WestConnex M4-M5 Link

Rozelle Interchange - Modification

Iron Cove Ventilation Underground

Response to submissions report

March 2020

NSW GOVERNMENT

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Transport for NSW

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Prepared for

Transport for NSW

Prepared by

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NSW GOVERNMENT

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Abbreviations and Glossary

Acronym	Definition
Approval	Planning Approval SSI 7485
Approved Project	M4-M5 Link approved Project as per SSI 7485 as modified
AQMP	Air Quality Management Plan
BCM	Bank cubic metres
CNVMP	Construction Noise and Vibration Management Plan
CoA	Planning Approval SSI 7485 Conditions of Approval
Contractor	John Holland CPB Joint Venture
CPAS	Construction Parking and Access Strategy
Critical SSI/ CSSI	Critical State Significant Infrastructure means State significant infrastructure that is critical State significant infrastructure, as referred to in EP&A Act Division 5.2 Section 5.13.
dB(A)	Decibel a-weighted
DPIE	Department of Planning, Industry and Environment
The EIS	M4-M5 Link Environmental Impact Statement
EMF	Electromagnetic field
EMM/ REMM	Environmental Management Measure/ Revised Environmental Management Measure
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environmental Protection Authority
EPL	Environmental Protection Licence
GBN&V	Ground-borne noise and vibration
GPS	Global Positioning System
GWMP	Groundwater Management Plan
HV Regulator	High voltage regulator
ICNG	*Interim Construction Noise Guideline* (2009), Department of Environment & Climate Change, NSW
INP	*The NSW Industrial Noise Policy* (2000), Environmental Protection Authority
IWC	Inner West Council
LCZ	Landscape character zone

Acronym	Definition
MOC	Motorway Operations Complex
MOC2	Rozelle West motorway operations complex
MOC3	Rozelle East motorway operations complex
MOC4	Iron Cove Link motorway operations complex
Modification	Iron Cove Ventilation Underground Modification report
OMCS	Operational Motorway Control System
ONCR	Operational Noise Compliance Report
ONVR	Operational Noise and Vibration Review
operation	Post construction of the M4-M5 Link Stage 2 Rozelle Interchange during the operation of the M4-M5 Link Stage 2 Rozelle Interchange
Planning Approval/ CSSI 7485	Planning Approval SSI 7485
Planning Secretary	The Secretary of Department of Planning, Industry and Environment
Proponent	Transport for NSW
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
RBL	Rating background noise level
RLMP	Residual Land Management Plan
Rozelle Interchange	WestConnex M4-M5 Link Stage 2 Rozelle Interchange and Western Harbour Tunnel
RtS/ this Report	Response to submissions (this Report)
SEARs	Secretary's Environmental Assessment Requirements
SAOR	Solar Access and Overshadowing Report
SPIR	Submissions and Preferred Infrastructure Report
SSI	State Significant Infrastructure
SSIAR	State Significant Infrastructure Assessment Report
SSWMP	Soil and Surface Water Management Plan
Submission	Public exhibition submission to DPIE on the Iron Cove Ventilation Underground Modification report
the project/ M4-M5 Link project	WestConnex M4-M5 Link Project (inclusive of both Stage 1 and Stage 2)
the Project	WestConnex M4-M5 Link Stage 2 Rozelle Interchange
TTAMP	Traffic and Transport and Access Management Plan
UDLP	Urban Design Landscaping Plan

Acronym	Definition
Water Group	Water division of the Department of Planning, Industry and Environment

Part A – Introduction and overview of consultation and submissions received

The following section provides context of the proposed Modification in relation to the WestConnex M4-M5 Link Project including the background of the proposed Modification and the purpose of the Response to submissions report (this Report).

A.1 Introduction and background

A.1.1. Introduction

Transport for NSW is seeking to modify the approval for the construction and operation of the WestConnex M4-M5 Link (the project) (State Significant Infrastructure (SSI) 7485) (Planning Approval). The Approved Project comprises a multi-lane road link and interchange between the M4 East Motorway at Haberfield, and the New M5 Motorway at St Peters, Iron Cove and to provide connections to the proposed future Western Harbour Tunnel.

The proposed Modification relates to Stage 2 of the project, the Rozelle Interchange, and principally involves works at Iron Cove to relocate the Iron Cove Motorway Operations Complex (MOC4), electrical substation and ventilation facilities primarily underground. Relocation would be made possible by excavating a ventilation tunnel and two caverns to house the facilities.

A Modification report (dated November 2019) was prepared and provided an environmental assessment and full details of the proposed changes to the Approved Project.

During the public exhibition of the Modification report, submissions were received by the NSW Department of Planning, Industry and Environment (DPIE). The Response to submissions report (this Report) has been prepared to respond to these submissions.

A.1.2. Approved project

Approval for the construction and operation of the project (Figure 1) was granted by the NSW Minister for Planning and Public Spaces on 17 April 2018. The project Approval provides for the construction and operation of:

- Twin mainline motorway tunnels between the M4 East at Haberfield and the New M5 at St Peters
- Connection of the mainline tunnels to the M4 East project, comprising tunnel-to-tunnel connections and entry and exit ramps connections between the mainline tunnels and the Wattle Street interchange at Haberfield
- Connection of the mainline tunnels to the New M5 project, comprising tunnel-to-tunnel connections to the New M5 mainline tunnels and entry and exit ramp connections between the mainline tunnels and the St Peters interchange
- The Inner West subsurface interchange (underground interchange at Leichhardt and Annandale) that will link the mainline tunnels with the Rozelle interchange and the Iron Cove Link
- A new interchange at Lilyfield and Rozelle (the Rozelle Interchange) that will connect the M4-M5 Link mainline tunnels with City West Link, Anzac Bridge, Iron Cove Link and the proposed future Western Harbour Tunnel
- Twin tunnels that will connect Victoria Road near the eastern abutment of Iron Cove Bridge and Anzac Bridge (the Iron Cove Link). Underground entry and exit ramps will also provide a tunnel connection between the Iron Cove Link and the New M5 project (via the M4-M5 Link mainline tunnels)
- Motorway operational infrastructure including substations, water treatment plants, ventilation facilities and outlets, offices, on-site storage and parking for employees.

- Tunnel ventilation systems, including ventilation supply and exhaust facilities, axial fans, ventilation outlets and ventilation tunnels.

The M4-M5 Link project is part of the WestConnex program of works that, together with the proposed future Sydney Gateway, would facilitate improved connections between western Sydney, Sydney Airport and Port Botany and south and south-west Sydney, as well as better connectivity between the important economic centres along Sydney's Global Economic Corridor and through local communities.

The Environmental Impact Statement (EIS) describes construction and operation of the M4-M5 Link in two stages:

Stage 1, as described in the EIS included:

- Construction of the mainline tunnels between the M4 East Motorway at Haberfield and the New M5 Motorway at St Peters, stub tunnels to the Rozelle Interchange (at the Inner West subsurface interchange) and ancillary infrastructure at the Darley Road motorway operations complex (MOC1) and Campbell Road motorway operations complex (MOC5)
- These works are anticipated to commence in 2018 with the mainline tunnel opening to traffic in 2022.

Stage 2, as described in the EIS, included:

- Construction of the Rozelle interchange and Iron Cove Link including connection to the stub tunnels at the Inner West subsurface interchange, connection to the surface road network at Lilyfield and Rozelle, and construction of tunnels, ramps and associated infrastructure as part of the Rozelle interchange to provide connections to the proposed future Western Harbour Tunnel. Ancillary infrastructure will be provided at Rozelle West motorway operations complex (MOC2), Rozelle East motorway operations complex (MOC3) and Iron Cove Link motorway operations complex (MOC4)
- Stage 2 works are expected to commence in 2019 with these components of the project opening to traffic in 2023.

The proposed Modification relates to Stage 2 of the project, the Rozelle Interchange, and principally involves works at Iron Cove to relocate the MOC4, electrical substation and ventilation facilities underground. Relocation would be made possible by tunnelling for the construction of a ventilation tunnel and two caverns to house the facilities.

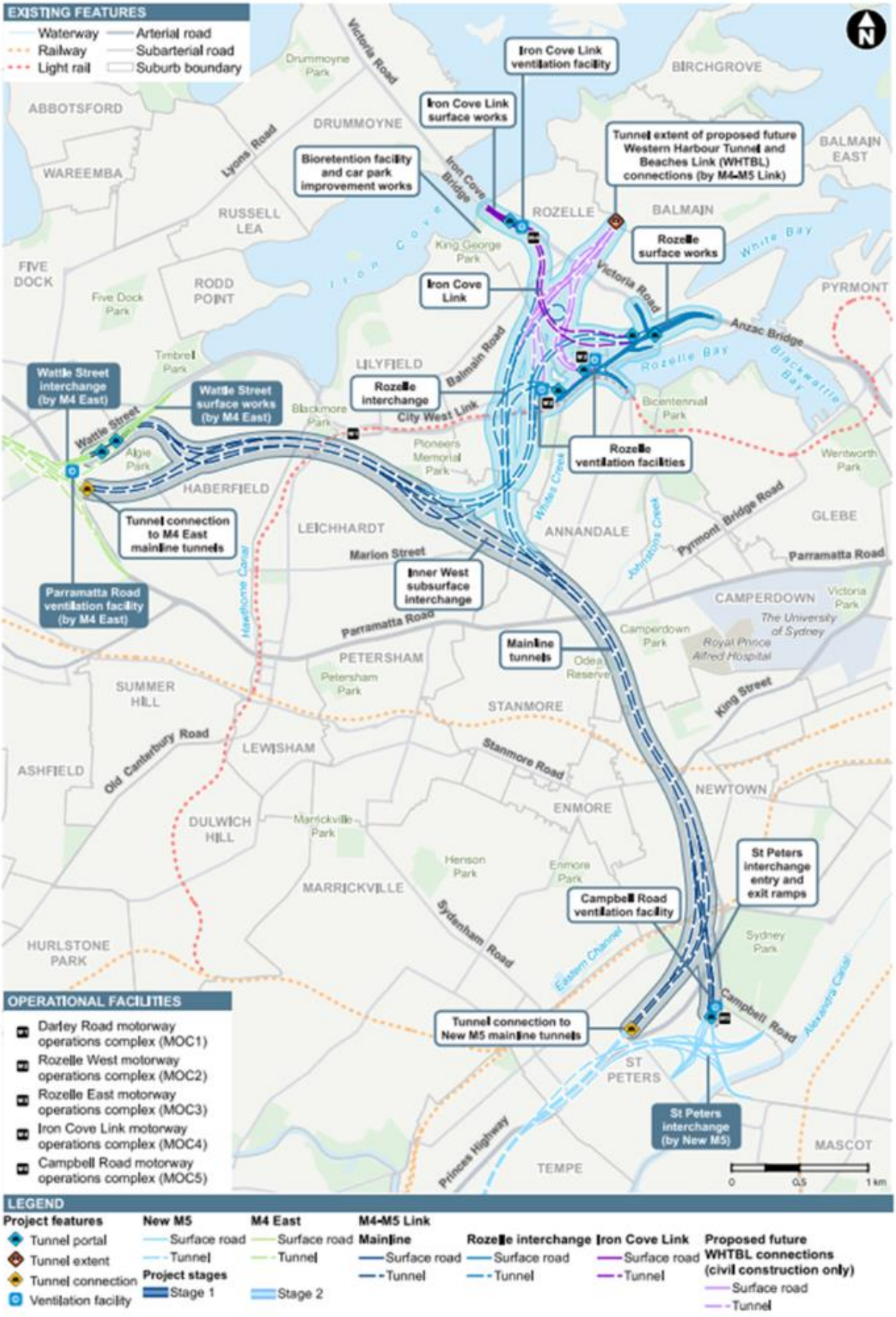

Figure 1 Overview of the M4-M5 Link project as described in the EIS.

A.1.3. Proposed Modification

The proposed Modification relates to Stage 2 of the Approved Project and includes the following key components:

- Relocation of the MOC4, including the electrical substation and ventilation facilities, underground (the ventilation outlet would remain above ground in the same location illustrated in the EIS). Only a switch room, high voltage (HV) regulators, alternative Operational Motorway Control System (OMCS) room and a stair access leading down to the ventilation tunnel would be required on the surface
- Construction of a ventilation tunnel about 340 metres in length that would connect the Iron Cove Link tunnel, at an underground location between Cambridge and Waterloo Streets, with the Iron Cove cut and cover structure near Callan Street
- Construction of the ventilation tunnel would include two caverns as part of the ventilation tunnels for the housing of ventilation equipment and the electrical substation, along with access tunnels for maintenance
- Extension of the Iron Cove Link cut and cover area would be extended on the southwestern side of Victoria Road to facilitate connection to the ventilation tunnel
- Use of all plant, equipment and materials required to construct the proposed new ventilation tunnel and caverns would be supported from the Iron Cove Link civil site (C8),
- Potential for some of the tunnelling to be supported from the Rozelle civil and tunnel site (C5) later in the construction program.

There is no change to the Iron Cove Link ventilation outlet as described in the Approved Project.

The Modification report provides a detailed description of the proposed Modification in Section 5 (Proposed Modification) and an environmental assessment of potential impacts associated with the proposed Modification in Section 7 (Environmental assessment) of the Modification report.

The Modification report identified that impacts associated with proposed Modification could be accommodated by the existing Planning Approval (SSI 7485) and Environmental Management Measures provided in the EIS and SPIR, other than to include reference to the Modification report and this report in condition A1 of the Planning Approval. An additional Environmental Management Measure is identified in C.D.1.

A.1.4. Need for the proposed Modification

Since approval was granted for the project, a contractor has been appointed to construct Stage 2 of the Approved Project on behalf of the proponent, Transport for NSW (the Proponent).

Design development, planning and construction, has progressed since the assessment contained in the EIS and SPIR and a review of the EIS concept design for the Approved Project has occurred. As a result, the Proponent has further optimised the MOC4, electrical substation and ventilation facility concept design assessed in the EIS and SPIR in order to reduce environmental and community impacts and to decrease the overall surface footprint of the permanent works associated with the operation of the Iron Cove Link ventilation facilities and thereby reducing the visual impacts and reducing noise impacts of operational infrastructure.

Not all of the changes proposed can be accommodated within the existing project Approval. As such it is necessary to seek a modification to the project Approval in accordance with Section 5.25 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

By locating the ventilation facility primarily underground, impacts related to the construction of a surface link between the ventilation outlet and a ventilation facility are avoided. Should the proposed Modification not proceed, additional assessment and approval may be required to provide the necessary connectivity between the ventilation outlet, the road tunnels and the ventilation exhaust facility.

