

Part

C

Part C

Synthesis and conclusion



Chapter 27

Approach to environmental management and mitigation

This chapter, together with Chapter 28, provides the synthesis of the findings of the combined EIS and preliminary draft MDP. This chapter compiles the key potential impacts of the project that have not been avoided and the measures proposed to avoid, minimise, manage or offset the impacts identified in Part B. It also provides a compilation of the performance outcomes for the project, project uncertainties, and the proposed approach to design refinements during future stages.

The SEARs and MDP requirements addressed in this chapter are listed below. Full copies of the SEARs and MDP requirements, and where they are addressed in this document, are provided in Appendices A and B respectively.

Reference	Requirement	Where addressed
General standard SEARs		
2	Environmental Impact Statement	
2.1	The EIS must include, but not necessarily be limited to, the following:	
	(l) a statement of the outcome(s) the proponent will achieve for each key issue	Section 27.4
	(q) a chapter ¹ that synthesises the environmental impact assessment and provides:	
	- a succinct but full description of the proposal for which approval is sought;	Section 28.1
	- a description of any uncertainties that still exist around design, construction methodologies and/or operational methodologies and how these will be resolved in the next stages of the proposal;	Section 27.5
	- a compilation of the impacts of the proposal that have not been avoided;	Section 27.1
	- a compilation of the proposed measures associated with each impact to avoid or minimise (through design refinements or ongoing management during construction and operation) or offset these impacts;	Section 27.3
	- a compilation of the outcome(s) the proponent will achieve; and	Section 27.4
	- the reasons justifying carrying out the proposal as proposed, having regard to the biophysical, economic and social considerations, including ecologically sustainable development and cumulative impacts	Section 28.2
Major development plan requirements		
91(1)	(j) the airport-lessee company's plans for dealing with the environmental impacts mentioned in paragraph (h) (including plans for ameliorating or preventing environmental impacts)	Sections 27.2 and 27.3

Note: 1. The synthesis is provided in this part across two chapters. Chapter 27 focusses on the approach to environmental management and mitigation, and Chapter 28 provides the project summary, justification for the project and conclusion.

27. Approach to environmental management and mitigation

27.1 Compilation of impacts

Part B of the document provides an assessment of the potential impacts of the project during construction and operation. The key potential impacts of the project overall that require mitigation and management are summarised in Table 27.1 (construction) and Table 27.3 (operation). A summary of the key potential impacts on Sydney Airport land are provided in Table 27.2 (construction) and Table 27.4 (operation).

The identified impacts would be mitigated by implementing the environmental management procedures and plans described in section 27.2 and the mitigation measures compiled in section 27.3. With the implementation of the mitigation and management measures described in sections 27.2 and 27.3, the impacts are not considered significant.

Table 27.1 Summary of key potential construction impacts of the project overall

Issue	Key potential construction impacts
Traffic, transport and access	<p>Increased congestion and delays for commuters, public transport (buses) and freight using Airport Drive/Qantas Drive and O'Riordan Street, and other intersections near Terminals 2/3, from changes to the road network during construction.</p> <p>Temporary lane closures on Canal Road, Qantas Drive, Airport Drive and Lancastrian Road, with the potential for congestion and delays.</p> <p>Temporary changes to active transport routes, including relocation of the existing Alexandra cycleway, would lead to an increase in travel distance of about 580 metres. This would lead to a minor increase in travel times for cyclists, and an increase in travel time for pedestrians of about nine to ten minutes.</p> <p>Impacts to some parking areas used by Sydney Airport as well as other private companies on Sydney Airport land.</p>
Noise and vibration	<p>One residential receiver on Baxter Road in Mascot would be highly noise affected (subject to noise levels of 75 dBA or greater) during 'peak' enabling works.</p> <p>Moderate exceedances of noise criteria predicted at residential receivers outside standard construction hours, including potential sleep disturbance impacts.</p> <p>Moderate (worst-case) impacts are predicted at the nearest commercial receivers when noise-intensive equipment is used.</p> <p>Some hotels may experience moderate worst-case impacts during standard construction hours and possible high worst-case impacts outside standard construction hours.</p> <p>High (worst-case) noise impacts are predicted at the Qantas Flight Training Centre during building demolition activities.</p> <p>High ground-borne noise impacts may be experienced from vibration-intensive equipment at a number of hotels and commercial buildings near the intersection of Qantas Drive, Joyce Drive and O'Riordan Street, and along Qantas Drive.</p>
Airport operations	<p>Large plant and equipment (such as cranes) would temporarily intrude into the OLS.</p> <p>Night lighting would be required to facilitate works within the specified minimum light intensity zones around the main north-south runway.</p> <p>Bodies of standing water within construction areas (eg detention ponds) may attract birds, increasing the risk of wildlife strike.</p>
Air quality	<p>Odour impacts from exposing waste within the former Tempe landfill.</p>

Issue	Key potential construction impacts
Contamination and soils	<p>Disturbance of contaminated soil and groundwater, including within the former Tempe landfill, has the potential to:</p> <ul style="list-style-type: none"> ■ Mobilise contaminants, affecting nearby soils, surface water and groundwater ■ Increase the risk of exposure to contaminants (direct contact and/or inhalation) by site workers, visitors and the local community. <p>Disturbance of contaminated sediments in Alexandra Canal, which could affect water quality.</p> <p>Ground disturbance activities in areas with existing remediation systems (in the former Tempe landfill and the Sydney Airport northern lands car park) may affect existing infrastructure, including capping layers, leachate management systems and gas venting systems.</p> <p>Disturbance of soils, including acid sulfate soils, resulting in erosion of exposed soil and stockpiled materials with associated water quality impacts and/or the production and mobilisation of sulfuric acid.</p>
Flooding	<p>Minor increase in inundation levels of up to 0.05 metres during a one per cent AEP flood event (ie an event that has a one in 100 chance of being exceeded in a year).</p>
Groundwater	<p>Potential migration of existing contaminants in groundwater during dewatering.</p> <p>The drawdown of groundwater may lead to ground settlement.</p>
Surface water	<p>Changes in overland flows and potential water quality impacts on watercourses and waterbodies from runoff from contaminated soils or untreated (contaminated) groundwater discharge.</p> <p>Potential to disturb and mobilise contaminated Alexandra Canal bed sediments.</p>
Non-Aboriginal heritage	<p>Direct impacts on Alexandra Canal and the Sydney (Kingsford Smith) Airport Group due to the construction of drainage outlets and removal of buildings at the Sydney Airport Jet Base.</p> <p>Subsurface excavations have the potential to impact archaeological remains.</p> <p>Potential vibration impacts on Alexandra Canal.</p>
Aboriginal heritage	<p>Potential impact to two areas with sub-surface Aboriginal archaeological potential as a result of pier construction for the Qantas Drive bridge and a drainage culvert connecting to the western side of Alexandra Canal. This has the potential to impact any items located in these areas.</p>
Land use and property	<p>In total, about 69.1 hectares of land would be required for construction, of which about 32.8 hectares of land would only be required temporarily. The temporary land requirements would include use of land within 54 lots, including about:</p> <ul style="list-style-type: none"> ■ 16.7 hectares of Commonwealth-owned (Sydney Airport) land ■ 12 hectares of land owned by the NSW or local government (Inner West Council) ■ 4.2 hectares of privately owned land. <p>The temporary and permanent land requirements would affect several properties, with the potential to partially affect a property where part of a site is required, requiring adjustments to/relocation of facilities to other parts of the site or fully affect a property if the entire site on which a property is located is required. The project's temporary and permanent land requirements would affect about 16 properties, three parking areas on Sydney Airport land and a number of advertising structures.</p> <p>Potential interruptions to utilities during utility adjustments and relocations.</p>
Socio-economic impacts	<p>The project's land requirements would require relocation or closure of five businesses.</p> <p>The project would result in the loss of empty storage container capacity on land occupied by Tyne Container Services and at the Cooks River Intermodal Terminal and adjacent overflow storage area.</p> <p>Construction would affect Tempe Lands, with land that is currently occupied by two community facilities (Tempe Golf Range and Academy and the off-leash dog exercise area) required during construction.</p> <p>Impacts on the amenity of the local community in some areas.</p> <p>Impacts on access to, and visibility of, some businesses near the entrance to Terminals 2/3.</p> <p>Benefits to businesses, including increased demand for services or expenditure at businesses within the study area.</p>
Landscape character and visual amenity	<p>It is estimated that there would be a net loss of about 749 trees across the project site.</p> <p>Visual impacts in the vicinity of work areas and from the identified viewpoints as a result of visible elements, such as construction work areas, machinery and equipment, fencing, soil stockpiles, waste materials and partially constructed structures.</p>

Issue	Key potential construction impacts
Biodiversity	About 24 hectares of vegetation would be removed, comprising about 0.9 hectares of native vegetation, which provides limited habitat resources for native fauna. A small number of food trees for the Grey-headed Flying-fox and foraging habitat for microbats would be removed.
Health, safety and hazards	Noise impacts during construction may contribute to construction fatigue for residents in some areas in Mascot and St Peters. Potential public safety risks during modification of major trunk gas pipelines and/or high voltage electrical infrastructure.

Table 27.2 Summary of key potential construction impacts on Sydney Airport land

Issue	Key potential construction impacts – Sydney Airport land
Traffic, transport and access	Potential congestion and delays, particularly at the intersections of Qantas Drive/Sir Reginald Ansett Drive/Joyce Drive/O’Riordan Street and Qantas Drive/Seventh Street/Robey Street, due to temporary traffic changes and road works during construction. Impacts on some car parks with a temporary reduction in the amount of parking available.
Noise and vibration	Potential to affect the amenity of occupants within buildings on Sydney Airport land as a result of the use of noise-intensive equipment, demolition of buildings, and ground-borne noise during vibration-intensive works. High or moderate worst-case noise impacts may occur when noise-intensive equipment is used outside hotels. High worst-case impacts when noise-intensive equipment is used immediately outside the Qantas Flight Training Centre in its existing location.
Airport operations	See Table 27.1
Air quality	Potential dust impacts as a result of the generation of dust during construction. Impacts on the landfill gas venting system within the Sydney Airport northern lands car park.
Contamination and soils	Disturbance of known areas of contamination within the Sydney Airport northern lands car park, land north of the rail corridor, and Sydney Airport land along Alexandra Canal and Qantas Drive, with the potential to mobilise contaminants, impact receiving environments, and expose site users and workers to contaminants. Ground disturbance activities in the Sydney Airport northern lands car park may affect existing infrastructure, including leachate management systems and gas venting systems. Disturbance of soils, including acid sulfate soils, resulting in erosion of exposed soil and stockpiled materials with associated water quality impacts and/or the production and mobilisation of sulfuric acid.
Flooding	Minor increase in inundation levels of between 0.01 and 0.05 metres during a one per cent AEP flood event.
Groundwater	See Table 27.1.
Surface water	Discharges of extracted (contaminated) groundwater have the potential to impact the water quality of Mill Stream (if untreated).
Non-Aboriginal heritage	Direct impacts on elements of the Sydney (Kingsford Smith) Airport Group as a result of the removal of buildings at the Sydney Airport Jet Base. Subsurface excavations have the potential to impact archaeological remains.
Aboriginal heritage	Potential impact to areas with sub-surface Aboriginal archaeological potential (located mainly on Sydney Airport land) as per Table 27.1.
Land use and property	Temporary land requirements would include use of about 16.7 hectares of Sydney Airport land. The project’s land requirements would affect six properties during construction. Three car parking areas located near Terminals 2/3 and a number of advertising structures located on Sydney Airport land would also be affected. Potential interruptions to utilities located on Sydney Airport land.

Issue	Key potential construction impacts – Sydney Airport land
Socio-economic impacts	<p>Amenity impacts, such as increases in noise, vibration and dust, and visual impacts, could affect hotels and businesses on Sydney Airport land.</p> <p>Changes to access and traffic, with potential for delays for airline passengers, employees affecting businesses.</p> <p>Impacts on businesses as a result of the project's land requirements.</p>
Landscape character and visual amenity	<p>It is estimated that there would be a net loss of about 276 trees from the project site where it is located on Sydney Airport land.</p> <p>Potential for landscape character impacts as a result of the loss of vegetation that provides screening and contributes to the amenity and character of the local area.</p>
Biodiversity	<p>About 12.9 hectares of vegetation would be removed from the project site where it is located on Sydney Airport land, including 0.7 hectares of native vegetation.</p>

Table 27.3 Summary of key potential operation impacts of the project overall

Issue	Key potential operation impacts
Traffic, transport and access	<p>The average delay at most intersections would substantially decrease in 2026 (decreases of up to 230 seconds). Additional improvements (up to 373 seconds) would occur for the majority of the intersections in 2036.</p> <p>Vehicles travelling between St Peters interchange and Sydney Airport terminals via the project would reduce demand on the existing road network through Mascot.</p> <p>The project would alleviate the travel time increases forecast to occur in 2026 and 2036 without the project on most of the routes that were analysed. The travel time benefits associated with the project would be more pronounced in the morning peak, with improvements of around 30 to 70 per cent forecast across most of the routes. It is predicted that the route through Mascot would experience travel time improvements of up to 10 minutes in 2026 and 2036.</p> <p>Average vehicle speeds would increase by between 26 and 47 per cent with the project, and average trip times would decrease by between 15 and 22 per cent in 2026 and 2036 respectively, indicating a substantial improvement in network conditions.</p> <p>Travel times between St Peters interchange and Foreshore Road (providing access to Port Botany) would substantially reduce with the project. In 2026, travel time improvements of up to 17 minutes would be experienced, increasing to more than 20 minutes in 2036.</p> <p>Daily traffic flows on the Princes Highway would reduce by around 10 per cent (3,500 vehicles) in 2036 and daily traffic flows on Botany Road and O'Riordan Street would reduce by between 26 and 30 per cent (10,000 vehicles on Botany Road and 20,000 vehicles on O'Riordan Street) also in 2036.</p> <p>Relocation of the Alexandra Canal cycleway would increase the overall length by about 160 metres. This would result in less than one minute additional travel time for cyclists, and an additional three to four minutes of travel time for pedestrians.</p>
Noise and vibration	<p>Traffic noise levels at a number of receivers would exceed the operational road traffic noise criteria, and these receivers would be eligible for consideration of reasonable and feasible noise mitigation.</p> <p>Potential increase in aircraft-related ground-based operational noise emissions from Sydney Airport.</p>
Airport operations	<p>Potential for windshear and turbulence effects from the proposed emplacement mounds in Tempe Lands.</p>
Flooding	<p>Potential for substantial inundation, in addition to existing substantial flooding, at the Joint User Hydrant Installation area during a very large flood event.</p> <p>Improvements to the flood immunity of roadways used to access Terminal 1 and Terminals 2/3.</p>
Surface water	<p>A small increase in pollutant loads of Alexandra Canal is expected relative to existing conditions. A reduction in pollutant loads compared to existing conditions is predicted for Mill Stream.</p>
Non-Aboriginal heritage	<p>Potential visual impacts on heritage items - Alexandra Canal and the Sydney (Kingsford Smith) Airport Group - as a result of changes to the landscape and/or the presence of new infrastructure, including new bridges over the canal.</p>

