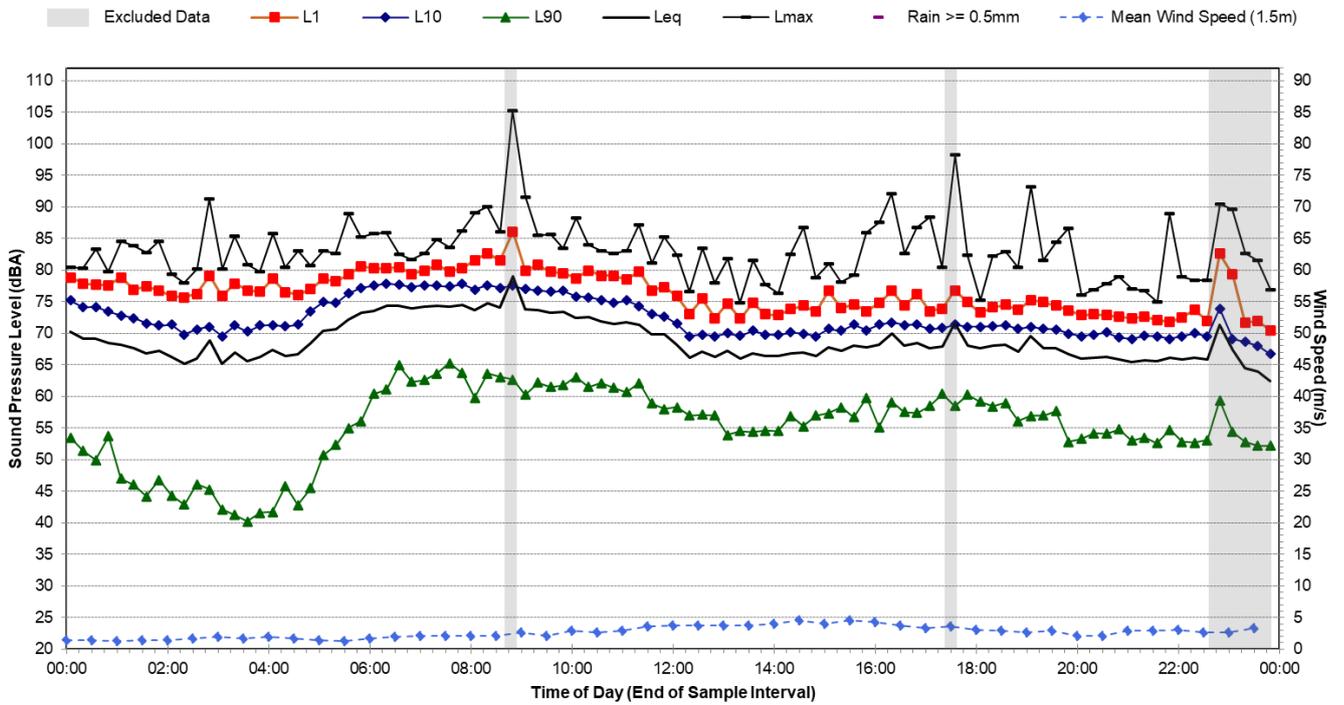
Ambient Noise Survey

Noise Monitoring Location		L.01			Map of Noise Monitoring Location	
Noise Monitoring Address		206/44-43 Princes Highway, St Peters				
Noise Monitor Device Type: Svantek 957, Noise Monitor Serial No: 23815 Sound Level Meter Device Type: Brüel and Kjær 2270, Sound Level Meter Serial No: 3029485						
Ambient noise logger deployed at residential address 206/44-43 Princes Highway, St Peters. Noise Monitor located with direct view of Princes Highway.						
Attended noise measurements indicate the ambient noise environment at this location is dominated by road traffic noise from Princes Highway. Frequent light and heavy-vehicle passbys on Princes Highway contribute to the LAeq at this location.						
Recorded Noise Levels (L _{Amax}) 1/04/2021: Light-vehicle traffic on Princes Highway: 71 to 82 dBA Heavy-vehicle traffic on Princes Highway: 74 to 84 dBA Birds – 56 dBA Aircraft – 62 dBA					Photo of Noise Monitoring Location 	
Ambient Noise Monitor Results ICNG Defined Time Periods						
Monitoring Period	Noise Level (dBA)					
	RBL	LAeq	L10	L1		
Daytime	54	70	71	76		
Evening	52	69	72	76		
Night-time	42	67	69	75		
Ambient Noise Monitor Results RNP Defined Time Periods						
Monitoring Period	Noise Level (dBA)					
	LAeq(period)		LAeq(1hour)			
Daytime (7am-10pm)	70		74			
Night-time (10pm-7am)	67		74			
Attended Noise Measurement Results						
Date	Start Time	Measured Noise Level (dBA)				
		LA90	LAeq	L_{Amax}		
8/06/2021	15:08	70	58	84		

Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Tuesday, 8 June 2021

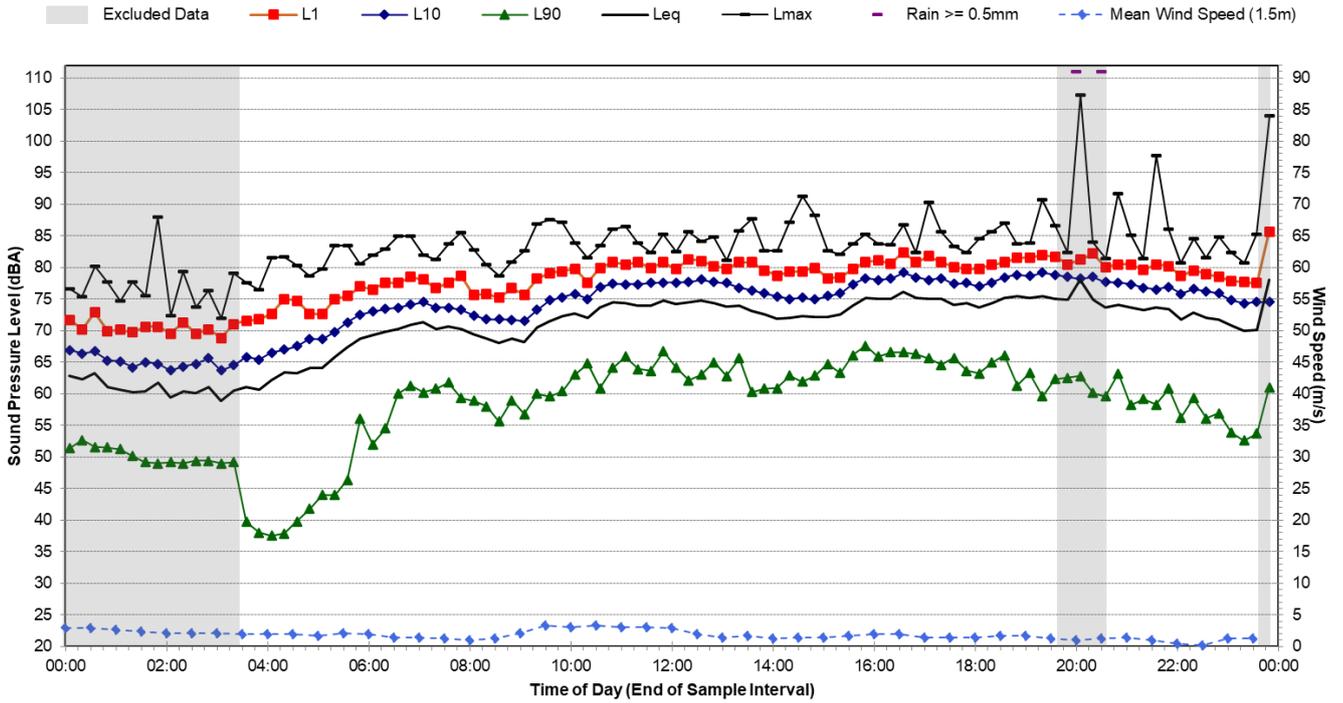


Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Wednesday, 9 June 2021



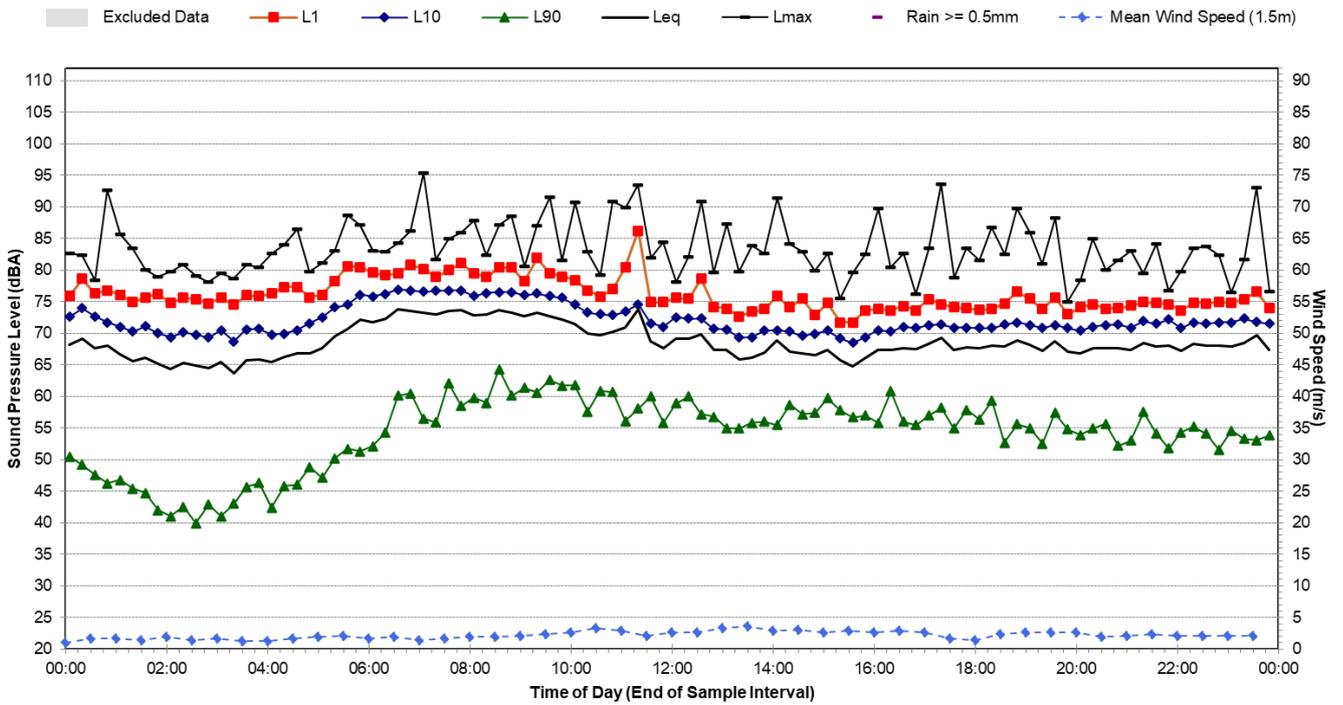
Statistical Ambient Noise Levels

206/44-46 Princes Highway, St Peters - Thursday, 10 June 2021

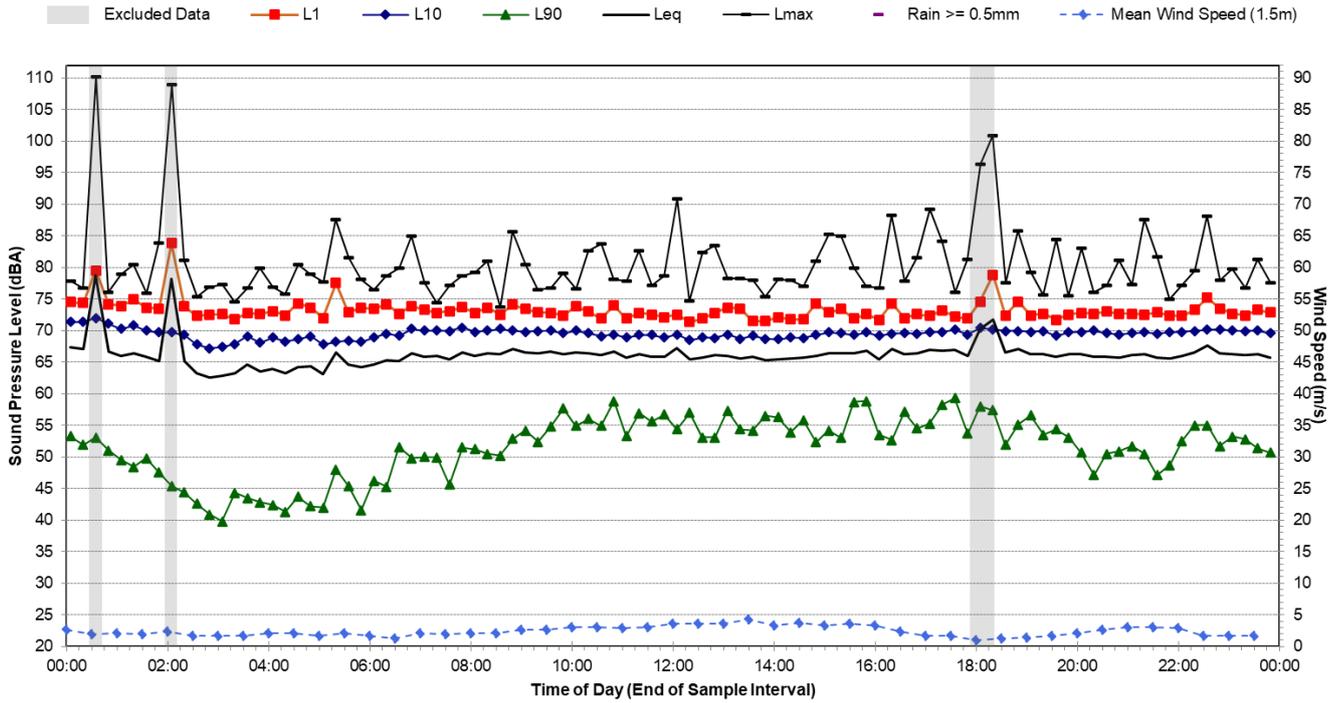


Statistical Ambient Noise Levels

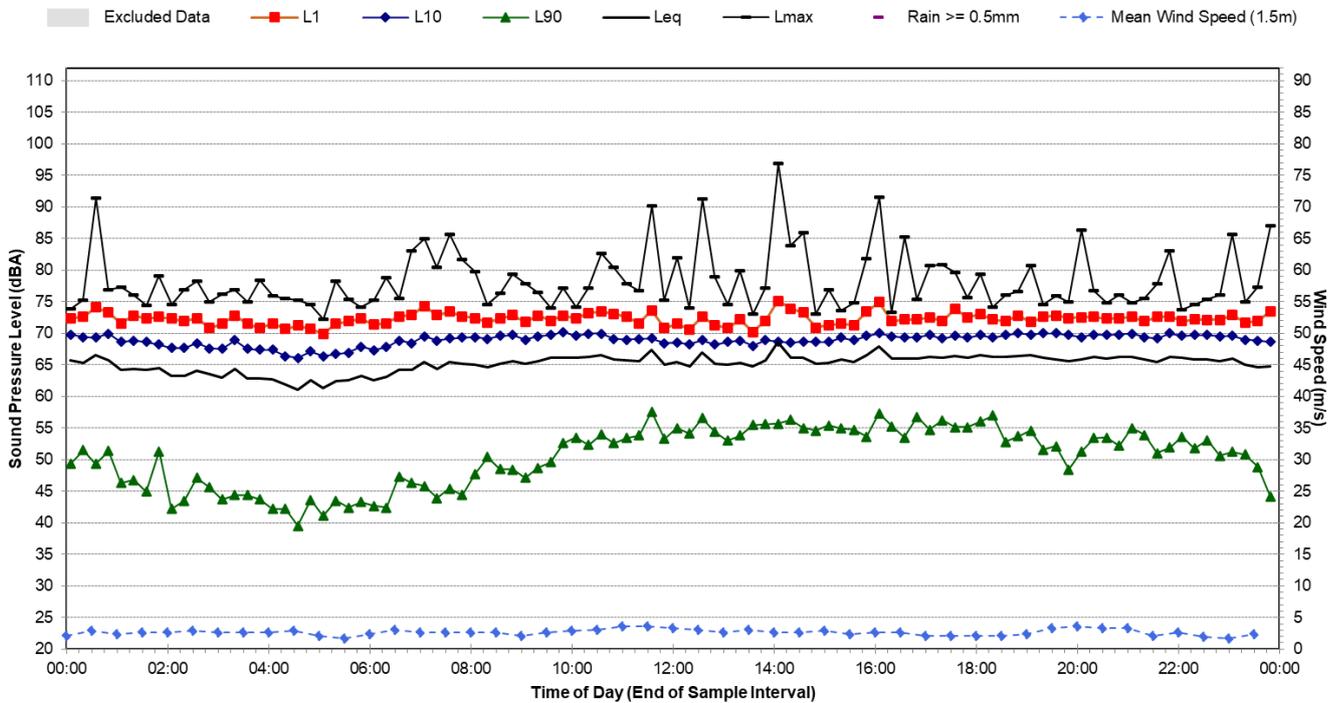
206/44-46 Princes Highway, St Peters - Friday, 11 June 2021



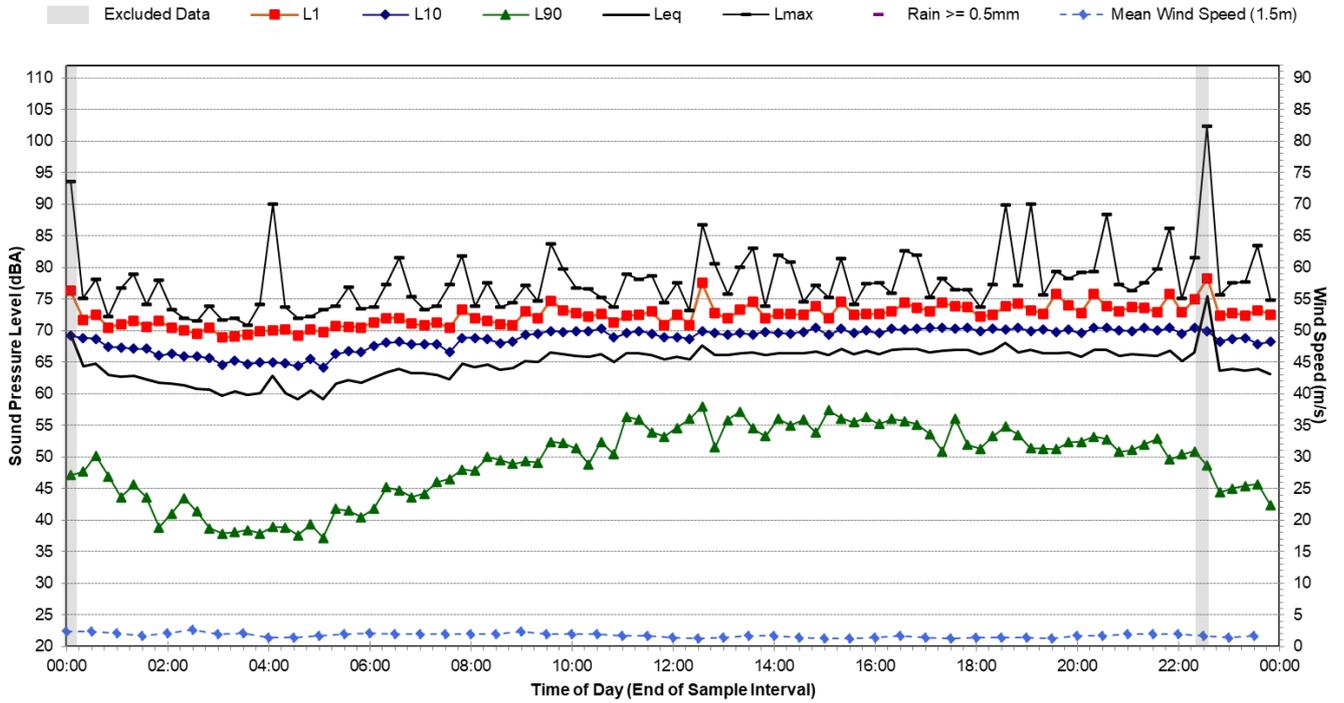
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Saturday, 12 June 2021



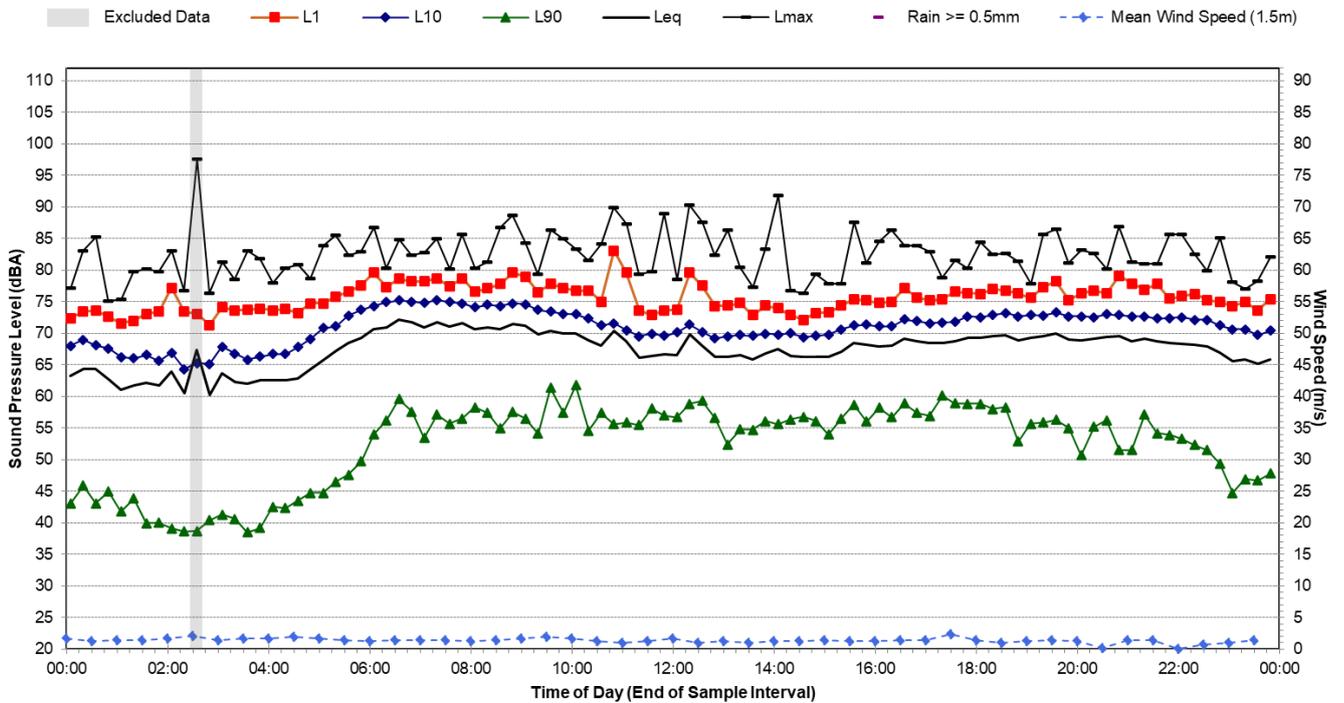
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Sunday, 13 June 2021