A.1.5. Statutory context

The project was declared as State Significant Infrastructure (SSI) and Critical State Significant Infrastructure (CSSI) and was therefore assessed and approved under Division 5.2 of the EP&A Act.

Transport for NSW as the proponent for the project, is proposing to modify project Approval SSI 7485 under Section 5.25 of the EP&A Act. Section 5.25(2) of the EP&A Act states that "*the proponent may request the Minister to modify the Minister's approval for State Significant Infrastructure. The Minister's approval for a Modification is not required if the infrastructure as modified will be consistent with the existing approval under this Division*".

Section 5.25(3) states that "*the request for the Minister's approval is to be lodged with the Planning Secretary. The Planning Secretary may notify the proponent of environmental assessment requirements with respect to the proposed Modification that the proponent must comply with before the matter will be considered by the Minister*". Section 5.25(4) states that "*the Minister may modify the approval (with or without conditions) or disapprove of the Modification*".

The Planning Secretary's Environmental Assessment Requirements (SEARs) for the project were issued in May 2017. DPIE advised that this modification report should address the SEARs issued used in May 2017 as relevant. The Modification report was prepared in accordance with the SEARs developed for the project which are detailed in Appendix A (Secretary's environmental assessment requirements) of the Modification report.

A.1.6. Purpose of the document

A Modification report (dated November 2019) for the proposed Modification was prepared in accordance with Section 5.25 of the EP&A Act. The Modification report provided full details of the proposed changes to the Approved Project as part of the Modification and an environmental assessment of the proposed changes.

During the public exhibition of the Modification report, submissions were received by DPIE. The Planning Secretary provided copies of the submissions to Transport for NSW. This Response to submissions (this Report) has been prepared to respond to these submissions.

The Response to submissions (this Report) will be provided to DPIE for consideration. After DPIE completes its assessment, an Environmental Assessment Report will be prepared for the Planning Secretary, which may include additional recommended Planning Approval Conditions of Approval (CoAs). The assessment report will then be provided to the NSW Minister for Planning and Public Spaces, to determine the Modification.

A copy of this Response to submissions will be published by DPIE on the DPIE Major Project's website. The NSW Minister for Planning and Public Spaces determination, including any Planning Approval conditions (if relevant) and the Secretary's report, will be published on DPIE's website following determination. This Response to submissions report has the following structure:

- **Part A –** Introduction and overview of consultation and submissions received
- **Part B** – Response to key stakeholder submissions
- **Part C** – Response to community submissions
- **Part D** – Environmental Management Measures, Conditions of Approval and conclusion
- **References**
- **Appendix A** – Submission identification number reference table

A.2 Community and Stakeholder involvement

Consultation with the community and stakeholders has occurred during the preparation of the Modification report and during public exhibition of the Modification as described in the sections below.

Significant consultation with the community and stakeholders has taken place in relation to the wider WestConnex program of works as well as the project itself as described in Section 6 (Consultation) of the Modification report.

A.2.1. Consultation during the preparation of the Modification report

For the proposed Modification, a focused approach was taken to community and stakeholder involvement. Section 6 (Consultation) of the Modification report outlines the consultation carried out for the proposed Modification.

Various methods and tools have been utilised to consult with the community and stakeholders on the proposed Modification. Section 6.2.1 (Summary of key consultation activities and consultation tools) of the Modification report provides a summary of the key consultation activities and consultation tools used including but not limited to:

- WestConnex Community Reference Group meetings attended by various stakeholders such as Environment Protection Authority (EPA). Department of Planning, Industry and Environment (DPIE), Inner West Council (IWC), City of Sydney, Community WestProtects, Coalition of Glebe Groups, representatives from local schools, White Bay Strata and Chamber of Commerce Balmain
- Rozelle Interchange community information sessions for residents and community members
- Letters hand-delivered detailing the proposed Modification and alignment to residents located directly above the ventilation tunnel and caverns
- Face-to-face meetings with individual stakeholders impacted by the proposed ventilation tunnels
- Email consultation on community input into the matters to be specifically addressed in the Modification report
- Doorknock discussions with properties affected by tunnelling to consult residents on aspects including predicted ground-borne noise and vibration
- Email notifications to Iron Cove residents on the status of the proposed Modification and information on how to make a submission to DPIE. These residents have subscribed to receive email updates
- Development and public access of an online Tunnel Tool showing the alignment of the proposed Modification
- Meetings and briefings provided to local, State government agencies and other stakeholders.

A.2.2. Consultation during the public exhibition of the Modification

The Modification report was placed on public exhibition from 20 November 2019 to 18 December 2019. During this period, consultation activities were carried out to provide community and stakeholders with an opportunity to find out detailed information of the proposed Modification.

Consultation activities that occurred during the exhibition of the proposed Modification included:

- Distribution of a Community Guide brochure clearly outlining details of the Modification, justification, impacts and benefits of the proposal, and visual representation of the operational state
- Doorknocks of highly impacted residents, businesses and other stakeholders to explain the proposed Modification and gather feedback
- Sent direct emails to registered stakeholders, including residents, property owners, stakeholders, businesses and community groups regarding the proposed Modification
- Provided webpage updates about the proposed Modification on the WestConnex website involving information on how to make a submission
- Scheduled 4 separate meetings and drop-in information sessions to allow the community to have their questions answered about the proposed Modification with appropriate personnel

The community and other stakeholders were also able to provide feedback on the Modification to DPIE via the submissions process.

Submissions were only accepted through DPIE. Feedback provided to TfNSW and JHCPB was not passed on. Community members and stakeholders were advised of this and encouraged to make a submission.

All feedback has been collated and presented in this Response to submissions report for the Modification (this report).

A.2.3. Consultation during the preparation of the Response to submissions report

Following exhibition of the proposed Modification, the Proponent and the Contractor reviewed the submissions received by DPIE and prepared this Report in response to submissions for the Modification. No changes to the proposed Modification have been identified during or after the exhibition period. This Report will be provided to DPIE and will be considered prior to a determination being made.

During DPIE's assessment of the Modification and up to and following determination, the Proponent and the Contractor will continue to consult with the community and relevant stakeholders in accordance with the CoA, the Communication Strategy and established communication and complaints processes.

A.2.4. Future consultation during construction of the Project

Should the proposed Modification be approved, ongoing consultation and communication activities would be undertaken with the surrounding residents and key stakeholders, as required in accordance with the Planning Approval, with a focus on communicating upcoming construction activities, and program; responding to enquiries and concerns in a timely manner and minimising potential impacts where possible.

A.3 Submissions received

A.3.1. Submitters

The Modification public exhibition period commenced on 20 November 2019 to 18 December 2019. Submissions in response to the Modification report were received and accepted by DPIE during the public exhibition period via:

- Electronic submission (online) – ***https://www.planningportal.nsw.gov.au/major-projects/projects/on-exhibition***
- Post – Major Projects Assessment, NSW Department of Planning, Industry and Environment, GPO Box 39, Sydney, NSW, 2001.

A total of 38 submissions from 38 submitters were received in response to the Modification report. Of that total, seven submissions were received from key stakeholders including NSW Government agencies and local council and 31 community submissions were received from 31 community submitters. The types of submitters have been summarised in Table 1. Of the community submitters, 3 submissions were in support of the proposed Modification and 28 objected.

Table 1 Summary of submitters

Submitter type	Total submitters
Community	31
NSW Government Agencies	5
Local council and Local member of Parliament	2
Total	**38**

The following key stakeholders provided a submission in response to the Modification report:

- NSW Environment Protection Authority
- Department of Planning, Industry and Environment – Water Group
- Inner West Council
- Jamie Parker MP, NSW Parliament Member for Balmain.

The following key stakeholders reviewed the Modification report and noted that they had no comment on the proposed Modification:

- NSW Health
- NSW Crown Land
- Sydney Water.

A.3.2. Overview of submissions and issues raised

Submissions from the community and key stakeholders raised the following key concerns regarding the proposed Modification:

- Potential impacts associated with the proposed Modification tunnel depth, alignment and cavern dimensions including:
  - Impacts to residents from noise and vibration generated from tunnel excavation during construction
  - Impacts to residents from noise and vibration generated by the sub-surface ventilation facilities, fans and the surface fixed-facilities during operation
- Potential impacts to air quality during construction and operation
- Potential property impacts associated with additional tunnelling required for the proposed Modification
- Potential impacts to visual amenity, urban design, landscaping primarily as a result of the removal of the MOC4 proposed in the EIS and substituted by the fixed-facility located between Toelle Street and Callan Street proposed in the Modification
- Clarity on residual land use of the acquired land between Callan Street and Springside Street, originally the location of the MOC4 in the EIS
- Potential for nuisance impacts during operational maintenance from vehicle movements and access to the fixed-facilities
- Impacts to traffic from an increase in spoil truck movements during construction as a result of the addition of tunnelling spoil from the proposed Modification
- Potential impacts to public health from air quality and electro-magnetic radiation.

A response to the key issues raised by stakeholders is detailed in **Part B** – Response to key stakeholder submissions and **Part C** – Response to community submissions**.**

Part B – Response to key stakeholder submissions

The following key stakeholders provided a submission in response to the Modification report and a response to each submission is provided in this section:

- NSW Environment Protection Authority (EPA) (refer to **Section B.1**)
- NSW Department of Planning, Industry and Environment (Water Group) (refer to S**ection B.2**)
- Inner West Council (refer to S**ection B.3**)
- Jamie Parker MP, NSW Parliament Member for Balmain (refer to **Section B.4**).

The following key stakeholders reviewed the Modification report and provided a submission noting that they had no comment on the proposed Modification:

- NSW Health
- NSW Crown Lands
- Sydney Water.

B.1. NSW Environment Protection Authority

B.1.1. Noise and vibration

Issue description

The submission states:

- *The EPA wishes to acknowledge in broader terms that the acoustic environment is likely to change and will be audible as a result of Modification, particularly as construction of the project progresses. This may include construction noise and vibration during the evening and at night.*
- *The EPA notes that the tunnelling of the ventilation cavern and tunnel is to commence once half of the cut and cover is complete. The applicant should confirm if there will be times of overlapping tunnelling (from the ventilation tunnel and the mainline tunnel) affecting the same receivers and if so, a cumulative noise and vibration assessment should be undertaken.*
- *The EPA notes that operation of the Iron Cove fixed facilities will result in a decrease in noise levels from what was proposed in the EIS, with the location of the substation and ventilation equipment underground. The EPA notes that the predicted noise levels from operation of the ventilation stack includes a proposed attenuator to achieve the criteria derived in accordance with the Industrial Noise Policy (INP). The Noise Impact Assessment also includes attenuation to the high voltage regulators (associated with the surface infrastructure) to achieve RBL + 5 dBA (48 dBA), with detailed assessment of mitigation to be undertaken in the Operational Noise and Vibration Review.*

Response

Due to the dynamic nature of tunnel excavation, excavation programs often change and therefore it is difficult to accurately predict the location and times of overlapping tunnelling, if any. In order to properly address and assess this potential variability in excavation staging and cumulative impacts, as described in the Construction Noise and Vibration Management Plan (CNVMP), a construction noise and vibration modelling tool has been developed in conjunction with the Contractor to assist in the prediction of ground borne noise and vibration (GBN&V) impacts and the identification of appropriate mitigation measures for affected receivers. The predicted values would be compared against the relevant ground-borne noise and vibration criteria and would be used to select the specific management measures to be applied to individual properties during construction.

Noise and vibration monitoring data would be collected throughout the delivery of the Approved Project in accordance with the Construction Noise and Vibration Monitoring Program (CNMVP Annexure B). This adaptive management would ensure the prediction tool is verified and adjusted as required to ensure accuracy and the timely application of targeted noise and vibration management measures across the various sections of the tunnel alignment.

As noted by the EPA, the proposed Modification is predicted to reduce noise levels during operation. This would be confirmed in the Operational Noise and Vibration Review under the Planning Approval.

B.1.2. Consultation

Issue description

The submission states:

- *The EPA wishes to acknowledge in broader terms that it will be important to keep the community informed about construction activities as the project progresses, and to seek input to identify the community's preference to mitigation, including work scheduling, and consideration of respite periods.*
- *If the Modification is approved, detailed information will need to be provided to the community, so they can understand what construction activities will take place; where it will take place, when it will take place and for how long. Where construction activities are proposed outside of the recommended standard hours, the community should – as far as practicable – be engaged to identify feasible and reasonable mitigation, including periods of respite. The applicant should ensure that residents potentially affected by noise and vibration impacts from this proposed Modification are engaged, so they have a clear understanding of the work schedule and how this may impact their amenity.*

Response

Ongoing engagement with the community prior to and during construction of the proposed Modification (if approved) will be carried out in accordance with the Approved Project Communication Strategy. This strategy is in compliance with the requirements of conditions B1 and B2 of the Planning Approval.

The construction of the proposed Modification would be undertaken in accordance with the Project's Environmental Protection Licence (EPL), including adherence to community notification and out-of-hours work requirements.

B.1.3. Amendments to existing conditions

Issue description

The EPA does not consider that any new conditions of approval or suggested amendments to existing conditions are required.

Response

The Modification report provides a detailed description of the proposed Modification in Section 5 (Proposed Modification) and an environmental assessment of potential impacts associated with the proposed Modification in Section 7 (Environmental assessment) of the Modification report.

The Modification report identified that potential impacts associated with the proposed Modification could be accommodated by the existing Planning Approval (SSI 7485) and Environmental Management Measures provided in the EIS and SPIR, other than to include reference to the Modification Report and this report in condition A1 of the Planning Approval.

B.2. NSW Department of Planning, Industry and Environment - Water Group

B.2.1. Groundwater

Issue description

The submission states:

- *The potential extra impacts related to groundwater drawdown imposed by the additional 425 m of tunnels/caverns in the area between the construction and Iron Cove has not been adequately assessed. This can be addressed by including the new construction works within the existing numerical groundwater modelling.*
- *Furthermore, additional groundwater monitoring bores are required to the west of the proposed construction. Monitoring results should be interpreted in terms of "Site Specific Trigger Values" and other means already incorporated in the M4-M5 Link (Rozelle Interchange) Groundwater Monitoring Plan.*
- *Post Approval Recommendations:*
  - *Within six months of approval, the details of the new construction should be incorporated in the latest iteration of the project groundwater numerical model. Then, appropriate predictive analysis should be run for the model and the outcomes, and any potential necessary responses, be discussed with and reviewed by DPIE Water.*
  - *Within six months of approval, additional groundwater monitoring bores to the west of the construction should be installed and the appropriate Groundwater Monitoring Plan should be updated accordingly and reviewed by DPIE Water.*

Response

The Approved Project groundwater model required in conditions E192 and E193 of the Planning Approval would be updated to include the ventilation tunnel and caverns of the proposed Modification. A water monitoring report containing groundwater monitoring data would be issued to the relevant authorities (including Water Group) every six months as outlined in the Groundwater Monitoring Program in accordance with condition C12 of the Planning Approval. In accordance with condition E194 of the Planning Approval an updated groundwater model would be provided to the Planning Secretary and DPI Water once 24 months of groundwater data has been collected.