Issue	Key potential operation impacts
Land use and property	<p>About 36.2 hectares of land would be permanently required for the project's functional and operational infrastructure. This would include:</p> <ul style="list-style-type: none"> ■ 20.6 hectares of Commonwealth-owned (Sydney Airport) land ■ 14.1 hectares of land owned by the NSW or local government (Inner West Council) ■ 1.5 hectares of privately owned land. <p>The project would affect about 18.5 hectares of industrial zoned land (under the relevant LEP), with a permanent change in land use from industrial to transport infrastructure. Of this, about 10 hectares is Sydney Airport land.</p> <p>The project would also affect about 2.7 hectares of land zoned for recreation/open space.</p>
Socio-economic impacts	<p>Closure and/or relocation of the Tempe Golf Range and Academy, Tyne Container Services, Boral Recycling, Visy Recycling and Qantas Flight Training Centre and relocation of the off-leash dog exercise area in Tempe Lands.</p> <p>Removal of advertising signs.</p> <p>Potential change in the amount of land available for open/space recreation uses as noted above.</p> <p>Changes in amenity due to increases in noise in some areas and the presence of permanent project features. This could affect the visibility of some businesses from passing traffic.</p>
Landscape character and visual amenity	<p>Impacts on landscape character and some key viewpoints due to the presence of the project's permanent infrastructure.</p> <p>Loss of vegetation that provides screening and contributes to the amenity and character of the local area.</p>
Health, safety and hazards	<p>Potential for landfill gas from the former Tempe landfill to accumulate in confined spaces such as utility pits.</p>

Table 27.4 Summary of key potential operation impacts on Sydney Airport land

Issue	Key potential operation impacts – Sydney Airport land
Traffic, transport and access	<p>Improved capacity and access to and from Sydney Airport and to the Sydney motorway network. Travel times between St Peters interchange and Sydney Airport's terminals would substantially reduce with the project. In 2026, travel time improvements of up to 23 minutes would be experienced, increasing to up to 30 minutes in 2036.</p> <p>As a result of the predicted intersection improvements, specifically at the Joyce Drive/O'Riordan Street and Qantas Drive/Robey Street intersections, the project would reduce vehicle delays and alleviate congestion that would occur at the main access points to Terminals 2/3 (without the project).</p> <p>Provision of access roads to Sydney Airport land, which would facilitate proposed developments under the Sydney Airport Master Plan.</p>
Noise and vibration	<p>Impacts on some hotels on Sydney Airport land from increased road traffic noise levels.</p> <p>Potential increase in aircraft-related ground-based operational noise emissions from Sydney Airport.</p>
Airport operations	See Table 27.3.
Flooding	<p>Minor increase in inundation levels on Sydney Airport land during a one per cent AEP event.</p> <p>Potential for substantial inundation, in addition to existing substantial flooding, at the Joint User Hydrant Installation area during a very large flood event.</p> <p>Minor changes to peak flows and velocities in areas to the south of the existing low points on Qantas Drive and in the vicinity of the Terminals 2/3 connection.</p>
Surface water	Reduction of pollutant loads entering Mill Stream.
Non-Aboriginal heritage	Changes to the visual appearance of the northern edge of the Sydney (Kingsford Smith) Airport Group as a result of the widened section of Qantas Drive and the removal of existing buildings and associated landscape elements.
Land use and property	<p>About 20.6 hectares of Sydney Airport land would be permanently required.</p> <p>The project's land requirements would permanently affect about four properties located on Sydney Airport land.</p>

Issue	Key potential operation impacts – Sydney Airport land
Landscape character and visual amenity	Changes to the visual environment as a result of the new elevated road infrastructure near Terminals 2/3 would alter views along and from the road corridor.
Socio-economic impacts	<p>The project would provide socio-economic benefits to Sydney Airport, mainly related to improved connectivity and faster travel times. This could result in increased economic productivity and employment opportunity at Sydney Airport.</p> <p>The project would facilitate the delivery of key planning directions in the Sydney Airport Master Plan by delivering additional road capacity to Sydney Airport. It would have the potential to service and/or facilitate growth of airline services, aviation support facilities, freight and commercial services on airport land in accordance with the plan.</p> <p>The project would provide enhanced road connections to Sydney Airport, contributing to the future economic productivity and efficiency of the airport itself, as well as that of businesses on Sydney Airport land.</p>

27.2 Approach to environmental management

Roads and Maritime manages its environmental responsibilities and environmental performance through the implementation of an environmental management framework that is broadly consistent with the principles contained within the ISO 14000 series and standards. This includes establishing a corporate environmental policy, setting environmental direction through objectives and targets, integrating these into work systems, and providing measures for continuous improvement.

Roads and Maritime's Environment Policy Statement outlines the agency's commitment to effectively manage any risks that may lead to an impact on the environment.

This document has been prepared in accordance with Section 91(1) of the Airports Act and Division 5.2 of the EP&A Act, and is consistent with the *Sydney Airport Master Plan 2039* (SACL, 2019a) and the *Sydney Airport Environment Strategy 2019-2024* (SACL, 2019b).

Should the project be approved, Roads and Maritime will ensure the commitments made in this document, including any conditions of approval or legal requirements, are fulfilled.

The construction environmental management framework for the project is shown in Figure 27.1. Further information on the requirements for the CEMP, including an outline of the required sub-plans, is provided in section 27.2.1. The framework provides a guide to how the project as a whole would be managed during construction.

Detailed implementation and administration of management and mitigation measures (guided by the conditions of approval), across land subject to the EP&A Act and Sydney Airport land, would be confirmed at the next stage of the project. This would be subject to project approval (if approved), and in consultation with relevant authorities and agencies in both the Australian and NSW governments and other relevant stakeholders. The majority of plans and strategies shown on Figure 27.1 would apply to the project as a whole (ie to those elements of the project located on Sydney Airport land as well as those located on land subject to the EP&A Act). The exceptions to this are those that relate to the management of specific features (eg the former Tempe landfill).

The management of environmental impacts during operation is best achieved through the project's design. The iterative design and environmental assessment process allows impacts to be avoided or minimised where possible. Where environmental controls have been incorporated into the design there is a program of monitoring and review, including independent auditing, to ensure that the controls comply with stated objectives. Further information is provided in section 27.2.2.

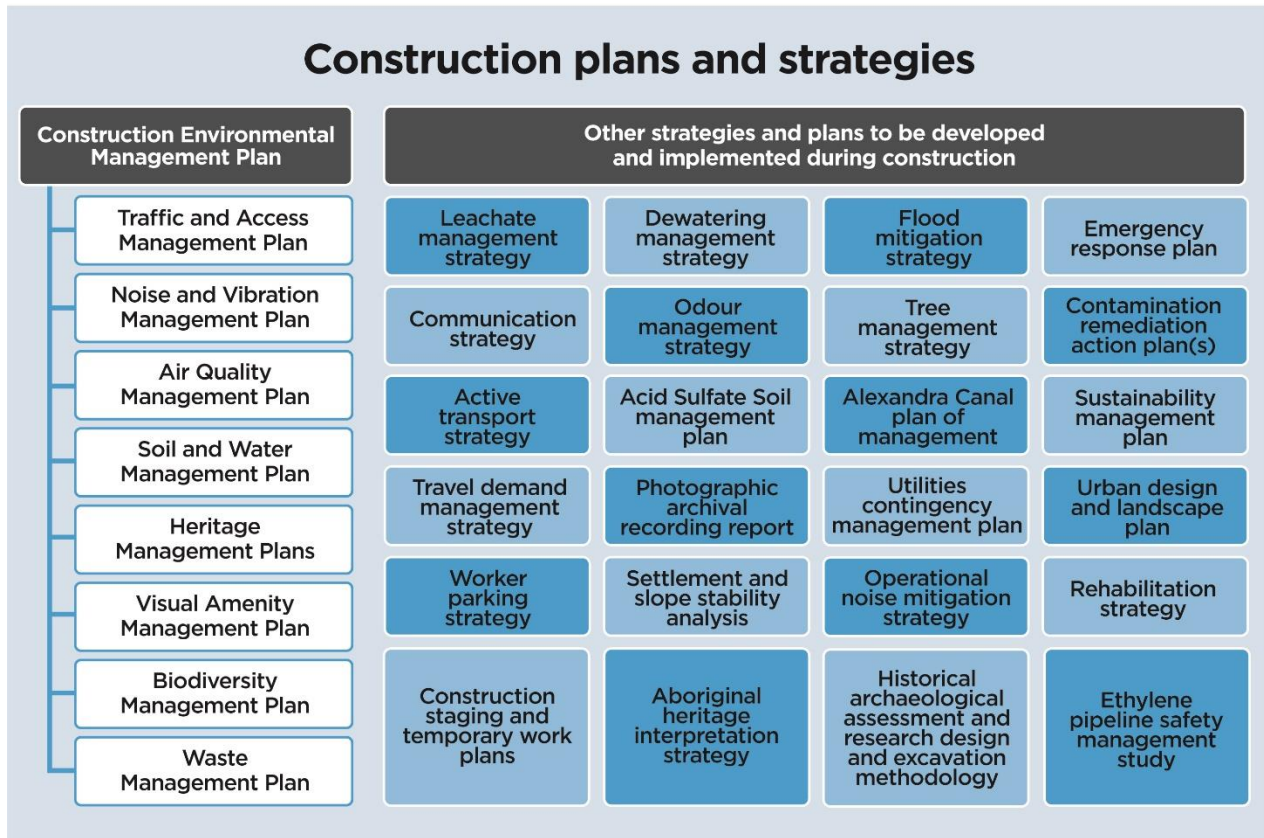


Figure 27.1 Construction environmental management framework

27.2.1 Construction environmental management plan

The management of environmental impacts during construction would be documented in the CEMP, which would be prepared by the construction contractor(s). The CEMP would provide a centralised mechanism through which all potential construction-related environmental impacts would be managed. It would also provide the overall framework for the system and procedures to ensure that environmental impacts are minimised, and that legislative and approval requirements are fulfilled. The CEMP would also include detailed management plans (environmental sub-plans), which would detail how specific environmental issues are to be managed during construction in accordance with the mitigation measures provided in section 27.3 and the project's approval conditions.

The CEMP would include:

- Roads and Maritime's environmental policy, objectives, and performance targets for construction
- Description of activities to be undertaken during construction
- Reference to all relevant statutory and other obligations, including consents, licences, approvals, permits and voluntary agreements required
- Environmental targets and performance indicators
- Specific mitigation measures and controls that would be applied to avoid or minimise negative environmental impacts
- Processes for demonstrating compliance with the commitments made in this document, the submissions/preferred infrastructure report (to be prepared), and relevant approval conditions
- Responsibilities for planning, implementing, maintaining and monitoring environmental controls including the responsibilities of sub-contractors

- An inspection regime to check the adequacy of controls as they are implemented during construction and a monitoring program to validate the impacts predicted for the project, to measure the effectiveness of environmental controls and implementation of the CEMP
- Environmental sub-plans which detail how construction activities would be managed to avoid or minimise impacts, including the type, location and timing of environmental controls – an outline of the minimum requirements for the sub-plans that would form part of the CEMP is provided below
- Requirements for regular inspections to evaluate the effectiveness of controls and compliance with CEMP and sub-plans by Roads and Maritime and Sydney Airport Corporation
- Processes for managing non-conformances, including identifying and implementing corrective and preventative actions to rectify the non-conformance and prevent recurrence
- Procedures for the control of environmental records
- Incident and contingency management procedures to mitigate environmental damage, and procedures for planning restoration activities, consistent with Roads and Maritime's Environmental Incident Classification and Reporting Procedure and Sydney Airport's relevant procedure
- Procedures for complaints handling and ongoing communication with the community, including the preparation of a communications strategy
- Details of training and awareness programs for personnel working on the project, including a compulsory site induction outlining the requirements of the CEMP, regular tool box talks on specific environmental issues, and daily pre-start meetings
- A compliance tracking and auditing program.

Environmental performance

The management measures detailed in the CEMP would be monitored during construction to confirm their effectiveness and whether any additional measures are required. Site inspections would be regularly undertaken to check and update erosion and sediment control measures as necessary. Environmental site monitoring would also be undertaken to confirm project impacts and existing environmental values in accordance with monitoring commitments made in this document.

The CEMP would provide for an internal compliance monitoring program where the construction contractor(s) would periodically monitor and report on project performance against conditions of approval. Independent external audits would also be carried out in accordance with *ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing* every six months.

An environmental representative is likely to be engaged by Roads and Maritime to undertake an independent compliance monitoring role of the project on land subject to the EP&A Act.

Non-conformance and corrective action

For any environmental issues that arise, corrective and preventative actions must be implemented. Corrective and preventative actions might be developed to address issues or initiate environmental management improvement opportunities identified as a result of incidents, inspections and monitoring, and audit findings and other reviews.

The CEMP would document the corrective and preventative action procedures that will be implemented during construction of the project.

Continual improvement

The CEMP and sub-plans would be reviewed and updated as required in response to audit findings, compliance monitoring results, incidents and inspections that identify corrective and preventative actions. This would include regular management reviews by the construction contractor(s) and an annual review conducted by the contractor(s) as part of the continual improvement process.