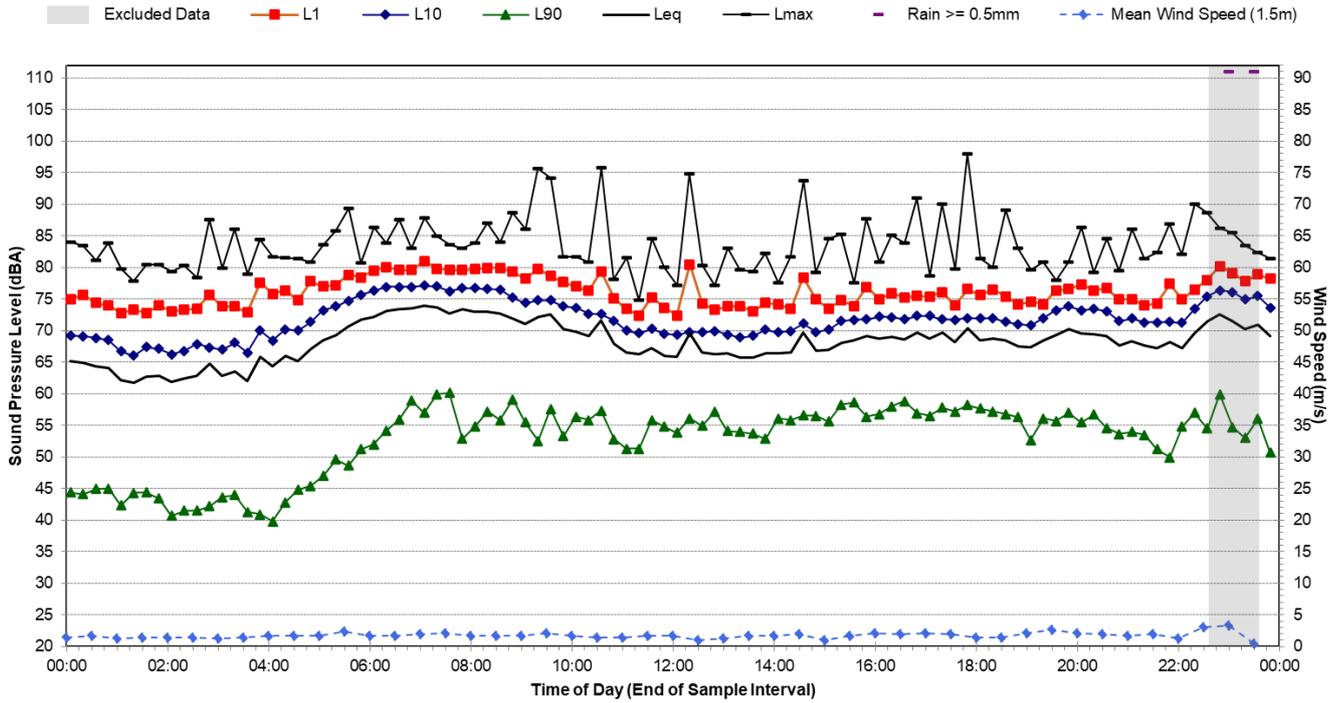
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Monday, 14 June 2021



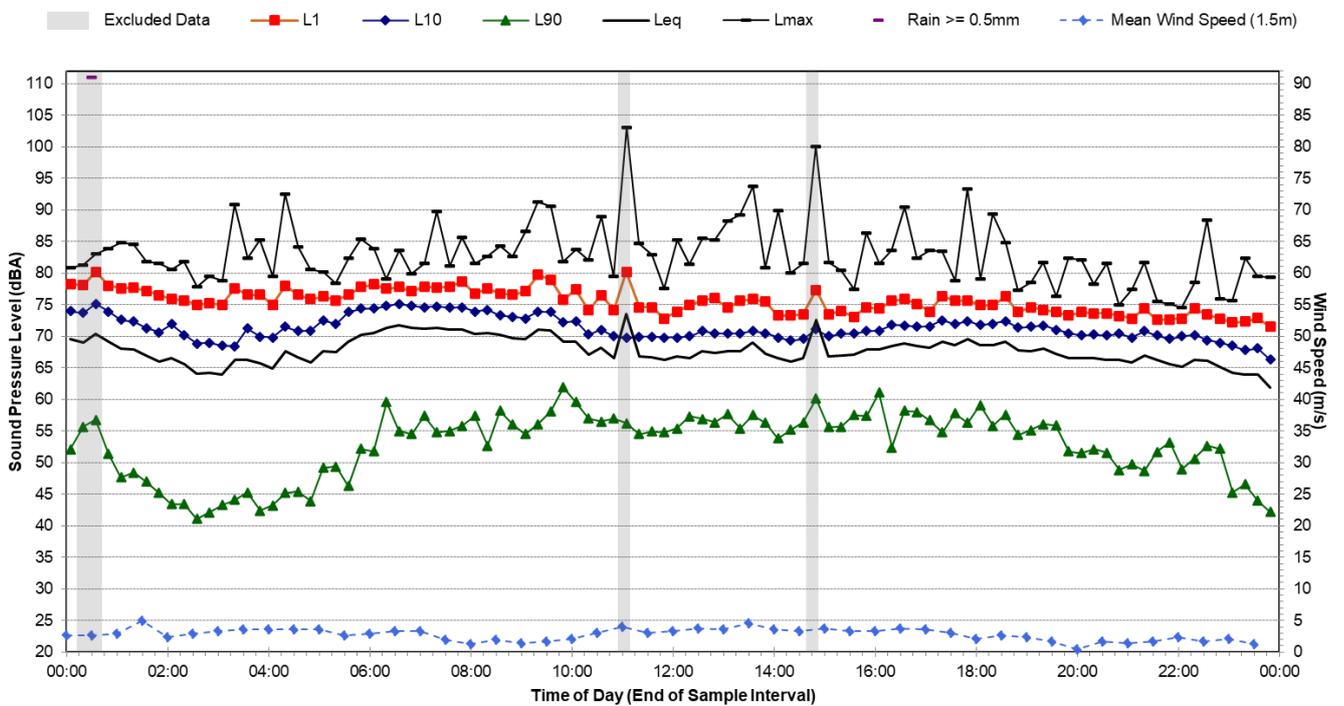
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Tuesday, 15 June 2021



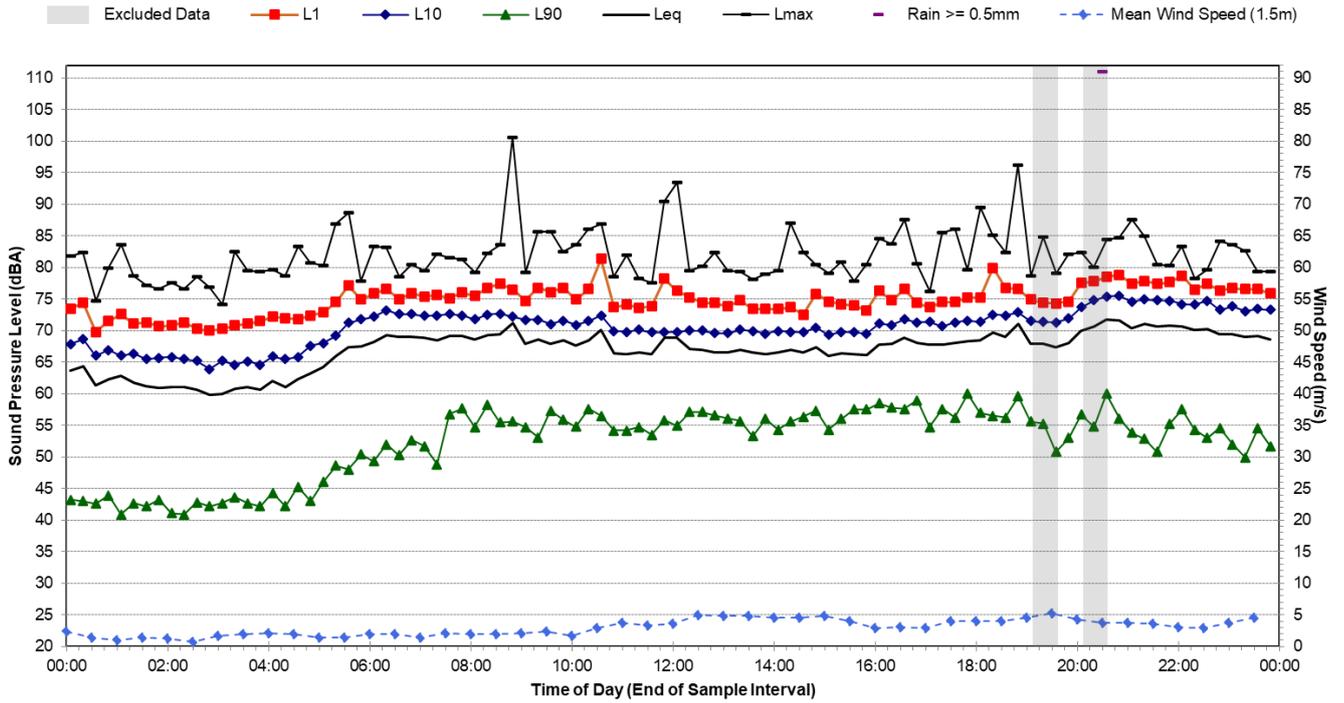
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Wednesday, 16 June 2021



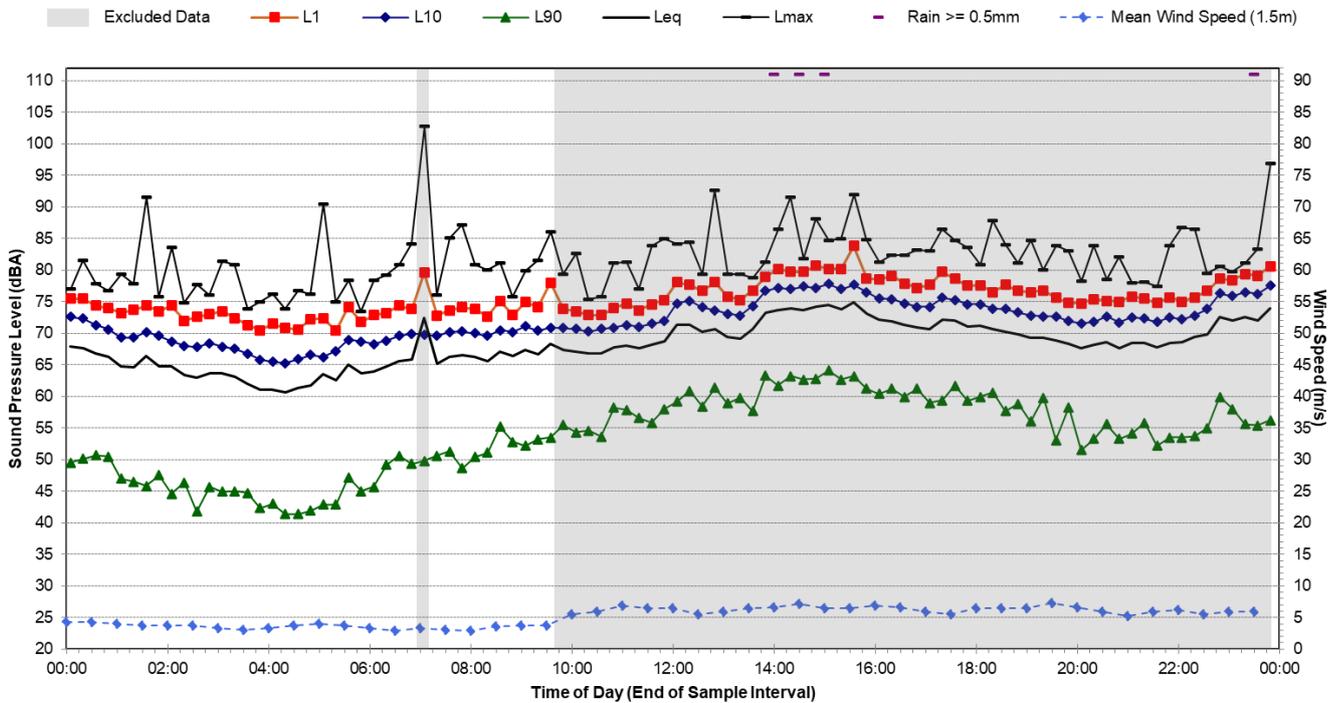
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Thursday, 17 June 2021



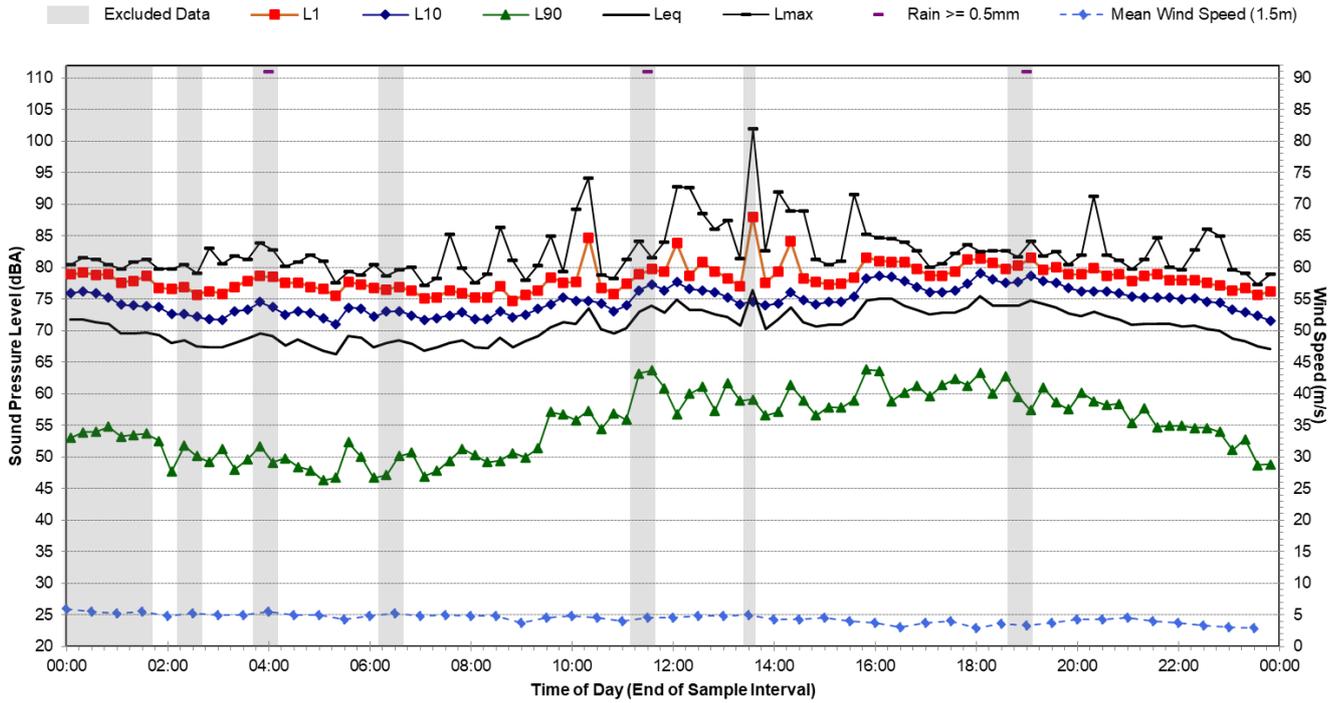
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Friday, 18 June 2021



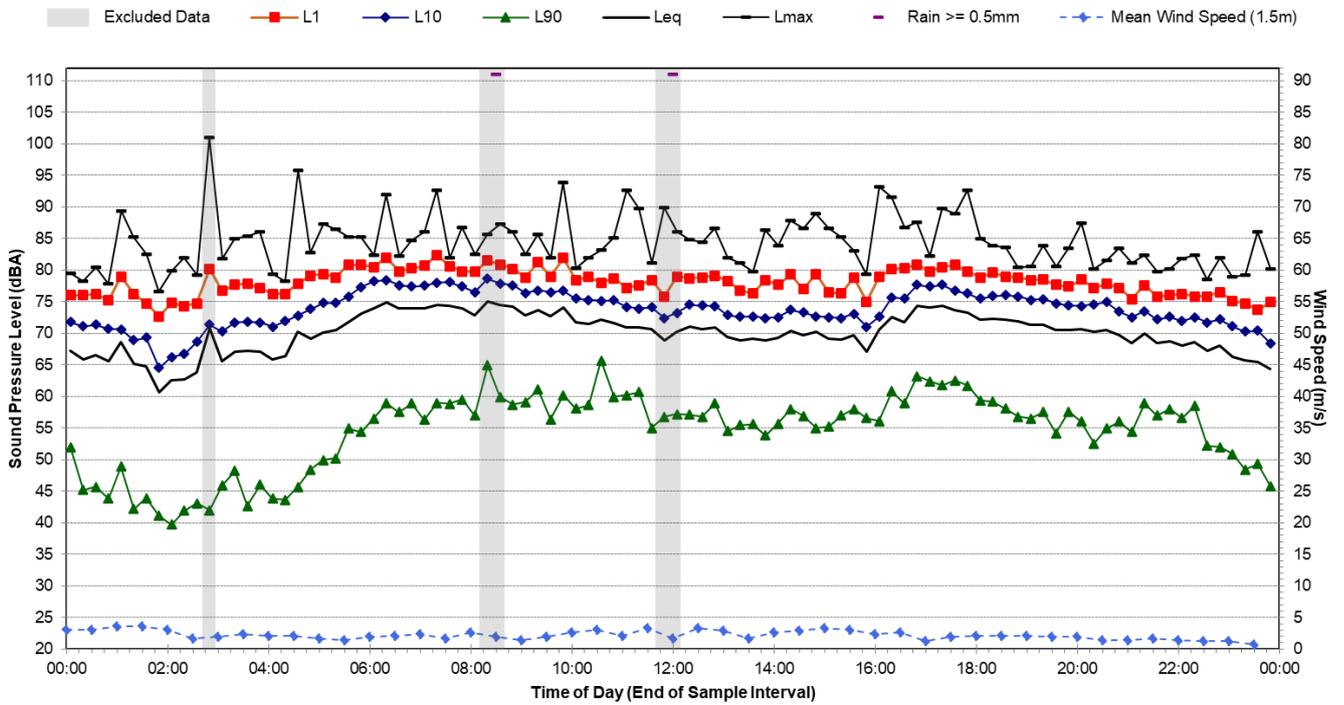
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Saturday, 19 June 2021



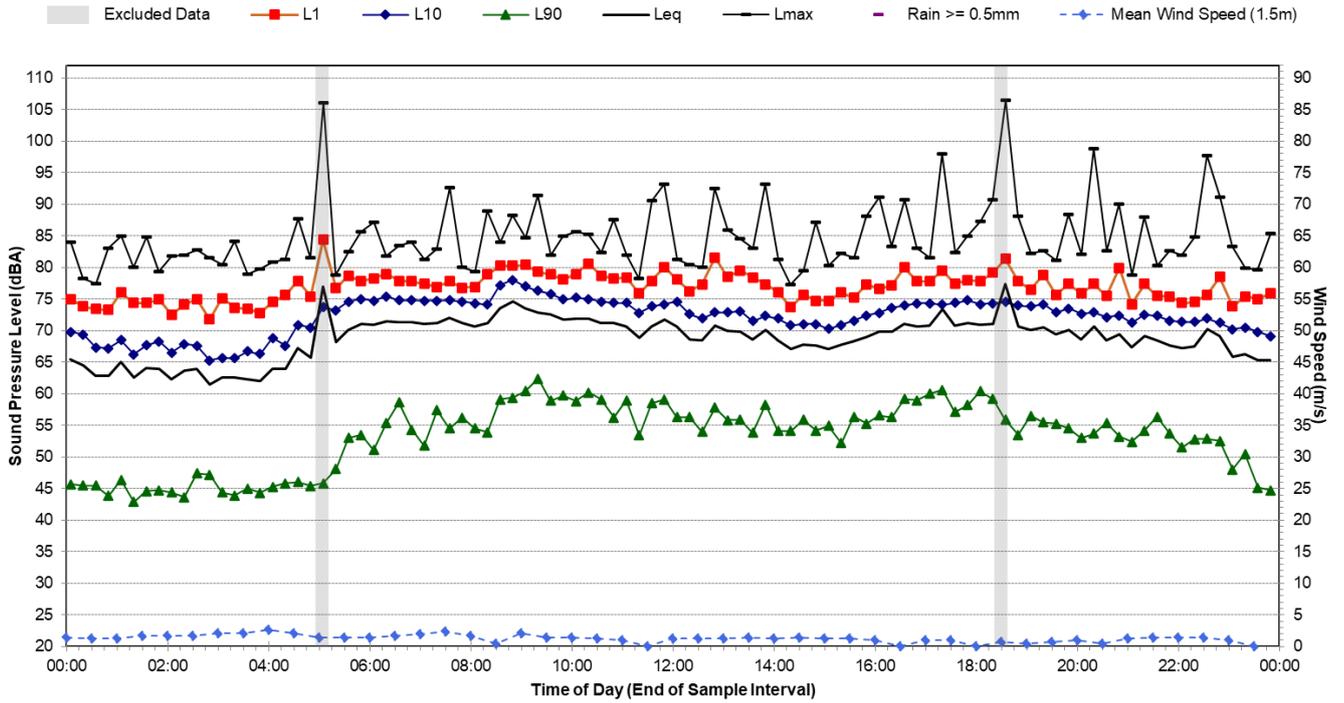
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Sunday, 20 June 2021