There is an existing groundwater monitoring bore just to the east of the proposed Modification (bore IC_BH01) that is being monitored as part of the Approved Project Groundwater Monitoring Program. In response to the Water Group submission on the Modification, two additional groundwater monitoring bores would be installed adjacent to the proposed Modification. One bore would be installed close to the alignment of the proposed tunnel and caverns, with the other being installed west of the Modification (most likely in the vicinity of Manning Street). In addition to data from the existing groundwater monitoring bores, the measurements from the additional bores would be used to validate the Approved Project groundwater model.

B.3. Inner West City Council

B.3.1. Approval process

Issue description

The submission states:

- *Council is however concerned that since the M4-M5 Link Environmental Impact Statement (EIS) was approved in April 2018 there have been incremental changes in the project as a result of modifications. Council objected to Modification 2 as it involved the addition of a vehicle overpass and has concerns about this Modification as it involves additional tunnelling. In its 2017 EIS submission to the EIS, Council had raised concerns about these kinds of incremental design changes. These modifications mean the community cannot rely on the originally exhibited EIS to understand the project and its impacts during construction or operation.*

Response

The EIS is based on a conceptual design and requires refinement during detailed design inclusive of considerations for planning and construction practicalities. This refinement cycle instigates the need to undertake the modification process in order to ensure a valid, transparent approval process and ensure communication of the refinements has been undertaken for the community and stakeholders.

The modification process is a legislated process of the EP&A Act. Section 5.2 of the EP&A Act states "*the proponent may request the Minister to modify the Minister's approval for State Significant Infrastructure. The Minister's approval for a modification is not required if the infrastructure as modified will be consistent with the existing approval under this Division*". The process of modification to the Planning Approval is a regulated approval mechanism and does not impact on the legitimacy of the EIS or unrelated components of the Approved Project.

The benefits of the modification process are that it provides the community the opportunity to review and comment on the proposed changes, similar to the process to review and comment during the EIS process.

B.3.2. Residual land use

Issue description

The submission states:

- *The proposed Modification would increase the amount of residual land as a result of the undergrounding of structures that were originally proposed on the surface. Whilst this is potentially beneficial in that it would increase the extent of landscaped open space; it is not known at this stage if all (or any) of this additional residual land would be useful to the community. Motorways usually create little-used areas adjacent to roadways carrying high- volumes of traffic at high speeds.*

- *As Council has stated in relation to earlier stages of WestConnex, it does not want to own and/or maintain residual land that is not useful to the community.*
- *All residual land along Victoria Road at the Iron Cove Link should be used for community based amenities, such as planting, parks and playgrounds. Specifically, the residual land on Victoria Road between Callan and Springside Streets should be planted with mature size trees and become a park for all residents to enjoy. Since our community has been ravaged by the destruction of historic homes and the removal of all vegetation, including mature aged trees along Victoria Road, this would help reinstate some of what has been lost.*

Response

The proposed Modification would decrease the surface footprint of the permanent works associated with the Iron Cove Link operational ventilation facilities. This would increase the amount of residual land available following the completion of the Project. The final use of this land would be subject to the finalisation of the Residual Land Management Plan (RLMP) required under condition E112 of the Planning Approval, in consultation with Inner West Council. In particular, the operational land use designation of the acquired land between Callan Street and Springside Street would be considered for all appropriate uses in finalising of the RLMP.

The landscape character impact of the proposed Modification would be the same as compared to the landscape character associated with the concept design as assessed in the EIS. Impacts on land use under the proposed Modification are considered consistent with the EIS and would not require any changes or additions to the Planning Approval or Environmental Management Measures.

B.3.3. Ground settlement

Issue description

The submission states:

- *The proposed new ventilation tunnel and associated caverns would have a total length of about 425m, with about 20m of access tunnels connecting the caverns. The new tunnels and caverns, ranging from 8 to 30m in depth, would extend beneath homes in Callan Street, Waterloo Street and Cambridge Street in Rozelle.*
- *The Modification report states that areas subject to settlement would change, with areas not previously identified by the EIS to now be affected. Ground settlement from tunnel construction and the resulting damage to properties has been a significant concern for Inner West residents, as is evident by the numerous EIS submissions that had raised this issue.*
- *DPIE's Environmental Assessment Report for the M4-M5 Link EIS sought to apply strict criteria and conditions to protect properties against tunnel-related damage. DPIE had not adopted the application of the 'zone of influence' which restricted property condition surveys to within 50m of tunnel alignments, instead preferring a geotechnical model to define this zone.*
- *Council has been contacted by property owners who have said they were concerned about property damage but were not approved for property condition reports. Extension of the tunnelling associated with this Modification should backed by a commitment from*

the contractor to support all property owners who are concerned about tunnelling impacts even if they are outside the 50m zone.

Response

An assessment of potential settlement impact on existing buildings and structures from the proposed Modification has been prepared by the Contractor. A summary of the findings can be found in Section 7.5 (Potential groundwater drawdown and surface settlement) of the Modification report, and the full report on groundwater drawdown and potential surface settlement for the proposed Modification is included in Appendix E (Groundwater drawdown and potential surface settlement) of the Modification report.

The preliminary settlement analysis completed to date is based on the concept design, and the predicted settlement ranges from 0 to 20 millimetres. This complies with the settlement criteria in condition E103 of the Planning Approval. Potential settlement associated with the proposed Modification would continue to be assessed as part of the Approved Project settlement modelling and impact assessment processes which would be finalised during detailed design.

If the proposed Modification is approved, the monitoring program, in accordance with condition E104 of the Planning Approval, would measure settlement during the construction consistent with the Planning Approval. This program would include identification of trigger values and a response process in the event that a divergence from the settlement model is identified. Private property impacts will be addressed by the Contractor and, if required, may be escalated to the Independent Property Impact Assessment Panel (IPIAP) in accordance with condition E109 of the Planning Approval. The IPIAP will be comprise of geotechnical and engineering experts that are independent of the design and construction team. The Panel will be responsible for independently reviewing property condition survey reports, the resolution of property damage disputes, and the establishment of ongoing settlement and vibration monitoring requirements.

Buildings and properties identified as being at risk of damage due to potential surface settlement would be offered a pre-construction and a post-construction condition survey, which would assess and document the general condition of the building or property. This would include properties within the zone of influence of tunnel settlement (50 metres from edge of tunnels and within 50 metres of surface works), as well as any properties identified within the settlement model as having potential settlement that may exceed the settlement criteria in condition E103 of the Planning Approval. Any other owners that believe their properties may be eligible for the condition surveys would be able to contact and discuss their concerns with the Rozelle Interchange community team.

The role of the Independent Property Impact Assessment Panel is to review property condition surveys and property damage disputes in compliance with the Planning Approval.

B.3.4. Construction noise

Issue description

The submission states:

- *The Modification report outlines construction noise impacts on dwellings not previously identified in the EIS, as well as potential operational noise from the high voltage regulators to be located on the surface.*

- *The additional homes to be affected from this Modification would be in addition to the 19 extra dwellings to be affected as a result of the overpass outlined in Modification 2, which is still be determined. The expanding noise footprint from these modifications is unacceptable, reinforcing Council's concerns about the originally exhibited EIS underestimating the extent of the final project and its impacts.*
- *Whilst Council recognises that for WestConnex Stage 3 there have been improvements in community engagement processes, and stronger conditions imposed for managing construction noise compared to Stages 1 and 2, Council's experience is that construction impacts can be significant even with full compliance. This is highlighted by the fact that Council continues to receive noise complaints (particularly about night noise) for early works in and around the Rozelle Interchange.*

Response

For details on the modification process refer to Section B.3.1.

Detailed in Section 7.4.3 (Construction noise and vibration) of the Modification report, a benefit of the proposed Modification is the reduced duration of predicted noise and vibration impacts during the surface fixed-facilities construction when compared with the MOC4 EIS concept design. The proposed Modification reduces the duration of surface fixed-facilities construction airborne noise impact from 144 weeks predicted in the EIS to about 40 weeks as well as a lessening of the extent of affected properties. Additional to this short-term benefit, the proposed Modification also reduced the noise impact on residents during operation through the proposed undergrounding of equipment.

The ground-borne noise impacts from the additional tunnelling in the proposed Modification would affect properties that were previously not affected in the EIS however there is an overall benefit to the community for operational noise. The tunnelling works are temporary and the potential ground-borne noise impacts from this activity will be short-term.

The noise impacts during operation from the undergrounding of equipment, thereby reducing the surface operational equipment, will have a long-term benefit to the community as the operational noise is reduced by the proposed Modification compared to the EIS.

During construction, works hours for the project are set out in conditions E68, E69 and E70 of the Planning Approval. Condition E70 of the Planning Approval permits tunnelling activities to be undertaken 24 hours a day, seven days a week. Respite for highly noise intensive works would be undertaken in accordance with condition E72 of the Planning Approval. Works that occur outside standard construction hours would be managed, in accordance with condition E77 of the Planning Approval, through an Out-of-Hours Work Protocol.

Additional tunnelling would be undertaken in accordance with conditions E81 and E82 of the Planning Approval, which is consistent with all other Project tunnelling. Appendix D (Noise and vibration assessment) of the Modification report states that sleep-disturbance noise criteria would be adhered to during night-time periods in order to minimise disturbance from tunnelling ground-borne noise and/or vibration. In accordance with condition E82 of the Planning Approval, the mitigation measures for ground-borne noise would be implemented in accordance with the approved Construction Noise and Vibration Management Plan (CNVMP), including any Out-of-Hours Work Protocol. The CNVMP must be approved by the Planning Secretary.

Appendix D (Noise and vibration assessment) of the Modification report indicates that as educational facilities or places of worship are not affected by day-time noise levels as a result of the proposed Modification, additional at-property treatment for these types of receivers

within the vicinity of the Iron Cove Link civil site (C8) is not required by the proposed Modification. The Modification report noise assessment indicates that day-time noise contribution from the proposed Modification works is consistent with the day-time noise predicted in the Approved Project.

Compliance monitoring of noise and vibration during construction would be undertaken during construction of the proposed Modification, if approved, in accordance with the CNVMP, to verify predictions and required mitigation. Other mitigation measures include installation of acoustic attenuation for both construction and operation and equipment selection to proactively reduce the potential for noise and vibration impacts.

B.3.5. Operational noise

Issue description

The submission states:

- *The Modification report outlines… construction noise impacts on dwellings not previously identified in the EIS, as well as potential operational noise from the high voltage regulators to be located on the surface.*
- *The Modification report states that operational noise sources from electrical equipment would potentially result in sleep disturbances. Any mitigation of this additional disturbance would be assessed against the background noise level which will increase as a result of the traffic created by the project. It is not unacceptable that these creeping noise levels are imposed on people in their homes. It again demonstrates Council's concerns about designs changing after the project has been approved.*
- *All dwellings affected by traffic noise and operational noise from equipment need to be protected to the highest standards with measures that do not diminish existing living conditions. This issue was experienced by some residents of St Peters and Haberfield-Ashfield when noise mitigation resulted in the need to keep doors and windows closed without adequate ventilation.*

Response

For details on the modification process refer to Section B.3.1.

Operational noise and vibration impacts predicted by the proposed Modification are detailed in Section 7.4 (Noise and vibration) and Appendix D (Noise and vibration assessment) of the Modification report. In summary the assessment determines that for noise from surface fixed-facilities the noise impacts are consistent with or less than the potential impacts identified in the EIS. This finding is a key benefit of the proposed Modification for the reduction of impacts on the community. Operational noise mitigation measures would be confirmed in the Operational Noise and Vibration Review (ONVR), to be prepared in accordance with condition E92 of the Planning Approval and approved by the Planning Secretary.

Noise mitigation measures for the proposed Modification would be further investigated during detailed design, through the ONVR process. This process would include a review of the suitability of the mitigation measures in the Modification report and confirm if any additional mitigation is required for all fixed-facilities to meet operational noise compliance levels.

B.3.6. Operational air quality

Issue description

The submissions states:

- *The EIS and the approval of the Rozelle interchange preceded the Parliamentary Inquiry into WestConnex. The recommendations of this Inquiry should inform the Department of Planning, Industry and Environment (DPIE) in its decision to approve the proposed changes.*

The Parliamentary Inquiry stated:

- *That the NSW Government install, on all current and future motorway tunnels, filtration systems in order to reduce the level of pollutants emitted from ventilation stacks.*

Therefore, the submission concludes that the ventilation 'stack' on Victoria Road opposite Callan Street and the 3 ventilation 'stacks' in the Rozelle Goods Yard must include filtration as a condition of the approval for the proposed changes.

Response

The main elements of the proposed Modification include:

- Construction of a ventilation tunnel about 340 metres in length that connects the Iron Cove Link tunnel, at an underground location between Cambridge and Waterloo Streets, with the Iron Cove cut and cover structure near Callan Street
- Construction of the ventilation tunnel that includes two caverns for the housing of ventilation equipment and the electrical substation, along with access tunnels to be used for maintenance
- Extension of the Iron Cove cut and cover area on the southwestern side of Victoria Road to facilitate connection to the ventilation tunnel
- Use of all plant, equipment and materials required to construct the proposed new ventilation tunnel and caverns supported from the Iron Cove Link civil site (C8), with the potential for some tunnelling to be supported from the Rozelle civil and tunnel site (C5) later in the construction program.

The proposed Modification does not change the Iron Cove Link ventilation outlet permitted under the existing Planning Approval. Similarly, the tunnel air quality impacts and mitigation in the existing Planning Approval are not altered by the scope of the proposed Modification.

Amendments to the ventilation outlet, as approved in the EIS, are outside of the scope of the proposed Modification. This Modification does not propose any change or alteration to the ventilation outlets.

Approval for the construction and operation of the Approved project was granted on 17 April 2018 by the NSW Minister for Planning and Public Spaces (application number SSI 7485). The EIS was completed and approved prior to the commencement of the WestConnex Inquiry. The WestConnex Inquiry commenced in June 2018 and the findings and recommendations were released on 17 December 2018; after the publication of the EIS and the following granting of the Planning Approval.