Outline of CEMP sub plans

The CEMP would comprise a main CEMP document, issue-specific sub plans, activity-specific procedures, and site-based control maps. An outline of the required plans, and a guide to the general construction management measures required in each, is provided in Table 27.5 to Table 27.12. The requirement to prepare these plans is specified by the mitigation measures in relevant chapters, which have been compiled into section 27.3. It is noted that the conditions of approval may require different and/or additional matters to be addressed in the CEMP or sub plans.

Table 27.5 Construction Traffic and Access Management Plan outline

Construction Traffic and Access Management Plan	
Objectives	<ul style="list-style-type: none"> ■ Ensure appropriate controls and procedures are implemented to minimise potential traffic impacts ■ Identify appropriate traffic management measures and establish a framework for coordinating their implementation ■ Maintain network journey times and congestion at acceptable levels ■ Ensure access to Sydney Airport is maintained
Purpose and requirements	<p>The plan will detail processes and responsibilities to minimise traffic and access delays and disruptions, and identify and respond to changes in road safety.</p> <p>The plan will be prepared in accordance with relevant guidelines and standards, including <i>Traffic Control at Work Sites Technical Manual</i> (Roads and Maritime, 2018), <i>Roads and Maritime Specification G10 – Traffic Management</i>, and the guidelines listed in section 9.1.</p> <p>The plan will be prepared in consultation with Sydney Airport Corporation, the Sydney Coordination Office and relevant council(s).</p> <p>The plan will include measures to:</p> <ul style="list-style-type: none"> ■ Ensure all relevant stakeholders are considered during all stages of the project ■ Communicate changes in traffic conditions and access arrangements to road users, emergency services, public transport operators and other affected stakeholders, including the use of variable message signage ■ Maintain access to Sydney Airport, local roads and properties ■ Provide safe routes for pedestrians and cyclists during construction ■ Minimise the number of changes to road users' travel paths and, where changes are required, implement a high standard of traffic controls that effectively warn, inform and guide ■ Stage construction in consultation with relevant traffic and transport stakeholders ■ Manage the movements of construction-related traffic to minimise traffic and access disruptions in the public road network ■ Manage temporary access arrangements where required ■ Minimise the loss of on-road parking for local residents and manage worker parking in accordance with the worker parking strategy ■ Identify haulage routes and minimise the use of local roads by the project's heavy vehicles ■ Provide a mechanism for the monitoring, review and amendment of this plan.
Example management measures	<p>Management measures to be included in the plan and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Adequate road signage will be provided to inform drivers of the work, timing and alternative access arrangements ■ Heavy vehicle movements will be minimised during peak traffic times ■ Heavy vehicles will only use designated haulage and access routes ■ Bus transport will be provided to work sites from the nearest public transport hub by contractors ■ Designated queuing and idling areas will be determined near work areas to minimise disruption to the local community ■ Appropriate controls will be established where vehicles are required to cross footpaths to access construction sites. This may include manual supervision, physical barriers or temporary traffic signals as required ■ Construction vehicles will park within the construction compound where practicable

Construction Traffic and Access Management Plan	
	<ul style="list-style-type: none"> ■ The timing of deliveries accessing the site will be programmed to ensure there is sufficient space within the project site to accommodate deliveries.
Related strategies, plans or requirements (see Chapter 9)	<ul style="list-style-type: none"> ■ Communication strategy ■ Travel demand management strategy ■ Construction staging and temporary work plans ■ Active transport strategy ■ Worker parking strategy

Table 27.6 Construction Noise and Vibration Management Plan outline

Construction Noise and Vibration Management Plan	
Objectives	<ul style="list-style-type: none"> ■ Minimise potential adverse noise and vibration impacts on the environment and community ■ Minimise unreasonable noise and vibration impacts on receivers ■ Avoid structural damage to buildings or heritage items as a result of construction vibration
Purpose and requirements	<p>The plan will detail processes, responsibilities and measures to manage noise and vibration and minimise the potential for impacts during construction. It will provide the framework and mechanisms for the management and feasible and reasonable mitigation of potential noise and vibration impacts.</p> <p>The plan will be prepared in accordance with relevant guidelines and standards, including the <i>Interim Construction Noise Guideline</i> (DECC, 2009), <i>Construction Noise and Vibration Guideline</i> (Roads and Maritime, 2016), and the guidelines listed in section 10.1.</p> <p>The plan will be prepared in consultation with Sydney Airport Corporation and relevant government agencies, where relevant. It will:</p> <ul style="list-style-type: none"> ■ Identify noise and vibration performance criteria ■ Confirm sensitive receptors and features in the vicinity of the project site, including a detailed land use survey and map ■ Include standard and additional mitigation measures from the <i>Interim Construction Noise Guideline</i>, <i>Construction Noise and Vibration Guideline</i> and details about when each will be applied ■ Consider cumulative construction noise impacts, construction noise fatigue and opportunities for early noise mitigation ■ Include protocols that will be adopted to manage works required outside standard construction hours, in accordance with relevant guidelines including for management of respite periods ■ Describe the process(es) that will be adopted for carrying out location and activity specific noise and vibration impact assessments to assist with the selection of appropriate mitigation measures ■ Include details for ongoing consultation with receivers and procedures for handling complaints ■ Include measures to manage vehicle movements outside standard construction working hours ■ Provide a mechanism for the monitoring, review and amendment of this plan.
Example management measures	<p>Management measures to be included in the plan and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Maximise offset distances between receivers and noisy plant or activities ■ Minimise the number of consecutive nights of works adjacent to any particular set of receivers ■ Restrict heavy vehicle movements, heavy deliveries and loading and unloading processes to daytime periods and to areas away from receivers where practicable ■ Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work

Construction Noise and Vibration Management Plan	
	<ul style="list-style-type: none"> ■ Use structures to shield residential receivers from noise such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when situating plant ■ No dropping of materials from height, throwing of metal items and slamming of doors ■ Use quieter and less vibration emitting construction methods where feasible and reasonable ■ Limit the use of engine compression brakes at night and in residential areas ■ Regularly maintain and monitor plant and equipment to ensure noise emissions are not excessive.
Related strategies, plans or requirements (see Chapter 10)	<ul style="list-style-type: none"> ■ Operational noise mitigation strategy

Table 27.7 Construction Air Quality Management Plan outline

Construction Air Quality Management Plan	
Objectives	<ul style="list-style-type: none"> ■ Minimise gaseous and particulate pollutant emissions from construction activities as far as feasible and reasonable ■ Identify and control potential dust and air pollutant sources ■ Minimise odour and landfill gas generation from the former Tempe landfill and Sydney Airport northern lands car park
Purpose and requirements	<p>The plan will detail processes, responsibilities and measures to manage air quality and minimise the potential for impacts during construction.</p> <p>The plan will be prepared in accordance with relevant guidelines and standards, including the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> (DEC, 2007a) and the guidelines listed in section 12.1.</p> <p>The plan will be prepared in consultation with Sydney Airport Corporation and relevant government agencies, where relevant.</p> <p>The plan will include measures to:</p> <ul style="list-style-type: none"> ■ Minimise project and cumulative dust generation from stockpiles, demolition activities, haulage routes, work activities, exposed ground surfaces and ancillary facilities ■ Minimise emissions from construction plant, vehicles and machinery ■ Minimise odour impacts from the former Tempe landfill in accordance with the odour management strategy ■ Minimise and manage landfill gas during construction ■ Provide a mechanism for the monitoring, review and amendment of this plan.
Example management measures	<p>Management measures to be included in the plan and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Temporarily stabilise exposed soils and stockpiles of loose materials (for example by dampening, covering or applying soil binders) during weather conditions conducive to dust generation and prior to extended periods of inactivity to prevent dust generation ■ Any exposed surfaces will be stabilised as soon as possible ■ Dust generation will be monitored visually, and where required, dust control measures such as water spraying, dust screens and surface treatments will be implemented to control the generation of dust. ■ Install wheel washing systems and rumble grids at compound egress points to prevent deposition of loose material on sealed surfaces outside project sites to reduce potential dust generation ■ Monitor site access points regularly and remove sediment as required to avoid dust generation ■ Processes and procedures will be developed to manage landfill gas in the former Tempe landfill and Sydney Airport northern lands car park ■ Modify or cease construction activities with the potential to generate dust during unfavourable weather conditions as required to reduce the potential for amenity impacts on adjacent sensitive receivers ■ All vehicles loads will be covered to prevent escape of loose materials during transport

Construction Air Quality Management Plan	
	<ul style="list-style-type: none"> ■ All plant and machinery will be fitted with emission control devices complying with relevant Australian Standards ■ Minimise the duration which excavated waste materials from the former Tempe landfill are exposed to prevent odour generation.
Related strategies, plans or requirements (see Chapter 12)	<ul style="list-style-type: none"> ■ Odour management strategy

Table 27.8 Construction Soil and Water Management Plan outline

Construction Soil and Water Management Plan	
Objectives	<ul style="list-style-type: none"> ■ Appropriate controls and procedures are implemented during construction activities to avoid or minimise erosion and sedimentation impacts and potential impacts on water quality in surrounding watercourses ■ Appropriate measures are implemented to address the relevant conditions of approval, legislation and mitigation measures provided in this document.
Purpose and requirements	<p>The plan will detail processes, responsibilities and measures to manage potential soil and water quality impacts during construction, including potential impacts associated with the presence of existing contamination, stockpile management, saline soils and acid sulfate soils.</p> <p>The plan will be prepared in accordance with relevant guidelines and standards, including the Blue Book and the guidelines listed in sections 13.1, 15.1 and 16.1.</p> <p>The plan will be prepared in consultation with Sydney Airport Corporation and government agencies, where relevant.</p> <p>The plan will:</p> <ul style="list-style-type: none"> ■ Develop stockpile management procedures to prevent cross-contamination of clean soil with contaminated soil by including location restrictions, separate of waste types, stabilisation and sediment controls ■ Develop a water quality monitoring program to monitor potential surface water and groundwater quality impacts, including discharge criteria ■ Describe measures to minimise and/or manage sediment and erosion within the project footprint, including overland flow, including requirements for erosion and sediment control plans ■ Describe measures to manage actual and potential acid sulfate soil and sediment disturbed during construction by preparing an acid sulfate soils management plan ■ Describe measures to manage saline soils disturbed during construction ■ Describe measures to manage leachate at the former Tempe landfill ■ Describe procedures for managing unexpected contamination finds ■ Describe procedures for managing groundwater impacts including treatment requirements ■ Describe procedures for dewatering accumulated water on site and within sediment basins, including discharge criteria ■ Describe spill management procedures including requirements for locating and maintaining spill response materials such as spill kits ■ Provide a mechanism for the monitoring, review and amendment of this plan.
Example management measures	<p>Management measures to be included in the plan and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Erosion and sediment control measures will be implemented in accordance with the Blue Book and maintained to: <ul style="list-style-type: none"> — Prevent sediment moving off site and sediment laden water entering any water course, drainage lines, or drain inlets — Reduce water velocity and capture sediment on site — Minimise the amount of material transported from site — Divert clean water around the site ■ Erosion and sediment controls will be inspected and maintained on a regular basis and records kept and provided on request

Construction Soil and Water Management Plan	
	<ul style="list-style-type: none"> ■ Clearing of vegetation and site stabilisation of disturbed areas will be undertaken progressively to limit the time disturbed areas are exposed ■ Stockpile topsoil separately for potential reuse in landscaping and rehabilitation works ■ Protect stockpiles to prevent erosion during rainfall ■ Permanent surface water drains will be installed to act as diversion drains during the construction phase, where practicable ■ All potentially contaminating, contaminated and hazardous substances will be stored in secured, bunded and impervious locations. Storage locations will be isolated from surface water runoff ■ Refuel construction plant and equipment using dedicated refuelling equipment to reduce the potential for spills. Ensure that stocked spill kits and personnel trained in their use are present during all refuelling ■ Vehicle washdowns and/or concrete truck washouts will be undertaken within a designated area or undertaken at a suitable location off site ■ Site facilities will be located outside flood hazard areas or be elevated above the ground, where possible ■ Awareness training will be provided for all onsite staff to assist in the identification of potentially contaminated material ■ Spill containment kits will be present and maintained on site during all activities where potential spills could occur ■ Develop site shutdown procedures and implement them before forecast inclement weather and before planned site shutdowns of more than 48 hours. Update the procedures as the project site develops and changes.
Related strategies, plans or requirements (see Chapters 13 to 16)	<ul style="list-style-type: none"> ■ Contamination remediation action plan(s) ■ Acid Sulfate Soil management plan ■ Alexandra Canal plan of management ■ Settlement and slope stability analysis ■ Leachate management strategy ■ Dewatering management strategy ■ Flood mitigation strategy ■ Rehabilitation strategy ■ Groundwater monitoring program ■ Surface water monitoring program

Table 27.9 Construction Heritage Management Plans outline

Construction Heritage Management Plans	
Objectives	<ul style="list-style-type: none"> ■ Ensure appropriate controls and procedures are implemented during construction to avoid or minimise potential adverse impacts on items of heritage value ■ Avoid accidental impacts on heritage items ■ Maximise worker's awareness of heritage.
Purpose and requirements	<p>Plans will be prepared to manage non-Aboriginal heritage and Aboriginal heritage and minimise the potential for impacts during construction.</p> <p>The Heritage Management Plan will take into account relevant conservation and heritage management policies in the Alexandra Canal Conservation Management Plan and the Sydney Airport Heritage Management Plan. The plan will be prepared in accordance with the guidelines listed in section 17.1. It will include:</p> <ul style="list-style-type: none"> ■ Identification of heritage items in the vicinity of the project site ■ Measures to manage potential impacts on heritage items ■ Heritage awareness and management training for relevant personnel involved in site works ■ Details regarding the conservation and curation of any historical artefacts recovered during works ■ Procedures for the reinstatement of areas of heritage value that would be temporarily impacted by construction following the completion of construction