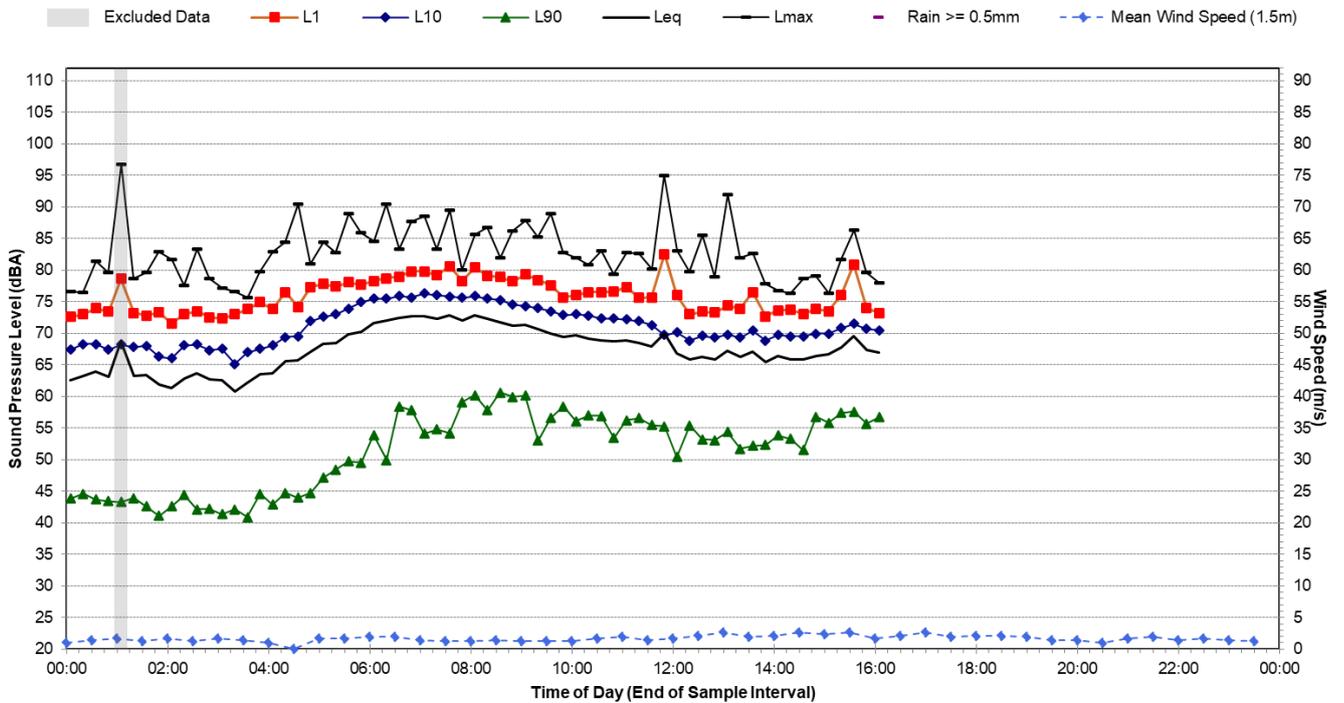
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Monday, 21 June 2021



Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Tuesday, 22 June 2021



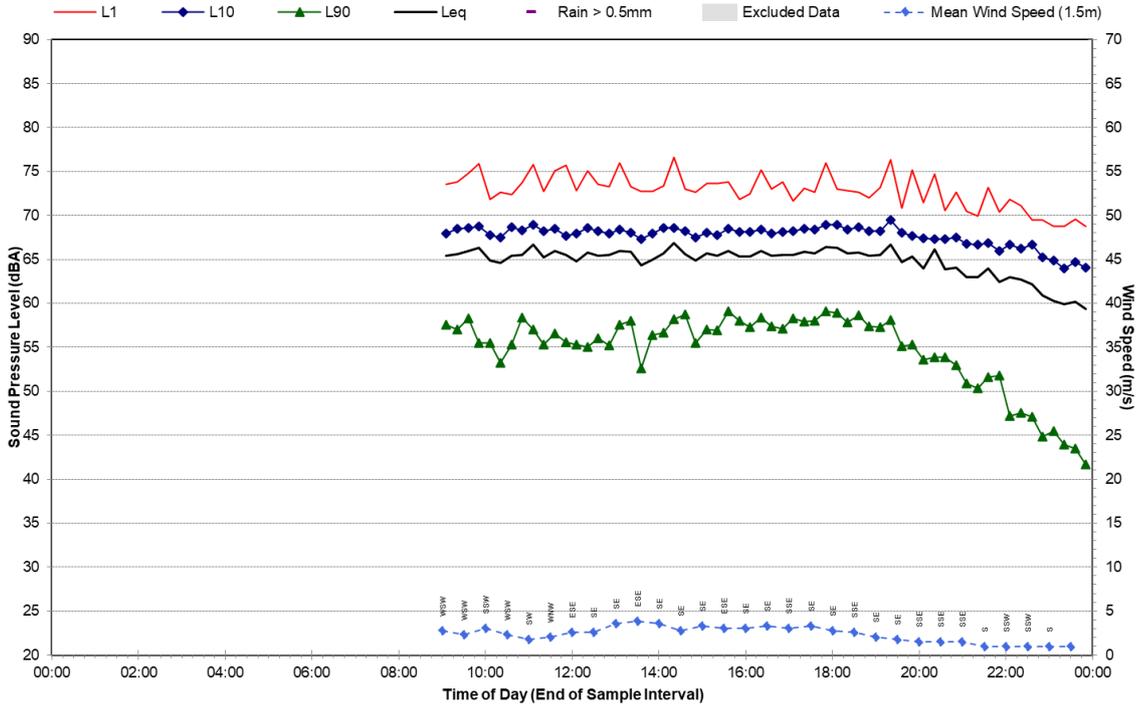
Statistical Ambient Noise Levels 206/44-46 Princes Highway, St Peters - Wednesday, 23 June 2021



Noise Monitoring Location		L.02		
Noise Monitoring Address		11305/177 Mitchell Street, Erskineville		
<p>Noise Monitor Device Type: Svantek 957, Noise Monitor Serial No: 23293 Sound Level Meter Device Type: Brüel and Kjær 2270, Sound Level Meter Serial No: 3029485</p> <p>Ambient noise logger deployed at residential address 11305/177 Mitchell Road, Erskineville. Noise Monitor located with direct view of Sydney Park Road.</p> <p>Attended noise measurements indicate the ambient noise environment at this location is dominated by road traffic noise from Sydney Park Road. Frequent light and heavy-vehicle passbys on Princes Highway contribute to the LAeq at this location.</p> <p>Recorded Noise Levels (LAm_{ax}) 1/04/2021: Light-vehicle traffic on Princes Highway: 66 to 69 dBA Heavy-vehicle traffic on Princes Highway: 69 to 77 dBA Birds – 72 dBA Dog – 71 dBA Industry – 50 to 54 dBA</p>				
Ambient Noise Monitor Results		ICNG Defined Time Periods		
Monitoring Period	Noise Level (dBA)			
	RBL	LAeq	L10	L1
Daytime	54	66	68	73
Evening	51	65	68	71
Night-time	37	61	64	69
Ambient Noise Monitor Results		RNP Defined Time Periods		
Monitoring Period	Noise Level (dBA)			
	LAeq(period)	LAeq(1hour)		
Daytime (7am-10pm)	65	67		
Night-time (10pm-7am)	61	65		
Attended Noise Measurement Results				
Date	Start Time	Measured Noise Level (dBA)		
		LA90	LAeq	LAm _{ax}
16/12/2021	8:54	58	65	77
Map of Noise Monitoring Location				
Photo of Noise Monitoring Location				

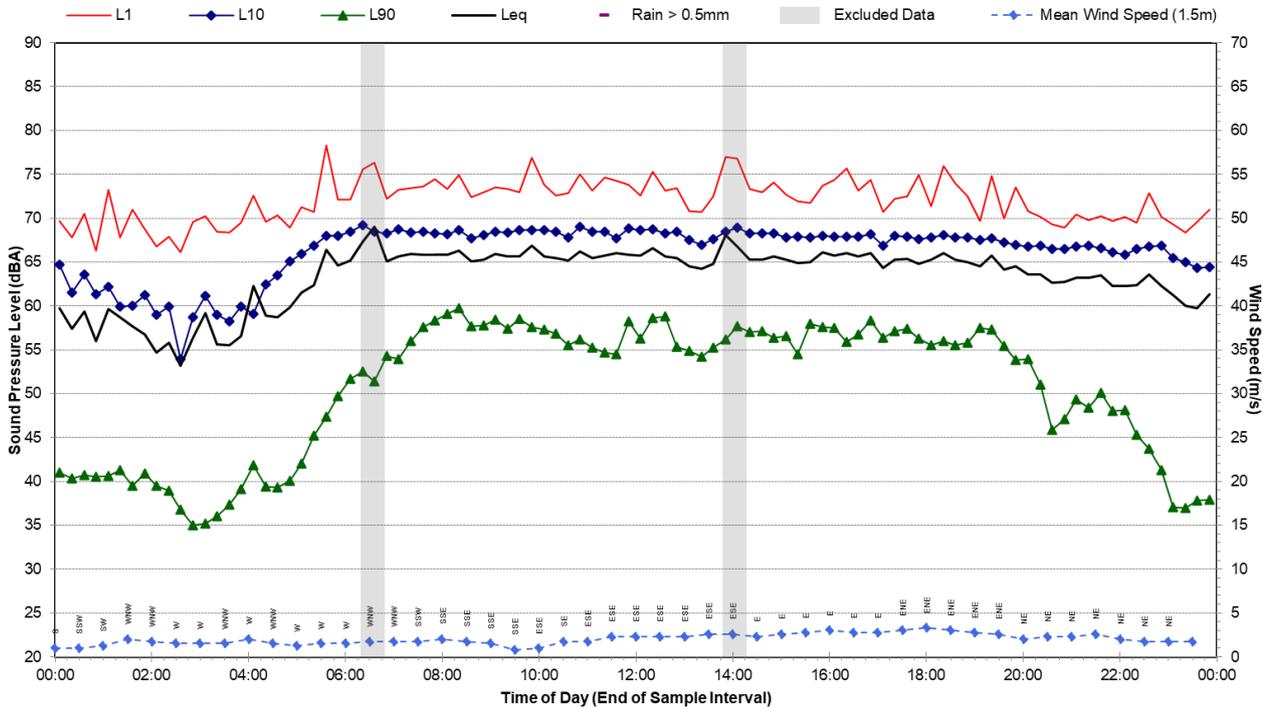
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Tuesday, 16 November 2021



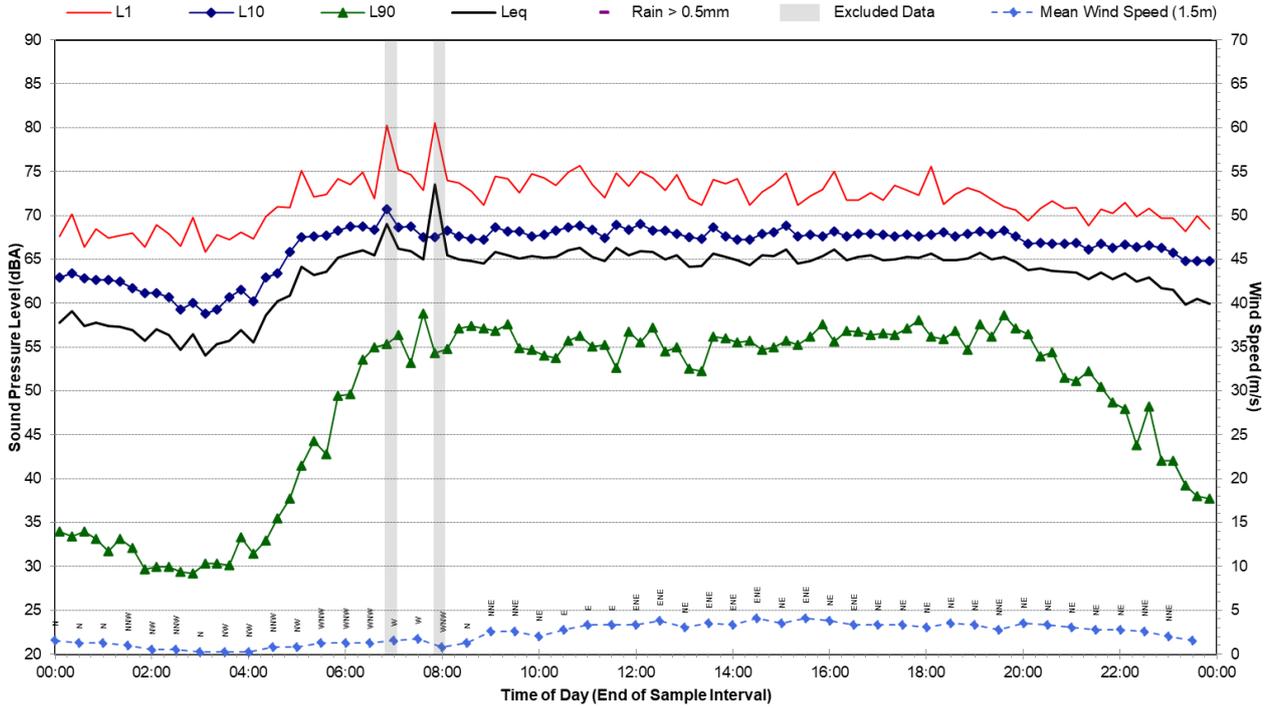
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Wednesday, 17 November 2021



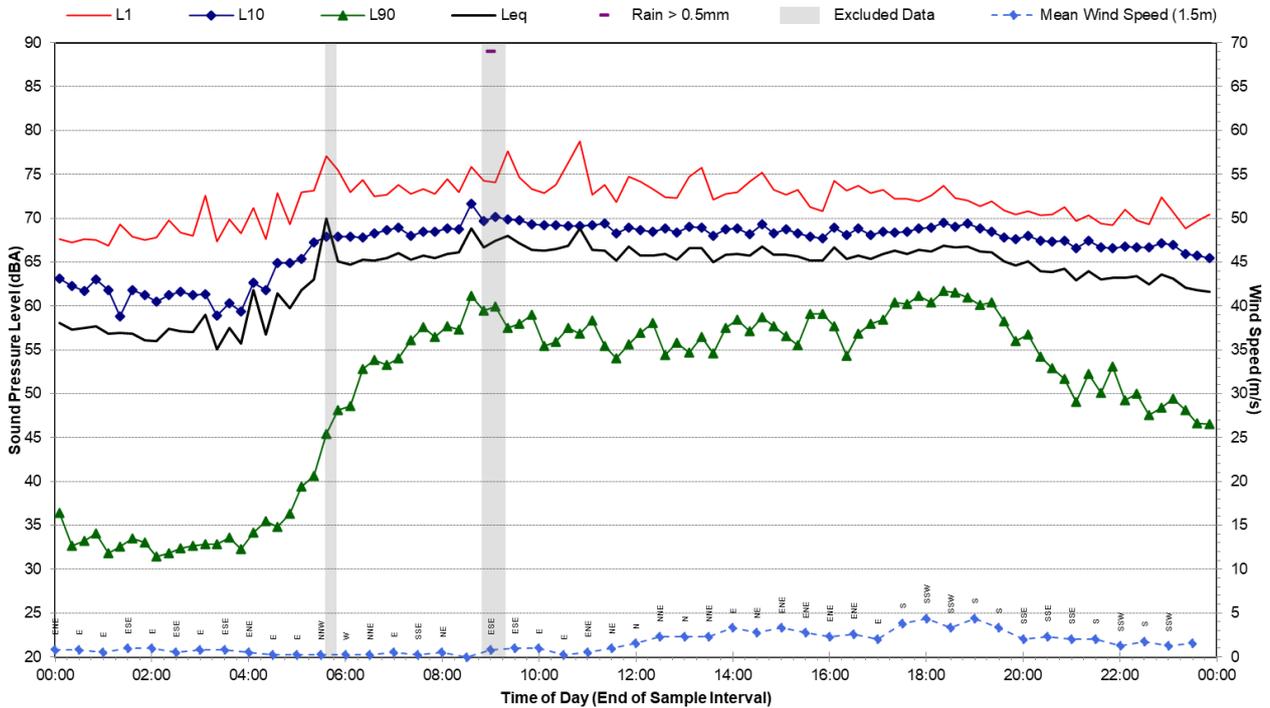
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Thursday, 18 November 2021



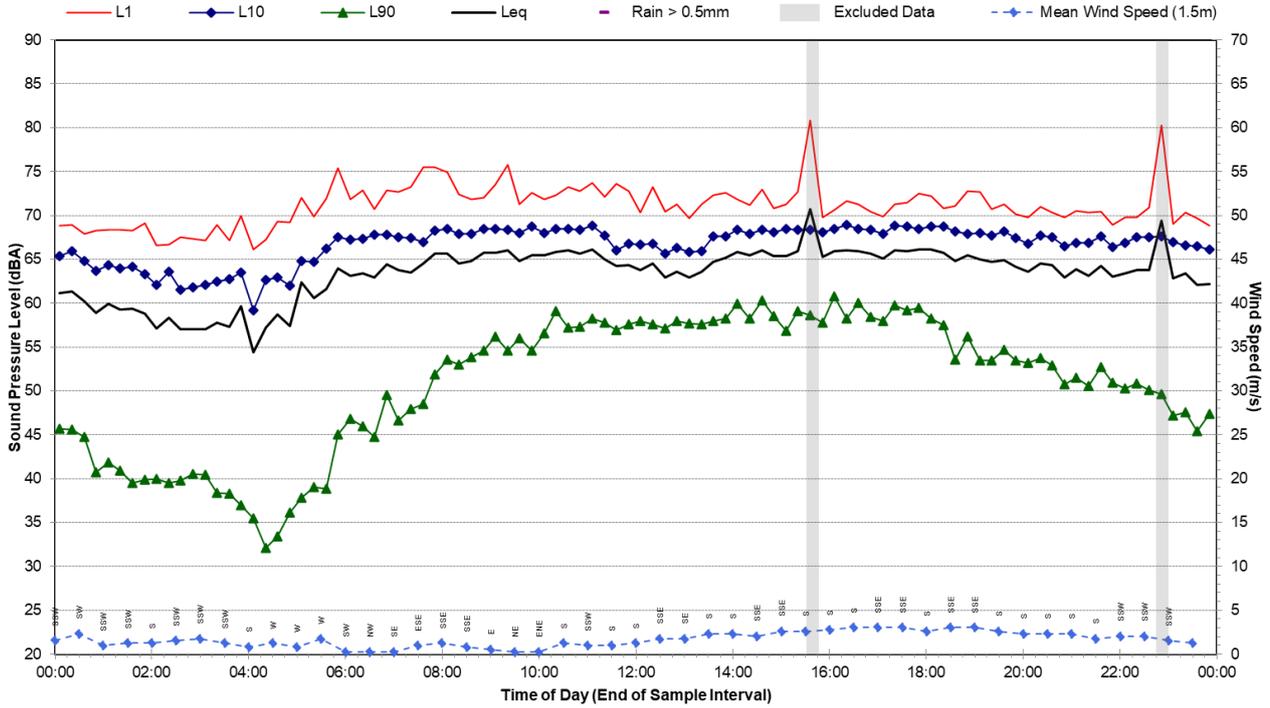
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Friday, 19 November 2021



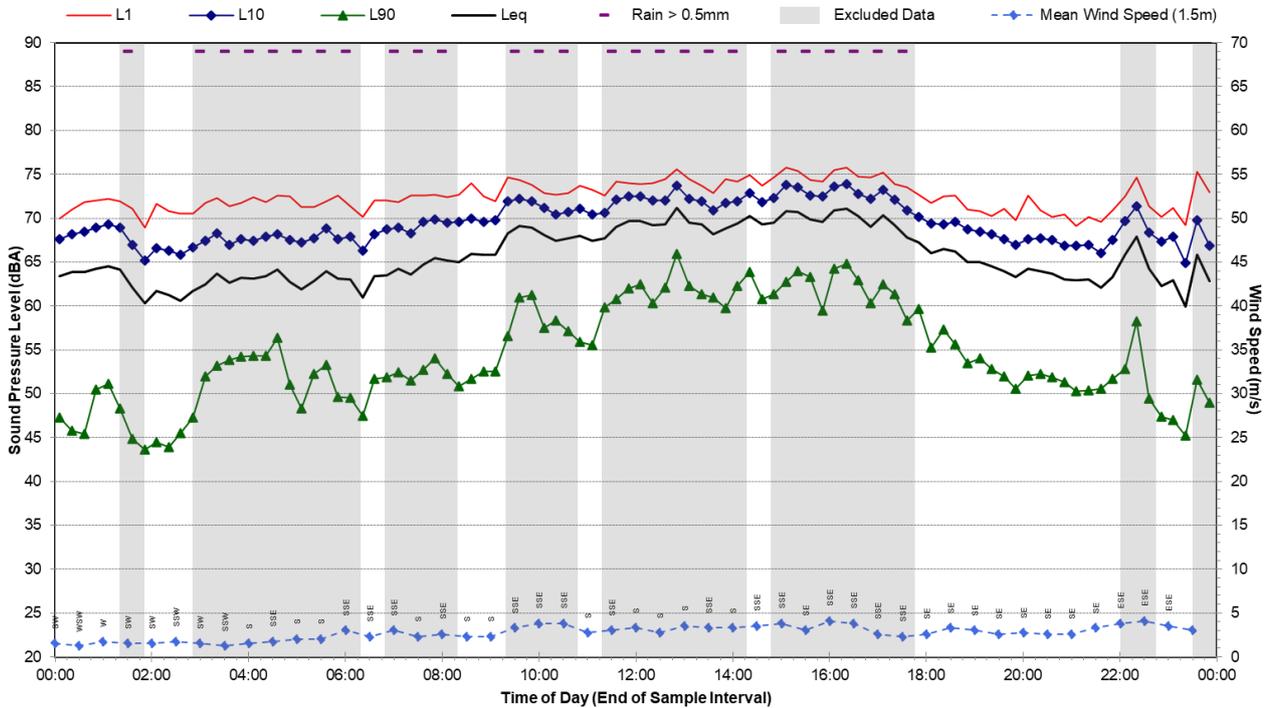
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Saturday, 20 November 2021