Appendix C (Operational air quality) of the Modification report summarises that there would be no change to the likely traffic pollution emission rates, or the ventilation flow rates in the Approved Project due to the proposed Modification. Further, the proposed Modification would not alter the shape, size (release height or exit diameter) or location of the MOC4 ventilation outlet.

The proposed Modification does not change the air quality impacts or the proposed mitigation set out the existing Planning Approval. Air quality impacts from the operation of the tunnel ventilation are outside the scope of the proposed Modification.

The NSW Government recognises that air quality and human health are a key priority for everyone. In NSW, motorway tunnels are required to meet stringent air quality standards using state-of-the-art ventilation and tunnel design.

In February 2018, the NSW Government announced stronger protections on emissions from motorway tunnels. The NSW Environment Protection Authority will regulate the ventilation outlets of all current and future operating motorway tunnels in NSW. For more information on Sydney's air quality, please visit the Transport for NSW Air Quality Portal ***https://v2.communityanalytics.com.au/rms/air-quality/***.

The Project will use ventilation outlets to effectively disperse emissions high into the atmosphere where they mix with the air with negligible impact on air quality. Furthermore, the Project has strict air quality goals to ensure that air pollution levels are appropriately managed inside and outside the tunnels. These requirements are amongst the most stringent in the world.

The NSW Chief Scientist and Engineer released a report in relation to road tunnel air quality. The report found that emissions from well-designed road tunnels cause a negligible change to surrounding air quality, and as such, there is little to no health benefit for surrounding communities in installing filtration and air treatment systems in such tunnels. Further information is available at ***https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0017/51911/060814-FINAL-Initial-Report-Tunnel-Air-Quality-WEB.pdf***.

As the state's population continues to grow, the NSW Government is committed to maintaining high air quality standards. Rather than filtration, it will continue to reduce emissions at the source by adopting cleaner fuels and vehicles.

B.4. Jamie Parker MP, Member for Balmain

B.4.1. Operational air quality

Issue description

The submission states:

- *The NSW Parliamentary Inquiry into WestConnex recommended that the NSW Government install, on all current and future motorway tunnels, filtration systems in order to reduce the level of pollutants emitted from ventilation stacks.*
- *It is world's best practice to filter exhaust stacks because of the toxic and carcinogenic pollutants that they emit. These pollutants impact air quality and in turn public health and residents have a right to be protected from them. This Modification is a missed opportunity to introduce necessary filtration to the exhaust stack proposed for Iron Cove.*

Response

Approval for the construction and operation of the project was granted on 17 April 2018 by the NSW Minister for Planning and Public Spaces (application number SSI 7485). The EIS was completed and the project Approval granted prior to the commencement of the WestConnex Inquiry. The commencement of the WestConnex Inquiry commenced in June 2018 and the findings and recommendations released on 17 December 2018; after the completion of the EIS and the project determination.

The main elements of the proposed Modification include:

- Construction of a ventilation tunnel about 340 metres in length to connect the Iron Cove Link tunnel, at an underground location between Cambridge and Waterloo Streets, with the Iron Cove cut and cover structure near Callan Street
- The ventilation tunnel would include two caverns for the housing of ventilation equipment and the electrical substation, along with access tunnels to be used for maintenance
- Extension of the Iron Cove cut and cover area on the southwestern side of Victoria Road to facilitate connection to the ventilation tunnel
- All plant, equipment and materials required to construct the proposed new ventilation tunnel and caverns supported from the Iron Cove Link civil site (C8), with the potential for some tunnelling to be supported from the Rozelle civil and tunnel site (C5) later in the construction program.

The proposed Modification does not change the Iron Cove Link ventilation outlet permitted under the Planning Approval. Similarly, the tunnel air quality impacts and mitigation are not altered by the scope of the proposed Modification. Amendments to the ventilation outlet, as approved in the EIS, are outside of the scope of the proposed Modification. This Modification does not propose any change or alteration to the ventilation outlets.

Appendix C (Operational air quality) of the Modification report summarises that there would be no change to the likely traffic pollution emission rates, or the ventilation flow rates in the Approved Project due to the proposed Modification. Further, the proposed Modification would not alter the shape, size (release height or exit diameter) or location of the MOC4 ventilation outlet.

The proposed Modification does not change the air quality impacts or the proposed mitigation determined in the Approved Project. Air quality impacts from the operation of the tunnel ventilation is outside the scope of the Modification.

The NSW Government recognises that air quality and human health are a key priority for everyone. In NSW, motorway tunnels are required to meet stringent air quality standards using state-of-the-art ventilation and tunnel design.

In February 2018, the NSW Government announced stronger protections on emissions from motorway tunnels. The NSW EPA will regulate the ventilation outlets of all current and future operating motorway tunnels in NSW. For more information on Sydney's air quality, please visit the Transport for NSW Air Quality Portal ***https://v2.communityanalytics.com.au/rms/air-quality/***.

WestConnex will use ventilation outlets to effectively disperse emissions high into the atmosphere where they mix with the air with negligible impact on air quality. Furthermore, WestConnex has strict air quality goals to ensure that air pollution levels are appropriately managed inside and outside the tunnels. These requirements are amongst the most stringent in the world.

The NSW Chief Scientist and Engineer released a report in relation to road tunnel air quality. The report found that emissions from well-designed road tunnels cause a negligible change to surrounding air quality, and as such, there is little to no health benefit for surrounding communities in installing filtration and air treatment systems in such tunnels. Further information is available at ***https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0017/51911/060814-FINAL-Initial-Report-Tunnel-Air-Quality-WEB.pdf***.

As the State's population continues to grow, the NSW Government is committed to maintaining high air quality standards. Rather than filtration, it will continue to reduce emissions at the source by adopting cleaner fuels and vehicles.

B.4.2. Residual land

Issue description

The submission states:

- *All residual land identified along Victoria Road at the Iron Cove should be dedicated to community use, such as planting, parks and playgrounds - not sold off to developers.*
- *Our community is facing years of negative impacts as a result of WestConnex, the very least the government can do is to provide some additional green areas and open public space after this project is complete.*

Response

The proposed Modification would decrease the surface footprint of the permanent works associated with the Iron Cove Link operational ventilation facilities. This would increase the amount of residual land available following the completion of the Project. The final use of this land would be subject to the finalisation of the Residual Land Management Plan (RLMP) required under condition E112 of the Planning Approval, in consultation with Inner West Council. In particular, the operational land use designation of the acquired land between Callan Street and Springside Street would be considered for all appropriate uses in finalising the RLMP.

The landscape character impact of the proposed Modification would be the same as compared to the landscape character associated with the concept design as assessed in the EIS. Impacts on land use under the proposed Modification are considered consistent with the EIS and would not require any changes or additions to the Planning Approval or Environmental Management Measures.

B.4.3. Management of potential construction impacts

Issue description

The submission states:

- *The Modification proposes to increase the number of truck movements by 30 per day. This is an unreasonable imposition on residents who are already faced with constant dust, noise and traffic as a result of this project. Any modification should aim to reduce impacts on the local community does not increase the impact on residents.*
- *Impacts on residents have not been managed effectively up to this point. The community also needs assurance that the contractor will take seriously the issues of noise, dust, increased traffic and reduced parking in local streets given this Modification.*

Response

Monitoring of noise and vibration associated with the construction of the proposed Modification would be undertaken in accordance with the Approved Project. Similarly, in addition to monitoring, measures implemented to proactively minimise noise and vibration impacts include erection of physical attenuation elements such as acoustic enclosures and pre-works planning to identify opportunities to reduce noise and vibration through plant and construction method selection. Potential dust generation from surface works associated with the proposed Modification would be managed in accordance with the Approved Project Air Quality Management Plan (AQMP). The AQMP includes mitigation measures such as, but not limited to, wetting-down, mechanical dust collection and physical isolation of dust generating works areas such as the proposed enclosure of the temporary tunnel support site within the Iron Cove cut and cover structure in order to minimise the potential for dust impact on nearby residences.

Appropriate measures to reduce the potential for construction traffic impacts, such as limiting heavy vehicles to approved routes, GPS tracking of spoil trucks and driver training, have been included in the Approved Project Traffic and Transport and Access Management Plan (TTAMP) prepared in accordance with the Planning Approval. Section 7.2.1 (Construction Traffic and transport) of the Modification report identifies that only 3 additional spoil trucks per hour will be required during standard construction hours. The traffic modelling in Appendix B (Traffic and transport) of the Modification report shows that the total heavy vehicle volumes of the proposed Modification, inclusive of the Approved Project volumes, would not impact the performance of Victoria Road intersections with Evans Street, Darling Street and Wellington Street when compared with the performance of the intersections generated by the Approved Project. Impacts to community members for intersection performance during construction would not be worsened by the proposed Modification.

Measures to manage parking are included in the Construction Parking and Access Strategy (CPAS) in accordance with the Planning Approval. On-site parking will be in accordance with the CPAS.

Should the proposed Modification be approved, ongoing consultation and communication activities would be undertaken with the surrounding residents and key stakeholders with a focus on communicating the approach to management of identified construction impacts for upcoming works; responding to enquiries and concerns in a timely manner and minimising potential impacts where possible.

Part C – Response to community submissions

Community submissions in response to the Modification were characterised and organised into key issue themes. A response to each issue theme is provided in the following sections:

- Clarifications (**Section C.1**)
- Residual land use (**Section C.2**)
- Public health (**Section C.3**)
- Tunnel design (**Section C.4**)
- Air quality (**Section C.5**)
- Urban design and landscaping (**Section C.6**)
- Noise and vibration (**Section C.7**)
- Traffic and public amenity (**Section C.8**)
- Operational access and maintenance (**Section C.9**)
- Groundwater and ground settlement (**Section C.10**)
- Property impacts (**Section C.11**)
- Spoil Management (**Section C.12**)
- Contamination (**Section C.13)**
- Support for the Modification (**Section C.14**).

C.1 Clarifications

C.1.1. Approvals framework

Issue description

Clarification on the statutory context and purpose of the Modification.

Response

The intent of the proposed Modification is to minimise operational impacts and to increase the amount of residual land by providing an optimised ventilation and urban design solution for the Iron Cove Link component of the Rozelle Interchange. The proposed Modification does not change the air quality modelling from the EIS. The proposed Modification scope is detailed within Section 5 (Proposed modification) of the Modification report and does not extend to surface lanes on Victoria Road nor the Victoria Road shared user path.

Section 2.1.1 (Project approval) in the Modification report details the legislative approval framework for the Modification. Section 5.25 of the EP&A Act, states that *"the proponent may request the Minister to modify the Minister's approval for State Significant Infrastructure. The Minister's approval for a modification is not required if the infrastructure as modified will be consistent with the existing approval under this Division"*. The process of modifying the project Approval is a regulated approval mechanism which to compliment the outcomes of the EIS.

C.1.2. Modification report Figure 5-4, 7-7 and 7-8

Issue description

Clarification on the scope of the Modification illustrated in Modification report 5-4, 7-7 and 7-8.

Response

Figure 5-4, Figure 7-7 and Figure 7-8 in the Modification report have been updated to provide clarity on operational elements; replaced by Figure 2, Figure 3 and Figure 4 respectively. These figures have been updated to:

- Demonstrate no change from the EIS to the shared user path on the western-side of Victoria Road. The shared user path has been labelled in Figure 2
- Demonstrate no change from the EIS to the cul-de-sac on Clubb Street. Figure 2 includes a label identifying that the operational arrangement will be a cul-de-sac
- Demonstrate no change from the EIS to the pedestrian crossing on the western-bound lanes on Victoria Road to connect across to Terry Street. Figure 2, Figure 3 and Figure 4 have been updated to show this crossing.

Shared User Path and Pedestrian Crossing on Victoria Road

Figure 3-1 of the Modification report shows the EIS arrangement of a shared user path on the western side of Victoria Road from Toelle Street connecting to an at-grade active

transport user crossing traversing Victoria Road to Terry Street (the Crossing). The intent of this figure is to display the approved surface operational fixed-facilities.

Figure 5-4 of the Modification report shows the proposed Modification to these operational fixed-facilities. In this figure it appears that the Crossing only traverses the eastbound lanes of Victoria Road, therefore eliminating half of the Crossing shown in Figure 3-1.

There is no change to the Approved pedestrian crossing as a result of the proposed Modification. The Figure 5-4 simply does not display user path information as the intent of the layer is to show the proposed change in the fixed-facilities. Figure 2, Figure 3 and Figure 4 in this Report illustrate the above.

Clubb Street cul-de-sac

The proposed Modification does not alter the design of the Approved Project traffic arrangements of local streets including the final solution of Clubb Street to become a cul-de-sac at Victoria Rd. These aspects are not subject to the Modification. Figure 2 demonstrates no change to the operational arrangement of Clubb Street cul-de-sac.

Figure 2 Iron Cove Link indicative location of proposed Modification above ground structures (replacement of Figure 5-4 in the Modification report)

Figure 3 Iron Cove Link typical aerial view AA location of proposed Modification (replacement of Figure 7-7 in the Modification report).

Figure 4 Iron Cove Link typical cross section AA (replacement of Figure 7-8 in the Modification report).

C.1.3. Number of lanes on Victoria Road

Issue description

One submission raised concern regarding the lane number difference shown in Modification report Figure 5-4 compared to EIS Figure 5-40 and Modification report Figure 3-1.

Response

Figure 3-1 in the Modification report is sourced from EIS Figure 5-40. Figure 3-1 in the Modification report shows three east-bound lanes on Victoria Road between Iron Cove bridge and Springside Street whereas Figure 5-4 in the Modification report shows four east-bound lanes at the same location.

The proposed Modification does not change the number of east-bound lanes on Victoria Road carriageway between the eastern abutment of Iron Cove Bridge and around Springside Street at Rozelle. As such the carriageway lane numbers are not subject to change through the scope of this proposed Modification.

The pre-existing (pre-construction) lane arrangement on Victoria Road east-bound between Iron Cove Bridge and Springside Street is four east-bound lanes, one of which as a bus lane. The Modification report Figure 5-4 shows the same lane arrangement. The EIS assesses retaining the same lane arrangement.

Section 5.7 of the EIS details that the Iron Cove Link Surface Works include "*the realignment and modification to the Victoria Road eastbound and westbound carriageways between the eastern abutment of Iron Cove Bridge and around Springside Street at Rozelle* (referring to the surface lanes) and *four new lanes to connect Victoria Road to the Iron Cove Link including dive structure and tunnel portals"* (the four lanes refer to the tunnel exit/ entry lanes). The indicative layout of lanes in EIS Figure 5-40 differs from the text in Section 5.7. The EIS assessment is based on 'realignment and modification' of these east-bound lanes whereas EIS Figure 5-40 would indicate a 'reduction' in east-bound lanes which is not the assessed arrangement. The number of lanes shown in EIS Figure 5-40 and similarly Modification report 3-1 do not represent the EIS assessment in its entirety.