Construction Heritage Management Plans	
	<ul style="list-style-type: none"> ■ Procedures to manage unexpected items of potential heritage significance or human remains in accordance with the <i>Standard Management Procedure Unexpected Heritage Items</i> (Roads and Maritime, 2015e). ■ Procedures for photographic archival recording in accordance with the NSW Heritage Office's <i>How to Prepare Archival Records of Heritage Items</i> (1998), and <i>Photographic Recording of Heritage Items Using Film or Digital Capture</i> (2006) ■ Heritage monitoring and auditing requirements to determine the effectiveness of measures ■ Management guidelines consistent with NSW heritage guidelines and the Sydney Airport Heritage Management Plan. <p>The Aboriginal Heritage Management Plan will be prepared in accordance with relevant guidelines and standards, including the Aboriginal Cultural Heritage Assessment Report (as part of this document), the Sydney Airport Heritage Management Plan and the guidelines listed in section 18.1. It will include:</p> <ul style="list-style-type: none"> ■ Relevant requirements as listed above ■ The salvage excavation methodology as described in Technical Working Paper 10 (Aboriginal Cultural Heritage Assessment Report) ■ Process for additional consultation with Aboriginal stakeholders in accordance with <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (DECC, 2010c).
Example management measures	<p>Management measures to be included in the plans and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Impacts on heritage items will, to the greatest extent practicable, be avoided and minimised ■ All identified items within and in the immediate vicinity of the proposal site would be marked on the environmental control maps, site plans, fenced off where appropriate, and avoided
Related strategies, plans or requirements (see Chapters 17 and 18)	<ul style="list-style-type: none"> ■ Historical archaeological assessment and research design and excavation methodology ■ Photographic archival recording report ■ Aboriginal heritage interpretation strategy

Table 27.10 Construction Visual Amenity Management Plan outline

Construction Visual Amenity Management Plan	
Objectives	<ul style="list-style-type: none"> ■ Ensure appropriate controls and procedures are implemented during construction to minimise potential adverse visual impacts on receivers ■ Minimise the duration and extent of temporary visual and landscape character impacts ■ Minimise visual impacts from ancillary facilities ■ Retain and protect existing trees not required to be removed ■ Ensure progressive rehabilitation of disturbed areas and appropriate site remediation at the completion of construction.
Purpose and requirements	<p>The plan will detail processes, responsibilities and measures to minimise the potential for visual impacts during construction.</p> <p>The plan will be prepared in accordance with relevant guidelines and standards, including those listed in section 21.1.</p> <p>The plan will:</p> <ul style="list-style-type: none"> ■ Identify tree protection locations ■ Identify responsibility for ongoing tree management ■ Include measures from the tree management strategy ■ Describe measures to minimise visual and landscape character impacts during construction ■ Describe measures to reduce visual impacts from ancillary facilities ■ Describe requirements for construction site remediation, taking into account the project's urban design and landscape plan ■ Provide a mechanism for the monitoring, review and amendment of this plan.

Construction Visual Amenity Management Plan	
Example management measures	<p>Management measures to be included in the plan and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Construction programming will ensure progressive rehabilitation of disturbed areas to minimise the duration and extent of temporary visual and landscape character impacts ■ Provide barriers to screen views from visually sensitive nearby areas such as residential and recreational areas ■ The design and maintenance of construction compound hoardings will aim to minimise visual impacts and landscape character impact, including the prompt removal of graffiti ■ The design of temporary lighting will avoid unnecessary light spill on adjacent residents or sensitive receivers and be designed in accordance with the <i>Manual of Standards Part 139 – Aerodromes</i> (CASA, 2017) and the <i>National Airports Safeguarding Framework</i> (Guideline E) ■ Existing trees to be retained within construction areas will be identified, protected and maintained in accordance with <i>AS4970 Trees on Development Sites</i> and the project's tree management strategy ■ Any tree pruning will be undertaken in accordance with the project's tree management strategy, guided by a qualified arborist ■ Temporary impacts on public open space will be rehabilitated in consultation with the relevant local council and/or landowner.
Related strategies, plans or requirements (see Chapter 21)	<ul style="list-style-type: none"> ■ Tree management strategy ■ Urban design and landscape plan

Table 27.11 Construction Biodiversity Management Plan outline

Construction Biodiversity Management Plan	
Objectives	<ul style="list-style-type: none"> ■ Ensure controls and procedures are implemented during construction to avoid, minimise or manage potential adverse impacts on biodiversity within and adjacent to the project site ■ Retain and protect existing flora and fauna habitat wherever possible ■ Appropriately manage the spread of weeds and plant pathogens.
Purpose and requirements	<p>The plan will detail processes, responsibilities and measures to assess, monitor, minimise and mitigate biodiversity impacts.</p> <p>The plan will be prepared in accordance with relevant legislation, guidelines and standards, including the <i>Biodiversity Conservation Act 2016</i>, EPBC Act, the <i>Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects</i> (Roads and Traffic Authority, 2011), and the guidelines listed in section 22.1.</p> <p>The plan will be prepared in consultation with Sydney Airport Corporation and government agencies, where relevant.</p> <p>The plan will include:</p> <ul style="list-style-type: none"> ■ Vegetation maps ■ Tree assessment and management protocols consistent with the tree management strategy ■ A process for vegetation clearing including the establishment of exclusion zones at the limit of clearing to protect vegetation to be retained ■ An unexpected threatened species finds procedure ■ A process for identifying and managing priority and environmental weeds and other pests prior to, during, and after construction (including within vegetation exclusion zones) ■ A protocol to minimise the potential for the spread of pathogens such as Chytrid or Phytophthora fungus into and out of the site during construction ■ Provide a mechanism for the monitoring, review and amendment of this plan.

Construction Biodiversity Management Plan	
Example management measures	<p>Management measures to be included in the plan and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Biodiversity awareness training will be incorporated into the site induction and relevant toolbox talks and pre-starts ■ Identify and locate habitat features on site, and mark those to be protected during clearing ■ Clear vegetation so as not to mix topsoil with debris and to avoid impacts on surrounding native vegetation ■ The <i>AS 4373-2007 Pruning of amenity trees</i> will be followed for all pruning works ■ The unexpected threatened species finds procedure will include the requirement to stop work, notify the environment manager and seek the advice of an ecologist and relevant regulatory agencies before recommencing construction.
Related strategies, plans or requirements (see Chapter 22)	n/a

Table 27.12 Construction Waste Management Plan outline

Construction Waste Management Plan	
Objectives	<ul style="list-style-type: none"> ■ Ensure measures are identified and implemented to minimise waste, manage waste and conserve energy throughout the construction of the project ■ Implement the preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal is followed ■ Maximise awareness of waste and resource use management issues ■ Minimise waste throughout the project
Purpose and requirements	<p>The plan will detail processes, responsibilities and measures to minimise waste generation and conserve energy during construction.</p> <p>The plan will be prepared in accordance with relevant guidelines and standards, including the <i>NSW Waste Avoidance and Resource Recovery Strategy 2014-21</i> (NSW EPA, 2014b) and the guidelines listed in section 24.1.</p> <p>The plan will be prepared in consultation with Sydney Airport Corporation and government agencies, where relevant.</p> <p>The plan will include:</p> <ul style="list-style-type: none"> ■ Training and awareness requirements ■ Expected waste types and volumes ■ Proposed waste reuse, recovery and recycling and disposal measures ■ Specific measures to manage vegetation waste ■ Procedures for managing office and project waste materials including separation, treatment and disposal in accordance with relevant guidelines ■ The process for identifying waste reuse sites including approval requirements ■ Placement mound locations, onsite spoil management and off site transport protocols (if required) ■ Procedures for the identification, handling and disposal of hazardous materials including potential asbestos waste ■ Waste tracking, record keeping and reporting requirements, including the implementation of a waste register ■ A mechanism for the monitoring, review and amendment of the plan.
Example management measures	<p>Management measures to be included in the plan and implemented during construction will include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Waste management strategies will be implemented in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> management hierarchy ■ All wastes, including contaminated wastes, will be identified and classified in accordance with the <i>Waste Classification Guidelines: Part 1 Classifying Waste</i> (NSW EPA, 2014a) ■ Where possible and fit for purpose, spoil will be beneficially reused by the project before off-site reuse or disposal options are pursued

Construction Waste Management Plan	
	<ul style="list-style-type: none"> ■ Excavated material that is not suitable for on-site reuse or recycling will be transported to a site that may legally accept that material for reuse or disposal ■ Waste segregation bins/stockpiles will be located at various locations within the project site, if space permits, to facilitate segregation and prevent cross contamination ■ Trees and weed free plant material will be mulched or chipped on site and used in landscaping where practicable to stabilise disturbed soils ■ Identify recycled materials (such as recycled aggregates in road pavement and surfacing; steel with recycled content) for use in construction or operation of the project where they are cost, quality and performance competitive.
Related strategies, plans or requirements (see Chapter 24)	<ul style="list-style-type: none"> ■ n/a

27.2.2 Operational environmental management

The iterative design and environmental impact assessment process has enabled Roads and Maritime to avoid and minimise environmental impacts from the project, where feasible and reasonable. Where environmental controls have been incorporated into the design, there is a program of monitoring and review including independent auditing, to ensure the controls comply with stated objectives.

Operational environmental management would be undertaken in consultation with Sydney Airport Corporation and other relevant stakeholders. The environmental management of the project would be consistent with the *Sydney Airport Master Plan 2039* and *Sydney Airport Environment Strategy 2019-2024*. Once construction of the project has been completed, the responsibility for ongoing operational management of the road infrastructure would be handed back to Roads and Maritime from the construction contractor(s). The ongoing operational management of residual land would be handed back to relevant authorities, such as Inner West Council and Sydney Airport Corporation.

Roads and Maritime manage their legislative and environmental management obligations through the use of a number of procedures, guidelines, guidance notes, and technical notes to provide guidance and set expectations in environmental planning and management of the road network and assets. Specifications, including but not limited to, Routine Services Specification (M3), General Specification – Environmental Protection (Management Systems) Maintenance (G36M) and General Specification – Soil and Water Management (G38) are used to outline the environmental planning and management expectations and requirements of the stewardship maintenance contractors. The stewardship maintenance contractors are also required to operate under an environmental management system, have a program environmental management plan, and have specific construction environmental management plans for activities that are undertaken on the network. Ongoing maintenance of the project on Sydney Airport land would be confirmed with the Australian Department of Infrastructure, Transport, Cities and Regional Development.

The mitigation measures that would be implemented during operation are listed in Table 27.15.

27.3 Compilation of mitigation measures

Table 27.13 to Table 27.15 provide a compilation of the measures proposed to mitigate and manage the potential impacts of the project, as detailed in Part B. Table 27.13 provides those measures relevant to the design of the project, which would be implemented as part of the detailed design stage to guide how the project is designed. Table 27.14 provides those measures relevant to construction, including construction planning and the development of the recommended strategies and plans that would be implemented during construction – some of which would be developed pre-construction. Table 27.15 provides those measures relevant to operation, which would be implemented during the operational stage and would guide how the project is operated and maintained in the long-term.

The measures listed may be revised in response to submissions raised during public exhibition of the EIS/preliminary draft MDP and/or any design changes made following exhibition. The final list of mitigation measures would be provided in the submissions/preferred infrastructure report and final MDP.

If the project is approved, the conditions of approval, which would include reference to the finalised mitigation measures, would guide the preparation and content of relevant plans for all phases of the project. The project would be undertaken in accordance with the conditions of approval and the final list of mitigation measures.

The measures are broadly grouped according to the main stage of implementation and apply to an issue or impact rather than specific jurisdictions (land subject to either the Airports Act or EP&A Act). It is noted that the implementation of some measures may occur across a number of stages. The majority of measures will apply to the project as a whole (ie to those elements of the project that are located on Sydney Airport land as well as those located on land subject to the EP&A Act). The exceptions to this are those measures that relate to specific features such as Alexandra Canal and the former Tempe landfill.

Table 27.13 Compilation of mitigation measures for detailed design

Ref	Issue	Mitigation measures – detailed design
Noise and vibration		
NV3	Potential operational noise impacts	An operational noise mitigation strategy will be developed and implemented as part of the design, including investigating the need for low noise pavements, noise barriers and at-property mitigation.
NV14	Noise impacts due to ground-based airport activities	Investigate reasonable and feasible options to reduce the propagation of noise from ground-based airport activities following removal of buildings as part of the project. This will include options to retain screening provided by existing buildings.
NV15	Operational noise and vibration impacts of the project	Operational noise and vibration mitigation measures will be identified during detailed design. Requirements for at-property noise treatments in properties identified as 'eligible' in the noise and vibration assessment will be reviewed. The implementation of treatments will be undertaken in accordance with the <i>At-Receiver Noise Treatment Guideline</i> (Roads and Maritime, 2017b).
Airport operations		
AS1	Windshear and turbulence	<p>The road infrastructure and final landforms (including the emplacement mounds) will be reviewed and refined during detailed design to:</p> <ul style="list-style-type: none"> ■ Address aviation matters ■ Minimise the volume of material excavated from the former Tempe landfill ■ Maximise open space and community use opportunities ■ Avoid disturbance outside the project boundary. <p>To achieve the above requirements, alternative mound locations, heights and shapes will be considered. With respect to aviation, any changes to road infrastructure and final landforms will be assessed in relevant wind directions, in accordance with the <i>National Airports Safeguarding Framework</i> (Guideline B), to identify an optimal design.</p> <p>The optimisation process will address Sydney Airport operational requirements, and will occur in consultation with Sydney Airport Corporation, aviation stakeholders, and Australian, NSW and local government agencies.</p>
AS2	Runway public safety areas	A risk assessment in accordance with the principle of 'as low as reasonably practicable' (ALARP) will be undertaken to confirm the risk associated with operating the project within the public safety area to the north of the main north-south runway. The assessment will include consideration of the <i>National Airports Safeguarding Framework</i> (Guideline I). The results of the assessment will inform the design of the project.
AS3	Permanent intrusions of Sydney Airport's prescribed airspace	The project will continue to be designed to avoid intrusions of Sydney Airport's prescribed airspace by permanent project infrastructure.
AS4	Wildlife attraction as a result of drainage and flooding management infrastructure	All drainage and flood management infrastructure (including the flood mitigation basin) will be designed in accordance with Sydney Airport's Wildlife Management Plan to minimise the risk of attracting wildlife. Appropriate