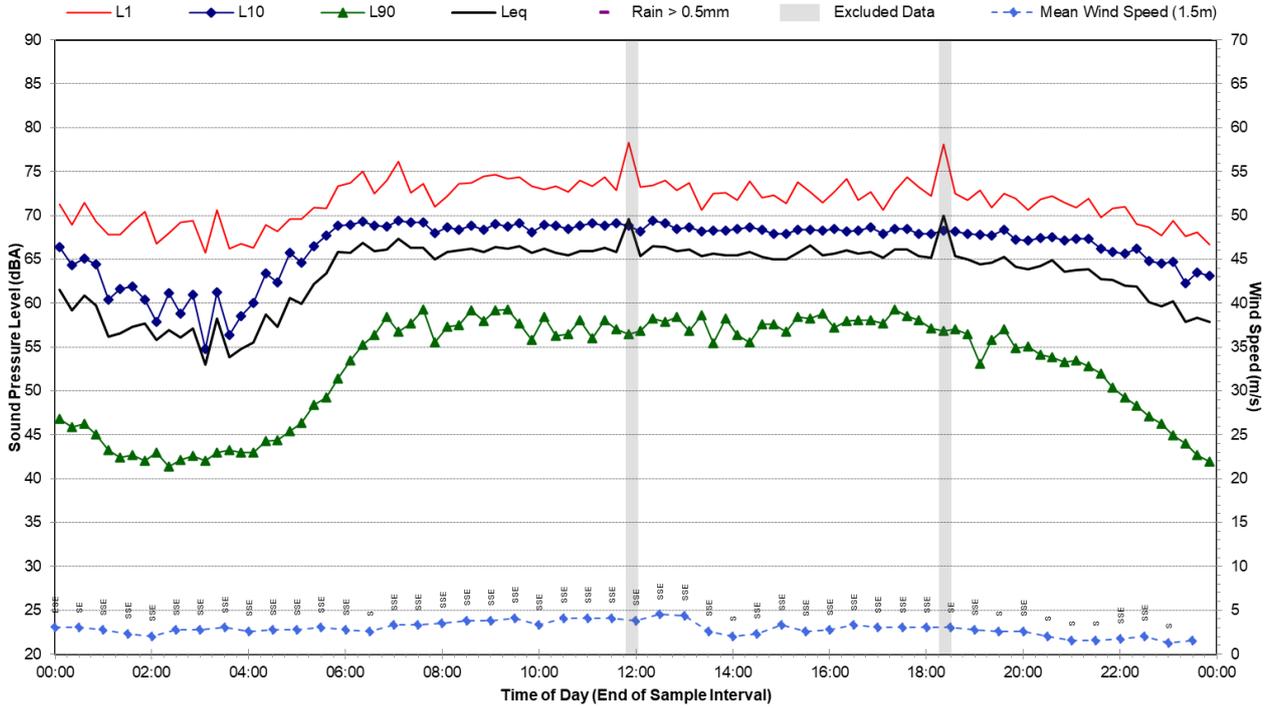
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Sunday, 21 November 2021



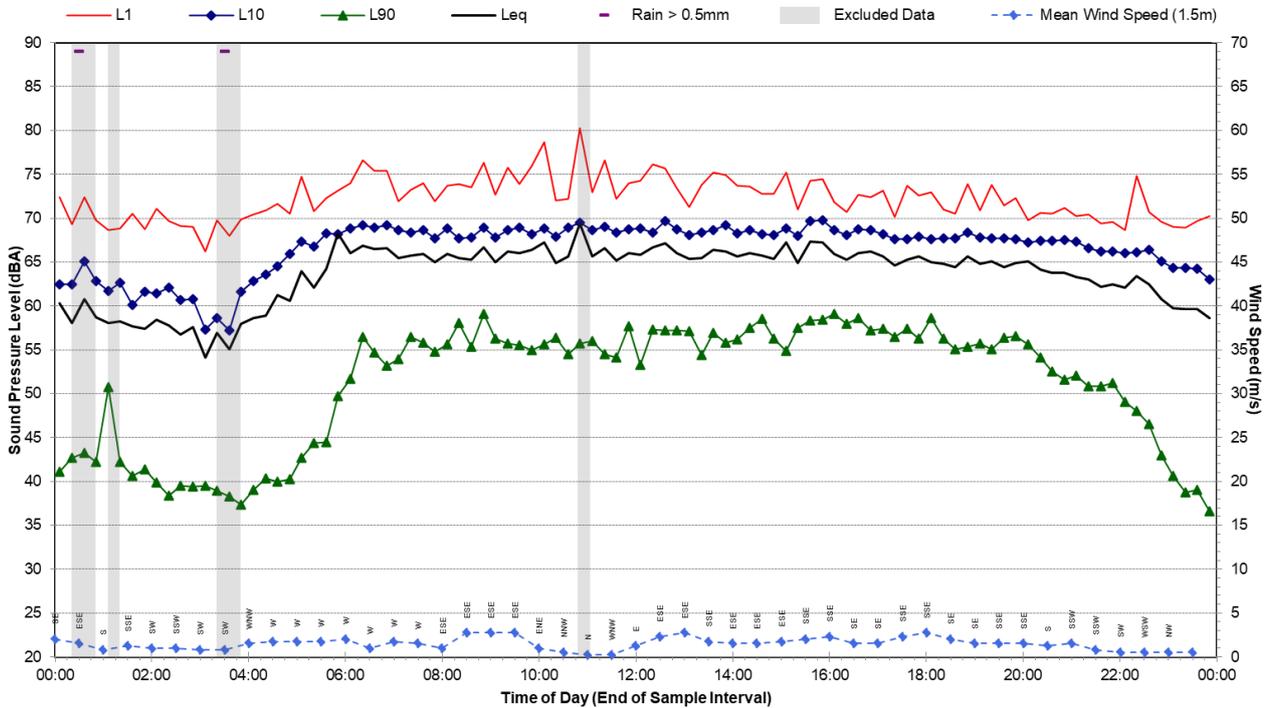
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Monday, 22 November 2021



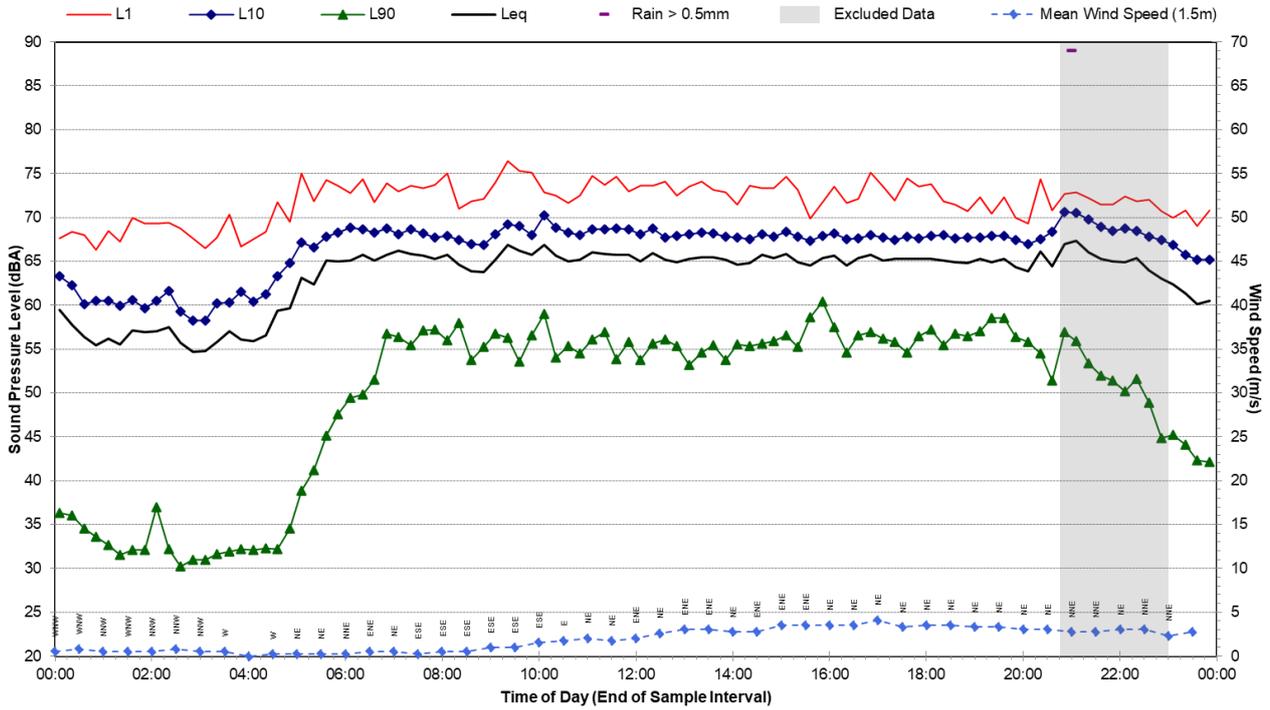
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Tuesday, 23 November 2021



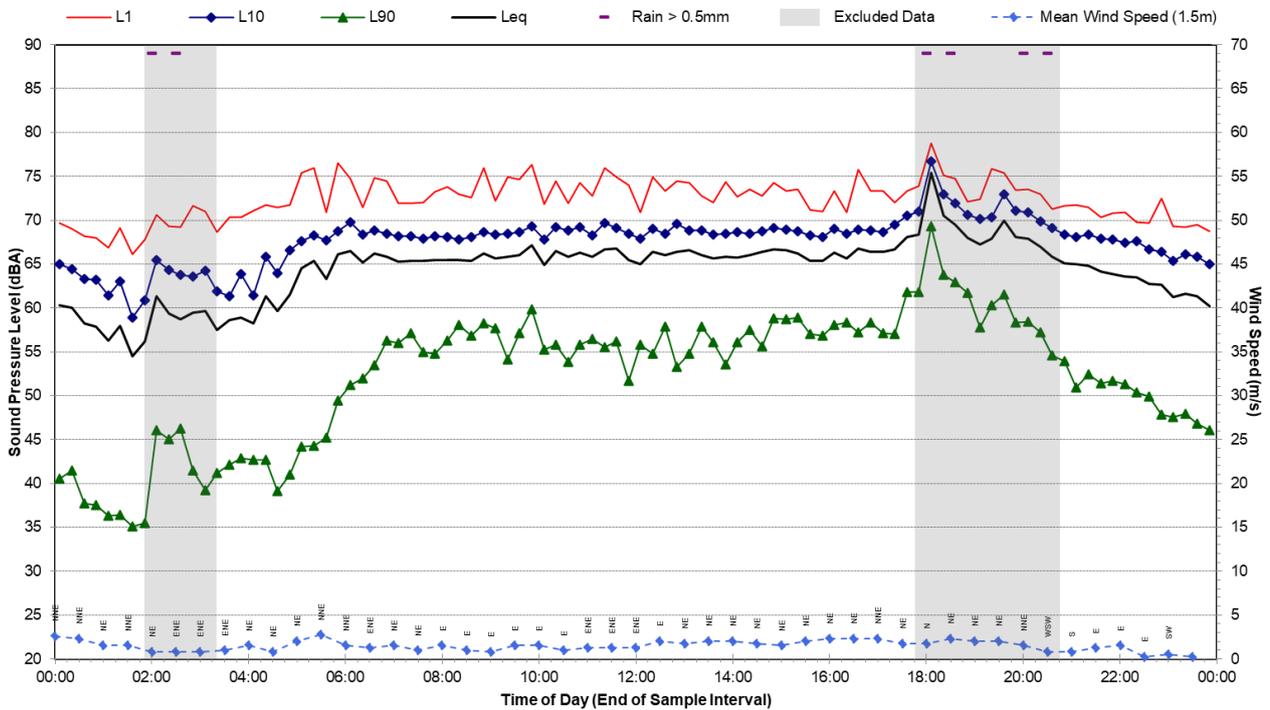
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Wednesday, 24 November 2021



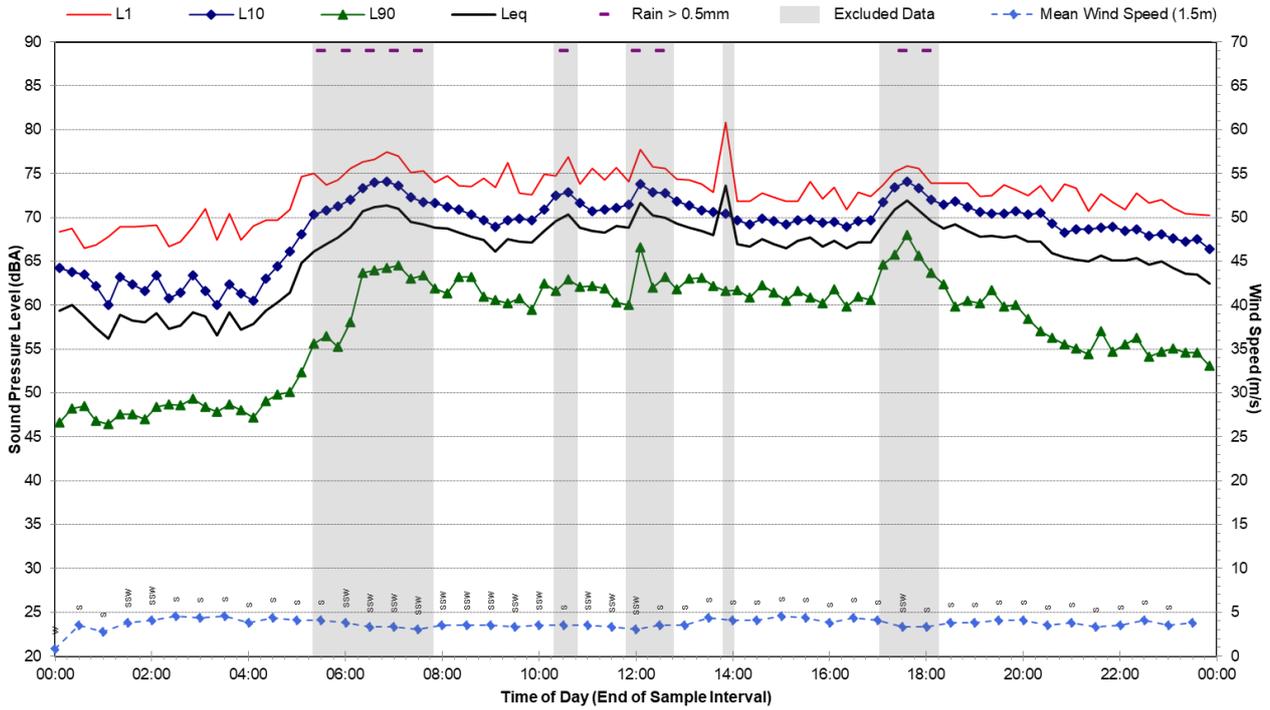
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Thursday, 25 November 2021



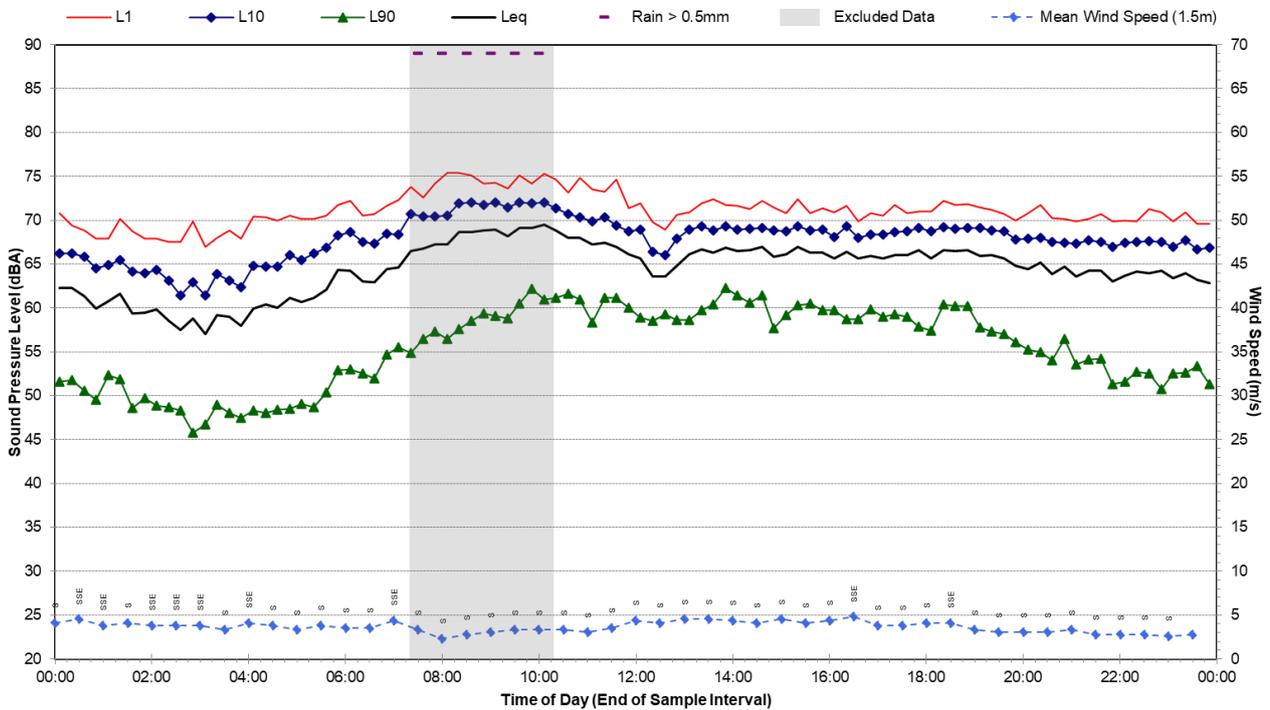
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Friday, 26 November 2021



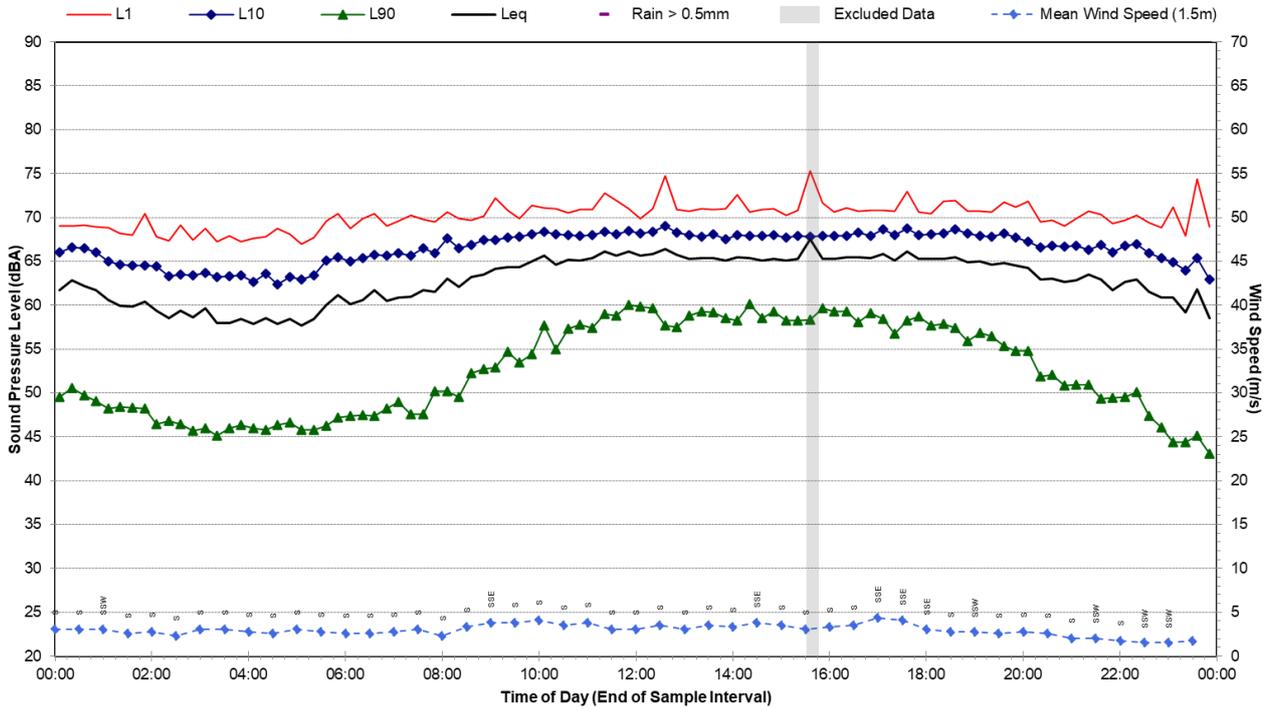
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Saturday, 27 November 2021



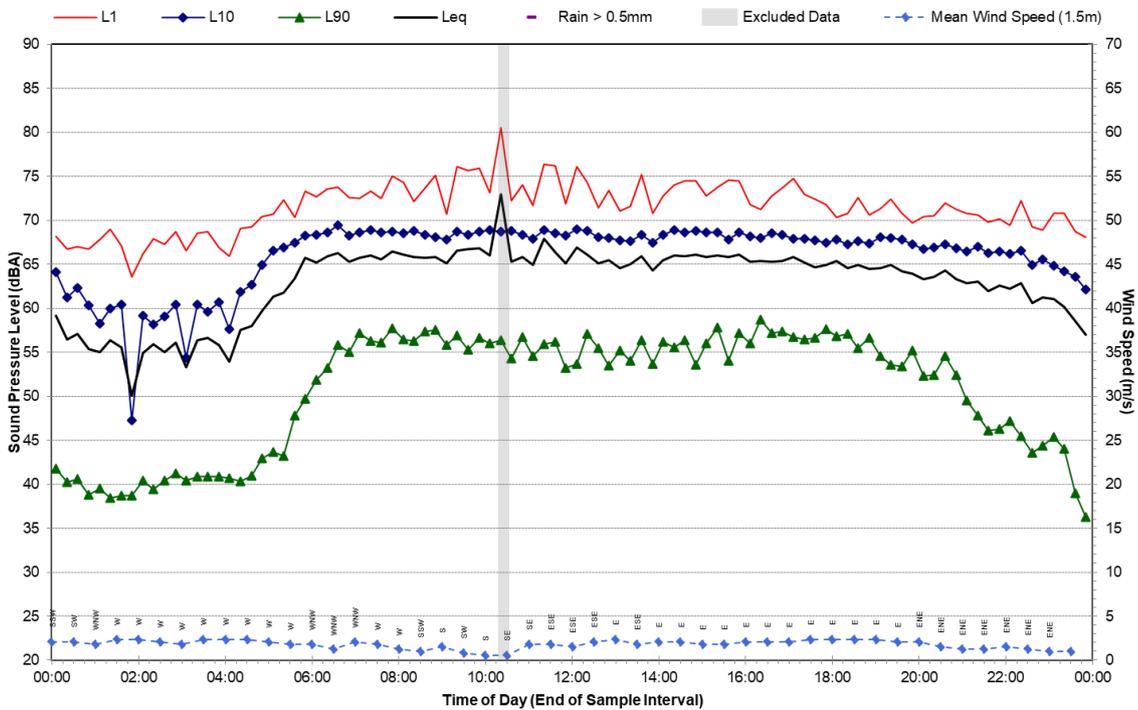
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Sunday, 28 November 2021