The EIS assesses four east-bound lanes despite the EIS Figure 5-40 and subsequently Modification report Figure 3-1 showing three east-bound lanes. Figure 5-4 of the Modification report is correct in showing four east-bound lanes and has not been updated in this Report.

C.1.4. Depth of tunnel under Callan Street

Issue description

The Modification report Section 5.2.1 states "The depth of the ventilation tunnel would vary from about eight metres (from ground level to tunnel crown) at its shallowest to about 25 metres (from ground level to tunnel crown) at its deepest." The Tunnelling Tool available online, referred to in the WestConnex Community Guide to the Modification, shows the tunnel at a minimum depth of seven metres. Submitters requested clarification on the depth of the shallowest point of the tunnel.

Response

The Modification report Section 5.2.1 (Undergrounding of ventilation facilities and substation) states "*The depth of the ventilation tunnel would vary from about eight metres (from ground level to tunnel crown) at its shallowest to about 25 metres (from ground level to tunnel crown) at its deepest.*". The Tunnelling Tool shows the tunnel at a minimum depth of seven metres for the three eastern-most properties on Callan Street.

The variance between the presented depths is attributable to different purposes of the data sources being used. The Tunnelling Tool depths are sourced from the substratum acquisition data. The requirements of this data, to ensure accuracy, accounts for existing elements that change the heights of the ground level including overlying fill, roof niches, overbreak and road camber. The substratum acquisition data also factors in a typical average extrapolation of crown heights to provide a 'worst case' scenario. These factors result in a more conservative and thus shallower 'tunnel depth'.

The depths stated in the Modification report are sourced from the detailed design which is tailored for the purposes of construction rather than substratum acquisition and therefore not all the above listed factors are relevant. The Modification report depths are accurate for tunnelling and modelling of associated impacts such as construction noise and vibration. The proposed Modification depths are therefore not updated in this Report.

It should be noted that upon accessing the Tunnelling Tool the following disclaimer is presented to the user that reads "*Transport for New South Wales and The Rozelle Interchange Project Joint Venture (Project Parties) make no representations or warranties of any kind, about the accuracy, reliability, completeness or suitability or fitness for purpose in relation to the content of this web site…*' '*The information contained within this site may be subject to change as the project designs are reviewed and refined. Should any change impact a property or its substratum the property owner will be notified directly by a representative of the Project Parties.*"

C.1.5. Height of HV Regulators and Switch Room

Issue description

1 submission identified a height variance within the text of the Modification report for the combined switch room and HV regulators, located at the fixed-facility between Toelle Street and Callan Street. Section 5.2.2 of the Modification report details the combined switch room and HV regulator as five metres in height. Appendix D Section 1.1 however details the same equipment as being eight metres in height.

Response

Both measurements are correct with allowance to factor in road-level gradients between Victoria Road and the closest resident on Toelle Street. Topographically, Victoria Road is about three metres higher in comparison to the closest resident on Toelle Street.

The Victoria Road façade of the combined switch room and HV regulator fixed-facility is designed with the outer wall height of about five metres, when measured from the Victoria Road side of the fixed-facility. Due to difference in road levels, the same façade height measures eight metres when measured from the closest residential property on Toelle Street.

The five metre description is appropriate for Section 5.2.2 (Surface infrastructure) of the Modification report as this section is detailing the dimensions of the fixed-facility. Similarly,

the eight metre description is appropriate for Appendix D (Operational noise assessment) as the noise assessment factors in heights for attenuation relative to the affected receiver.

The height of the surface infrastructure would be taken into consideration in the Urban Design and Landscape Plan(s) (UDLP) that would be prepared under conditions E133 to E137 of the Planning Approval. Overshadowing would be assessed with a Solar Access and Overshadowing Report under condition E138 of the Planning Approval. The UDLP and Overshadowing Report would be reviewed by the Design Review Panel and the UDLP would be submitted for exhibition and approved by the Planning Secretary

C.1.6. Construction activities assessed at Iron Cove Link civil site (C8)

Issue description

The proposed Modification includes road header tunnelling at the Iron Cove Link civil site (C8) including the use of associated equipment to support tunnelling. This construction activity was not considered in the EIS and therefore the proposed Modification adds to the construction activities assessed at the Iron Cove Link civil site (C8).

Response

Section 6.5.12 of the EIS details the indicative activities assessed to be undertaken at the Iron Cove Link civil site (C8). The Iron Cove Link civil site construction activities required for the proposed Modification that are relevant to the construction activities assessed in the EIS include:

- Support for the construction of the Iron Cove Link tunnel portals and entry and exit ramps along Victoria Road
- Limited tunnel excavation of the initial sections of the Iron Cove Link using excavators (with rock hammers and rock saws as required), as well as stockpiling of material and spoil haulage. There is no provision at this site to operate road headers
- Construction of the Iron Cove Link motorway operations complex (MOC4) including the Iron Cove Link ventilation facility and one outlet
- Civil tunnel fitout works (which would include pavement and drainage works)
- Mechanical and electrical fitout of the ventilation facility.

The proposed Modification construction activities and associated plant that would be additional to the EIS include:

- Use of road headers
- Excavation and removal of an additional 61,000 bank cubic metres (BCM) of spoil
- Tunnel lining activities
- Temporary support activities for tunnelling including dust collectors, water treatment, dump trucks, generator and air compressor and concrete trucks.

These activities are detailed in Section 3.2.2 (Iron Cove civil site (C8)) and Section 5.3.4 (Additional plant and equipment) of the Modification report. The Modification report details the limited potential impact as a result of these additional activities in Section 7 (Environmental assessment).

EIS Table 6-5 identifies that tunnel spoil management would be undertaken at the Iron Cove Link civil site (C8). The activity of spoil management is not an additional activity however the quantity of spoil is increased as well as the increase of 30 spoil trucks per day as a result of the proposed Modification.

The Modification report identifies the change in the scope of construction activities for the proposed Modification and assesses the impacts accordingly. The impacts from these additional temporary works are detailed in Section 7 (Environmental assessment) of the Modification report. Table 7-1 of the Modification report details the predicted impacts are primarily:

- Traffic and transport
- Air quality
- Noise and vibration
- Groundwater drawdown and settlement
- Socio-economic, land use and property
- Urban design and visual amenity
- Water.

C.1.7. Consultation and notification for the Modification

Issue description

Two submitters raised concerns about the community consultation and notification activities, specifically a letterbox drop that occurred in October 2019 and a community session held on 20 November 2019.

Response

Letterbox drop October 2019

Consultation and notification of the community for the proposed Modification was undertaken as detailed in Section 6 (Consultation) of the Modification report including letterbox drops to all properties located directly above the ventilation tunnel and caverns proposed in the Modification on 25 September 2019. Additionally, an email was distributed to residents on 18 October 2019 and door knocks were undertaken two and three days prior to the exhibition to notify residents of the Modification exhibition.

Community Session held 20 November 2019

A community information session was scheduled for Wednesday 20 November 2019 to provide an opportunity for direct consultation with community members. The respondent numbers for the take-up of the session were significantly low and in response to the low interest, the Contractor notified the respondents that the session would not go ahead and informed the respondents of the other opportunities for direct consultation including an identical session that was planned for the following Saturday 23 November 2019.

In the event that residents would attempt to attend the 20 November 2019 session who had not responded to the invite, the Contractor representatives were present at the Rozelle Interchange Community Information Centre did liaise with community member walk-ins.

C.1.8. Relevance of the WestConnex Inquiry to the Modification

Issue description

A number of submitters requested that the recommendations of the WestConnex Inquiry be taken-up for the proposed Modification.

Response

The main elements of the proposed Modification include:

- Construction of a ventilation tunnel about 340 metres in length that would connect the Iron Cove Link tunnel, at an underground location between Cambridge and Waterloo Streets, with the Iron Cove cut and cover structure near Callan Street
- Construction of the ventilation tunnel including two caverns for the housing of ventilation equipment and the electrical substation, along with access tunnels to be used for maintenance
- Extension of the Iron Cove cut and cover area on the southwestern side of Victoria Road to facilitate connection to the ventilation tunnel
- Use of all plant, equipment and materials required to construct the proposed new ventilation tunnel and caverns supported from the Iron Cove Link civil site (C8), with the potential for some tunnelling to be supported from the Rozelle civil and tunnel site (C5) later in the construction program.

The proposed Modification does not change the Iron Cove Link ventilation outlet permitted under the Planning Approval. Similarly, the tunnel air quality impacts and mitigation in the Planning Approval would not be altered by the scope of the proposed Modification.

The proposed Modification does not change the air quality impacts or the proposed mitigation set out the existing Planning Approval. Air quality impacts from the operation of the tunnel ventilation are outside the scope of the proposed Modification.

Approval for the construction and operation of the project was granted on 17 April 2018 by the NSW Minister for Planning and Public Spaces (application number SSI 7485). The EIS was completed and approved prior to the commencement of the WestConnex Inquiry. The WestConnex Inquiry commenced in June 2018 and the findings and recommendations were released on 17 December 2018; after the publication of the EIS and the following granting of the Planning Approval.

C.2 Residual land use

Issue description

The proposed Modification removes the MOC4 in the EIS from the acquired land between Callan Street and Springside Street adjacent to Victoria Road west-bound carriageway and relocated the operational equipment both underground and to acquired land between Toelle Street and Callan Street adjacent to Victoria Road west-bound carriageway. As a result of the proposed Modification the acquired land between Callan Street and Springside Street does not have a land use designation for operation.

A number of submitters requested the acquired land between Callan Street and Springside Street be designated and constructed as public, green space as part of the Modification.

Response

The proposed Modification would decrease the surface footprint of the permanent works associated with the Iron Cove Link operational ventilation facilities. This would increase the amount of residual land available following the completion of the Project.

The operational land use designation of the acquired land between Callan Street and Springside Street is subject to the finalisation of the Residual Land Management Plan (RLMP) required under condition E112 of the Planning Approval and subject to consultation with Inner West Council. This land would be considered for all appropriate uses.

For the urban design and landscaping, the landscape character of the area would remain consistent between the concept design assessed in the EIS and the proposed Modification for land subject to the Urban Design and Landscape Plan(s) (UDLP). The UDLP required under conditions E133 to E137 of the Planning Approval would address the landscape character elements inclusive of the proposed Modification (excluding land subject to the RLMP). Impacts on land use under the proposed Modification are considered consistent with the EIS and would not require any changes or additions to the Planning Approval or Environmental Management Measures. The UDLP will be subject to consultation with relevant council(s), UrbanGrowth NSW, the community and affected landowners and businesses. Additionally, the UDLP will be reviewed by the Urban Design Review Panel as required under the Planning Approval and be subject to approval by the Planning Secretary.

C.3 Public health

C.3.1. Human health impacts from air quality

Issue description

Some submitters raised concerns of the effect on public health from air quality impacts attributed to the construction of the proposed Modification as well as the operation of the Approved Project.

Response

Appendix C (Operational air quality) of the Modification Report summarises that there would be no change to the likely traffic pollution emission rates, or the ventilation flow rates permitted under the Planning Approval due to the proposed Modification. Further, the proposed Modification would not alter the shape, size (release height or exit diameter) or location of the MOC4 ventilation outlet.

The proposed Modification does not alter the air quality impacts or the proposed mitigation in the Approved Project. As such air quality impacts from the operation of the tunnel ventilation is outside the scope of the proposed Modification.

Appendix K (Technical working paper: Human health risk assessment) of the EIS identifies the potential health impacts associated with changes in air quality due to the operation of the project. The human health assessment concluded that there were no acute or chronic health risks to local communities that would arise as part of the project. Conversely, the project would be expected to result in a decrease in total pollutant levels within the study area due to the redistribution of vehicle emissions via elevated ventilation outlets, specifically in relation to emissions derived from vehicles currently using surface roads. For much of the community this would result in no change or a small improvement to the existing environment. The impact on the socio-economic environment would be negligible.

The NSW Government recognises that air quality and human health are a key priority for everyone. In NSW, motorway tunnels are required to meet stringent air quality standards using state-of-the-art ventilation and tunnel design.

In February 2018, the NSW Government announced stronger protections on emissions from motorway tunnels. The NSW EPA will regulate the ventilation outlets of all current and future operating motorway tunnels in NSW. For more information on Sydney's air quality, please visit the Transport for NSW Air Quality Portal ***https://v2.communityanalytics.com.au/rms/air-quality/***.

WestConnex will use ventilation outlets to effectively disperse emissions high into the atmosphere where they mix with the air with negligible impact on air quality. Furthermore, WestConnex has strict air quality goals to ensure that air pollution levels are appropriately managed inside and outside the tunnels. These requirements are amongst the most stringent in the world.

The NSW Chief Scientist and Engineer released a report in relation to road tunnel air quality. The report found that emissions from well-designed road tunnels cause a negligible change to surrounding air quality, and as such, there is little to no health benefit for surrounding communities in installing filtration and air treatment systems in such tunnels. Further information is available at ***https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0017/51911/060814-FINAL-Initial-Report-Tunnel-Air-Quality-WEB.pdf***

As the State's population continues to grow, the NSW Government is committed to maintaining high air quality standards. Rather than filtration, it will continue to reduce emissions at the source by adopting cleaner fuels and vehicles.

C.3.2. Human health impacts from electromagnetic radiation

Issue description

One submission raised concern regarding the potential electromagnetic radiation impacts on human health from both the underground and surface fixed-facilities during the operation of the Approved Project.

Response

Table 11-27 in Section 11.5.3 of the EIS identifies electromagnetic fields (EMF) from new substations on the project as being a low risk to public safety. The detailed design of the substations would ensure that the exposure limits for the general public set in the *Draft Radiation Standard – Exposure Limits for Magnetic Fields* (Australian Radiation Protection and Nuclear Safety Agency, December 2006) would not be exceeded at the boundary of the substation sites.

The fixed-facility and the underground equipment in the proposed Modification would be designed in accordance with this standard. Overall, the proposed Modification reduces the likelihood of EMF exposure by relocating equipment underground, reducing the quantity of surface equipment and proximity of EMF producing equipment to member of the general public.