Ref	Issue	Mitigation measures – detailed design
		measures will be developed and implemented, including designing the infrastructure to ensure that water does not pond for more than five days.
AS5		The urban design and landscape plan for the project will include consideration of appropriate landscape designs and species lists to minimise opportunities to attract wildlife at levels likely to present a hazard to aviation operations. The plan will have regard to relevant requirements and species lists under Sydney Airport's Wildlife Management Plan and other relevant guidelines, including the <i>National Airports Safeguarding Framework</i> (Guideline C) and <i>Recommended Practices No. 1 – Standards for Aerodrome Bird/Wildlife Control</i> (International Birdstrike Committee, 2006).
AS6	Pilot distraction as a result of street lighting and headlight glare	Lighting will continue to be designed in accordance with <i>AS/NZS 1158.1.1:2005 Lighting for roads and public spaces Part 1.1: Vehicular traffic (Category V) lighting – Performance and design requirements</i> .
AS7		The project will continue to be designed to minimise the risk of headlight glare and pilot distraction. This will include providing glare screens in those locations where there is an unacceptable risk of pilot distraction.
AS8	Interference with communication, navigation and surveillance equipment	The detailed design will be referred to Airservices Australia to confirm that there will be no impacts to navigations aids, communications or surveillance equipment.
AS9		The utilities contingency management plan (measure HS2) will include measures to respond to any unplanned outages of services to critical Sydney Airport infrastructure, including navigations aids, communications and surveillance equipment.
Air quality		
AQ2	Avoiding odour impacts	Detailed design will seek to minimise odour impacts at the former Tempe landfill by: <ul style="list-style-type: none">■ Minimising the need to expose waste, and/or the area exposed at any one time■ Where there is the potential to generate odour, managing this in accordance with the odour management strategy.
Contamination and soils		
CS1	Investigation of data gaps and potential for unidentified asbestos containing materials	Additional soil and groundwater investigations will be undertaken to inform detailed design, construction planning, and preparation of remediation action plan(s) (RAP(s)). The investigations will include: <ul style="list-style-type: none">■ Further characterising the existing contamination status of the project site, including the potential for unidentified asbestos containing materials■ Groundwater investigations for all assessment areas and any indirectly affected areas.■ Soil and groundwater testing to address data gaps for land north of the rail corridor and Sydney Airport land.
CS2	High salinity potential	Soil salinity will be considered in the design of subsurface structures.
CS3	Management of contaminated sites	Where the project has the potential to affect the remediation systems in the former Tempe landfill and Sydney Airport northern lands car park, the controls and protocols outlined in the existing EMP will be implemented such that the systems continue to operate effectively during operation. A RAP (or multiple RAPs) will be prepared (as required) to describe the remediation strategy to be implemented to ensure that existing contamination does not pose a future risk to human health or the environment during operation. The RAP(s) will be prepared by a suitably qualified and experienced consultant, as defined in Schedule B9 of the <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> . The RAP(s) will be prepared and implemented in accordance with the following requirements:

Ref	Issue	Mitigation measures – detailed design
		<ul style="list-style-type: none">■ The voluntary remediation proposal, EMP and any RAPs in place for the former Tempe landfill■ The requirements of the existing Sydney Airport RAP and EMP (if applicable)■ <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i>■ Airports (Environment Protection) Regulations 1997 (for Sydney Airport land)■ <i>Environmental Guidelines: Solid waste landfills</i> (NSW EPA, 2016a) (for reinstatement of the capping layer and/or design of the new capping layer and final road pavement at the former Tempe landfill). <p>The RAP(s) will be:</p> <ul style="list-style-type: none">■ Prepared in consultation with the Airport Environmental Officer and NSW EPA (as relevant)■ For works on land subject to the EP&A Act – approved by an independent site auditor accredited under the site auditor scheme under the CLM Act■ For works on Sydney Airport land – approved by Sydney Airport Corporation and endorsed by the Airport Environment Officer. If Sydney Airport Corporation and/or the Airport Environment Officer consider a site assessor is required, the site assessor will be nominated by the Secretary (as defined by Regulation 6.10 of the Airports (Environment Protection) Regulations 1997) and will endorse the RAP(s).
CS8	Impacts on the former Tempe landfill	An assessment will be undertaken of the potential hazards associated with landfill gas during construction and operation. The assessment will consider the potential for ingress and build-up of gases that may pose a risk to safety. Where the need for measures to manage landfill gases post-construction is identified, such measures will be described in the RAP(s) (measure CS3). Measures could include the design and installation of a landfill gas management system to provide a preferential flow path for landfill gas below the road infrastructure and emplacement mounds.
CS9		A settlement and slope stability analysis will be undertaken to ensure that the emplacement mounds are designed to suitable engineering standards such that the long-term stability of the capping layer is maintained. The design and construction of the emplacement mounds will be described in the RAP(s) (measure CS3) and will be in accordance with <i>Environmental Guidelines: Solid waste landfills</i> (NSW EPA, 2016a). The design will be prepared in consultation with the NSW EPA.
CS10		The location of all existing landfill management infrastructure, including the bentonite wall, leachate collection system and passive gas collection system, will be confirmed and (if required) the design will be further refined to avoid impacts on this infrastructure. Measures will be developed, and included in the RAP (if required) to protect the landfill management infrastructure during construction, or reinstate the infrastructure such that it continues to operate effectively after construction is finished.
Flooding		
HF1	Management of the potential for flooding impacts during construction	A flood mitigation strategy will be prepared and relevant measures will be implemented as part of the design and during construction. The strategy will include undertaking additional flood modelling taking into account detailed design and proposed construction planning and methodologies.
HF2	Impacts on flood behaviour from construction	Hydrologic and hydraulic assessments will be carried out for all temporary and permanent project components (including ancillary facilities) that have the potential to affect flood levels in the vicinity of the project. The results of the assessment will inform the preparation of the Flood Mitigation Strategy (measure HF1) as well as the design of temporary construction facilities and design development.

Ref	Issue	Mitigation measures – detailed design
HF3	Impacts on property	Where flood levels in the one per cent AEP event are predicted to increase at any residential, commercial and/or industrial buildings as a result of construction or operation of the project, a floor level survey will be carried out. If the survey indicates existing buildings would experience above floor inundation during a one per cent AEP event, further refinements will be made (as required) to the design of temporary and permanent project components to minimise the potential for impacts.
HF4	Impacts on drainage systems	Further modelling will be undertaken based on the detailed design to determine the ability of the receiving drainage systems to effectively convey drainage discharges from the project once operational. The modelling will be undertaken in consultation with Sydney Airport Corporation and relevant council(s). It will include, but not be limited to: <ul style="list-style-type: none"> ■ Confirming the location, size and capacity of all receiving drainage systems affected by operation ■ Assessing the potential impacts of drainage discharges from the project drainage systems on the receiving drainage systems ■ Identifying all feasible and reasonable mitigation measures to be implemented where drainage from the project is predicted to adversely impact on the receiving drainage systems.
HF5	Potential impacts of climate change on flooding	The potential impacts of climate change on flooding behaviour will be considered during further modelling, in accordance with the procedures set out in <i>Floodplain Risk Management Guideline: Practical Considerations of Climate Change</i> (DECC, 2007) and <i>Australian Rainfall and Runoff</i> (Geoscience Australia, 2019). An approach to integrating the identified effects into the design and operation of the infrastructure will be determined and implemented.
Groundwater		
GW1	Avoiding impacts on groundwater	Detailed design and construction planning will seek to minimise impacts on groundwater by: <ul style="list-style-type: none"> ■ Avoiding the need to extract groundwater ■ Minimising groundwater inflows and volumes into excavations.
GW2	Settlement of unconsolidated sediments	Modelling of settlement induced by groundwater drawdown will be undertaken in accordance with relevant guidelines, based on detailed geotechnical information obtained from the site investigations and the proposed construction approach. Should modelling identify any settlement issues, measures to reduce settlement will be confirmed.
GW3	Impacts on existing groundwater well	A survey of GW024036 will be undertaken to confirm the use of this bore. If this bore is in use, alternative water sources will be considered to ensure ongoing water supply as required.
Surface water		
SW1	Sedimentation and scour protection at Alexandra Canal	The potential for scour at bridge abutments will be considered for flow events up to and including the one per cent annual exceedance probability event. Scour protection will be included in the detailed design as required.
SW2		Discharge outlets will be designed with appropriate energy dissipation and scour protection measures to minimise the potential for scour. Scour protection will be developed in consultation with relevant stakeholders, including Sydney Water.
SW4	Water sensitive urban design	Appropriate treatment measures, including water sensitive urban design, will be considered in the detailed design with the aim of improving water quality within Alexandra Canal and/or achieving the targets outlined in the <i>Botany Bay and Catchment Water Quality Improvement Plan</i> (Sydney Metropolitan Catchment Management Authority, 2011).
SW5		Surface water drains and associated infrastructure will be designed to prevent scour of soil, erosion and associated sedimentation impacts.

Ref	Issue	Mitigation measures – detailed design
Non-Aboriginal heritage		
NAH1	Avoiding impacts on heritage	The design will avoid impacts on non-Aboriginal heritage items, significant heritage fabric, locally and State significant archaeological remains and landscapes (including mature trees) as far as reasonably practicable. This includes significant fabric associated with Alexandra Canal and the Sydney (Kingsford Smith) Airport Group.
NAH2	Minimising impacts on heritage	The design will be prepared in accordance with the urban design and landscape plan for the project, and will minimise the potential for visual impacts on heritage items by incorporating sympathetic fabric, colour and form in the design.
NAH3	Design of the bridges over Alexandra Canal	<p>The bridges over Alexandra Canal will be designed to:</p> <ul style="list-style-type: none"> ■ Be sympathetic to the heritage sensitivity and industrial landscape of the canal ■ Minimise physical impacts on the canal ■ Incorporate a high quality architectural design using suitable material and forms ■ Integrate with the bridges for the New M5 ■ Retain the open character of the canal as far as possible ■ Have regard to the Alexandra Canal Conservation Management Plan. <p>An appropriately qualified and experienced heritage architect or engineer will provide independent review of the designs, and the Heritage Council of NSW and Sydney Water will be consulted.</p>
NAH4	Design of the drainage outlets at Alexandra Canal	<p>The drainage outlets at Alexandra Canal will be designed to:</p> <ul style="list-style-type: none"> ■ Minimise impacts on significant original fabric and highly visible areas ■ Be sympathetic to the industrial landscape of the canal and its existing fabric ■ Use suitable material and forms ■ Have regard to the Alexandra Canal Conservation Management Plan. <p>An appropriately qualified and experienced heritage architect or engineer will provide independent review of the designs, and the Heritage Council of NSW and Sydney Water will be consulted.</p>
NAH5	Reuse of significant fabric at Alexandra Canal	Where significant fabric is to be removed, consideration will be given to reusing the fabric for interpretation or repair and maintenance of other sections of the canal, in consultation with Sydney Water.
NAH6	Heritage interpretation	<p>Appropriate heritage interpretation will be incorporated into the design in accordance with the <i>NSW Heritage Manual</i> (NSW Heritage Office and Department of Urban Affairs and Planning, 1996), <i>Interpreting Heritage Places and Items: Guidelines</i> (NSW Heritage Office, 2005), and the NSW Heritage Council's Heritage Interpretation Policy.</p> <p>This will focus on recognising the historical significance of the following items:</p> <ul style="list-style-type: none"> ■ Alexandra Canal ■ Sydney (Kingsford Smith) Airport Group ■ Cooks River Container Terminal ■ Mascot (Shea's Ck) Underbridge ■ Botany Rail Line.
Aboriginal heritage		
AH1	Archaeological investigation areas impacted by the project	Detailed design and construction planning will avoid direct impacts on Investigation Area 1 and Investigation Area 2 where practicable.
AH3	Aboriginal heritage interpretation	An Aboriginal heritage interpretation strategy will be developed in consultation with registered Aboriginal parties and other relevant stakeholders. The interpretation strategy will have regard to <i>Sydney Airport Master Plan 2039</i> and the Sydney Airport Heritage Management Plan.

Ref	Issue	Mitigation measures – detailed design
		Appropriate Aboriginal heritage interpretation will be incorporated into the project design in accordance with the interpretation strategy.
Land use and property		
LU1	Impacts on property and land use	The design will continue to be refined to minimise land requirements and potential impacts on existing land uses and properties as far as possible. Consultation with landholders will be ongoing to identify opportunities to minimise impacts on onsite operations where practicable.
LU2	Impacts on advertising structures	The approach to mitigating impacts on advertising structures (including adjusting, relocating or providing new structures at locations along project infrastructure) will be confirmed during detailed design.
LU3	Use of residual land	Roads and Maritime will continue to consult with Inner West Council regarding the future use of residual land in the Tempe Lands and adjoining area. This will include opportunities for open space and recreation uses, and provision for a new off-leash dog exercise area and council depot. Roads and Maritime will support and assist Inner West Council with the master planning process for these areas as appropriate, and will ensure that the urban design and landscape plan for the project is consistent with the outcomes of this process.
LU4	Impacts on utilities	The location of all utilities, services and other infrastructure will be identified prior to construction to determine requirements for access to, diversion, protection and/or support. This will include (as required), undertaking utilities investigations, including intrusive investigations, and consultation and agreement with service providers.
Socio-economic		
SE3	Permanent land requirements at Tempe Lands	Roads and Maritime will continue to consult with Inner West Council to ensure: <ul style="list-style-type: none"> ■ Impacts on open space and recreational facilities in Tempe Lands will be offset ■ Consistency between the project's urban design and landscape plan and Council's master plan for Tempe Lands.
SE4	Safety of active transport links	Temporary and operational active transport links will be designed to ensure the safety of the users in accordance with crime prevention through environmental design principles.
Landscape character and visual amenity		
LV1	General visual impacts	An urban design and landscape plan will be prepared to provide a consistent approach to project design and landscaping.
LV2		Further design refinements of structures including bridges and the Terminals 2/3 access viaduct will be undertaken to minimise visual impacts as far as possible.
LV3	Managing the loss of trees	A tree management strategy will be developed including measures to offset the loss of trees and achieve a net increase in tree canopy. The final location of replacement trees will be confirmed in consultation with Inner West Council and Sydney Airport Corporation. The strategy will also include on-site processes and protective measures to ensure trees identified for retention are appropriately protected during construction.
LV4	Noise barriers	Where feasible and reasonable, the proposed noise barrier in the Tempe Lands will be designed to provide new active transport connectivity across the Terminal 1 connection and between the western and eastern portions of open space, and maximise passive surveillance of open space from the road.
LV5		Noise barriers will be designed to minimise their visual prominence as much as possible.