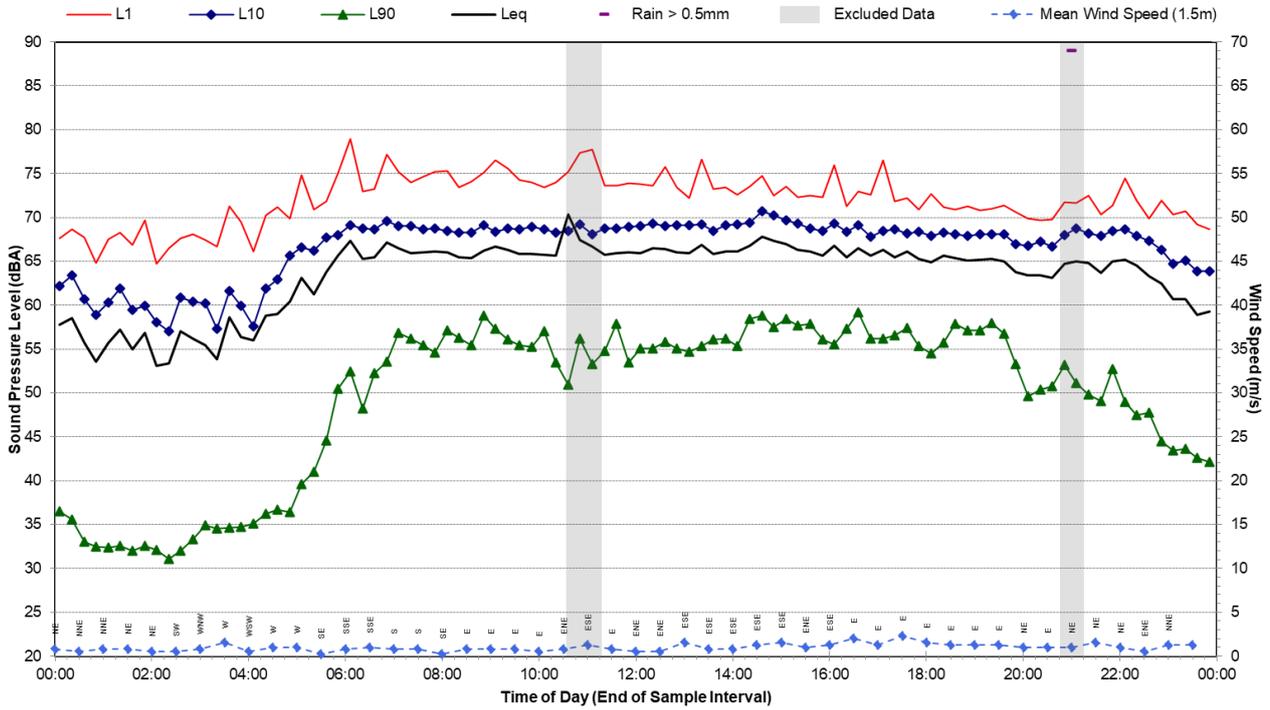
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Monday, 29 November 2021



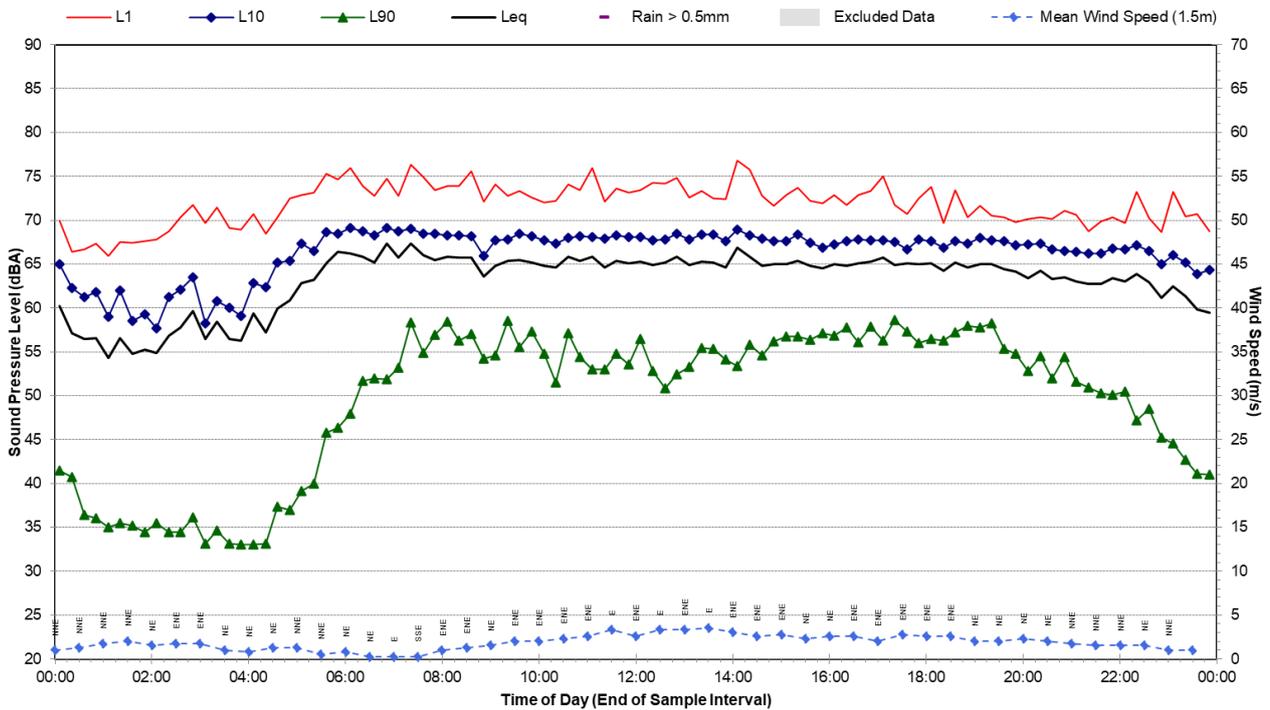
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Tuesday, 30 November 2021



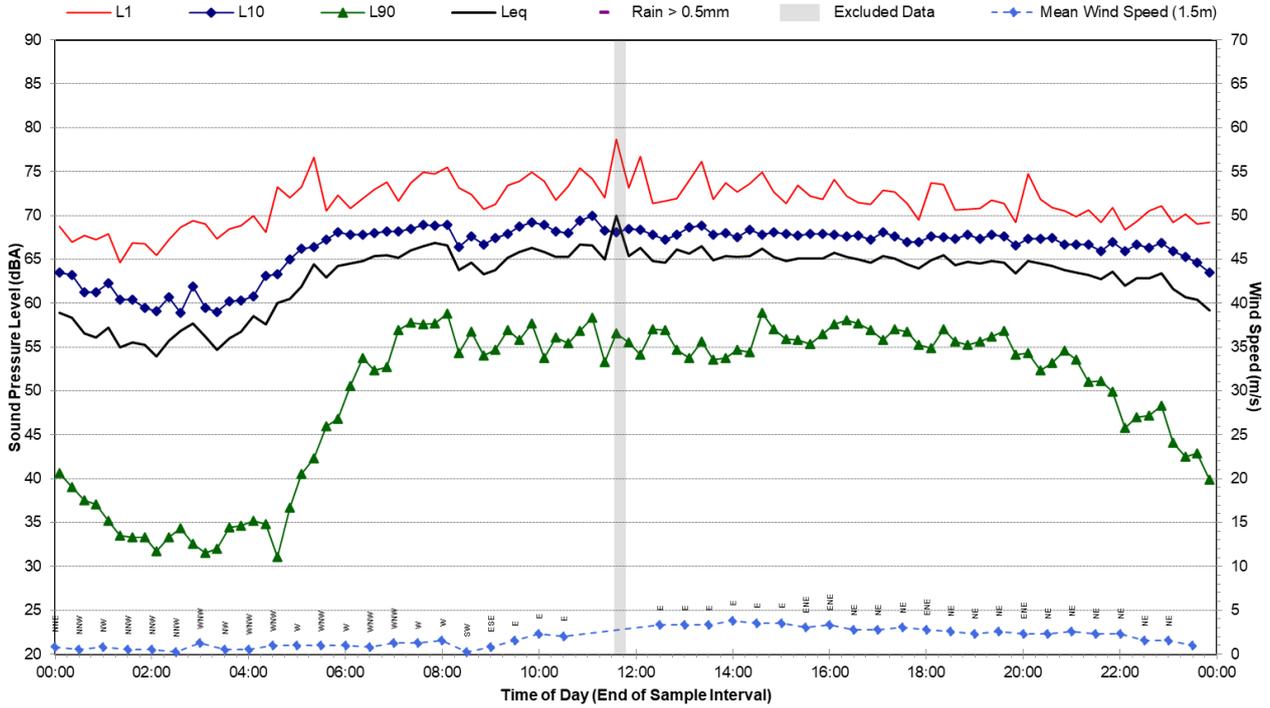
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Wednesday, 1 December 2021



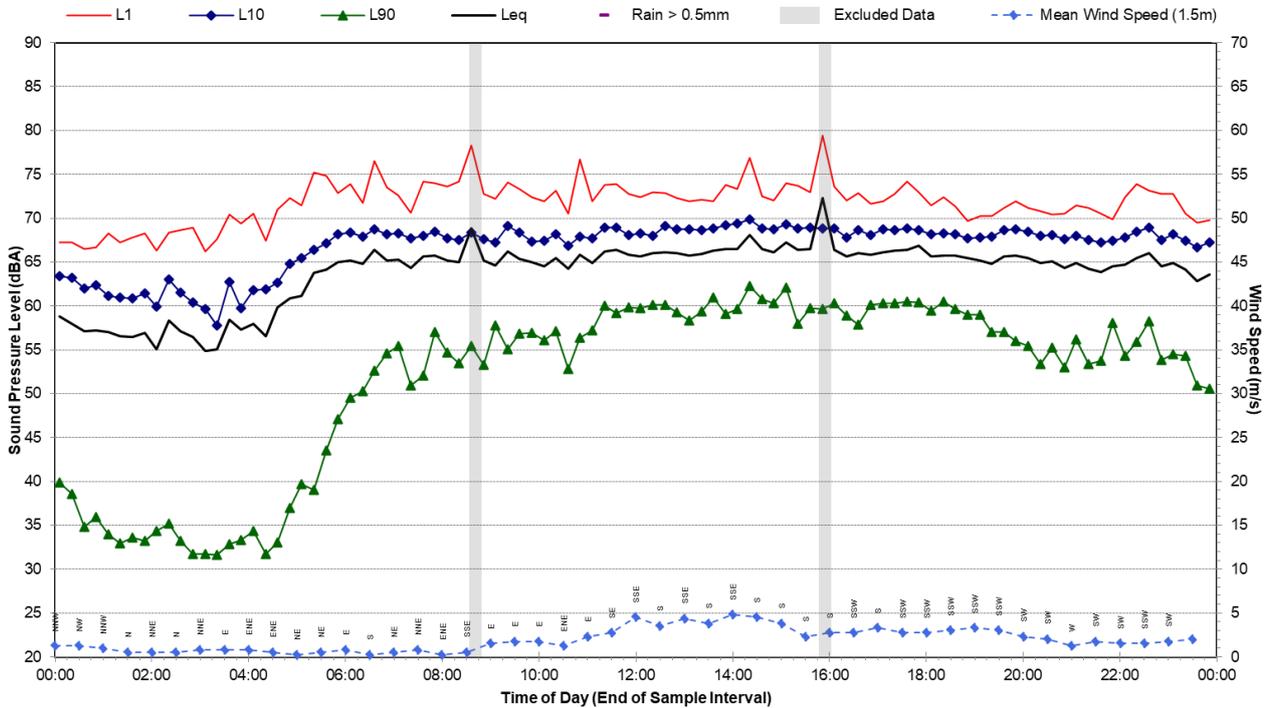
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Thursday, 2 December 2021



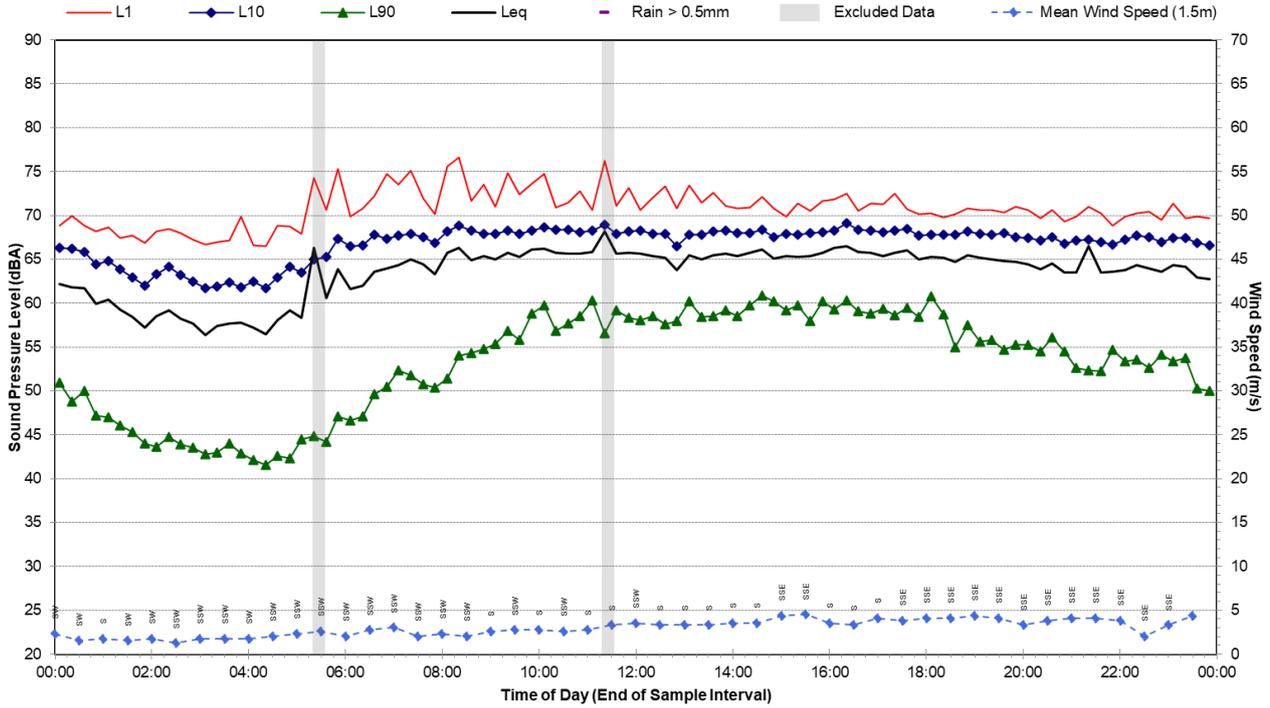
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Friday, 3 December 2021



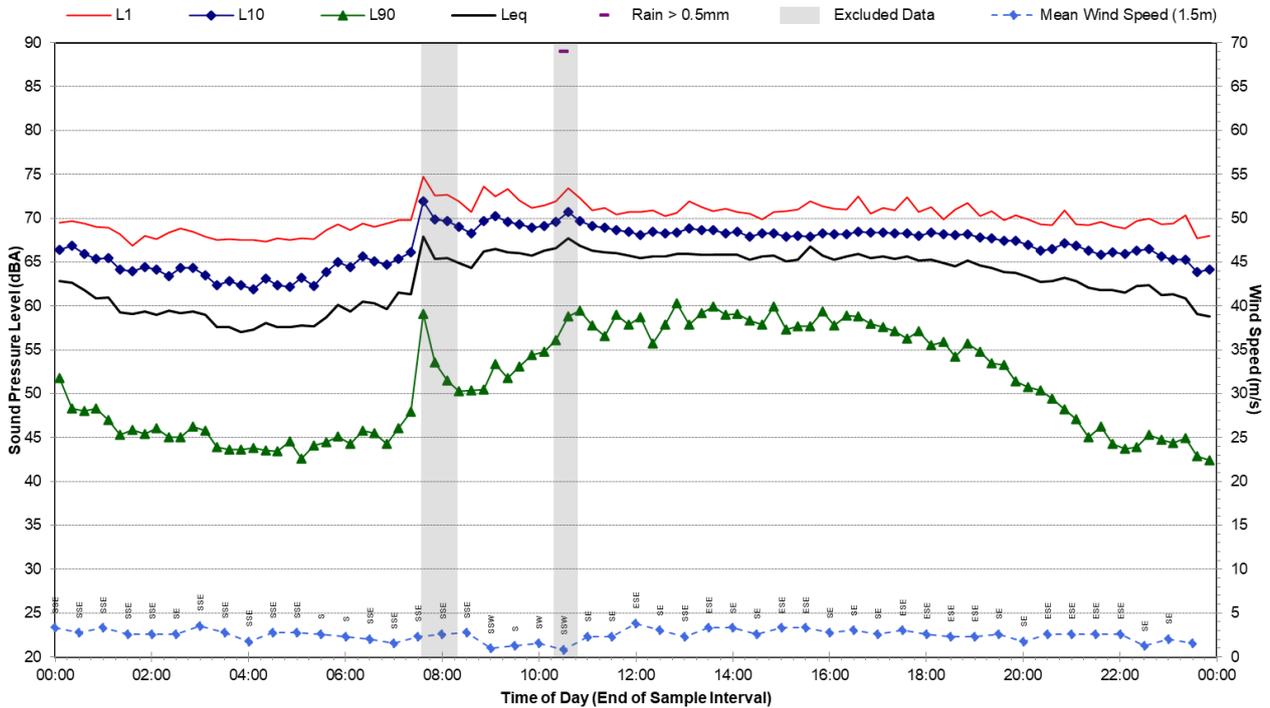
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Saturday, 4 December 2021



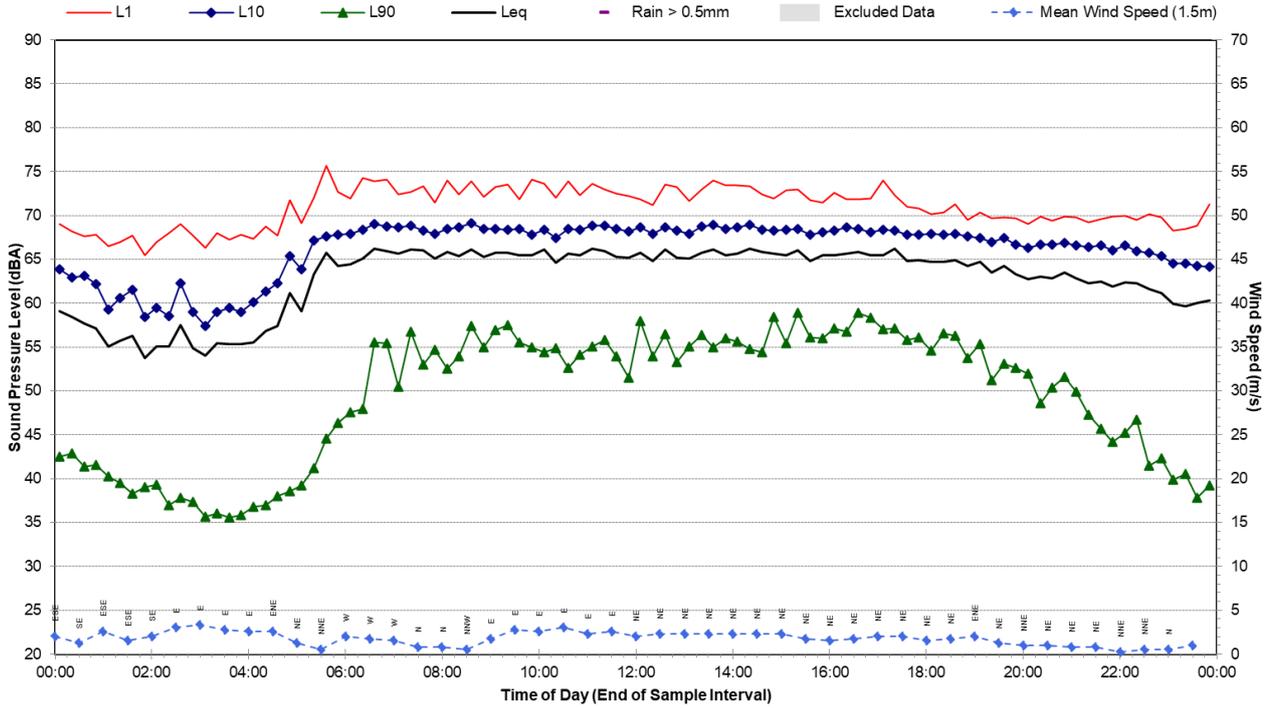
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Sunday, 5 December 2021



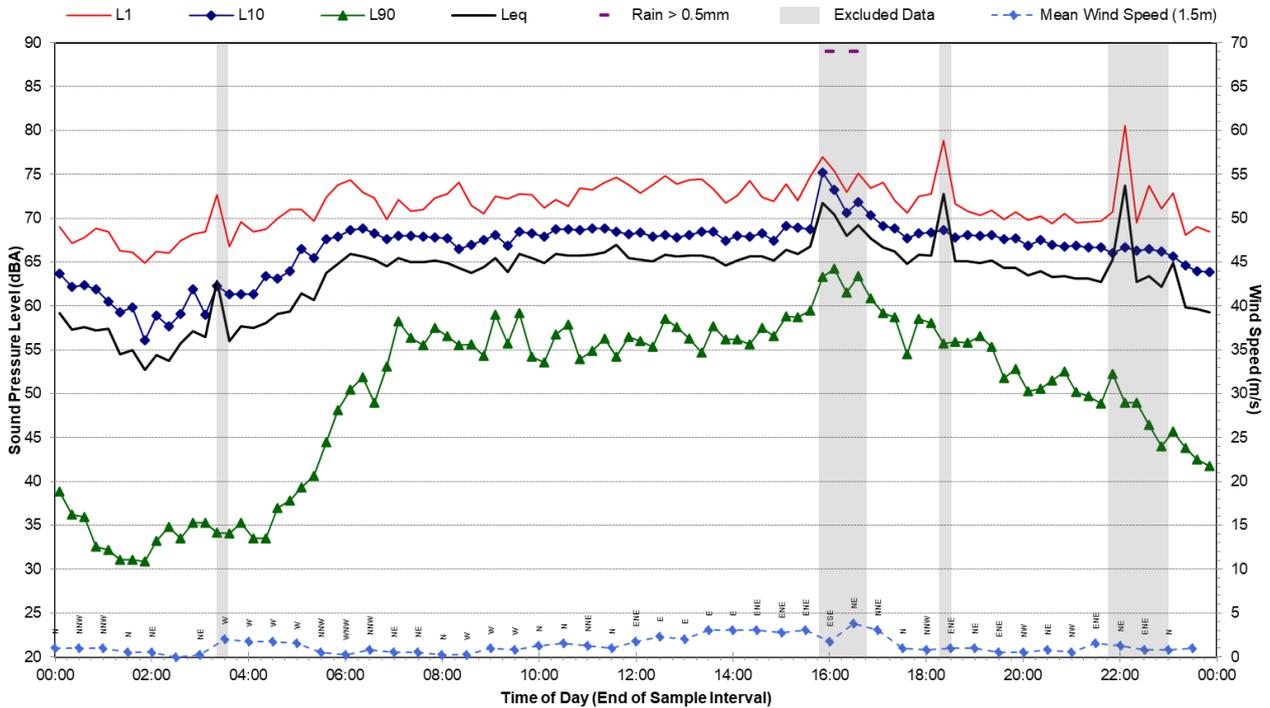
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Monday, 6 December 2021