C.4 Tunnel design

C.4.1. Tunnel depth, dimension, gradient and alignment

Issue description

The proposed Modification results in additional tunnelling, as compared to the EIS, and as a result a number of properties are affected by tunnelling impacts, primarily ground-borne noise and vibration that were not-previously affected in the EIS. Some submitters requested clarification on justification for the 'shallow' depth of the ventilation tunnel and in some instances a deepening of the tunnel was suggested. Similarly, the alignment of the tunnel, necessity for the proposed cavern dimensions and gradient of the ventilation tunnels were all questioned.

Response

Section 5.2.1 (Undergrounding of ventilation facilities and substation) of the Modification report details the depths and dimensions of the tunnelling. The ventilation tunnel and caverns would have the following features:

- The ventilation tunnel would be about 340 metres in length. This ventilation tunnel would be on average about seven metres high and about 10 metres wide. The depth of the ventilation tunnel would vary from about eight metres (from ground level to tunnel crown) at its shallowest to about 25 metres (from ground level to tunnel crown) at its deepest
- The ventilation tunnel would include two caverns for the housing of ventilation equipment and the electrical substation:
  - A cavern containing ventilation exhaust facilities, including four ventilation fans laid horizontally, with associated attenuators and dampers. The dimensions of the ventilation cavern would be about 25 metres wide, 15 metres high and 70 metres long
  - A cavern containing the electrical substation, parallel to the cavern containing the ventilation facilities. The dimensions of the substation cavern would be about 20 metres wide, 10 metres high and 65 metres long
  - An access tunnel about five metres wide and 20 metre long, to facilitate maintenance access from the ventilation cavern into the substation cavern
- The Iron Cove cut and cover area would include a side access for the ventilation tunnel to connect to the cut and cover about seven metres wide and 17 metres long. This area would also accommodate the access stairs to the surface and is separate to the ventilation tunnel length listed above.

Section 4.2 (Identification of the preferred option) of the Modification report details the considerations that informed the ventilation design including:

- Proximity to the Iron Cove ventilation outlet location illustrated in the EIS
- Need for separate caverns due to space requirements
- The need for the ventilation tunnel to connect to the end of the ventilation cavern (A design where a ventilation tunnel connects to the middle of the ventilation cavern is not possible)
- Alignment in sound rock (i.e. sandstone)

- Need for safe operational and maintenance access from the road tunnel and from the surface
- The ability to excavate the ventilation tunnel and caverns from beneath the Iron Cove Link cut and cover structure.

The 'shallow' depth of the tunnel is unavoidable as the ventilation tunnels must connect to both the mainline tunnels and to the surface in order to permit movement of air from the tunnel through to the ventilation outlet. Services connections including power from the fixed-facilities must also connect through to the tunnel and caverns. The fixed levels of the mainline tunnels and the surface act as pre-determined points in which the ventilation tunnel and caverns can be designed and constructed.

Alternatives to the preferred design were considered including horizontal and vertical arrangements for the fans above ground, an underground arrangement within a ventilation building with a depth of about 40 metres, and the relocation of the ventilation facility to above the cut and cover structure of Victoria Road. This 40 metre depth for the building would still require ventilation tunnels shallower than 40 metres to connect the building facility to the surface ventilation. Subsurface options for ventilation require a shallow connection to the surface ventilation infrastructure.

The ventilation tunnels and caverns are constrained in gradient, alignment and size to allow construction to be undertaken and future maintenance with sufficient access to replace equipment. Every effort is made to keep the alignment underneath existing roads so as to minimise affected residences however additional influencing factors such air flow dynamics and the location of the most competent rock are critical considerations in the design of a tunnel.

The ventilation tunnel and caverns have been optimised as part of the detailed design process in order to reduce subsurface size requirements as much as practical. This has been conceptualised based on:

- Modelling optimisation to reduce the size and quantity of fans where possible
- Streamlining maintenance equipment arrangements and maintenance process to Reduce the length of the caverns as much as possible
- Optimising equipment layout to minimise the required height of the cavern
- Optimising the access requirements and equipment layout to enable maintenance using various pieces of plant which still meeting air flow dynamic requirements.

The tunnel depth, alignment, gradient and sizes has been considered in great detail and where possible optimised to increase efficiency of construction and maintenance ultimately aiming to reduce potential impacts on the community. The proposed Modification tunnel is the optimised solution to meet technical requirements, minimise adverse environmental impacts and increase operational environmental benefits.

C.4.2. Tunnelling duration

Issue description

One submission requested further detail on the duration of tunnelling to be provided for affected properties in the proposed Modification, subject to the approval of the Modification.

Response

As stated in the Modification report, tunnelling would commence, if approved, in quarter four of 2020 and is anticipated to be completed by the end of 2021. Throughout this duration tunnel excavation will occur along different locations of the proposed Modification ventilation tunnel and caverns.

The proposed ventilation tunnel and caverns differ in size and shape and as such have different construction requirements. This inherently results in different tunnelling durations based on the tunnel type and simultaneously geotechnical variables encountered during tunnelling can also influence the excavation rate on a day-by-day basis. It is difficult to determine a tunnel duration because of these factors.

Impacts experienced by individual properties would be specific depending on the section of tunnel or cavern being constructed in proximity to the respective property. As such the duration of tunnelling cannot be standardised. If the proposed Modification is approved, affected receivers will be notified and kept informed as to the predicted impacts specific to individual properties and the duration of those impacts. This information will be facilitated by Transport for NSW and the Contractor and undertaken in accordance with conditions B1 and B2 of the Planning Approval.

C.5 Air quality

C.5.1. Construction air quality impacts

Issue description

Submitters raised concerns on the air quality impact from the addition of tunnelling from the Iron Cove Link civil site (C8) and how construction dust would be managed.

Response

The EIS identified that the main air quality risks during construction would be associated with the potential for dust soiling, and the effects of airborne particles on human health and amenity from activities including excavation. Construction of surface works on the western side of the realigned Victoria Road within the Iron Cove Link civil site (C8) are limited to the construction of the switch room, high voltage regulators, alternative Operational Motorway Control System (OMCS) room and access stairs, while the construction of extensive building foundations and an access shaft are no longer required under the proposed Modification. As such, the potential for construction air quality impacts are minimised.

Section 7.3.1 (Construction air quality) of the Modification report details the assessment of air quality impacts from the proposed Modification. Excavation of the ventilation tunnel and caverns would be completed using the same tunnelling methodology and air quality mitigation measures planned for other sections of Rozelle Interchange, assessed in the EIS. Dust mitigation measures from tunnelling at the Iron Cove Link civil site (C8), consistent with mitigation measures applied for the Approved Project, include enclosing the cut and cover structure and dust collectors for removing airborne dust generated during the tunnel excavation.

The key change of air quality impacts between the EIS and the proposed Modification is the proposed Modification would require the excavation of an additional 61,000 bank cubic metres (BCM) of spoil which is to be stockpiled, primarily within the acoustic shed, and removed at the Iron Cove Link civil site (C8). Section 7.6 of the EIS assesses the Iron Cove Link civil site (C8) for spoil management for both the cut and cover excavation as well as the tunnel portal excavation. The additional spoil quantity is minor when accounting for the overall excavation quantities required for the construction activities at the Iron Cove Link civil site (C8) for the Approved Project. Air quality management measures including but not limited to wetting-down of dust generating activities, mechanical dust collection and physical isolation of dust generating works areas, such as enclosing the temporary tunnel support operations within the cut and cover construction, would minimise the potential for dust impacts on nearby residences. The proposed Modification is anticipated to have a negligible contribution to air quality impacts.

Potential dust generation from surface works associated with the proposed Modification would be managed in accordance with the Approved Project Air Quality Management Plan (AQMP). The mitigation measures detailed in Section 7 (Environmental assessment) of the Modification report align with the mitigation measures in the AQMP. The AQMP aims to implement at-source controls in order to minimise the potential impact on the community surrounding the Iron Cove Link civil site (C8). Refer to Section 7.3.1 (Construction air quality) of the Modification report for further details on construction air quality management.

C.5.2. Operational air quality

Issue description

Submitters raised concerns on the operational air quality impact from the use of the ventilation tunnels as per the proposed Modification and the ventilation outlet as per the Approved Project.

Response

Appendix C (Operational air quality) of the Modification report concludes that there would be no change to the likely traffic pollution emission rates, or the ventilation flow rates permitted under the Planning Approval due to the proposed Modification. Further, there is no change to the shape, size, (release height or exit diameter) or location of the ventilation outlet as a result of the proposed Modification.

The operational air quality impacts and the proposed mitigation remains unchanged and as such air quality impacts from the operation of the ventilation outlet is outside the scope of the proposed Modification.

The NSW Government recognises that air quality and human health are a key priority for everyone. In NSW, motorway tunnels are required to meet stringent air quality standards using state-of-the-art ventilation and tunnel design.

In February 2018, the NSW Government announced stronger protections on emissions from motorway tunnels. The NSW EPA will regulate the ventilation outlets of all current and future operating motorway tunnels in NSW. For more information on Sydney's air quality, please visit the Transport for NSW Air Quality Portal ***https://v2.communityanalytics.com.au/rms/air-quality/***.

The project will use ventilation outlets to effectively disperse emissions high into the atmosphere where they mix with the air with negligible impact on air quality. Furthermore, The project has strict air quality goals to ensure that air pollution levels are appropriately managed inside and outside the tunnels. These requirements are amongst the most stringent in the world.

The NSW Chief Scientist and Engineer released a report in relation to road tunnel air quality. The report found that emissions from well-designed road tunnels cause a negligible change to surrounding air quality, and as such, there is little to no health benefit for surrounding communities in installing filtration and air treatment systems in such tunnels. Further information is available at ***https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0017/51911/060814-FINAL-Initial-Report-Tunnel-Air-Quality-WEB.pdf.***

As the State's population continues to grow, the NSW Government is committed to maintaining high air quality standards. Rather than filtration, it will continue to reduce emissions at the source by adopting cleaner fuels and vehicles.

C.6 Urban design and landscaping

C.6.1. Overshadowing

Issue description

Some submitters raised concerns regarding the impact of overshadowing from the change in location of the fixed-facilities as per the proposed Modification when compared with the EIS.

Response

As a result of relocating the fixed-facilities from between Callan Street and Springside Street to between Toelle Street and Callan Street, as well as undergrounding some equipment, different properties are affected by overshadowing in the proposed Modification compared to the Approved Project. Overall, the proposed Modification reduces the surface infrastructure compared to the Approved Project which results in a reduction in overshadowing due to the much smaller scale of the remaining operational fixed-facilities.

Overshadowing impacts on adjacent residences are assessed in Section 7.7.2 (Permanent urban and landscape concept) of the Modification report. Indicative 'worst-case' overshadowing modelling is shown in Figure 7-9 and Figure 7-10 for 21 June as this is when the sun is lowest in the sky and therefore shadows are cast the furthest. Review of the proposed Modification concept design shows the shadowing from operational buildings affects less properties and to a smaller extent than the EIS concept design as the height of the proposed Modification structures is lower than the EIS ventilation facility.

Overshadowing would be further assessed in detail in the Solar Access and Overshadowing Report (SAOR) in accordance with condition E138 of the Planning Approval. The SAOR would be reviewed by the Design Review Panel and submitted to the Planning Secretary prior to the commencement of construction of any structures that may cause overshadowing of residential premises.

C.6.2. Retaining landscape character

Issue description

Some submitters raised general concerns relating to a change in the landscape character of the Iron Cove area as a result of both the Approved Project and the proposed Modification during operation of the Rozelle Interchange.

Response

Note, this Report extends to the elements directly changed as a result of the proposed Modification (Section C.1). The Planning Secretary issued environmental assessment requirements for the project. These are referred to in the EIS as the Secretary's Environmental Assessment Requirements (SEARs). EIS Chapter 13, Table 13-1 sets outs these requirements and the associated desired performance outcomes that relate to urban design and visual amenity. These assessment requirements are the framework used to focus the aspirations and objectives of the WestConnex Urban Design.

The proposed Modification aligns with the aspirations and objectives of the WestConnex Urban Design specifically '*The WestConnex Motorway will be a sustainable, high quality and transformational project for the people of Sydney and NSW. Exhibiting design excellence as a whole and in all constituent parts, it shall be sensitively integrated into the built and natural environments and help build local communities. It will enhance the form, function, character and liveability and contribute to the future liveability of the city.*'

Section 7.7.2 (Permanent urban and landscape concept) of the Modification report details the visual assessment and concept urban design process to address the proposed Modification. Note that the proposed Modification does not involve changes to the tunnel portal, ventilation outlet, tree removal or shared user paths and therefore these urban design aspects are not subject to the Modification.

As was undertaken in the EIS, landscape character impacts were assessed, including ratings for sensitivity and magnitude at each nominated Landscape Character Zone (LCZ) relevant to the proposed Modification. These LCZs are shown in Appendix F Urban design and visual amenity of the Modification report. Although the proposed Modification would provide a reduction in operational facilities located above ground, the LCZ assessment did not result in a change to such a degree that would alter these overall LCZ conditions outcomes as assessed in the EIS.

The major visual change from what was assessed in the EIS is the removal of the MOC4 facility from the corner of Springside Street and Victoria Road. This results in residents that were to be visually impacted under the EIS concept design no longer being impacted under the proposed Modification in this location.

The Submissions and Preferred Infrastructure Report (SPIR) for the Project identified the Revised Environmental Management Measures (REMM) that would be adopted to avoid or reduce environmental impacts of the EIS, with all measures identified incorporated into management plans. Section 4.2, Appendix F (Urban design and visual amenity) of the Modification report details the REMM related to Urban Design outcomes at Iron Cove Link facilities including improving the streetscape and utilising vegetation screening measures for permanent facilitates.

These REMMs would be adhered to in the final urban design and landscaping for the Iron Cove operational fixed-facilities. This design would be detailed in the Urban Design and Landscape Plan(s) (UDLP), to be prepared under conditions E133 to E137 of the Planning Approval. The UDLP would be reviewed by the Design Review Panel and approved by the Planning Secretary. Consultation on the UDLP would be undertaken with relevant council(s), UrbanGrowth NSW and the community on the proposed measures, prior to the finalisation of the UDLP in accordance with condition E134 of the Planning Approval.

C.6.3. Fixed-facilities design

Issue description

Some submitters requested clarification on the urban design and landscaping for the fixed-facilities in the proposed Modification.

Response

Section 3.2 of Appendix F (Urban design and visual amenity) of the Modification report summarises the visual impacts of the proposed Modification surface fixed-facilities compared to the surface fixed-facilities proposed in the EIS.