Ref	Issue	Mitigation measures – detailed design
LV6	Minimising light spill	Lighting for the project will be designed in accordance with <i>AS 4282 Control of the Obtrusive Effects of Outdoor Lighting</i> . Lighting will be designed to minimise glare and light spill into adjoining areas.
Biodiversity		
BD1	Avoiding impacts on biodiversity	Detailed design will avoid or minimise the need to remove and/or disturb native vegetation and fauna habitat, including impacts on mapped areas of mangrove forest and Tempe Wetlands.
BD2		Vegetation clearing will be limited to the minimum necessary to construct the project. Micro-siting of infrastructure will be undertaken during detailed design to further minimise or avoid impacts on native vegetation where practicable. Exclusion areas will be established and maintained around any native vegetation adjoining the project site in close proximity to work locations to be retained.
Waste management		
WM1	Waste generation and recycling	Detailed design will include measures to minimise excess spoil generation. This will include a focus on optimising the design to minimise spoil volumes, and the reuse of material on site.
Sustainability		
SU1	Achieving the target sustainability rating	A sustainability management plan will be developed to ensure that sustainability considerations are implemented during the detailed design, construction and operation phases of the project. The plan will include project-specific sustainability initiatives and implementation protocols to support achievement of the project's target excellent 'Design' and 'As Built' rating under the Infrastructure Sustainability rating tool (v1.2) and to ensure ongoing consistency with the <i>Environmental Sustainability Strategy 2019–2023</i> (Roads and Maritime, 2019b)
Climate change and greenhouse gas		
CC1	Climate change risk assessment	A detailed climate change risk assessment, considering both direct and indirect risks, will be undertaken during detailed design in accordance with <i>AS 5334-2013 Climate change adaptation for settlements and infrastructure – A risk based approach</i> and the draft <i>Technical Guide: Climate Change Adaptation for the Road Network</i> (Roads and Maritime, 2015c). Adaptation measures will be confirmed and actions implemented to address extreme and high risks where reasonable and feasible. Adaptation measures for medium risks will be considered and implemented where reasonable and feasible. Progress against implementation of confirmed adaptation measures and actions will be tracked. The assessment will include further modelling to optimise the design and reduce the impacts of climate change scenarios.
CC2	Climate change related flood risks	The flood mitigation strategy (measure HF1) will include consideration of future climate change related flood risks, the potential impacts of future climate change on flooding, and adaptive measures for implementation.
CC3	Urban heat island effect	The urban design and landscape plan for the project will include consideration of appropriate landscape designs and species to reduce the impacts of urban heat island effect. Other measures to mitigate the impacts of the urban heat island effect will be investigated during detailed design and included in the urban design and landscape plan. Measures will include using light coloured pavements and shading structures for public spaces.

Ref	Issue	Mitigation measures – detailed design
GHG1	Greenhouse gas emissions	The sustainability management plan (measure SU1) will include measures and targets to reduce greenhouse gas emissions during construction and operation. The plan will include targets to reduce the project's carbon footprint during construction and operation considering scope 1, scope 2 and scope 3 emissions.
GHG2		The final design will incorporate LED lighting in preference to fluorescent fittings or high-pressure sodium lights where fit for purpose, feasible and cost-effective.
GHG3		The surface road network will be designed for long term performance and durability of materials, increasing asset design lives and reducing the frequency of maintenance activities.

Table 27.14 Compilation of mitigation measures for construction

Ref	Issue	Mitigation measures – construction (including pre-construction)
Environmental management		
EM1	Construction environmental management	A CEMP will be prepared to detail the approach to environmental management during construction, as described in section 27.2.1 and in accordance with the conditions of approval.
Traffic, transport and access		
TT1	Potential for traffic, transport and access impacts during construction	A Construction Traffic and Access Management Plan will be prepared prior to construction and implemented as part of the CEMP. The plan will detail processes and responsibilities to minimise traffic and access delays and disruptions, and identify and respond to changes in road safety during construction.
TT2		The Construction Traffic and Access Management Plan will include proposed road staging of construction works along Airport Drive, Qantas Drive and key accesses to Sydney Airport's terminals to ensure these key roads maintain satisfactory capacity and minimum levels of service. The proposed road staging plans and mitigation measures will be developed in conjunction with Transport for NSW (various divisions), ARTC, the Transport Management Centre, Sydney Coordination Office, Sydney Airport Corporation, emergency services, and any contractors working in the vicinity of the airport.
TT3		The communications strategy (measure SE1) will include a mechanism to inform the community of the dates and durations of specific phases within the project, including information about specific lane and road closures and the times of day and night when works will be carried out.
TT4		A travel demand management strategy will be prepared to provide: <ul style="list-style-type: none"> ■ A comprehensive set of travel mode options to minimise use of roads affected by construction ■ Communication strategies to reduce the number of people using the road network in the project study area during construction, where practicable.
TT5	Impacts on road network performance (delays) and safety	Construction staging and temporary work plans will be prepared to: <ul style="list-style-type: none"> ■ Ensure access to Sydney Airport is maintained at all times during operational hours ■ Stage the construction works on key parts of the network, such as Qantas Drive, Airport Drive and access to Sydney Airport terminals, to enable these roads to continue to function with as minimal impact as possible ■ Minimise conflict with the existing road network ■ Maximise spatial separation between work areas and travel lanes.

Ref	Issue	Mitigation measures – construction (including pre-construction)
TT6		Further consideration of the construction phase road geometry and construction area operations will be undertaken with the aim of optimising road performance during construction. This will include the following considerations: <ul style="list-style-type: none"> ■ Maintain a posted speed of 50 to 60 km/h along the construction zones ■ Maintain three lanes in each direction at the Airport Drive and Link Road intersection ■ Provide three lanes into Terminals 2/3 at Sir Reginald Ansett Drive through to Keith Smith Avenue.
TT7		Where reasonable and feasible, work areas, activities and construction access arrangements will be modified to address any traffic flow issues identified by key stakeholders, including the Sydney Coordination Office, Sydney Airport Corporation and the Transport Management Centre.
TT8		A mechanism will be provided for the community to report incidents and delays, such as a project phone number. The contact mechanism will be communicated in accordance with the project's communication strategy (measure SE1).
TT9	Impacts on access to Terminals 2/3	Further traffic management in the vicinity of the Qantas Drive/Seventh Street/Robey Street intersection will be planned and undertaken with consideration of the following potential re-routing options: <ul style="list-style-type: none"> ■ Divert westbound traffic from General Holmes Drive (via Joyce Drive) onto Robey Street (via the new Wentworth Avenue link provided by the Airport East Upgrade project) and Botany Road instead of using the right turn from Qantas Drive to Robey Street ■ Consolidate and support the function of the left turn from Qantas Drive onto Robey Street and traffic out of Seventh Street through the re-allocation of signal green time taken away from the diverted or banned right turn movement (from Qantas Drive to Robey Street) during peak periods or potentially ban the right turn movement in the peak periods ■ Introduce an additional left turn lane into Robey Street from Qantas Drive to improve traffic flows based on traffic modelling analyses.
TT10		Access to Sydney Airport will be maintained at all times during the airport's operational hours. Any temporary changes in access arrangements will be developed, communicated and implemented in consultation with Sydney Airport Corporation.
TT11	Property, cyclist and pedestrian access	Access to properties, including residences, businesses and community infrastructure, will be maintained. Where disruption to access cannot be avoided, consultation will be undertaken with the owners and occupants of affected properties, to confirm their access requirements and to determine alternative arrangements.
TT12		Safe pedestrian and cyclist access will be maintained around or through work areas. Where disruption to access cannot be avoided, alternative routes that comply with relevant accessibility standards and guidelines will be provided, signposted and communicated.
TT13	Impacts on the availability of parking on streets surrounding construction work areas	A worker parking strategy will be developed to identify measures to minimise worker parking on local streets. Measures to be implemented during construction will include provision of designated parking areas within the project site, encourage use of public transport and implement shuttle bus arrangements.
TT14	Impacts on bus stops and passengers	Where required, changes to existing bus stops and/or changes to bus service patterns will be undertaken in accordance with the following requirements: <ul style="list-style-type: none"> ■ Changes will be designed and implemented in consultation with Transport NSW and bus operators ■ The community will be informed in advance of changes.

Ref	Issue	Mitigation measures – construction (including pre-construction)
TT15	Impacts of construction haulage vehicles	Construction haulage vehicles will be managed to: <ul style="list-style-type: none"> ■ Adhere to the nominated haulage routes and speeds identified in the Construction Traffic and Access Management Plan ■ Minimise idling and queuing on public roads ■ Minimise movement of vehicles during peak periods.
TT16	Cumulative construction traffic impacts	The potential for cumulative construction traffic impacts will be reviewed and co-ordinated with other projects. The review will include: <ul style="list-style-type: none"> ■ Considering other projects with the potential to affect access and capacity, particularly in the vicinity of Terminals 2/3 ■ Detailed reviews of programs for traffic staging, lane and road closures for all projects ■ Co-ordinating works and identifying efficient re-routing options during periods of road and lane closures.
Noise and vibration		
INV1	Managing the potential for noise and vibration impacts during construction	A Construction Noise and Vibration Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will detail processes, responsibilities and measures to manage noise and vibration and minimise the potential for impacts during construction, consistent with the management approach and mitigation measures in Roads and Maritime's <i>Construction Noise and Vibration Guideline</i> .
NV2		Location and activity specific noise and vibration impact assessments will be undertaken prior to those works (as a minimum): <ul style="list-style-type: none"> ■ With the potential to result in noise levels above 75 dBA at any receiver ■ That need to occur outside standard construction hours and are likely to result in noise levels greater than the relevant noise management levels ■ With the potential to exceed relevant performance criteria for vibration. The assessments will confirm predicted impacts at relevant receivers in the vicinity of the activities to assist with the selection of appropriate management measures. Monitoring will be carried out at the start of new noise and vibration intensive activities to confirm that actual levels are consistent with the predictions.
NV4	Potential impacts at hotels	The facades of hotels likely to be affected by construction will be assessed to confirm existing façade performance (external to internal noise transmission) in consultation with the hotel operators. Location and activity-specific noise and vibration impact assessments undertaken for works in the vicinity of hotels will adopt the results of the assessment for each affected hotel to assess potential internal noise levels within the hotel rooms more accurately (see Technical Working Paper 2).
NV5	Potential impacts on the Qantas Flight Training Centre	A construction strategy will be developed in consultation with Qantas to minimise potential impacts on training operations at the Qantas Flight Training Centre in its current location. It will include: <ul style="list-style-type: none"> ■ Confirming appropriate internal noise criteria for sensitive areas in the facility ■ Confirming building and simulator cabin acoustic performance ■ External criteria for noise and vibration ■ Working distances for noise and vibration intensive plant and activities ■ Alternative work methods that generate less noise and vibration and minimise vibration transmission ■ Real-time monitoring requirements.

Ref	Issue	Mitigation measures – construction (including pre-construction)
NV6	Construction management and scheduling	Investigate and implement alternative methods of demolition to avoid hydraulic/pneumatic hammering where high noise impacts are anticipated. Alternative methods could include shears, pulveriser or ripper attachments fitted onto the excavators.
NV7		Noisy work and vibration intensive activities (those activities that exceed the vibration criteria) will be scheduled during standard construction hours as far as possible. Works or activities that cannot be undertaken during standard construction hours will be scheduled as early as possible during the evening and/or night-time periods. Respite measures will be implemented for noisy work and vibration intensive activities in a manner consistent with Roads and Maritime's <i>Construction Noise and Vibration Guideline</i> .
NV8		Hoarding, or other shielding structures, will be used where receivers are impacted near fixed works areas. The barriers should be of solid construction with minimal gaps.
NV9	Management of the potential for vibration impacts during construction	Vibration generating activities will be managed to minimise the potential for impacts on structures and sensitive receivers, including maximising minimum working distances where practicable, or alternate methods to minimise vibration where minimum working distances cannot be achieved. Where alternatives cannot be implemented, vibration monitoring will be undertaken and receptors notified in advance of works. Vibration monitors will provide real-time notification of exceedances of levels approaching cosmetic damage and human comfort criteria.
NV10	Potential vibration impacts on pipelines	Prior to vibration intensive works in the vicinity of pipelines, the owners of each potentially affected pipeline will be consulted to confirm the potential for impacts from vibration and any appropriate criteria. Management protocols to protect the integrity of each affected pipeline, including monitoring requirements, will be developed in consultation with each asset owner as required, and implemented for all vibration intensive works in the vicinity of pipelines.
NV11	Potential impacts on buildings and structures	Building condition surveys will be completed before and after construction works where buildings or structures are within the minimum vibration working distances for cosmetic damage.
NV12	Potential vibration impact to heritage items	Prior to the commencement of vibration intensive works within the minimum working distances for cosmetic damage for heritage items, the potential for damage to the item will be assessed. Where there is potential for damage, alternative methods that generate less vibration will be investigated and substituted where practicable. Where residual cosmetic damage risks remain, condition surveys will be carried out and vibration monitoring with real-time notification of exceedance will occur during the activity. Site activities will be modified where practicable to avoid exceeding the cosmetic damage criteria. Any identified vibration-related damage to the items will be rectified.
NV13	Cumulative noise and vibration impacts	The likelihood of cumulative and consecutive construction noise impacts, particularly when undertaken outside standard construction hours, will be reviewed prior to construction and coordinated with other nearby projects to minimise impacts, where possible.

