



WestConnex M4-M5 Link

Rozelle Interchange - Modification: Iron Cove ventilation underground

Modification report

November 2019

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Roads and Maritime Services

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Rozelle Interchange - Iron Cove Ventilation Underground Modification Report
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November 2019

Prepared for

Roads and Maritime Services

Prepared by

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Executive summary

Introduction

The M4-M5 Link project (the project) is part of the WestConnex program of works that, together with the proposed Sydney Gateway, will 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 project includes the construction and operation of a new multi-lane road link between the M4 East Motorway at Haberfield and the New M5 Motorway at St Peters, an interchange at Lilyfield and Rozelle (the Rozelle Interchange) and a tunnel connection between Anzac Bridge and Victoria Road, east of Iron Cove Bridge (Iron Cove Link).

Approval for the construction and operation of the project was granted on 17 April 2018 by the NSW Minister for Planning (application number SSI 7485).

The EIS describes construction and operation of the Project in two stages.

- Stage 1 (also commonly referred to as Stage 3A of the WestConnex program of works), 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. These works commenced in 2018 with the Mainline Tunnels scheduled to open to traffic in 2022.
- Stage 2 (also commonly referred to as Stage 3B of the WestConnex program of works), as described in the EIS, 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 and Beaches Link project.

Proposed modification

The proposed modification relates to Stage 2 of the approved project and includes the following key components:

- Relocation of the Iron Cove Motorway Operations Complex (MOC4), including the electrical substation and ventilation facilities, underground (the ventilation outlet would remain above ground in the same location shown in the EIS). Only a switch room, high voltage 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 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
- The ventilation tunnel would include two caverns for the housing of ventilation equipment and the electrical substation, along with access tunnels for maintenance
- The Iron Cove cut and cover area would be extended 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 would be supported from the Iron Cove 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.

There is no change to the Iron Cove Link ventilation outlet as described in the approved project.

Community and stakeholder consultation

Consultation activities carried out for the proposed modification included:

- Meetings with WestConnex Community Reference Groups – Rozelle Interchange
- Courtesy letter dropped to all properties located directly above a ventilation tunnel and caverns

- Doorknock of properties located directly above the proposed ventilation tunnels and caverns to ensure they are aware of the proposed modification and understand how to make a submission
- An interactive Online Tunnel Tool showing the alignment of the proposed new Iron Cove ventilation tunnel and caverns, marked as subject to modification approval made available
- Drop-in community information sessions
- Individual briefings on request
- Meetings with NSW Environment Protection Authority (EPA) and Department of Primary Industries Water
- Briefings/discussions with: – Inner West Councillors – Jamie Parker (Member for Balmain) – Anthony Albanese Member of Parliament (MP) – Inner West Councillors and Inner West and City of Sydney Council Officers
- Media releases to Sydney metropolitan news organisations
- M4-M5 Link Rozelle Interchange Community Update Brochure
- M4-M5 Link Rozelle Interchange Community Update Email.

The Modification Report will be exhibited from 20 November to 17 December 2019. The community and other stakeholders will be able to provide feedback on the proposed modification to the NSW Department of Planning, Industry and Environment (DPIE) as submissions.

Following exhibition of the Modification Report, Roads and Maritime will review the submissions received and respond to the issues raised in a Response to Submissions Report for the proposed modification. This report will be provided to DPIE and will be assessed prior to a determination being made. If during exhibition or during the response to the submissions process further changes to the proposed modification are identified, these changes would also be described and assessed.

Environmental assessment

Potential environmental impacts associated with the proposed modification have been assessed in the Modification Report and compared to the environmental impacts assessed in the EIS. Key environmental impacts for the proposed modification are summarised below.