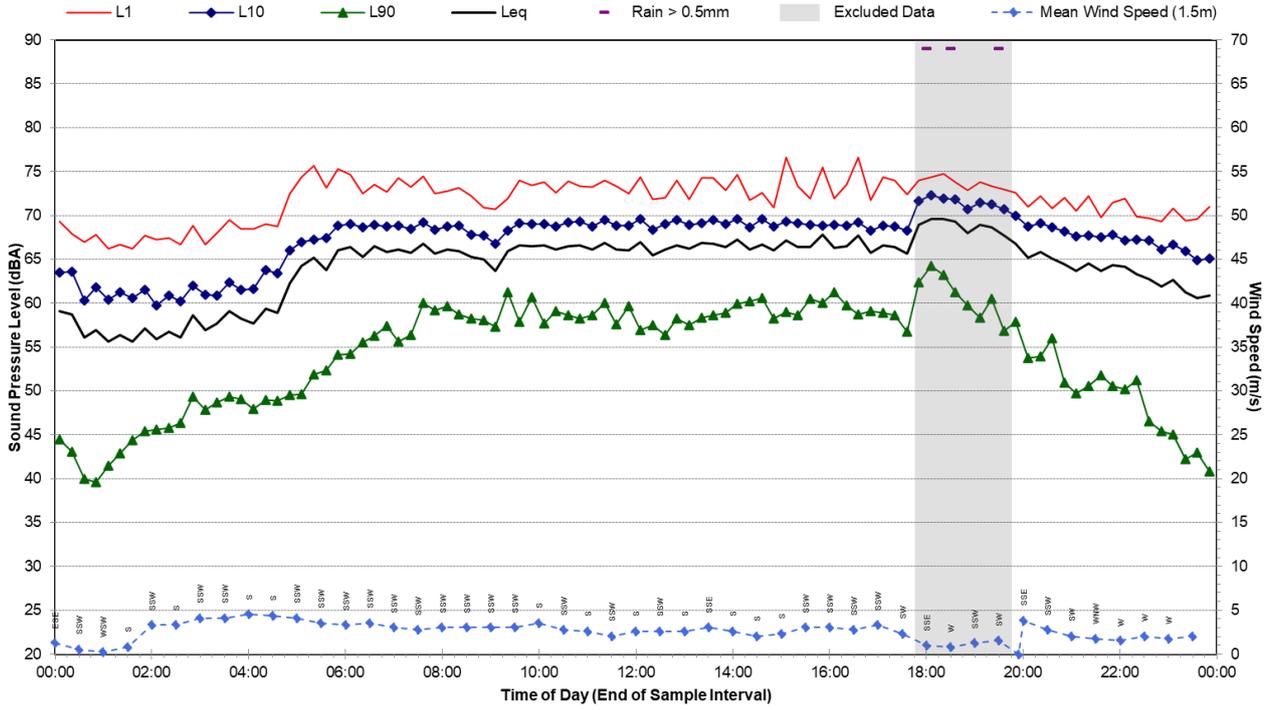
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Tuesday, 7 December 2021



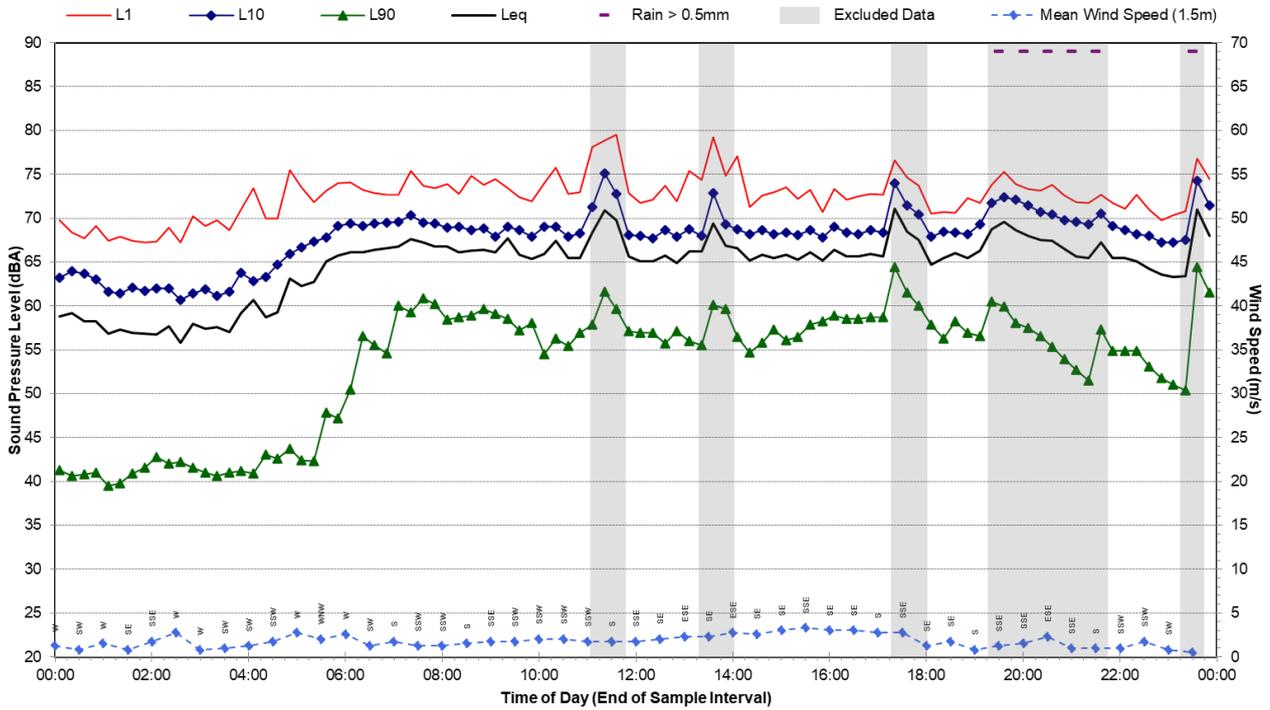
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Wednesday, 8 December 2021



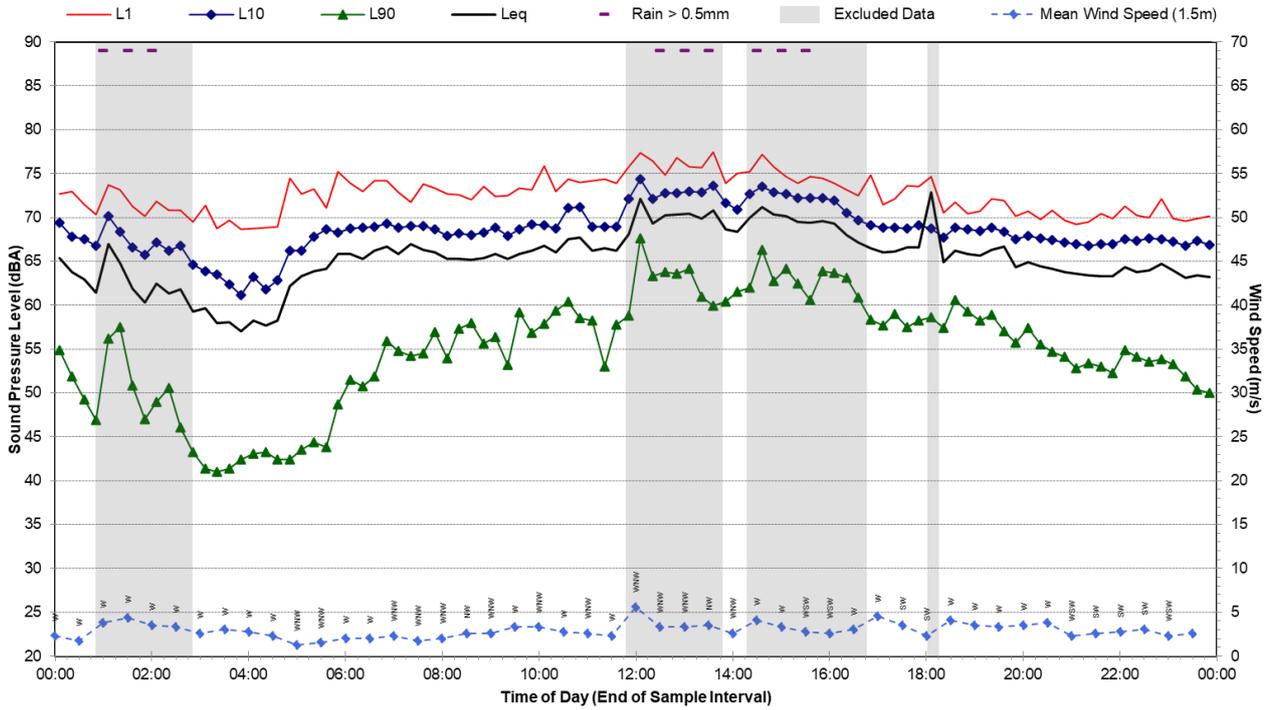
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Thursday, 9 December 2021



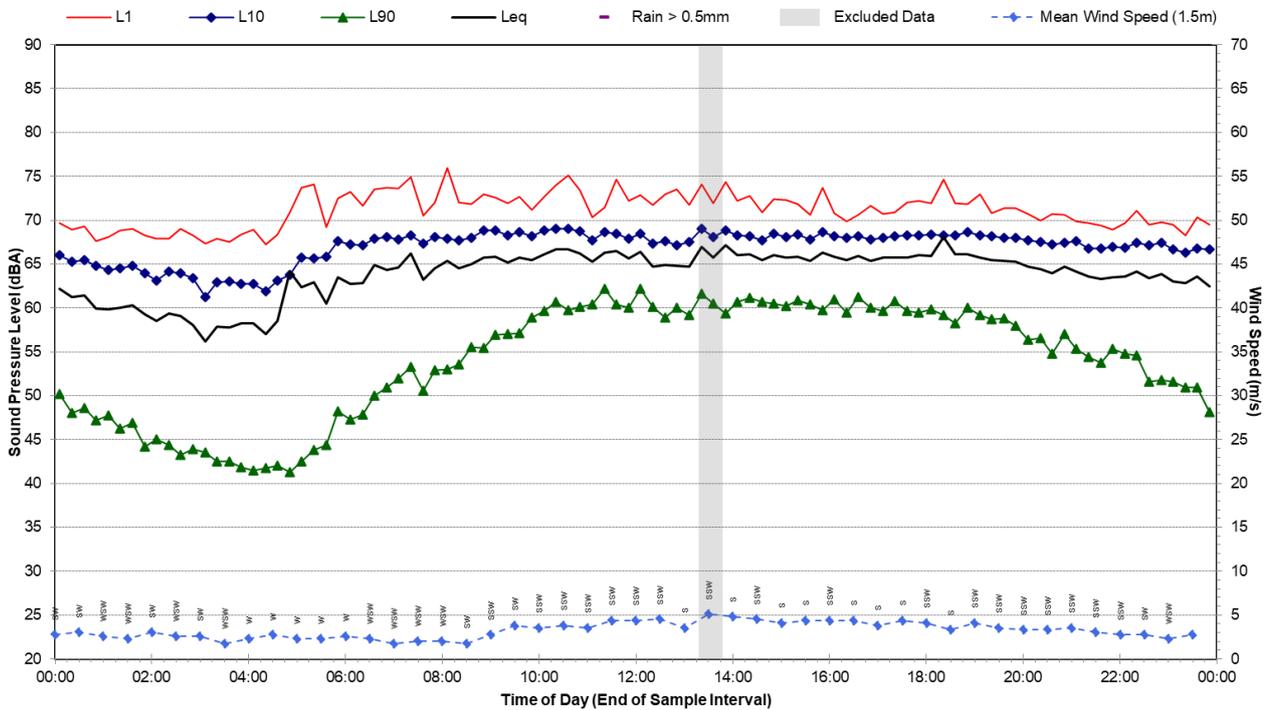
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Friday, 10 December 2021



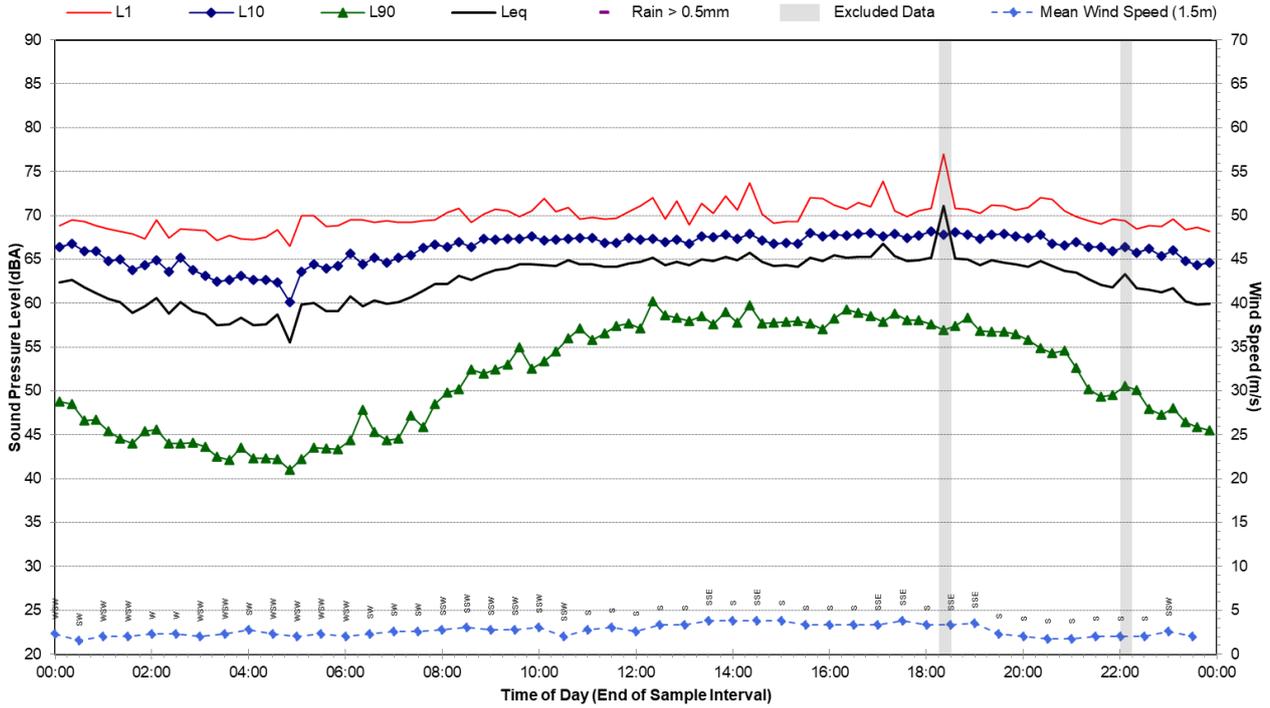
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Saturday, 11 December 2021



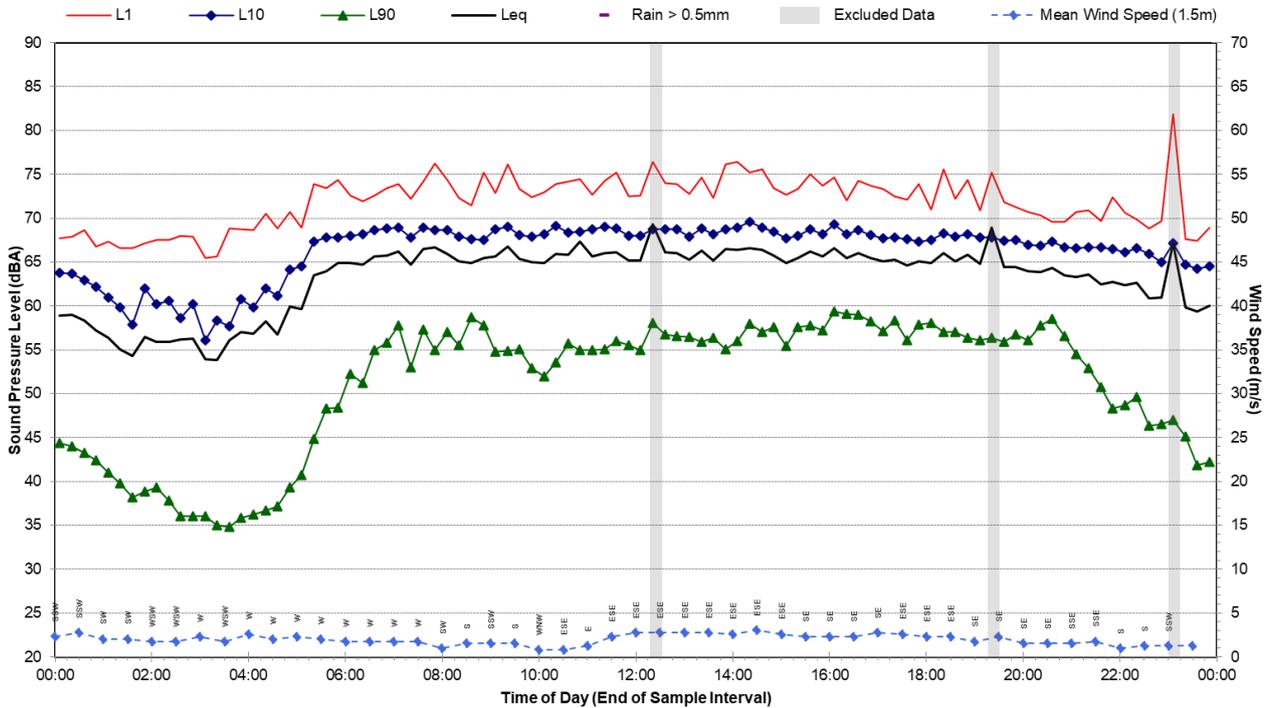
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Sunday, 12 December 2021



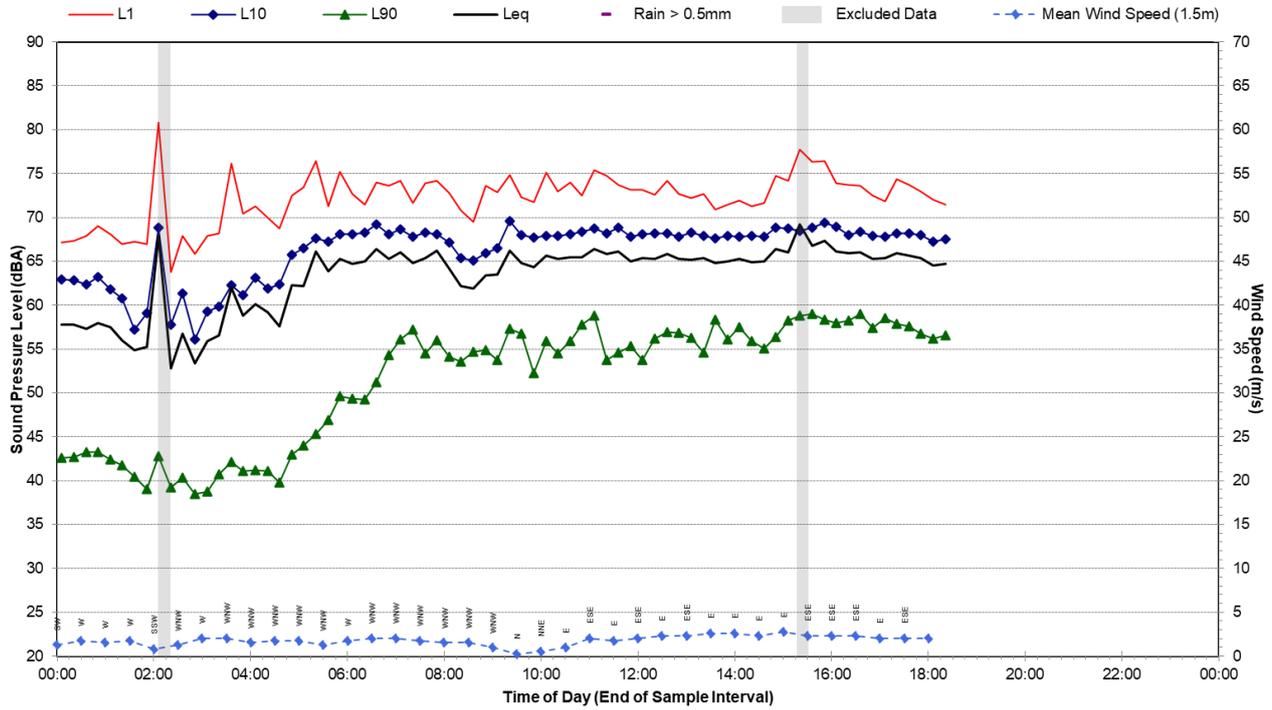
Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Monday, 13 December 2021



Statistical Ambient Noise Levels

11304/177 Mitchell Road, Erskineville - Tuesday, 14 December 2021



APPENDIX C

Construction Information

Table 1 Equipment Lists and Sound Power Levels

Equipment		Auger Drill Rig	Back Hoe (7.5 tonne JCB)	Chainsaw ¹	Concrete Mixer Truck	Concrete Pump	Concrete Saw ¹	Concrete Vibrator	Elevated Working Platform	Excavator (Breaker - Small) ¹	Excavator (22 tonne)	Generator	Hand Tools (5mins)	Hand Tools (electric)	Lighting - Diesel Generator	Line Marking Plant	Line Marking Removal Plant	Mobile Crane - Franna	Mobile Crane (35 tonne)	Paving Machine	Plate compactor	Road Profiler	Roller - Smooth Drum	Roller - Vibratory (12 tonne) ¹	Scissor Lift	Skidsteer Loaders (approx 1/2 tonne)	Suction Truck	Truck	Tub Grinder	Ute (5mins)	
Sound Power Level ²		111	102	114	103	106	119	102	97	117	105	102	94	96	98	108	109	98	98	114	108	117	107	109	92	97	109	107	116	98	
Activity																															
W.01	Mobilisation and Site Establishment									X		X		X			X								X			X		X	
W.02	Traffic Switches					X									X	X	X												X		
W.03	Tree Felling			X				X					X	X				X										X	X		
W.04	Utility Locating					X							X	X							X							X	X		
W.05	Utility Relocation (Noisy works)	X						X	X				X	X			X			X							X	X			
W.06	Utility Relocation									X			X	X						X						X		X			
W.07	Drainage Infrastructure		X		X	X				X								X			X										
W.08	Road Works – General Civil				X	X		X		X										X				X		X	X	X			
W.09	Road Works – Milling Works					X								X							X					X		X			
W.10	Paving Works – Pavement Works					X								X					X				X					X			
W.13	Finishing Works									X				X	X	X	X								X			X			

Note 1: Equipment classified as ‘annoying’ in the ICNG and requires an additional 5 dB correction.