The major visual change from what was assessed in the EIS is the removal of the MOC4 facility from between Callan Street and Springside Street. This results in residents that were to be visually impacted under the EIS concept design no longer being impacted under the proposed Modification in this location.

The urban design aims to consolidate above ground structures with a reduced footprint. In order to achieve this, the surface structures are proposed to be situated adjacent to the shared user path and use vegetation to soften and screen the structures whilst maintaining an efficient footprint. Additionally, these design techniques would be applied as appropriate to a separate, small above-ground structure in the vicinity of Callan Street comprised of an access door and a stairway to the ventilation tunnel. The visible mass of the operational fixed-facilities in the proposed Modification is noticeably smaller than the EIS assessed MOC4 ventilation facility.

The final integration of urban design and landscaping elements with the surface structures design would be detailed in the Urban Design and Landscaping Plan(s) (UDLP). The UDLP is to be prepared under conditions E133 to E137 of the Planning Approval, reviewed by the Design Review Panel and approved by the Planning Secretary. Consultation on the UDLP will be undertaken with relevant council(s), UrbanGrowth NSW and the community on the proposed measures, prior to the finalisation of the UDLP in accordance with condition E134 of the Planning Approval.

C.7 Noise and vibration

C.7.1. Construction noise and vibration impacts

Issue description

A number of submitters raised concerns and requested clarification on the predicted construction impacts of noise and vibration from tunnelling and potential disruption from 24 hours a day, seven days per week working hours required in the proposed Modification.

Response

Tunnelling ground-borne noise and vibration assessment

The noise and vibration impacts from tunnelling are assessed in Section 7.4 (Noise and vibration) and Section 4 of Appendix D (Noise and vibration assessment) of the Modification report. Impacts from tunnelling are assessed based on the tunnel/ cavern depth detailed in Section 5 (Proposed modification) of the Modification report. The assessment proposes mitigation measures to be applied in order to appropriately address identified ground-borne noise and vibration impacts from tunnelling. These measures are consistent with the Approved Project Construction Noise and Vibration Management Sub-plan (CNVMP) in accordance with conditions C4 and C5 of the Planning Approval and would be implemented if the proposed Modification is approved.

Should the proposed Modification be approved, ongoing consultation and communication activities would be undertaken with affected receivers with a focus on communicating tunnelling progress and expected impacts. Transport for NSW and the Contractor would liaise directly with affected receivers to consult and appropriately manage noise and vibration impacts from tunnelling.

Hours of work and respite

Works hours for the project are outlined in conditions E68, E69 and E70 of the Planning Approval. Condition E70 of the Planning Approval permits tunnelling activities to be undertaken 24 hours a day, seven days a week.

Respite for highly noise intensive works would be undertaken in accordance with condition E72 of the Planning Approval. Works that occur outside standard construction hours would be managed in accordance with condition E77 of the Planning Approval addressing out of hours work.

The additional tunnelling required under the proposed Modification would be undertaken in accordance with conditions E81 and E82 of the Planning Approval, which is consistent with all other Project tunnelling. Appendix D (Noise and vibration assessment) of the Modification report states that sleep-disturbance noise criteria would be adhered to during night-time periods in order to minimise disturbance from tunnelling ground-borne noise and/or vibration. In accordance with condition E82 of the Planning Approval, the mitigation measures for ground-borne noise predicted exceedances must be detailed in the Approved Construction Noise and Vibration Management Plan (CNVMP), including an Out-of-Hours Work Protocol. The CNVMP must be approved by the Planning Secretary.

Appendix D (Noise and vibration assessment) of the Modification report indicates that educational facilities or places of worship are not affected by day-time noise levels as a result

of the proposed Modification, and that property treatment for these types of receivers within the vicinity of the Iron Cove Link civil site (C8) is not required.

The Modification report Noise Assessment indicates that day-time noise contribution from the proposed Modification works is consistent with the day-time noise predicted in the Approved Project.

Monitoring of noise and vibration during construction of the proposed Modification would be undertaken in accordance with the Approved CNVMP.

C.7.2. Operational noise and vibration impacts

Issue description

A number of submitters raised concerns and requested clarification on the predicted operational noise impacts on residential properties and the implementation of mitigation measures (including noise walls) planned as a result of the relocation of the surface fixed-facility in the proposed Modification. Similarly, clarification on the operational impacts to residential properties from ground-borne noise and vibration of the subsurface ventilation fans and equipment as a result of the proposed Modification.

Response

Operational impacts from fixed-facilities

Operational noise and vibration impacts predicted by the proposed Modification are detailed in Section 7.4 (Noise and vibration) and Appendix D (Noise and vibration assessment) of the Modification report. In summary the assessment determines that for noise from surface, fixed-facilities the *"noise impacts are consistent with or less than the potential impacts identified in the EIS."* Operational noise mitigation measures would be confirmed in the Operational Noise and Vibration review (ONVR), to be prepared in accordance with condition E92 of the Planning Approval.

Section 5.4 of Appendix D (Noise and vibration assessment) of the Modification report states, "*modelling for traffic noise levels in the EIS did not include the ventilation facility between Springside Street and Callan Street."… "As these surface operational buildings did not influence the EIS traffic noise model, the proposed removal of the ventilation facility will have no impact on the traffic noise predictions*". As such the EIS noise wall assessment in Appendix J remains applicable for the proposed Modification at this location. The EIS Appendix J Table 6.5 details that noise walls between Callan Street and Springside Street are an unsuitable method of noise mitigation in that *"the barrier may potentially sterilise future use of the adjacent land by restricting visibility and/or access."* Noise mitigation measures would be further investigated during detailed design, through the ONVR process. This process would include a review of the suitability of the mitigation measures in the Approved Project and confirm if any additional mitigation is required for all fixed-facilitates to meet operational noise compliance levels.

Operational impacts from sub-surface ventilation equipment

Operational noise and vibration impacts predicted by the proposed Modification are detailed in Section 7.4 (Noise and vibration) and Section 5.1 of Appendix D (Noise and vibration assessment) of the Modification report.

In summary, the assessment determines that compared to the EIS solution of a surface-only facility, the proposed Modification offers a reduced noise impact attributed to the ventilation equipment situated underground.

Airborne noise from the fan outlet would meet noise compliance criteria (night-time 45dB(A) at residential receivers) by the installation of an acoustic attenuator on the outlet side of the fans.

Ground-borne noise from the operation of the ventilation fans is predicted to be non-significant given the installation quality required for the ventilation fans and the distance of the fans to residential properties.

The mitigation measures to be applied would be assessed and reviewed in finalising the Operational Noise and Vibration Review (ONVR) under condition E92 of the Planning Approval in consultation with the community. Furthermore, condition E95 of the Planning Approval requires monitoring of operational noise to be undertaken within 12 months of the commencement of operation of the Rozelle Interchange to compare actual noise performance against the noise performance predicted in the ONVR. The monitoring would include the impacts of the proposed Modification and be documented in an Operational Noise Compliance Report (ONCR) which to be submitted to the Planning Secretary.

C.8 Traffic and public amenity

C.8.1. Construction traffic impacts

Issue description

The construction traffic related submissions related to:

- *One submitter raising a concern regarding speed limits of local roads adjacent to the Iron Cove Link civil site (C8).*
- *Submitters raising concerns about truck movements for the proposed Modification, particularly for spoil removal off-site.*
- *One submitter raising a concern regarding workers parking in local streets whilst carrying out the works for the proposed Modification.*

Response

Approved Project traffic arrangements

The proposed Modification does not change the required construction management traffic arrangements including traffic speed limits as the traffic arrangements have been implemented as required for the Approved Project. Traffic speed limits of local roads adjacent to the Iron Cove Link civil site (C8) are outside the scope of the proposed Modification. Construction-safe speed limits at the Iron Cove Link civil site (C8) would be enforced as a result of the Approved Project and continue to be adhered to when undertaking the proposed Modification works.

Haul routes and spoil truck management

The Modification report states that about 61,000 bank cubic metres (BCM) of spoil would be excavated to construct the ventilation tunnel and caverns at Iron Cove Link civil site (C8), which equates to a worst case of 30 spoil trucks per day. The proposed ventilation tunnel and cavern works would be supported from the Iron Cove Link civil site (C8) with the potential for some tunnelling to be supported from the Rozelle civil and tunnel site (C5) later in the construction program.

Spoil from tunnelling would be loaded into off-road trucks at the tunnel face and stockpiled on-site prior to being removed via spoil trucks. During standard day-time hours, tunnel spoil would be transported and stockpiled at the Iron Cove Link civil site (C8) and loaded into trucks for off-site disposal. Spoil generated at night-time would be transported from the tunnel face and stockpiled within the acoustic shed at the Iron Cove Link civil site (C8), and rehandled and loaded using a wheel/track loader or excavator into spoil trucks during standard day-time hours for disposal off-site. Spoil haulage vehicles would use Victoria Road and not residential streets. Section 7.2.1 (Construction Traffic and transport) of the Modification report discusses the anticipated traffic volumes on Victoria Road due to the proposed Modification.

Should any tunnelling be supported from the Rozelle civil and tunnel site (C5), there would be a slight increase in spoil trucks and deliveries at this worksite. This would occur outside the peak construction activities associated with the overall Rozelle Interchange Approved Project and would not require additional mitigation measures.

Appropriate measures to reduce the potential for construction traffic impacts, such as limiting heavy vehicles to approved routes, GPS tracking of spoil trucks and driver training, have

been included in the Approved Project Traffic and Transport and Access Management Plan (TTAMP) prepared in accordance with conditions C4 and C5 of the Planning Approval. The proposed Modification would not require any changes or additions to the Planning Approval or Environmental Management Measures for construction traffic impacts.

Construction personnel on-street parking

The proposed Modification would comply with the Construction Parking and Access Strategy (CPAS) required by condition E54 of the Planning Approval. The CPAS outlines how parking would be managed on the Project, and it would also applicable to the proposed Modification. The CPAS outlines the following controls related to managing the parking of construction personnel private vehicles on local roads:

- Establishment of on-site parking
- Encouraging the use of public transport, in order to reduce the number of private vehicles travelling to and from the Project
- Notification and promotion of public transport options
- Provision of a shuttle bus service between the Rozelle Interchange construction compounds inclusive of the Iron Cove Link civil site (C8)
- Working with Council to facilitate a resident parking scheme where supported by residents
- Communication to construction personnel of parking restrictions around Rozelle Interchange construction compounds.

Appropriate measures to reduce the potential for construction traffic impacts, such as limiting heavy vehicles to approved routes, GPS tracking of spoil trucks and driver training, have been included in the Approved Project Traffic and Transport and Access Management Plan (TTAMP) prepared in accordance with conditions C4 and C5 of the Planning Approval. The proposed Modification would not require any changes or additions to the Planning Approval or Environmental Management Measures for construction traffic impacts.

C.8.2. Active Transport users' impact

Issue description

Submitters raised concerns about changes to shared paths and pedestrian traffic light phasing due to the proposed Modification. One of these submitters also raised concern with the consultation process for the relocation of existing shared paths.

Response

Note that the Modification does not change any shared user paths and as such is outside the scope of the Modification (Section C.1.2).

Pedestrian traffic light phasing is not impacted by the additional heavy vehicles required as a result of the proposed Modification. Traffic arrangements, including light phasing, are implemented for the Iron Cove Link civil site (C8) as per the Approved Project. The traffic arrangements implemented would continue to be applied for the proposed Modification, if approved. The Approved Project Traffic and Transport and Access Management Plan (TTAMP), in accordance with conditions C4 and C5 of the Planning Approval, has been prepared to ensure that the impact on pedestrian and cyclist networks are minimised and

safe movement paths are provided during construction (including the area adjacent to the Iron Cove Link civil site (C8)).

C.9 Operational access and maintenance

C.9.1. Maintenance regime

Issue description

Submitters raised concern regarding potential for nuisance impacts from the maintenance of the ventilation and electrical equipment during operation of the Rozelle Interchange. Information regarding the frequency of maintenance was requested.

Response

The Modification report notes that the majority of maintenance operations for the ventilation fans and substation within the two caverns would be accessed via vehicle from within the tunnel. Access to the caverns for maintenance personnel and heavy maintenance vehicles would be provided via an approved breakdown bay located off the westbound lanes within the Iron Cove Link tunnel, as well as via a staircase to the surface. The staircase would provide an alternative personnel maintenance and emergency access to and from the ventilation tunnel from the surface, with the main access from within the road tunnels.

Maintenance on the ventilation fans and substation within the caverns would occur about:

- weekly for general inspections
- monthly for minor maintenance
- between 1 to 5 years for a major service dependent on the equipment condition
- every 10 years for an equipment upgrade for some of the heavy equipment.

Each maintenance period duration would vary dependent on the work required to be undertaken. Major maintenance and upgrade works would be undertaken via vehicle accessed from the tunnel for the subsurface equipment. Access through the staircase on Callan Street, constructed for operational maintenance access, is predicted to be used an average of twice per yearly quarter. Access for general inspection at the surface fixed-facility between Toelle Street and Callan Street is anticipated to be required daily. Operation of the Rozelle Interchange would comply with the performance outcomes and mitigation measures outlined in the Operational Environmental Management Plan (OEMP) in accordance with condition D1 of the Planning Approval.

C.9.2. Operational maintenance parking

Issue description

One submitter queried the parking allocation for operation and maintenance vehicles within the dedicated parking area off Clubb Street.

Response

Figure 5-4 in the Modification report indicates the proposed maintenance parking area off Clubb Street. This parking area would be designed to fit an eight metre rigid truck (equivalent to approximately two car-type light vehicles). The fixed-facility off Toelle Street would have

sufficient space for two car-type light vehicles or an eight metre rigid truck to temporarily access the facility for intermittent inspections and infrequent major maintenance activities.

C.10 Groundwater and ground settlement

C.10.1. Groundwater and biodiversity

Issue description

One submitter raised concern regarding potential changes to groundwater and biodiversity due to the proposed Modification.

Response

The Modification report notes that the surface activities required to construct the proposed Modification are located within the footprint assessed in the EIS, and groundwater inflows to the tunnel and caverns are predicted to be minimal. Appropriate measures to reduce the potential for construction water impacts have been included in the Approved Project Soil and Surface Water Management Plan (SSWMP) and the Groundwater Management Plan (GWMP), prepared in accordance with condition C9 of the Planning Approval.

Impacts to biodiversity were assessed for the proposed Modification. Section 7.1 (Environmental scoping) of the Modification report states that no additional impacts on biodiversity are expected a result of the proposed Modification. Biodiversity impacts are considered consistent with those presented in the EIS. The EIS does not identify any threatened species or groundwater dependent species occurring within the vicinity of the proposed Modification.