Traffic and transport

- Construction of surface works on the western side of the realigned Victoria Road within the Iron Cove civil site (C8) would be reduced, compared to the approved project, due to the extent of the above ground ventilation infrastructure works required on the western side of Victoria Road reducing substantially
- The additional tunnelling required under the proposed modification would be supported predominantly from the Iron Cove civil site (C8) with some tunnelling also supported from the Rozelle civil and tunnel site (C5) later in the construction program. The additional construction traffic generated by the proposed modification would not impact the operational performance of intersections when compared to the performance of the intersections generated by the approved project. Utilising both the Iron Cove civil site (C8) and the Rozelle civil and tunnel site (C5) to support this tunnel excavation would disperse impacts on the road network
- The proposed modification would reduce the extent of operational traffic impacts in Callan, Toelle and Springside Streets, as the majority of maintenance operations for the underground ventilation fans and substation would be accessed from within the tunnel
- Appropriate measures to reduce the potential for construction traffic impacts have been included in the project Construction Traffic and Transport and Access Management Plan prepared in accordance with the Planning Approval.

Air quality

- The proposed modification does not significantly alter the scope and nature of the proposed construction works nor alter the construction phase vehicle emission and dust impacts assessed in the EIS
- The proposed modification would relocate the MOC4 underground within caverns housing the electrical substation and ventilation facilities and a ventilation tunnel connecting to the ventilation outlet, which

would remain above ground in the same location shown in the EIS. The proposed new ventilation tunnel and fan and substation caverns would operate as the ventilation facilities are described in the EIS and would not alter the potential air quality impacts reported in the EIS.

Noise and vibration

- The excavation of the new ventilation tunnel and caverns would result in relatively short-term ground-borne noise impacts on residences not identified in the EIS as being near the tunnel alignment. The extent of predicted impact is consistent with that associated with the approved ventilation tunnels and cavern. Mitigation measures would be implemented when predicted ground-borne noise levels are above relevant management levels
- During the establishment of the new tunnel support from within the cut and cover at Iron Cove, a temporary shed wall and roller door would be installed at the western end of the cut and cover structure. This wall, combined with the concrete roof of the cut and cover structure, would assist with minimising ambient noise and dust impacts during tunnelling and result in no properties being affected by construction noise associated with the tunnel support site operation during the day, evening and night
- The proposed modification would result in a shorter duration of surface works to the west of Victoria Road than the EIS concept design and greatly reduce the scope of works at Iron Cove, as only a switch room, High voltage regulator bays, alternative Operational Motorway Control System (OMCS) room and stair access need to be built
- A detailed construction noise and vibration assessment will be prepared for the proposed activities at the proposed Iron Cove tunnel support site in accordance with the approved Construction Noise and Vibration Management Plan to document the outputs of detailed noise and vibration modelling and confirm the optimum suite of noise and vibration mitigation measures
- The proposed relocation of the ventilation fans and substation underground would have a long-term acoustic benefit by reducing the operational noise impacts compared to the EIS. The predicted noise exceedance at Noise Catchment Areas (NCAs) 33 identified in the EIS would be avoided through selection of appropriate noise attenuators, and noise compliance achieved at all surrounding NCAs. Noise mitigation measures will be implemented to ensure High voltage regulators comply with the required noise criteria. Operational noise mitigation measures would be confirmed in the Operational Noise and Vibration Review to be prepared in accordance with the Planning Approval.

Potential groundwater drawdown and surface settlement

- As a result of the proposed modification, areas potentially subject to surface settlement would change accordingly and new areas not assessed in the EIS may also be affected. This notwithstanding, the tunnel and cavern excavation methodology would be in accordance with the EIS
- The preliminary settlement analysis completed to date on the concept design, which combines both excavation induced and short and long-term groundwater drawdown, predicts settlement impacts ranging from 0 to 20 millimetres, which is consistent with the settlement screening criteria set out in Planning Approval Condition E103
- Potential settlement associated with the proposed modification would continue to be assessed as part of the project-wide settlement modelling and impact assessment processes and will be finalised during detailed design
- The Planning Approval sets in place comprehensive requirements to ensure the potential impacts of the detailed design and construction methodology of the project, including the proposed modification, are assessed and potential impacts on property minimised.