Note 2: Sound power level data is taken from the DEFRA Noise Database, RMS Construction and Vibration Guideline and TfNSW Construction Noise and Vibration Strategy.

Table 2 CNVG Standard Mitigation and Management Measures

Action Required	Applies To	Details
Management measures		
Implementation of any project specific mitigation measures required.	Airborne noise	Implementation of any project specific mitigation measures required.
Implement community consultation or notification measures.	Airborne noise Ground-borne noise & vibration	Notification detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required. Please contact Roads and Maritime Communication and Stakeholder Engagement for guidance. Website (If required) Contact telephone number for community Email distribution list (if required) Community drop in session (if required by approval conditions).
Site inductions	Airborne noise Ground-borne noise & vibration	All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include: <ul style="list-style-type: none"> • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures • site opening/closing times (including deliveries) • environmental incident procedures.
Behavioural practices	Airborne noise	No swearing or unnecessary shouting or loud stereos/radios on site. No dropping of materials from height, throwing of metal items and slamming of doors.
Verification	Airborne noise Ground-borne noise & vibration	Where specified under Appendix C of the CNVG a noise verification program is to be carried out for the duration of the works in accordance with the Construction Noise and Vibration Management Plan and any approval and licence conditions.
Attended vibration measurements	Ground-borne vibration	Where required attended vibration measurements should be undertaken at the commencement of vibration generating activities to confirm that vibration levels are within the acceptable range to prevent cosmetic building damage.
Update Construction Environmental Management Plans	Airborne noise Ground-borne noise & vibration	The CEMP must be regularly updated to account for changes in noise and vibration management issues and strategies.
Building condition surveys	Vibration Blasting	Undertake building dilapidation surveys on all buildings located within the buffer zone prior to commencement of activities with the potential to cause property damage
Source controls		
Construction hours and scheduling	Airborne noise Ground-borne noise & vibration	Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.

Action Required	Applies To	Details
Construction respite period during normal hours and out-of-hours work	Ground-borne noise & vibration Airborne noise	See Appendix C of the CNVG for more details on the following respite measures: <ul style="list-style-type: none"> • Respite Offers (RO) • Respite Period 1 (R1) • Respite Period 2 (R2) • Duration Respite (DR)
Equipment selection.	Airborne noise Ground-borne noise & vibration	Use quieter and less vibration emitting construction methods where feasible and reasonable. For example, when piling is required, bored piles rather than impact-driven piles will minimise noise and vibration impacts. Similarly, diaphragm wall construction techniques, in lieu of sheet piling, will have significant noise and vibration benefits. Ensure plant including the silencer is well maintained.
Plant noise levels.	Airborne-noise	The noise levels of plant and equipment must have operating Sound Power or Sound Pressure Levels compliant with the criteria in Appendix H of the CNVG. Implement a noise monitoring audit program to ensure equipment remains within the more stringent of the manufacturers specifications or Appendix H of the CNVG.
Rental plant and equipment.	Airborne-noise	The noise levels of plant and equipment items are to be considered in rental decisions and in any case cannot be used on site unless compliant with the criteria in Table 2 of the CNVG.
Use and siting of plant.	Airborne-noise	The offset distance between noisy plant and adjacent sensitive receivers is to be maximised. Plant used intermittently to be throttled down or shut down. Noise-emitting plant to be directed away from sensitive receivers. Only have necessary equipment on site.
Plan worksites and activities to minimise noise and vibration.	Airborne noise Ground-borne vibration	Locate compounds away from sensitive receivers and discourage access from local roads. Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site. Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible. Very noise activities should be scheduled for normal working hours. If the work can not be undertaken during the day, it should be completed before 11:00pm. Where practicable, work should be scheduled to avoid major student examination periods when students are studying for examinations such as before or during Higher School Certificate and at the end of higher education semesters. If programmed night work is postponed the work should be re-programmed and the approaches in this guideline apply again.
Reduced equipment power	Airborne noise Ground-borne vibration	Use only the necessary size and power.
Non-tonal and ambient sensitive reversing alarms	Airborne noise	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work. Consider the use of ambient sensitive alarms that adjust output relative to the ambient noise level.
Minimise disturbance arising from delivery of goods to construction sites.	Airborne noise	Loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers. Select site access points and roads as far as possible away from sensitive receivers. Dedicated loading/unloading areas to be shielded if close to sensitive receivers. Delivery vehicles to be fitted with straps rather than chains for unloading, wherever possible. Avoid or minimise these out of hours movements where possible.

Action Required	Applies To	Details
Engine compression brakes	Construction vehicles	Limit the use of engine compression brakes at night and in residential areas. Ensure vehicles are fitted with a maintained Original Equipment Manufacturer exhaust silencer or a silencer that complies with the National Transport Commission's 'In-service test procedure' and standard.
Path controls		
Shield stationary noise sources such as pumps, compressors, fans etc.	Airborne noise	Stationary noise sources should be enclosed or shielded where feasible and reasonable whilst ensuring that the occupational health and safety of workers is maintained. Appendix D of AS 2436:2010 lists materials suitable for shielding.
Shield sensitive receivers from noisy activities.	Airborne noise	Use structures to shield residential receivers from noise such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when siting plant.
Receptor control		
Structural surveys and vibration monitoring	Ground-borne vibration	Pre-construction surveys of the structural integrity of vibration sensitive buildings may be warranted. At locations where there are high-risk receptors, vibration monitoring should be conducted during the activities causing vibration.
See Appendix C of the CNVG for additional measures	Airborne noise Ground-borne vibration	In some instances additional mitigation measures may be required.

Table 3 CNVG ‘Additional Mitigation Measures’

Additional Mitigation Measure	Description
Notification (letterbox drop or equivalent)	Advanced warning of works and potential disruptions can assist in reducing the impact on the community. The notification may consist of a letterbox drop (or equivalent) detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification should be a minimum of five working days prior to the start of works.
Specific notifications (SN)	Specific notifications are letterbox dropped (or equivalent) to identified stakeholders no later than seven calendar days ahead of construction activities that are likely to exceed the noise objectives. The specific notification provides additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops.
Phone calls (PC)	Phone calls detailing relevant information made to affected stakeholders within seven calendar days of proposed work. Phone calls provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs.
Individual briefings (IB)	Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Project representatives would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project.
Respite Offers (RO)	Respite Offers should be considered where there are high noise and vibration generating activities near receivers. As a guide work should be carried out in continuous blocks that do not exceed three hours each, with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of and amenity at nearby receivers. The purpose of such an offer is to provide residents with respite from an ongoing impact. This measure is evaluated on a project-by-project basis, and may not be applicable to all projects.
Respite Period 1 (R1)	Out of hours construction noise in ‘out of hours period 1’ shall be limited to no more than three consecutive evenings per week except where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and no more than six evenings per month.
Respite Period 2 (R2)	Night time construction noise in ‘out of hours period 2’ shall be limited to two consecutive nights except for where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and six nights per month. Where possible, high noise generating works shall be completed before 11pm.
Duration Respite (DR)	Respite offers and respite periods 1 and 2 may be counterproductive in reducing the impact on the community for longer duration projects. In this instance and where it can be strongly justified it may be beneficial to increase the work duration, number of evenings or nights worked through Duration Respite so that the project can be completed more quickly. The project team should engage with the community where noise levels are expected to exceed the NML to demonstrate support for Duration Respite.
Alternative Accommodation (AA)	Alternative accommodation may be offered to residents living in close proximity to construction works that are likely to experience highly intrusive noise levels. The specifics of the offer should be identified on a project-by-project basis. Additional aspects for consideration shall include whether the highly intrusive activities occur throughout the night or before midnight.
Verification (V)	Verification of construction noise and vibration levels should occur to ensure the actual impacts are consistent with the predicted levels. Appendix F of the CNVG contains further details about verification of Noise and Vibration levels as part of routine checks of noise levels or following reasonable complaints.

Table 4 Predicted NML Exceedances, All Receiver Types – NCA01

ID	Scenario	Number of Receivers																			
		Total	HNA ¹	With NML Exceedance ²																	
				Standard Daytime			Out of Hours Works ³											Sleep Disturbance			
							Daytime OOH				Evening				Night time						
1 10 dB	11 20 dB	>20 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	>25 dB				
W.01	Mobilisation and Site Establishment – Zone A	261	-	1	-	-	7	1	-	-	10	5	-	-	82	57	11	1	77	20	1
W.02	Traffic Switches – Zone A	261	1	18	1	-	26	18	1	-	38	27	4	-	28	173	47	12	109	120	31
W.03	Tree Felling – Zone A	261	1	21	1	-	31	21	1	-	41	33	5	-	21	170	57	12	160	70	18
W.04	Utility Locating – Zone A	261	1	18	1	-	26	18	1	-	38	27	4	-	28	173	47	12	109	120	31
W.05	Utility Relocation (Noisy Works) – Zone A	261	1	21	1	-	31	21	1	-	41	33	5	-	21	170	57	12	163	44	8
W.06	Utility Relocation – Zone A	261	-	3	-	-	9	3	-	-	12	6	-	-	100	64	14	1	77	20	1
W.07	Drainage Infrastructure – Zone A	261	1	15	1	-	23	15	1	-	36	20	3	-	41	163	44	8	109	120	31
W.08	Road Works – General Civil – Zone A	261	3	28	4	-	38	28	4	-	46	44	8	-	12	160	70	18	170	57	12
W.09	Road Works – Milling Works – Zone A	261	3	28	4	-	38	28	4	-	46	44	8	-	12	160	70	18	109	120	31
W.10	Paving Works – Pavement Works – Zone A	261	1	21	3	-	36	21	3	-	44	38	6	-	17	164	64	15	109	120	31
W.11	Finishing Works – Zone A	261	-	13	-	-	12	12	-	-	26	17	1	-	64	141	33	5	120	27	4
W.12	Mobilisation and Site Establishment – Zone B	261	-	-	-	-	4	-	-	-	8	2	-	-	77	64	10	-	102	17	-
W.13	Traffic Switches – Zone B	261	-	15	-	-	31	15	-	-	51	21	2	-	36	154	57	6	107	128	23
W.14	Tree Felling – Zone B	261	-	18	-	-	40	17	-	-	50	31	2	-	31	153	64	10	144	84	15
W.15	Utility Locating – Zone B	261	-	15	-	-	31	15	-	-	51	21	2	-	36	154	57	6	107	128	23
W.16	Utility Relocation (Noisy Works) – Zone B	261	-	18	-	-	40	17	-	-	50	31	2	-	31	153	64	10	141	52	4
W.17	Utility Relocation – Zone B	261	-	1	-	-	5	1	-	-	12	3	-	-	86	73	10	-	102	17	-
W.18	Drainage Infrastructure – Zone B	261	-	10	-	-	23	10	-	-	44	18	1	-	54	141	52	4	107	128	23
W.19	Road Works – General Civil – Zone B	261	1	22	2	-	52	21	2	-	63	52	4	-	15	144	84	15	153	64	10
W.20	Road Works – Milling Works – Zone B	261	1	22	2	-	52	21	2	-	63	52	4	-	15	144	84	15	107	128	23
W.21	Paving Works – Pavement Works – Zone B	261	1	19	1	-	45	18	1	-	53	43	3	-	21	154	73	10	107	128	23
W.22	Finishing Works – Zone B	261	-	6	-	-	13	6	-	-	31	15	-	-	68	136	31	2	128	21	2

Table 5 Predicted NML Exceedances, All Receiver Types – NCA02

ID	Scenario	Number of Receivers																			
		Total	HNA ¹	With NML Exceedance ²																	
				Standard Daytime			Out of Hours Works ³												Sleep Disturbance		
				1 10 dB	11 20 dB	>20 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	>25 dB
W.01	Mobilisation and Site Establishment – Zone A	124	7	11	8	-	4	11	8	-	5	3	11	-	43	31	3	11	52	5	12
W.02	Traffic Switches – Zone A	124	13	12	12	7	41	13	10	7	41	23	3	10	6	67	23	13	22	69	19
W.03	Tree Felling – Zone A	124	13	16	11	8	45	14	11	8	43	31	3	11	5	60	31	14	43	47	16
W.04	Utility Locating – Zone A	124	13	12	12	7	41	13	10	7	41	23	3	10	6	67	23	13	22	69	19
W.05	Utility Relocation (Noisy Works) – Zone A	124	13	16	11	8	45	14	11	8	43	31	3	11	5	60	31	14	76	13	13
W.06	Utility Relocation – Zone A	124	8	7	12	-	5	9	10	-	4	5	11	-	44	38	5	11	52	5	12
W.07	Drainage Infrastructure – Zone A	124	13	9	13	6	36	10	10	6	43	13	5	8	4	76	13	13	22	69	19
W.08	Road Works – General Civil – Zone A	124	13	35	6	14	45	33	9	11	39	47	5	11	6	43	47	16	60	31	14
W.09	Road Works – Milling Works – Zone A	124	13	35	6	14	45	33	9	11	39	47	5	11	6	43	47	16	22	69	19
W.10	Paving Works – Pavement Works – Zone A	124	13	26	7	12	43	24	9	10	44	38	5	11	6	51	38	16	22	69	19
W.11	Finishing Works – Zone A	124	12	6	19	-	19	9	15	-	34	7	7	6	7	78	7	13	69	6	13
W.12	Mobilisation and Site Establishment – Zone B	124	-	-	-	-	-	-	-	-	-	-	-	-	12	2	-	-	12	-	-
W.13	Traffic Switches – Zone B	124	-	2	-	-	5	1	-	-	13	1	-	-	38	56	1	-	85	14	-
W.14	Tree Felling – Zone B	124	-	2	-	-	12	1	-	-	12	2	-	-	36	61	2	-	84	5	-
W.15	Utility Locating – Zone B	124	-	2	-	-	5	1	-	-	13	1	-	-	38	56	1	-	85	14	-
W.16	Utility Relocation (Noisy Works) – Zone B	124	-	2	-	-	12	1	-	-	12	2	-	-	36	61	2	-	41	1	-
W.17	Utility Relocation – Zone B	124	-	-	-	-	-	-	-	-	1	-	-	-	20	5	-	-	12	-	-
W.18	Drainage Infrastructure – Zone B	124	-	1	-	-	4	1	-	-	11	1	-	-	52	41	1	-	85	14	-
W.19	Road Works – General Civil – Zone B	124	-	4	-	-	14	2	-	-	33	5	-	-	18	84	5	-	61	2	-
W.20	Road Works – Milling Works – Zone B	124	-	4	-	-	14	2	-	-	33	5	-	-	18	84	5	-	85	14	-
W.21	Paving Works – Pavement Works – Zone B	124	-	3	-	-	15	1	-	-	20	5	-	-	30	70	5	-	85	14	-
W.22	Finishing Works – Zone B	124	-	-	-	-	1	-	-	-	4	1	-	-	50	24	1	-	14	-	-

Table 6 Predicted NML Exceedances, All Receiver Types – NCA03

ID	Scenario	Number of Receivers																			
		Total	HNA ¹	With NML Exceedance ²																	
				Standard Daytime			Out of Hours Works ³												Sleep Disturbance		
							Daytime OOH				Evening				Night time						
1 10 dB	11 20 dB	>20 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	>25 dB				
W.01	Mobilisation and Site Establishment – Zone A	159	11	11	12	-	6	10	12	-	8	3	12	-	28	22	3	12	37	6	12
W.02	Traffic Switches – Zone A	159	13	15	12	11	25	17	9	11	28	16	2	12	4	69	16	14	38	42	23
W.03	Tree Felling – Zone A	159	13	16	11	12	28	16	10	12	28	22	3	12	2	64	22	15	52	34	17
W.04	Utility Locating – Zone A	159	13	15	12	11	25	17	9	11	28	16	2	12	4	69	16	14	38	42	23
W.05	Utility Relocation (Noisy Works) – Zone A	159	13	16	11	12	28	16	10	12	28	22	3	12	2	64	22	15	68	15	13
W.06	Utility Relocation – Zone A	159	12	12	12	-	6	11	12	-	6	5	12	-	35	27	5	12	37	6	12
W.07	Drainage Infrastructure – Zone A	159	13	10	16	7	21	15	11	7	27	15	1	12	7	68	15	13	38	42	23
W.08	Road Works – General Civil – Zone A	159	14	25	12	13	31	23	12	12	36	34	5	12	1	52	34	17	64	22	15
W.09	Road Works – Milling Works – Zone A	159	14	25	12	13	31	23	12	12	36	34	5	12	1	52	34	17	38	42	23
W.10	Paving Works – Pavement Works – Zone A	159	13	17	12	12	29	17	11	12	35	27	5	12	2	58	27	17	38	42	23
W.11	Finishing Works – Zone A	159	12	7	19	3	11	16	10	3	21	10	6	7	23	56	10	13	42	10	13
W.12	Mobilisation and Site Establishment – Zone B	159	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-
W.13	Traffic Switches – Zone B	159	-	-	-	-	1	-	-	-	2	-	-	-	50	14	-	-	63	2	-
W.14	Tree Felling – Zone B	159	-	-	-	-	1	-	-	-	2	-	-	-	46	19	-	-	32	1	-
W.15	Utility Locating – Zone B	159	-	-	-	-	1	-	-	-	2	-	-	-	50	14	-	-	63	2	-
W.16	Utility Relocation (Noisy Works) – Zone B	159	-	-	-	-	1	-	-	-	2	-	-	-	46	19	-	-	10	-	-
W.17	Utility Relocation – Zone B	159	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-
W.18	Drainage Infrastructure – Zone B	159	-	-	-	-	-	-	-	-	1	-	-	-	41	10	-	-	63	2	-
W.19	Road Works – General Civil – Zone B	159	-	-	-	-	2	-	-	-	4	1	-	-	45	32	1	-	19	-	-
W.20	Road Works – Milling Works – Zone B	159	-	-	-	-	2	-	-	-	4	1	-	-	45	32	1	-	63	2	-
W.21	Paving Works – Pavement Works – Zone B	159	-	-	-	-	2	-	-	-	2	-	-	-	48	24	-	-	63	2	-
W.22	Finishing Works – Zone B	159	-	-	-	-	-	-	-	-	-	-	-	-	22	2	-	-	2	-	-

Table 7 Predicted NML Exceedances, All Receiver Types – NCA04

ID	Scenario	Number of Receivers																			
		Total	HNA ¹	With NML Exceedance ²																	
				Standard Daytime			Out of Hours Works ³											Sleep Disturbance			
							Daytime OOH				Evening				Night time						
1 10 dB	11 20 dB	>20 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	>25 dB				
W.01	Mobilisation and Site Establishment – Zone A	19	-	-	-	-	-	-	-	-	-	-	-	-	5	4	-	-	4	1	-
W.02	Traffic Switches – Zone A	19	-	3	-	-	2	2	-	-	4	2	-	-	3	11	3	-	8	8	1
W.03	Tree Felling – Zone A	19	-	3	-	-	2	3	-	-	3	3	-	-	1	12	4	-	13	3	1
W.04	Utility Locating – Zone A	19	-	3	-	-	2	2	-	-	4	2	-	-	3	11	3	-	8	8	1
W.05	Utility Relocation (Noisy Works) – Zone A	19	-	3	-	-	2	3	-	-	3	3	-	-	1	12	4	-	9	3	-
W.06	Utility Relocation – Zone A	19	-	-	-	-	-	-	-	-	1	-	-	-	6	4	-	-	4	1	-
W.07	Drainage Infrastructure – Zone A	19	-	2	-	-	2	1	-	-	3	2	-	-	5	9	3	-	8	8	1
W.08	Road Works – General Civil – Zone A	19	-	2	1	-	3	3	-	-	2	5	-	-	-	13	3	1	12	4	-
W.09	Road Works – Milling Works – Zone A	19	-	2	1	-	3	3	-	-	2	5	-	-	-	13	3	1	8	8	1
W.10	Paving Works – Pavement Works – Zone A	19	-	3	-	-	2	3	-	-	2	4	-	-	1	12	4	-	8	8	1
W.11	Finishing Works – Zone A	19	-	2	-	-	3	-	-	-	3	1	-	-	6	9	1	-	8	1	-
W.12	Mobilisation and Site Establishment – Zone B	19	3	2	7	-	2	3	6	-	3	4	7	-	-	4	5	7	4	5	7
W.13	Traffic Switches – Zone B	19	7	5	4	5	3	5	5	4	3	6	2	7	-	1	6	10	1	3	13
W.14	Tree Felling – Zone B	19	7	5	2	7	3	5	3	6	2	5	4	7	-	1	4	12	1	4	12
W.15	Utility Locating – Zone B	19	7	5	4	5	3	5	5	4	3	6	2	7	-	1	6	10	1	3	13
W.16	Utility Relocation (Noisy Works) – Zone B	19	7	5	2	7	3	5	3	6	2	5	4	7	-	1	4	12	2	6	9
W.17	Utility Relocation – Zone B	19	5	2	7	-	3	2	7	-	3	2	9	-	1	4	5	7	4	5	7
W.18	Drainage Infrastructure – Zone B	19	7	5	5	4	2	5	6	3	4	5	3	6	-	2	6	9	1	3	13
W.19	Road Works – General Civil – Zone B	19	7	6	1	8	3	6	1	8	1	6	2	9	-	1	4	12	1	4	12
W.20	Road Works – Milling Works – Zone B	19	7	6	1	8	3	6	1	8	1	6	2	9	-	1	4	12	1	3	13
W.21	Paving Works – Pavement Works – Zone B	19	7	5	2	7	4	5	2	7	1	6	2	9	-	1	4	12	1	3	13
W.22	Finishing Works – Zone B	19	7	3	7	2	2	3	9	-	3	5	6	3	-	3	5	9	3	6	7