C.10.2. Ground settlement

Issue description

Submitters raised concerns about ground settlement due to tunnelling activities in the proposed Modification. The requests/queries raised included:

- *Ground settlement measurements to be made publicly available as tunnelling progresses*
- *Condition surveys to be available to all property owners who request them, including those outside of the anticipated zone of influence for ground settlement due to tunnelling*
- *Deepening the tunnels and caverns to reduce the potential for property damage due to ground settlement from tunnelling activities.*

Response

An assessment of potential settlement impact on existing buildings and structures from the proposed Modification has been prepared. A summary of the findings can be found in Section 7.5 (Potential groundwater drawdown and surface settlement) of the Modification report, and the full report on groundwater drawdown and potential surface settlement for the proposed Modification is included in Appendix E (Groundwater drawdown and potential surface settlement) of the Modification report.

The preliminary settlement analysis completed to date is based on the EIS concept design, and the predicted settlement ranges from 0 to 20 millimetres. This complies with the settlement criteria in condition E103 of the Planning Approval. Potential settlement

associated with the proposed Modification would continue to be assessed as part of the Project settlement modelling and impact assessment processes and would be finalised during detailed design.

If the proposed Modification is approved, the monitoring program would measure settlement during the construction consistent with the Planning Approval. This program would include identification of trigger values and a response process in the event that a divergence from the settlement model is identified. Private property impacts will be addressed by the Project and, if required, may be escalated to the Independent Property Impact Assessment Panel (IPIAP) in accordance with condition E109 of the Planning Approval. The IPIAP will be comprise of geotechnical and engineering experts that are independent of the design and construction team. The Panel will be responsible for independently reviewing property condition survey reports, the resolution of property damage disputes, and the establishment of ongoing settlement and vibration monitoring requirements. Buildings and properties identified as being at risk of damage due to potential surface settlement would be offered a pre-construction and a post-construction condition survey, which would assess and document the general condition of the building or property. This would include properties within the zone of influence of tunnel settlement (50 metres from edge of tunnels and within 50 metres of surface works), as well as any properties identified within the settlement model as having potential settlement that may exceed the settlement criteria in condition E103 of the Planning Approval. Any other owners that believe their properties may be eligible for condition surveys would be able to contact and discuss their concerns with the Rozelle Interchange community team.

The role of the Independent Property Impact Assessment Panel is to review Transport for NSW property condition surveys and property damage disputes in compliance with the Planning Approval.

The shallow depth of the tunnel is unavoidable as the ventilation tunnels must connect to both the mainline tunnels and to the surface in order to permit movement of air from the tunnel through to the ventilation outlet. Services connections including power from the fixed-facilities must also connect through to the tunnel and caverns. The fixed levels of the mainline tunnels and the surface act as pre-determined points in which the ventilation tunnel and caverns can be designed and constructed.

The ventilation tunnels and caverns are constrained in gradient, alignment and size to allow construction to be undertaken and future maintenance with sufficient access to replace equipment. Every effort is made to keep the alignment underneath existing roads so as to minimise affected residences however additional influencing factors such air flow dynamics and the location of the most competent rock are critical considerations in the design of a tunnel.

C.11 Property impacts

C.11.1. Compulsory acquisition of substratum

Issue description

Submitters raised concerns regarding compensation and potential property devaluation due to substratum acquisition beneath properties.

Response

Compulsory acquisition of substratum is permissible by Transport for NSW (TfNSW) under the *Land Acquisition (Just Terms Compensation) Act 1991*. Section 7.5 (Potential groundwater drawdown and surface settlement) and 7.6 (Socio-economic, land use and property) of the Modification Report detail the proposed modification would add to the subsurface stratum acquisition requirements of the project. TfNSW will acquire a subsurface stratum to provide for the proposed modification under the *Land Acquisition (Just Terms Compensation) Act 1991*. Community consultation undertaken for the Modification informed property owners that residences above the proposed ventilation tunnel and cavern alignment would be notified in advance of the public exhibition. The terms for compensation as a result of compulsory substratum acquisition are in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991.*

C.11.2. Property damage

Issue description

Submitters raised concerns about potential structural damage to properties due to the possibility of ground settlement from tunnel construction.

Response

An assessment of potential settlement impact on existing buildings and structures from the proposed Modification has been prepared by Transport for NSW. A summary of the findings can be found in Section 7.5 Potential groundwater drawdown and surface settlement) of the Modification report, and the full report on groundwater drawdown and potential surface settlement for the proposed Modification is included in Appendix E (Groundwater drawdown and potential surface settlement) of the Modification report.

The preliminary settlement analysis completed to date is based on the concept design, and the predicted settlement ranges from 0 to 20 millimetres. This complies with the settlement criteria in condition E103 of the Planning Approval. Potential settlement associated with the proposed Modification would continue to be assessed as part of the settlement modelling and impact assessment processes and would be finalised during detailed design.

If the proposed Modification is approved, the monitoring program would measure settlement during the construction consistent with the Planning Approval. This program would include identification of trigger values and a response process in the event that a divergence from the settlement model is identified. Private property impacts will be addressed by the Project and, if required, may be escalated to the Independent Property Impact Assessment Panel

(IPIAP) in accordance with condition E109 of the Planning Approval. The IPIAP will be comprise of geotechnical and engineering experts that are independent of the design and construction team. The Panel will be responsible for independently reviewing property condition survey reports, the resolution of property damage disputes, and the establishment of ongoing settlement and vibration monitoring requirements. Buildings and properties identified as being at risk of damage due to potential surface settlement would be offered a pre-construction and a post-construction condition survey, which would assess and document the general condition of the building or property. This would include properties within the zone of influence of tunnel settlement (50 metres from edge of tunnels and within 50 metres of surface works), as well as any properties identified within the settlement model as having potential settlement that may exceed the settlement criteria in condition E103 of the Planning Approval. Any other owners that believe their properties may be eligible for condition surveys would be able to contact and discuss their concerns with the Rozelle Interchange community team.

The role of the Independent Property Impact Assessment Panel is to review property condition surveys and property damage disputes in compliance with the Planning Approval.

C.12 Spoil Management

Issue description

One submitter raised a concern regarding spoil removal off site.

Response

The Modification report states that about 61,000 bank cubic metres of spoil would be excavated to construct the ventilation tunnel and caverns at Iron Cove Link civil site (C8). This increase in spoil volume is very minor in the context of the entire project and translates to an increase of about 30 spoil trucks per day.

The proposed ventilation tunnel and cavern works would be supported from the Iron Cove Link civil site (C8) with the potential for some tunnelling to be supported from the Rozelle civil and tunnel site (C5) later in the construction program.

Spoil from tunnelling would be loaded into off-road trucks at the tunnel face. Spoil generated at night-time would be transported from the tunnel face and stockpiled within the enclosed cut and cover shed structure at the Iron Cove Link civil site (C8), and rehandled and loaded using a wheel/track loader or excavator into spoil trucks during daytime hours for disposal off-site. During daytime hours, tunnel spoil would be transported and stockpiled at the Iron Cove Link civil site (C8) and loaded into trucks for off-site disposal. Spoil haulage vehicles would use Victoria Road and not residential streets. Section 7.2.1 (Construction Traffic and transport) of the Modification report discusses the anticipated traffic volumes on Victoria Road due to the proposed works in the Modification.

Should any tunnelling be supported from the Rozelle Rail Yard civil and tunnel site (C5), there would be a slight increase in spoil trucks and deliveries at the worksite, however this would occur outside the peak construction activities associated with the overall Rozelle Interchange Project and would not require additional mitigation measures.

Appropriate measures to reduce the potential for construction traffic impacts, such as limiting heavy vehicles to approved routes, GPS tracking of spoil trucks and driver training, have been included in the Approved Project Traffic and Transport and Access Management Plan (TTAMP) prepared in accordance with the Planning Approval. The proposed Modification would not require any changes or additions to the Planning Approval or Environmental Management Measures for construction traffic impacts.

C.13 Contamination

Issue description

One submitter raised a concern about lead contamination.

Response

The surface activities required to construct the proposed Modification are located within the footprint assessed in the EIS. While the proposed Modification would slightly increase the total volume of spoil to be extracted for the Project, this spoil would be predominantly sandstone. Contamination impacts expected as a result of the proposed Modification, including potential lead contamination, are consistent with those presented in the EIS in the potential for lead contamination being unlikely.

C.14 Support for the Modification

C.14.1. Support for the proposed Modification

Some submitters provided conditional support for elements of the proposed Modification including:

- The increase in residual land due to the decrease in the surface footprint of the ventilation facility
- The reduction of operational noise to local receivers due to the relocation of ventilation and electrical equipment from surface level to below ground
- The reduction in overshadowing due to the smaller scale of the surface ventilation facility.

The support for the proposed relocation of ventilation and electrical equipment below ground, and the consequent reduction in the surface ventilation facility is noted.

Part D – Environmental Management Measures, Conditions of Approval and conclusion

The following section provides a summary of the Response to submission report (this Report) and details next steps.

D.1 Environmental management measures and Planning Approval conditions

Conditions of Approval

Section 7 (Environmental assessment) of the Modification report assesses the relevant amendment to the SSI 7485 Planning Approval Conditions of Approval (CoA) and summarises that conditions A1 and A2 of the Planning Approval are proposed to be amended to include the proposed Modification as a component of the Approved Project. No further changes are proposed to the Planning Approval conditions as a result of the Response to submissions.

Environmental Management Measures

Section 7 (Environmental assessment) of the Modification report assesses the relevant Environmental Management Measures provided in the EIS and SPIR and summarises that no Environmental Management Measures are required to be updated in the Modification report.

As a result of the Response to submissions, one additional Environmental Management Measure is proposed (Table 2) to address the requirement identified by NSW Department of Planning, Industry and Environment - Water Group (Water Group) to install two additional groundwater monitoring bores in the vicinity to the proposed, additional ventilation tunnels and caverns. The two additional monitoring bores would be incorporated in the groundwater monitoring program in accordance with CoA C9(b) and C12.

Table 2 Proposed Environment Management Measure

Impact	Ref #	Environmental Management Measure	Timing
Groundwater	GW10	Two (2) additional groundwater monitoring locations will be established, prior to Iron Cove ventilation tunnelling, in the vicinity of the ventilation tunnels and caverns and will be implemented consistent with the groundwater monitoring program required under the relevant conditions of approval.	Construction

D.2 Conclusion and next steps

The NSW Department of Planning, Industry and Environment (DPIE) will, on behalf of the NSW Minister for Planning and Public Spaces, review the Modification Report and the Response to Submissions Report (this Report) for the proposed Modification of the Stage 2 Rozelle Interchange of the project. Once DPIE has completed its assessment, an assessment report will be prepared for the Planning Secretary.

The assessment report will be provided to the NSW Minister for Planning and Public Spaces, who will then either approve the Modification inclusive of the amendment to SSI 7485 conditions A1 and A2 of the Planning Approval for the inclusion of the proposed Modification or refuse to give approval to the Modification. A copy of the final Response to Submissions Report (this report) will be made publicly available. The NSW Minister for Planning and Public Spaces determination and the Secretary's Environmental Assessment Report will be published on the DPIE Major Projects website following determination.

References

AECOM Australia Pty Ltd, WestConnex M4-M5 Link: Environmental Impact Statement, prepared for NSW Roads and Maritime Services, August 2017 ***https://www.planningportal.nsw.gov.au/major-projects/project/3611***

AECOM Australia Pty Ltd, WestConnex M4-M5 Link: Submissions and preferred infrastructure report, prepared for NSW Roads and Maritime Services, January 2018 ***https://www.planningportal.nsw.gov.au/major-projects/project/3611***

JHCPB, WestConnex M4-M5 Link: Iron Cove Ventilation Underground – Modification report, prepared for Roads and Maritime Services, November 2019 ***https://www.planningportal.nsw.gov.au/major-projects/project/25861***

AECOM Australia Pty Ltd, WestConnex M4-M5 Link: Mainline Tunnel – Modification report, prepared for NSW Roads and Maritime Services, September 2018 ***https://www.planningportal.nsw.gov.au/major-projects/project/25861***

State Significant Infrastructure Assessment Report (SSIAR) was lodged in January 2016, with SSIAR addendums following in September 2016 and March 2017

Roads and Maritime Services, Secretary's Environmental Assessment Requirements (SEARs) for Modification, May 2019

Appendix A – Submission identification number reference table

Table A: Submission identification number reference table

Key Issue Theme	Submitter identification numbers	Count
Clarifications	SE-107438, SE-117413, SE-117886, SE-118212, SE-118220, SE-118319, SE-118547, SE-119252, SE-119269, SE-119270, SE-119507, SE-119513, SE-119518, SE-119845, SE-119908, SE-119914, SE-119954, SE-120002, SE-120046, SE-120096, SE-120271, SE-120305	22
Residual land use	SE-117886, SE-118220, SE-118319, SE-118547, SE-119252, SE-119269, SE-119270, SE-119507, SE-119518, SE-119845, SE-119908, SE-120046, SE-120101, SE-120271, SE-120313, SE-120428	16
Public health	SE-117413	1
Tunnel design	SE-118212, SE-119513, SE-120096, SE-120135, SE-120305	5
Air quality	SE-117413, SE-117886, SE-118220, SE-118319, SE-118547, SE-119252, SE-119269, SE-119270, SE-119518, SE-119845, SE-119852, SE-119908, SE-120002, SE-120046, SE-120112, SE-120181, SE-120193, SE-120204, SE-120209, SE-120271, SE-120305, SE-120428, SE-120209,	22
Urban design and landscaping	SE-107438, SE-117886, SE-118220, SE-118319, SE-118547, SE-119252, SE-119269, SE-119270, SE-119507, SE-119518, SE-119845, SE-119908, SE-120046, SE-120101, SE-120112, SE-120181, SE-120204, SE-120271, SE-120305, SE-120313, SE-120428	21
Noise and vibration	SE-107414, SE-117413, SE-118212, SE-118319, SE-119513, SE-119852, SE-119914, SE-120096, SE-120112, SE-120135, SE-120193, SE-120271, SE-120305	13
Traffic and public amenity	SE-117413, SE-118319, SE-118533, SE-119852, SE-120101, SE-120209	6
Operational access and maintenance	SE-117413, SE-118319	2
Groundwater and ground settlement	SE-117886, SE-118319, SE-120135, SE-120446	6
Property impacts	SE-107438, SE-118319, SE-119852, SE-120313	4
Spoil	SE-119852	1
Contamination	SE-117413	1
Support for the Modification	SE-118241, SE-118717, SE-120347	3

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