Ref	Issue	Mitigation measures – construction (including pre-construction)
Airport operations		
AS4	Wildlife attraction as a result of drainage and flooding management infrastructure	Drainage and flood management infrastructure will be managed during construction to minimise the risk of attracting wildlife.
AS10	Construction lighting	Construction lighting will be selected and located to meet Sydney Airport's restricted lighting zone requirements. For locations where it is not possible to achieve the required intensity levels, works requiring lighting will be undertaken in accordance with the requirements of Sydney Airport Corporation, which may involve restricting the timing of works to outside Sydney Airport's operational hours. Construction lighting will comply with section 9.21 of the Manual of Standards (CASA 2017) and the <i>National Airports Safeguarding Framework</i> (Guideline E).
AS11	Temporary intrusions of Sydney Airport's prescribed airspace	Construction planning will ensure that intrusions of Sydney Airport's prescribed airspace are minimised as far as practicable. Where temporary intrusions of the prescribed airspace cannot be avoided, works likely to result in intrusions will be undertaken in accordance with the requirements of Sydney Airport Corporation (for short-term works less than three months) or the Department of Infrastructure, Transport, Cities and Regional Development for long-term works (more than three months) and any controlled activity approvals for these works. This will include timing works to avoid Sydney Airport's operational hours.
Air quality		
AQ1	Managing air quality impacts during construction	A Construction Air Quality Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will detail processes, responsibilities and measures to manage air quality, odour and landfill gas and minimise the potential for impacts during construction. The plan will include an air quality, odour and landfill gas monitoring program, and will detail the measures that will be implemented to compare the actual performance of construction against the predicted performance. Monitoring will be undertaken for the duration of construction.
AQ2	Avoiding odour impacts	Odour impacts at the former Tempe landfill will be minimised as far as possible by: <ul style="list-style-type: none"> ■ Construction planning to minimise the need to expose waste, and/or the area exposed at any one time ■ Where there is the potential to generate odour, this will be managed in accordance with the odour management strategy (measure AQ3). Further modelling will be carried out to demonstrate that the proposed excavation methodology for the former Tempe Landfill can comply with the 2 OU criterion
AQ3	Monitoring and controlling odour at the former Tempe landfill	An odour management strategy will be developed prior to construction and implemented for the duration of works involving ground disturbance at the former Tempe landfill. The strategy will include: <ul style="list-style-type: none"> ■ Proposed work methods and mitigation measures that aim to limit odour at sensitive receptors to no more than the 2 OU criterion ■ Routine observation of weather conditions ■ Regular odour surveys at receptor locations by appropriately qualified professionals (see AQ4) ■ Measures to minimise the generation of odour at the end of each work day/shift ■ Mechanisms for investigating odour complaints, including conduct of additional odour surveys ■ Contingency and rectification measures (eg use of deodorisers) should significant odour issues occur at sensitive receivers in the vicinity of the project site.

Ref	Issue	Mitigation measures – construction (including pre-construction)
AQ4		<p>Odour surveys will be undertaken at downwind receptors for the duration of works involving ground disturbance at the former Tempe landfill in accordance with <i>Determination of odorants in ambient air by field inspection</i> (VDI 3940, 1993).</p> <p>The odour surveys will be undertaken:</p> <ul style="list-style-type: none"> ■ Daily, for one hour when works commence, and prior to works completing ■ If wind conditions drop below three metres per second ■ If an odour complaint is received. <p>If significant odour issues are observed in the vicinity of sensitive receptors, the contingency and rectification measures defined by the odour management strategy will be implemented (see AQ3).</p>
AQ5	Impacts on air quality as a result of demolition	Demolition activities, including removal of hazardous building materials, will be planned and carried out in a manner that minimises the potential for dust generation.
AQ6	Cumulative dust impacts arising from concurrent construction of the Gateway road project and the Botany Rail Duplication project	<p>The detailed construction program will be developed in consultation with the contractors constructing the Botany Rail Duplication project. Consultation will be maintained over the duration of both projects to plan activities in a manner that reduces the potential for air quality-related impacts.</p> <p>Where practicable, activities with a high potential to generate dust will be programmed so that they do not occur at the same time.</p>
Contamination and soils		
CS4	Demolition of structures containing hazardous substances	Hazardous materials surveys will be undertaken to inform construction planning, including demolition activities and utility adjustments.
CS5	Potential impacts of soil disturbance	<p>A Construction Soil and Water Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will detail processes, responsibilities and measures to manage potential soil and water quality impacts during construction, including potential impacts associated with the presence of existing contamination, stockpile management, saline soils and acid sulfate soils.</p> <p>The Construction Soil and Water Management Plan will be prepared in accordance with relevant guidelines and standards, including <i>Managing Urban Stormwater – Soils and Construction</i>, Volume 1 (Landcom, 2004) Volume 2B Waste landfills (DECC, 2008a) and Volume 2D (DECC, 2008b) (the Blue Book).</p>
CS6	Acid sulfate soils	<p>An Acid Sulfate Soils Management Plan will be prepared as part of the Construction Soil and Water Management Plan in accordance with the <i>Acid Sulfate Soils Assessment Guidelines</i> (ASSMAC, 1998).</p> <p>The plan will define the process and measures to manage actual and potential acid sulfate soil and sediment disturbed during construction. The plan will include a summary of available acid sulfate soil information relevant to the project site and identify any further soil/water analysis required as a precursor to implementing the management plan.</p> <p>Acid sulfate soils will be disposed off site (where required) in accordance with the <i>Waste Classification Guidelines - Part 1 and Part 4: Acid sulfate soils</i> (NSW EPA, 2014a).</p>
CS7	Impacts on sediments in Alexandra Canal during construction	<p>A plan of management will be developed in accordance with the remediation order and implemented to manage work within Alexandra Canal and minimise the disturbance and migration of contaminated sediments. The plan will identify specific methodologies to minimise disturbance and dispersion of potentially contaminated sediments.</p> <p>The plan will be prepared in consultation with Sydney Water Corporation and submitted for the NSW EPA's approval in accordance with the remediation order requirements.</p>

Ref	Issue	Mitigation measures – construction (including pre-construction)
CS11	Impacts on the former Tempe landfill	The potential for settlement will be considered as part of the siting and layout of construction compounds and work areas in the former Tempe landfill. Where required, ground treatment (eg foundation layers or sheet piling) will be provided to minimise this risk.
CS12		Landfill material will be appropriately handled and stockpiled, to ensure minimal impact to the surrounding community, on-site workers and the environment. Landfill waste will be managed in accordance with the requirements of <i>Environmental Guidelines: Solid waste landfills</i> (NSW EPA, 2016a). Excavated landfill waste to be disposed of will be classified in accordance with the <i>Waste Classification Guidelines Part 1: Classifying waste</i> (NSW EPA, 2014a) before being disposed of at an appropriately licensed waste facility.
CS13	Landfill gas intrusion	Protocols to address and manage landfill gases within the construction footprint in the former Tempe landfill and Sydney Airport northern lands car park will be developed and implemented during construction. The protocols will consider confined and/or enclosed spaces and appropriate controls as required (eg forced ventilation), and will include appropriate occupational monitoring.
CS14		Hot works within the former Tempe landfill and Sydney Airport northern lands car park will be restricted where there is a potential for fire or explosion. Monitoring for potentially flammable gases will occur during all hot works.
CS15	Works within Sydney Airport land	Any material imported and used within Sydney Airport land will be tested prior to use to ensure it does not exceed the acceptable limits in the PFAS National Environmental Management Plan (HEPA, 2018) and Schedule 3 of the <i>Airports (Environment Protection) Regulations 1997</i> .
CS16	Stockpile management and handling	Storage and containment systems for the stockpiling of contaminated material during construction will be designed to be impervious to the materials stored, resistant to fire (where required), covered to prevent contact with rainfall, and managed and maintained to prevent any release of liquids and contaminated run-off to stormwater drains, waters and land.
CS17	Management of previously unidentified contaminated material	The discovery of previously unidentified contaminated material will be managed in accordance with an unexpected contaminated finds procedure, as outlined in the <i>Guideline for the Management of Contamination</i> (Roads and Maritime, 2013b) and detailed in the CEMP. Awareness training will be provided for all on-site staff to assist in the identification of potentially contaminated material as per the unexpected contaminated finds procedure. In the event that unexpected indicators of contamination are encountered during construction (such as odours or visually contaminated materials), work in the area will cease, and the finds will be managed in accordance with the unexpected contaminated finds procedure.
CS18	PFAS impacted soil and groundwater	PFAS contaminated materials will be managed in accordance with the risk-based framework presented in the <i>PFAS National Environmental Management Plan</i> (HEPA, 2018). If soil and/or water containing PFAS is proposed for reuse, the proposed reuse must not result in an unacceptable or increased risk to human health and/or the environment. A health and environmental risk assessment and consultation with the NSW EPA (and the Airport Environment Officer where the works are on Sydney Airport land) will be required before any reuse of PFAS contaminated soil and/or water.
CS19	Remediation/ management of existing contamination	Validation of remediation will be undertaken during construction and a validation report prepared by a suitably qualified environmental consultant as defined in Schedule B9 of the NEPM to confirm the requirements of the RAP(s) have been met. For works on land subject to the EP&A Act, the validation report will be reviewed by a site auditor accredited in accordance with the site auditor scheme under the CLM Act. For works on Sydney Airport land, Sydney Airport Corporation and the Airport Environmental Officer will review the report.

Ref	Issue	Mitigation measures – construction (including pre-construction)
CS21	Erosion impacts post construction	A rehabilitation strategy will be prepared to guide the approach to rehabilitation of disturbed areas following the completion of construction.
Flooding		
HF1	Management of the potential for flooding impacts during construction	A flood mitigation strategy will be prepared and relevant measures will be implemented as part of the design and during construction. The strategy will include undertaking additional flood modelling taking into account detailed design and proposed construction planning and methodologies.
HF2	Impacts on flood behaviour from construction	Hydrologic and hydraulic assessments will be carried out for all temporary and permanent project components (including ancillary facilities) that have the potential to affect flood levels in the vicinity of the project. The results of the assessment will inform the preparation of the Flood Mitigation Strategy (measure HF1) as well as the design of temporary construction facilities and design development.
HF6	Potential flood impacts on ancillary construction facilities	As a minimum, site facilities will be located outside high flood hazard areas based on a one per cent AEP flood. For site facilities located within the floodplain, the flood mitigation strategy will identify how risks to personal safety and damage to construction facilities and equipment will be managed.
Groundwater		
GW4	Dewatering of excavation	A dewatering management strategy will be developed to confirm the approach to managing dewatering of excavations during construction. The strategy will: <ul style="list-style-type: none"> ■ Outline measures to minimise groundwater inflow ■ Describe likely groundwater quality based on sampling data ■ Estimate potential groundwater inflow rates and volumes for proposed excavations ■ Identify proposed methods for managing extracted water, which could include reuse, infiltration, reinjection, discharge to stormwater, disposal to the wastewater system, and collection for off-site disposal ■ Include a feasibility assessment of each proposed management option for extracted groundwater ■ Identify any groundwater treatment requirements and methods for any of the proposed management options ■ Describe any applicable monitoring requirements.
GW5	Managing leachate within the former Tempe landfill	A leachate management strategy will be developed to manage leachate at the former Tempe landfill during construction and ensure that the objectives of the site's voluntary remediation agreement continue to be met. The strategy will: <ul style="list-style-type: none"> ■ Identify predicted changes in leachate volumes due to the project, based on the detailed construction methodology ■ Identify any required changes to the existing leachate management system due to predicted changes in leachate volume and concentration and any other changes due to the project ■ Describe a framework for monitoring leachate levels and quality to ensure that no leachate migrates into Alexandra Canal. <p>The strategy will be developed in consultation with relevant stakeholders, including Inner West Council, Sydney Water and the NSW EPA.</p>

Ref	Issue	Mitigation measures – construction (including pre-construction)
GW6	Monitoring of construction impacts	<p>The existing groundwater monitoring program will continue during construction, and will be supplemented as required, to:</p> <ul style="list-style-type: none"> ■ Confirm groundwater quality to inform the selection management options for extracted groundwater, including treatment requirements for discharge ■ Monitor potential migration contaminants due to groundwater extraction (if it is a credible risk) ■ Confirm if acidification of groundwater is occurring due to exposure of acid sulfate soils ■ Confirm local groundwater levels to inform estimation of potential inflows and dewatering rates ■ Monitor drawdown levels and radii of influence to allow comparison against predictions ■ Confirm any changes to groundwater levels due to the cumulative impacts of other projects.
Surface water		
SW3	Sedimentation and scour protection at Alexandra Canal	All works within or adjacent to Alexandra Canal will be managed in accordance with <i>Guidelines for Controlled Activities on Waterfront Land – Riparian corridors</i> (Department of Industry, 2018).
SW6	Monitoring water quality	<p>A water quality monitoring program will be developed and implemented as part of the Construction Soil and Water Management Plan to monitor potential surface water quality impacts. The program will define:</p> <ul style="list-style-type: none"> ■ Monitoring parameters ■ Monitoring locations ■ Frequency and duration of monitoring. <p>The monitoring program will include ongoing baseline monitoring to determine the water quality of potential receiving waters prior to commencement of construction. Proposed discharge will be updated as required prior to construction based on the baseline data at the time.</p> <p>Water quality monitoring will continue for a minimum of 12 months following the completion of construction, or until affected watercourses are certified by a suitably qualified and experienced independent expert as being rehabilitated to an acceptable condition (or as otherwise required by any project conditions of approval).</p>
SW7	Discharge to stormwater network	The performance of treatment systems required to treat construction water before discharge will be verified in relation to the established discharge criteria.
SW8	Release of sediment-laden water during works in northern ponds	Construction planning will ensure that operation of the sluice gate at the northern ponds outlet to Alexandra Canal is not affected by the works.
Non-Aboriginal heritage		
NAH7	Managing heritage impacts during construction	A Heritage Management Plan will be prepared prior to construction and implemented as part of the CEMP. It will include measures to manage non-Aboriginal heritage and minimise the potential for impacts during construction. The plan will take into account relevant conservation and heritage management policies in the Alexandra Canal Conservation Management Plan and the Sydney Airport Heritage Management Plan.