Socio-economic, land use and property

- The surface activities required to construct the proposed modification are located within the footprint assessed in the EIS and no additional land is required
- As a result of the proposed modification, the subsurface stratum acquisition requirements would be altered and, consistent with the EIS, the proposed modification would not affect the future use of property at the surface
- The proposed modification would decrease the surface footprint of the permanent works associated with the Iron Cove ventilation facilities. This could increase the amount of residual land available following the completion of the project. The final use of this land will be subject to the finalisation of the Residual Land

Management Plan (RLMP) required under Planning Approval Condition E112 in consultation with Inner West Council.

Urban design and visual amenity

- The proposed modification would decrease the surface footprint of the permanent works required for the Iron Cove ventilation facilities. Reducing surface infrastructure would also temporarily improve visual impacts on some receivers during construction, compared to the EIS, however the residents in Toelle and Callan Streets close to the switch room, high voltage regulators, alternative Operational Motorway Control System (OMCS) room and the separate stair access would still experience a high impact consistent with the EIS assessment
- The proposed modification aligns with the aspirations and objectives of the WestConnex Urban Design Framework. The proposed modification would decrease the surface footprint of the permanent works required for the Iron Cove ventilation facilities. Reducing surface infrastructure would also improve visual impacts compared to the EIS, particularly by a reduction in overshadowing due to the much smaller scale of permanent infrastructure
- The Urban Design and Landscape Plan(s) will be prepared under Planning Approval Condition E133 to E137. Overshadowing will be assessed with a Solar Access and Overshadowing Report under Planning Approval Condition E138. The Urban Design and Landscape Plan(s) and Overshadowing will be reviewed by the Design Review Panel and the Urban Design and Landscape Plan(s) will be approved by the Secretary of the Department of Planning, Industry and Environment.

Water management

- 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 is predicted to be minimal. Appropriate measures to reduce the potential for construction water impacts have been included in the project Construction Soil and Surface Water Management Plan and the Construction Groundwater Management Plan prepared in accordance with the Planning Approval
- The type, arrangement and performance of construction water treatment facilities would be further refined during detailed design. The proposed modification would not require any changes or additions to the Planning Approval or environmental management measures for construction water quality impacts.

Resource use and waste minimisation

- About 61,000 bank cubic metres (BCM) of spoil would be excavated to construct the ventilation tunnel at Iron Cove. This increase in spoil volume is negligible in the context of the entire project. Spoil would be reused beneficially where feasible and reasonable
- Construction of the proposed modification would generate a number of waste streams that would require management and disposal in accordance with the waste hierarchy established under the Waste Avoidance and Resource Recovery Act 2001. Avoiding the generation of waste would be the first preference.

Hazard and risk

- The additional High voltage regulators to be installed as part of the proposed modification are electrical transformers and are required for the project as a whole to maintain the voltage fluctuations from the high voltage source of supply to prevent damage to equipment and injury to personnel. There would be a bund, oil separator and a flame trap within the transformer bay to contain any leaks. The transformer walls would be rated to a 4-hour fire rating. The proposed modification has been designed to minimise the likelihood of incidents and risks to public safety.
- No changes to the Planning Approval or the environmental management measures have been proposed to accommodate the proposed modification, other than to refer to this assessment in Planning Approval Conditions A1 and A2.

The proposed new ventilation tunnel and caverns would equate to a total length of about 425 metres. This calculation is based on a length of about 340 metres for the ventilation tunnel alignment and the ventilation fan cavern, 65 metres for the substation cavern and about 20 metres of access tunnel connecting the two caverns. It is important to note that Rozelle Interchange (i.e. Stage 2 of the M4-M5 Link Project) includes excavation of approximately 23 kilometres of tunnels and that the proposed modification is limited to the construction of about 425 metres of additional tunnels and caverns, which represents a very small increase in the extent of tunnelling and associated construction noise and vibration and traffic impacts.

Planning Approval and environmental management measures

No changes to the Planning Approval or the environmental management measures have been proposed to accommodate the proposed modification, other than to refer to this assessment in Planning Approval Conditions A1 and A2.