Table 8 Predicted NML Exceedances, All Receiver Types – NCA05

ID	Scenario	Number of Receivers																			
		Total	HNA ¹	With NML Exceedance ²																	
				Standard Daytime	Out of Hours Works ³												Sleep Disturbance				
					1 10 dB	11 20 dB	>20 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	16 25 dB	>25 dB	1 5 dB	6 15 dB	>25 dB
W.01	Mobilisation and Site Establishment – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.02	Traffic Switches – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	-	98	9	-	-	126	-	-
W.03	Tree Felling – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	105	21	-	-	64	-	-	
W.04	Utility Locating – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	98	9	-	-	126	-	-	
W.05	Utility Relocation (Noisy Works) – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	105	21	-	-	1	-	-	
W.06	Utility Relocation – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
W.07	Drainage Infrastructure – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	87	1	-	-	126	-	-	
W.08	Road Works – General Civil – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	85	64	-	-	21	-	-	
W.09	Road Works – Milling Works – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	85	64	-	-	126	-	-	
W.10	Paving Works – Pavement Works – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	94	46	-	-	126	-	-	
W.11	Finishing Works – Zone A	161	-	-	-	-	-	-	-	-	-	-	-	45	1	-	-	-	-	-	
W.12	Mobilisation and Site Establishment – Zone B	161	-	1	1	-	1	1	1	-	2	2	1	-	38	13	3	1	20	3	2
W.13	Traffic Switches – Zone B	161	2	3	2	-	6	3	2	-	11	3	2	1	34	99	12	3	99	49	6
W.14	Tree Felling – Zone B	161	2	3	1	1	8	3	1	1	14	4	2	1	25	112	13	4	116	16	5
W.15	Utility Locating – Zone B	161	2	3	2	-	6	3	2	-	11	3	2	1	34	99	12	3	99	49	6
W.16	Utility Relocation (Noisy Works) – Zone B	161	2	3	1	1	8	3	1	1	14	4	2	1	25	112	13	4	90	10	3
W.17	Utility Relocation – Zone B	161	1	1	1	-	1	1	1	-	2	2	1	-	52	16	4	1	20	3	2
W.18	Drainage Infrastructure – Zone B	161	2	3	2	-	2	3	2	-	10	3	1	1	39	90	10	3	99	49	6
W.19	Road Works – General Civil – Zone B	161	2	3	2	1	11	3	2	1	12	10	1	2	19	116	16	5	112	13	4
W.20	Road Works – Milling Works – Zone B	161	2	3	2	1	11	3	2	1	12	10	1	2	19	116	16	5	99	49	6
W.21	Paving Works – Pavement Works – Zone B	161	2	3	1	1	10	3	1	1	10	8	2	1	19	115	16	5	99	49	6
W.22	Finishing Works – Zone B	161	2	1	2	-	2	1	2	-	6	3	2	-	63	66	4	3	49	3	3

Table 11 Predicted Worst-case Construction Noise Levels (dBA) – Residential Receivers

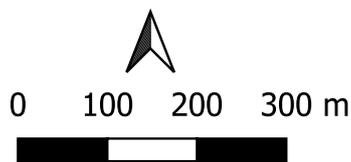
Period	ID	Scenario	NCA01	NCA02	NCA03	NCA04	NCA05	NCA06	NCA07
Daytime/Evening/Night-time	W.01	Mobilisation and Site Establishment – Zone A	68	68	79	55	42	-	41
	W.02	Traffic Switches – Zone A	77	87	88	64	51	-	50
	W.03	Tree Felling – Zone A	78	88	89	65	52	-	51
	W.04	Utility Locating – Zone A	77	87	88	64	51	-	50
	W.05	Utility Relocation (Noisy Works) – Zone A	78	88	89	65	52	-	51
	W.06	Utility Relocation – Zone A	69	79	80	56	43	-	42
	W.07	Drainage Infrastructure – Zone A	76	86	87	63	50	-	49
	W.08	Road Works – General Civil – Zone A	80	90	91	67	54	-	53
	W.09	Road Works – Milling Works – Zone A	80	90	91	67	54	-	53
	W.10	Paving Works – Pavement Works – Zone A	79	89	90	66	53	-	52
	W.11	Finishing Works – Zone A	74	84	85	61	48	-	47
	W.12	Mobilisation and Site Establishment – Zone B	64	57	51	77	75	-	39
	W.13	Traffic Switches – Zone B	73	66	60	86	84	-	48
	W.14	Tree Felling – Zone B	74	67	61	87	85	-	49
	W.15	Utility Locating – Zone B	73	66	60	86	84	-	48
	W.16	Utility Relocation (Noisy Works) – Zone B	74	67	61	87	85	-	49
	W.17	Utility Relocation – Zone B	65	58	52	78	76	-	40
	W.18	Drainage Infrastructure – Zone B	72	65	59	85	83	-	47
	W.19	Road Works – General Civil – Zone B	76	69	63	89	87	-	51
	W.20	Road Works – Milling Works – Zone B	76	69	63	89	87	-	51
	W.21	Paving Works – Pavement Works – Zone B	75	68	62	88	86	-	50
	W.22	Finishing Works – Zone B	70	63	57	83	81	-	45



 Project Boundary
 NCA Boundary
 NML Exceedance
 1 dB to 10 dB
 10 dB to 20 dB
 > 20 dB


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Sydney Park Junction
Daytime NML Exceedance
Zone A - Mobilisation and Site
Establishment

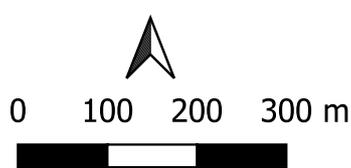
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 Project Boundary
 NCA Boundary
 NML Exceedance
 1 dB to 10 dB
 10 dB to 20 dB
 > 20 dB


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**Daytime NML Exceedance
Zone A - Traffic switches**

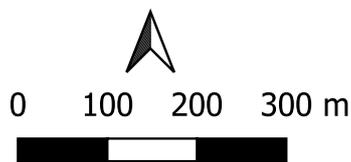
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 Project Boundary
 NCA Boundary
 NML Exceedance
 1dB to 5 dB
 6 dB to 15 dB
 16 dB to 25 dB
 > 25 dB


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**Night-time NML Exceedance
Zone A - Traffic switches**

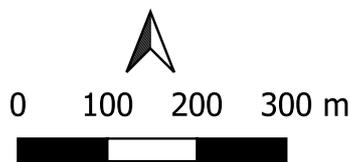
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 Project Boundary
 NCA Boundary
 NML Exceedance
 1 dB to 10 dB
 10 dB to 20 dB
 > 20 dB


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Sydney Park Junction

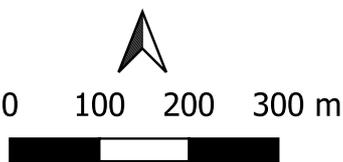
**Daytime NML Exceedance
Zone A - Tree Felling**

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 Project Boundary
 NCA Boundary
 NML Exceedance
 1dB to 5 dB
 6 dB to 15 dB
 16 dB to 25 dB
 > 25 dB

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Sydney Park Junction

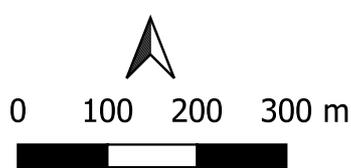
**Night-time NML Exceedance
Zone A - Tree felling**



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Sydney Park Junction

**Daytime NML Exceedance
Zone A - Utility Locating**

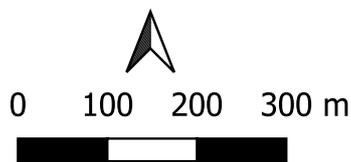
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Sydney Park Junction

Night-time NML Exceedance
Zone A - Utility Locating

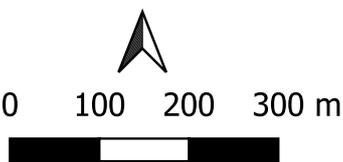
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Sydney Park Junction
Daytime NML Exceedance
Zone A - Utility relocation (Noisy works)

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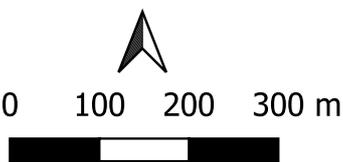


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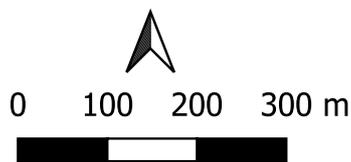

Sydney Park Junction
Night-time NML Exceedance
Zone A - Utility Relocation
(noisy works)



-  Project Boundary
-  NCA Boundary
- NML Exceedance
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Sydney Park Junction

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Zone A - Utility relocation**

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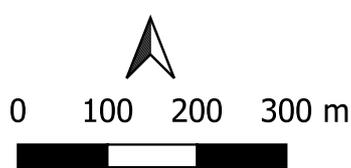
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Sydney Park Junction

**Daytime NML Exceedance
Zone A - Drainage infrastructure**

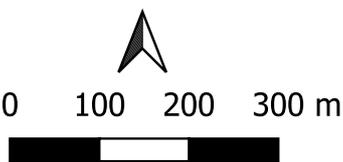
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**Night-time NML Exceedance
Zone A - Drainage infrastructure**

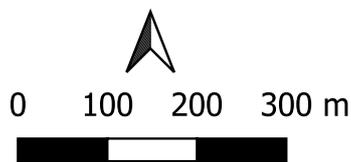
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Sydney Park Junction
Daytime NML Exceedance
Zone A - Road works – General Civil
and Milling Works

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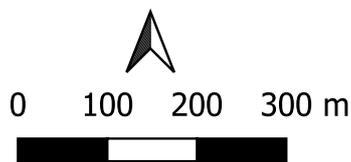
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Sydney Park Junction
Daytime NML Exceedance
Zone A - Paving Works – Pavement
works

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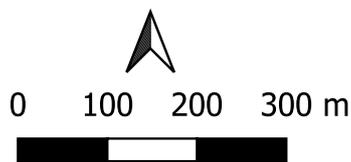
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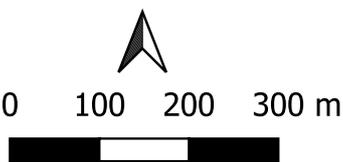
Sydney Park Junction
Daytime NML Exceedance
Zone B - Mobilisation and Site
Establishment

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Sydney Park Junction

Daytime NML Exceedance
Zone B - Traffic switches



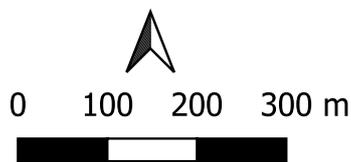
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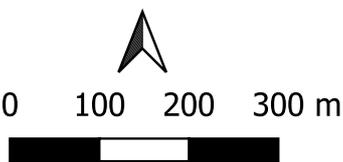
**Daytime NML Exceedance
Zone B - Tree Felling**

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**Night-time NML Exceedance
Zone B - Tree Felling**

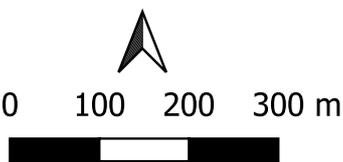


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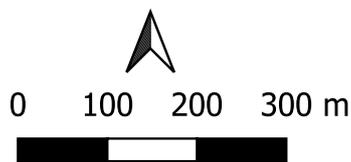
**Night-time NML Exceedance
Zone B - Utility Locating**



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Sydney Park Junction
Daytime NML Exceedance
Zone B - Utility relocation (Noisy works)

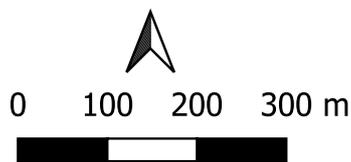
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Sydney Park Junction
Night-time NML Exceedance
Zone B - Utility Relocation
(Noisy Works)

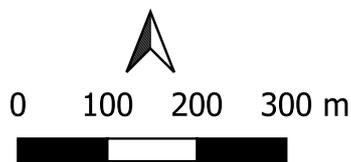
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Daytime NML Exceedance
Zone B - Utility relocation

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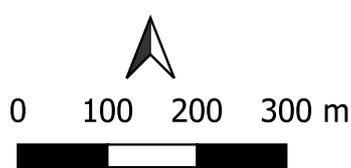
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Sydney Park Junction

**Daytime NML Exceedance
Zone B - Drainage infrastructure**

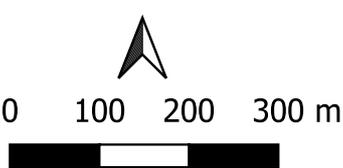
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Sydney Park Junction

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Zone B - Drainage Infrastructure**

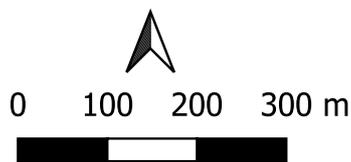
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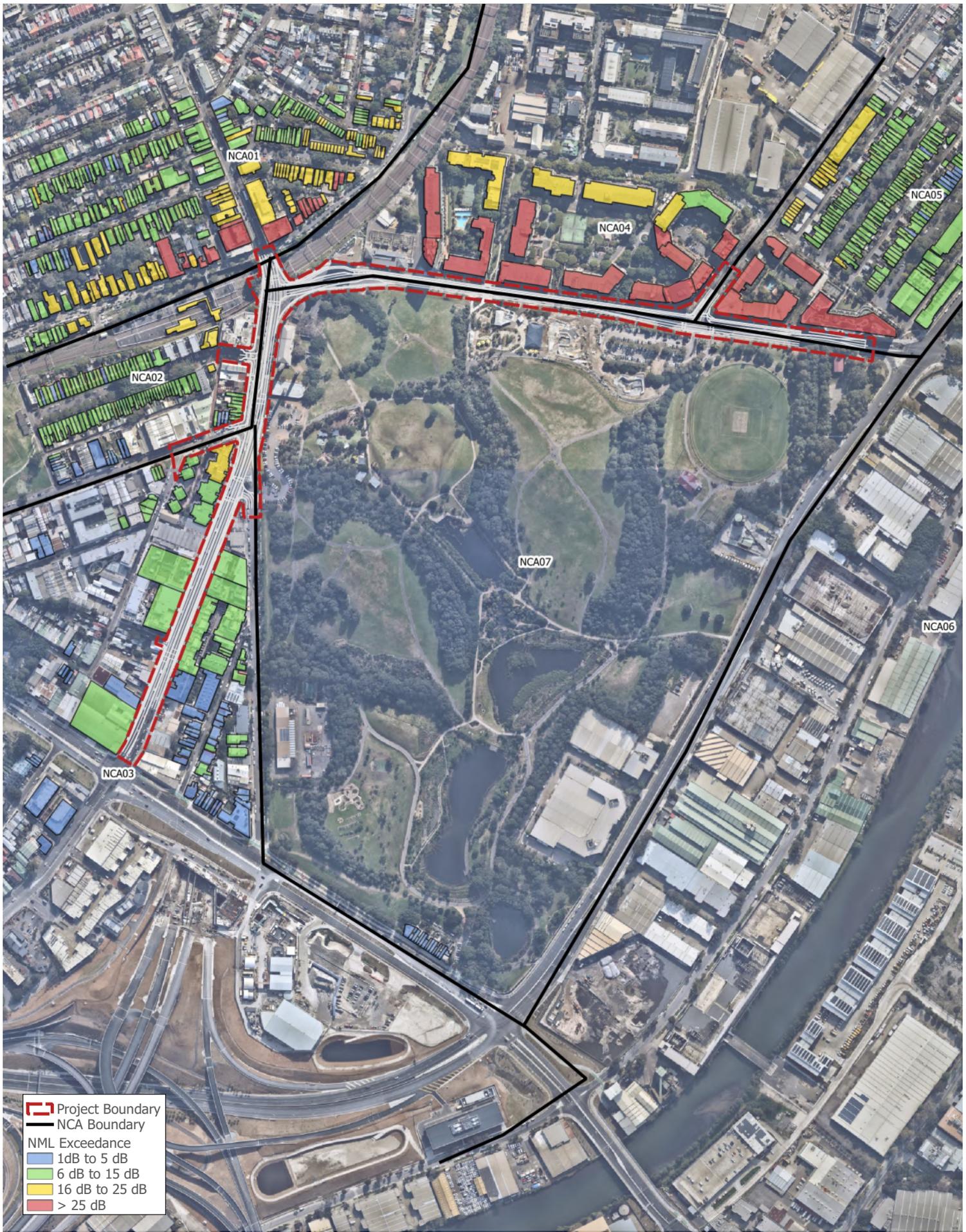

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Sydney Park Junction
Daytime NML Exceedance
Zone B - Road works - General Civil
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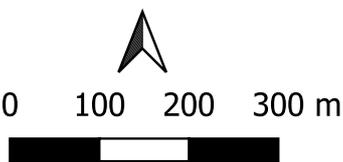


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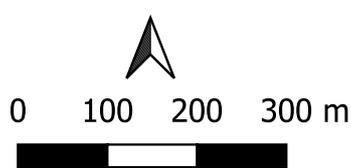

Sydney Park Junction
Night-time NML Exceedance
Zone B - Road Works - General Civil
and Milling Works



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Sydney Park Junction
Daytime NML Exceedance
Zone B - Paving Works – Pavement
works

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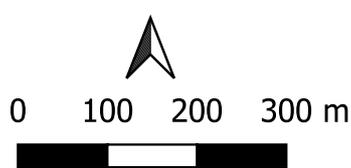
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Sydney Park Junction

**Daytime NML Exceedance
Zone B - Finishing works**

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APPENDIX D

Operational Assessment

Traffic Volumes – No Build (Without Project)

Section ID	2023				2033			
	Day Light	Day Heavy	Night Light	Night Heavy	Day Light	Day Heavy	Night Light	Night Heavy
King Street, north of Sydney Park Road Northbound	12202	492	2221	90	9019	349	1641	64
King Street, north of Sydney Park Road Southbound	7815	365	1422	66	6544	236	1191	43
Princes Highway, between Sydney Park Road and May Street Northbound	17065	545	3106	99	15360	475	2796	86
Princes Highway, between Sydney Park Road and May Street Southbound	8258	382	1503	70	7636	297	1390	54
Princes Highway, between May Street and Campbell Street Northbound	16208	710	2950	129	14753	564	2685	103
Princes Highway, between May Street and Campbell Street Southbound	8137	344	1481	63	7477	277	1361	50
Sydney Park Road, between Euston Road and Mitchell Road Eastbound	8370	303	1523	55	6563	226	1194	41
Sydney Park Road, between Euston Road and Mitchell Road Westbound	10013	445	1822	81	7669	463	1396	84
Sydney Park Road, between Mitchell Road and King Street / Princes Highway Eastbound	13002	506	2366	92	12633	459	2299	84
Sydney Park Road, between Mitchell Road and King Street / Princes Highway Westbound	8602	457	1566	83	7386	394	1344	72
Mitchell Road, north of Sydney Park Road Northbound	9154	363	1666	66	9010	436	1640	79
Mitchell Road, north of Sydney Park Road Southbound	6071	267	1105	49	6288	245	1144	45
Euston Road, between Huntley Street / Sydney Park Road and Campbell Road Northbound	16596	920	3020	167	12634	789	2299	144
Euston Road, between Huntley Street / Sydney Park Road and Campbell Road Southbound	14926	813	2717	148	15950	895	2903	163
Campbell Street / Campbell Road, between Euston Road and Princes Highway Eastbound	19433	1760	3537	320	16199	1965	2948	358
Campbell Street / Campbell Road, between Euston Road and Princes Highway Westbound	16284	1488	2964	271	13748	1295	2502	236
Huntley Street, east of Euston Road Eastbound	7213	570	1313	104	6691	446	1218	81
Huntley Street, east of Euston Road Westbound	8451	499	1538	91	6586	436	1199	79

Traffic Volumes – Build (With Project)

Section ID	2023				2033			
	Day Light	Day Heavy	Night Light	Night Heavy	Day Light	Day Heavy	Night Light	Night Heavy
King Street, north of Sydney Park Road Northbound	8421	397	1533	72	8387	356	1526	65
King Street, north of Sydney Park Road Southbound	7050	334	1283	61	4918	139	895	25
Princes Highway, between Sydney Park Road and May Street Northbound	10017	375	1823	68	5482	93	998	17
Princes Highway, between Sydney Park Road and May Street Southbound	4809	270	875	49	3495	102	636	19
Princes Highway, between May Street and Campbell Street Northbound	9544	469	1737	85	10172	451	1851	82
Princes Highway, between May Street and Campbell Street Southbound	4868	268	886	49	3518	99	640	18
Sydney Park Road, between Euston Road and Mitchell Road Eastbound	7975	269	1451	49	6573	176	1196	32
Sydney Park Road, between Euston Road and Mitchell Road Westbound	7723	463	1406	84	6095	419	1109	76
Sydney Park Road, between Mitchell Road and King Street / Princes Highway Eastbound	7644	357	1391	65	7655	352	1393	64
Sydney Park Road, between Mitchell Road and King Street / Princes Highway Westbound	3692	343	672	62	3287	202	598	37
Mitchell Road, north of Sydney Park Road Northbound	6808	354	1239	64	6342	430	1154	78
Mitchell Road, north of Sydney Park Road Southbound	3552	197	646	36	3106	109	565	20
Euston Road, between Huntley Street / Sydney Park Road and Campbell Road Northbound	16780	890	3054	162	14405	778	2622	142
Euston Road, between Huntley Street / Sydney Park Road and Campbell Road Southbound	14097	744	2566	135	17427	943	3172	172
Campbell Street / Campbell Road, between Euston Road and Princes Highway Eastbound	17640	1516	3210	276	18332	1975	3336	359
Campbell Street / Campbell Road, between Euston Road and Princes Highway Westbound	15596	1365	2838	248	16427	1405	2990	256
Huntley Street, east of Euston Road Eastbound	7518	639	1368	116	6370	517	1159	94
Huntley Street, east of Euston Road Westbound	5809	521	1057	95	5960	488	1085	89