

10 Justification and conclusions

10.1 Need for the proposed modification

Approval for the construction and operation of the project was granted on 17 April 2018 by the former NSW Minister for Planning (application number SSI 7485). The approved project allows construction and operation of the M4-M5 Link in two stages. The proposed modification relates to Stage 2 of the project, the Rozelle Interchange and Iron Cove Link.

The EIS assessed an indicative concept design that would continue to be refined where relevant to improve road network and safety performance, minimise impacts on receivers and the environment, and in response to feedback from stakeholders.

The undergrounding of the Iron Cove ventilation facilities would result in benefits for the community and improved environmental outcomes.

The only remaining surface infrastructure would be a switch room, high voltage regulators, an alternative Operational Motorway Control System (OMCS) room and access staircase. 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. This has the potential to increase the amount of residual land available following the completion of the project (see section 6.7).

Reducing surface infrastructure would also have improved visual impacts compared to the EIS, particularly a reduction in overshadowing due to the much smaller scale of permanent infrastructure (see section 6.8).

There would be improvements to operational noise impacts by placing the ventilation facilities and substation underground. Operation of the proposed modification would comply with relevant noise criteria in all noise catchment areas, compared to the EIS which predicted exceedances of up to 12dB (see section 6.5.4).

The proposed modification would require an additional tunnel support site to be established within the Iron Cove Link cut and cover. This would provide additional access and egress for tunnel workers, plant, deliveries, ventilation and spoil and work to improve safety during construction. Housing the ventilation facilities underground means that the majority of construction would also be underground. It reduces the need for construction of buildings to house the equipment and associated connections on the surface.

Commissioning of the entire project would begin at Iron Cove Link. Tunnelling of the proposed new ventilation tunnel and caverns from Iron Cove would work to potentially allow the project to commence commissioning two to three months early. Starting commissioning earlier would give the project more opportunity to finish early and more certainty that it would finish on time.

10.2 Environmental assessment

Chapter 7 (Environmental assessment) assessed the potential environmental impacts associated with the proposed modification and provides a comparison of the potential environmental impacts for the proposed modification and the approved project.

The proposed modification would result in the following:

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 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 construction works proposed would not 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 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 would result in no properties being affected by construction noise associated with the tunnel support site operation during the day, evening or 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 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 33 identified in the EIS would be avoided through selection of appropriate noise attenuators and noise compliance would be achieved at all surrounding NCAs. The High voltage regulators would comply with the required noise criteria, subject to the implementation of mitigation measures, which would be confirmed during detailed design. Operational noise mitigation measures would be confirmed in the Operational Noise and Vibration Review to be prepared in accordance with Planning Approval.

Potential groundwater drawdown and surface settlement

- As a result of the proposed modification, the areas potentially subject to surface settlement would be altered accordingly, however 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 are 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 has the potential to 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 have improved temporary visual impacts on some receivers during construction compared to the EIS, however the residents on 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 have improved visual impacts compared to the EIS, particularly a reduction in overshadowing due to the much smaller scale of permanent infrastructure
- The Urban Design and Landscape Plan(s) will be prepared under E133 to E137. Overshadowing will be assessed with a Solar Access and Overshadowing Report under 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 project in its entirety. 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.

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.

10.3 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 include reference to this assessment in Planning Approval Conditions A1 and A2.

10.4 Community and stakeholder consultation

Consultation has been carried out with the community, local councils, government agencies and other stakeholders during the preparation of the modification as outlined in Chapter 6 (Consultation). This modification report will be exhibited for 28 days from 20 November to 17 December. Following exhibition of the modification, Roads and Maritime will review the submissions received and respond to the issues raised in a Response to Submissions Report.