Ref	Issue	Mitigation measures – construction (including pre-construction)
NAH8	Impacts on archaeology	<p>A Historical Archaeological Research Design and Excavation Methodology will be prepared for, and implemented at, the following locations within the project site:</p> <ul style="list-style-type: none"> ■ Intact sections of Alexandra Canal along the western bank of the canal on either side of the existing pedestrian and rail bridges ■ Vacant land at 30 Canal Road (Lot 4 DP 555771 and Lot 3 DP 825649) ■ Land located north of Canal Road that is currently used for the construction (stockpiling) of the New M5 (Lot A DP 391775, Lot B DP 394647 and Lot 2 DP1168612) ■ Sydney Airport land considered to contain low or moderate archaeological potential ■ Land along Qantas Drive considered to contain low or moderate archaeological potential ■ Sydney Airport land located east of Sydney Airport northern lands car park and west of Botany Rail Line (Lot 1 DP 826101) ■ Land to the west of Boral's St Peters facility and east of the Botany Rail Line. <p>The Historical Archaeological Assessment and Research Design and Excavation Methodology will identify the specific features of archaeological significance that could be present at these locations, provide a scope for further investigations to confirm and specify appropriate archaeological management for any remains identified.</p>
NAH9	Archival recording	<p>Photographic archival recording will be carried out for affected sections of the following items:</p> <ul style="list-style-type: none"> ■ Alexandra Canal ■ Sydney (Kingsford Smith) Airport Group ■ Cooks River Container Terminal ■ Mascot (Shea's Ck) Underbridge ■ Botany Rail Line. <p>Photographic archival recording will be carried out prior to works commencing in the vicinity of the item, and in accordance with <i>How to Prepare Archival Records of Heritage Items</i> (NSW Heritage Office, 1998) and <i>Photographic Recording of Heritage Items Using Film or Digital Capture</i> (Heritage Office, 2006b).</p> <p>Once complete, a report will be prepared detailing the history and significance of the item, relevant findings from the archival recording and an overview of the project. This document would subsequently be held by the appropriate local council(s), local library, local historical society and the owner of the asset.</p>
NAH10	Avoiding impacts during construction	<p>Heritage items and landscaping located outside the project site and associated with the following items will be marked on site plans contained within the CEMP as areas to be avoided during construction, where works are proposed within 10 metres of:</p> <ul style="list-style-type: none"> ■ Alexandra Canal (significant fabric and gazetted curtilage as detailed in the conservation management plan for Alexandra Canal) ■ Sydney (Kingsford Smith) Airport Group – fabric of high significance (as identified in the Sydney Airport Heritage Management Plan), trees and plantings ■ Cooks River Container Terminal – fabric of high significance, trees and plantings ■ Mascot (Shea's Ck) Underbridge – fabric associated with the bridge. <p>Protective barriers will be established prior to works at these locations.</p>
NAH11	Potential vibration impacts on heritage items	<p>Potential vibration impacts on features of heritage significance will be managed in accordance with the Construction Noise and Vibration Management Plan (measure NV1) and noise and vibration mitigation measure NV12.</p>

Ref	Issue	Mitigation measures – construction (including pre-construction)
NAH12	Unexpected finds	Any items of potential heritage conservation significance or human remains discovered during construction will be managed in accordance with the <i>Standard Management Procedure Unexpected Heritage Items</i> (Roads and Maritime, 2015e).
Aboriginal heritage		
AH2	Archaeological investigation areas impacted by the project	Archaeological salvage excavation will be undertaken prior to construction within those parts of Investigation Area 1 and Investigation Area 2 where deep sediments would be directly impacted by the project. Archaeological salvage excavation (including post-excavation analysis and reporting) will be completed prior to any activities that may result in harm to Aboriginal objects in these areas.
AH4	Managing heritage impacts during construction	An Aboriginal Heritage Management Plan will be prepared prior to construction and implemented as part of the CEMP. The plan will include measures to manage Aboriginal heritage and minimise the potential for impacts during construction. It will include the proposed salvage methodology, unexpected find procedure (see measure AH6) and process for additional consultation with Aboriginal stakeholders.
AH5	Aboriginal consultation	Aboriginal stakeholder consultation will continue to be undertaken in accordance with the <i>Procedure for Aboriginal cultural heritage consultation and investigation</i> (Roads and Maritime, 2011b) and <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> (DECCW, 2010c).
AH6	Unexpected finds	If suspected Aboriginal heritage items or human remains are uncovered during construction they will be managed in accordance with the <i>Standard Management Procedure: Unexpected Heritage Items</i> (Roads and Maritime Services, 2015e).
Land use and property		
LU5	Impacts on privately-owned land or land owned by the NSW or local government	Acquisition will be undertaken in accordance with: <ul style="list-style-type: none"> ■ <i>The Land Acquisition (Just Terms Compensation) Act 1991</i> (NSW) ■ <i>Determination of compensation following the acquisition of a business</i> (NSW Government, undated).
LU6	Impacts on Commonwealth-owned land subject to a lease with Sydney Airport Corporation	Sydney Airport, as the leaseholder of the land, will notify tenants that their sub-lease agreements will be concluded. Termination of leases will be undertaken in accordance with the contract terms with Sydney Airport Corporation and the tenant. Sydney Airport will provide support to manage the return of lands and handover to Roads and Maritime.
LU7	Impacts on Qantas Flight Training Centre	Consultation with Qantas will occur throughout construction planning and construction to minimise impacts on the Qantas Flight Training Centre until the relocation process is complete.
Socio-economic		
SE1	Potential social and community impacts during construction	A communications strategy will be prepared to detail the process of communicating and engaging with the community and stakeholders in the lead up to, and during, construction. It will ensure that: <ul style="list-style-type: none"> ■ The community and stakeholders have a high level of awareness and forewarning of all processes and activities ■ Accurate and accessible information is made available ■ A timely response is given to issues and concerns raised by the community ■ Feedback from the community is encouraged ■ Opportunities for input are provided. In relation to the potential for socio-economic impacts, the strategy will include: <ul style="list-style-type: none"> ■ Communication with potentially affected residents, other community members, businesses and other key stakeholders to provide information

Ref	Issue	Mitigation measures – construction (including pre-construction)
		<p>about the project, and the likely nature, extent and duration of amenity and access changes during construction</p> <ul style="list-style-type: none"> ■ Protocols to identify and engage with vulnerable persons that might be affected by construction ■ Protocols for communicating information about potential access delays in and around Sydney Airport and other relevant project information.
SE2	Potential impacts on businesses	<p>Business management plans will be prepared and implemented for businesses affected by the project. The plans will be developed on a case by case basis and will detail specific measures, developed in consultation with the business operator. These will include:</p> <ul style="list-style-type: none"> ■ Protocols to identify, in consultation with each affected business, feasible and reasonable measures to maintain vehicular and pedestrian access during business hours, and visibility of the business to potential customers during construction, including alternative arrangements for times when access and visibility cannot be maintained ■ Measures to respond to identified impacts as far as possible.
SE5	Impacts on the off-leash dog exercise area	<p>A temporary off-leash dog exercise area will be provided. Access to this area will be maintained throughout construction, and temporary parking spaces will be provided. The location of the off-leash dog exercise area and the number of temporary parking spaces will be confirmed in consultation with Council. The condition of the temporary off-leash dog exercise area will be regularly monitored and maintained.</p>
SE6	Impacts on community facilities and infrastructure	<p>Access to community facilities and infrastructure will be maintained during construction. Where alternative access arrangements need to be made, these will be developed in consultation with relevant service providers and communicated to users.</p> <p>Any changes to access arrangements will be managed in accordance with the Construction Traffic and Access Management Plan.</p>
Landscape character and visual amenity		
LV7	Visual impacts during construction	<p>The design and maintenance of construction compound hoardings will aim to minimise visual amenity and landscape character impacts.</p>
LV8		<p>The selection of materials and colours for hoardings will aim to minimise their visual prominence.</p>
LV9		<p>Lighting of work areas, compounds, and work sites will be oriented to minimise glare and light spill impact on adjacent receivers.</p>
LV10	Tree protection during construction	<p>Trees to be retained will be protected prior to the commencement of construction in accordance with <i>AS4970-2009 Protection of trees on development sites</i> and the project's tree management strategy.</p> <p>Any tree pruning will be undertaken in accordance with the project's tree management strategy, guided by a tree report prepared by a qualified arborist.</p>
LV11	Site rehabilitation	<p>Following completion of construction, site restoration will be undertaken in accordance with the rehabilitation strategy (measure CS22). Temporary impacts on public open space will be rehabilitated in consultation with the relevant local council and/or landowner.</p>
Biodiversity		
BD3	Managing the potential for biodiversity impacts during construction	<p>A Construction Biodiversity Management Plan will be prepared prior to construction and implemented as part of the CEMP. It will include measures to manage biodiversity and minimise the potential for impacts during construction. The plan will be prepared in accordance with relevant legislation, guidelines and standards.</p>

Ref	Issue	Mitigation measures – construction (including pre-construction)
Health, safety and hazards		
HS1	Spill response	A spill response procedure will be developed as part of the project's incident management protocols. The procedure and incident management protocols will detail processes, responsibilities and measures to manage hazardous substances and dangerous goods, including storage, handling and spill response, in accordance with legislative requirements.
HS2	Utility management	A utilities contingency management plan will be prepared and will include measures to manage any utility service disruptions during construction. This will include procedures to respond to and unplanned outages of services, particularly for critical Sydney Airport infrastructure.
HS3	Alterations to the ethylene pipeline	A safety management study will be prepared for any proposed alterations to the ethylene pipeline in accordance with <i>AS 2885 Pipelines – Gas and liquid petroleum</i> . The outcomes of the safety management study will be incorporated in construction planning.
HS4	Emergency response	An emergency response plan will be prepared and will include measures to manage emergency situations during construction, including those associated with fires, flooding or other threats to public safety.
HS5	Fire risk	All works involving potential ignition sources within the former Tempe landfill will be subject to a risk assessment or ban on total fire ban days.
HS6	Transport of dangerous goods and hazardous materials	The transport of dangerous goods will be undertaken in accordance with the Dangerous Goods (Road and Rail Transport) Regulation 2009 and the <i>Australian Code for the Transport of Dangerous Goods by Road & Rail</i> (National Transport Commission, 2017).
Waste management		
WM2	Construction waste and spoil management	A Construction Waste Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will adopt the waste hierarchy principles contained in the <i>Waste Avoidance and Resource Recovery Act 2001</i> and will detail processes, responsibilities and measures to manage waste and minimise the potential for impacts during construction.
WM3		Construction waste will be minimised by accurately calculating materials brought to the site and limiting materials packaging where possible.
WM4		All waste disposal will be in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014a)
WM5	Attraction of wildlife at the former Tempe landfill	The following measures would be implemented during works at the former Tempe landfill to avoid attracting wildlife: <ul style="list-style-type: none"> ■ Staging the excavation to minimise the amount of exposed waste at any one time ■ Minimising the size and area of exposed stockpiles ■ Ensuring material that has been disturbed, uncapped, or temporarily stockpiled is suitably covered at the end of each day.
WM6	Management of unexpected waste materials	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. Areas will be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient space for stockpile storage.
Climate change and greenhouse gas		
GHG4	Greenhouse gas emissions	An appropriate portion of construction phase energy will be purchased from an accredited GreenPower product.

Table 27.15 Compilation of mitigation measures for operation

Ref	Issue	Mitigation measures – operation
<i>Traffic, transport and access</i>		
TT17	Operational road network performance including potential increased traffic on some parts of the network	A review of operational network performance will be undertaken 12 months and five years from the commencement of operation to confirm the operational traffic impacts on surrounding arterial roads and major intersections. The review will identify measures (as required) to address impacts on road network performance. The results of the review will be considered in future operational network performance planning carried out by Roads and Maritime.
TT18	Active transport opportunities	Roads and Maritime and Sydney Airport Corporation will prepare an active transport strategy to integrate and enhance accessibility opportunities. The strategy will be prepared in conjunction with relevant stakeholders and provide a guide for future active transport infrastructure provision.
<i>Noise and vibration</i>		
NV16	Operational noise and vibration impacts of the project	Operational noise mitigation performance will be documented in an Operational Noise and Vibration Review conducted within 12 months of the commencement of operation. The need for additional mitigation or management measures to address identified operational performance issues and meet relevant operational noise criteria will be assessed and implemented where feasible and reasonable.
<i>Airport operations (hazards and risks)</i>		
AS4	Wildlife attraction as a result of drainage and flooding management infrastructure	Drainage and flood management infrastructure will be managed during operation to minimise the risk of attracting wildlife.
<i>Contamination and soils</i>		
CS20	Remediation/management of existing contamination	<p>The requirements for ongoing monitoring and maintenance of any installed or reinstated remediation systems will be documented in EMP(s) prepared for the respective areas. The EMP(s) will be prepared and implemented in accordance with the following requirements:</p> <ul style="list-style-type: none"> ■ The voluntary remediation proposal, EMP and any RAPs in place for the former Tempe landfill, including requirements for ongoing gas monitoring ■ The requirements of the Sydney Airport RAP and EMP (if applicable) ■ <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> ■ <i>Environmental Guidelines: Solid waste landfills</i> (NSW EPA, 2016a) (for reinstatement of the capping layer and/or design of the new capping layer and final road pavement at the former Tempe landfill). <p>The EMP(s) will be:</p> <ul style="list-style-type: none"> ■ Prepared in consultation with the Airport Environmental Officer and NSW EPA (as relevant) ■ For works on land subject to the EP&A Act – approved by an independent site auditor accredited under the site auditor scheme under the CLM Act ■ For works on Sydney Airport land – approved by Sydney Airport Corporation and endorsed by the Airport Environment Officer <p>Following implementation and validation of the RAP(s) (if required by the existing EMP), and approval of the EMP(s), the site auditor will prepare a Site Audit Statement confirming the suitability of the project site for the proposed development (for works on land subject to the EP&A Act). For works on Sydney Airport land, the Airport Environmental Officer will confirm the objectives of the remediation have been met.</p>

Ref	Issue	Mitigation measures – operation
CS22	Contamination during operation	Spills and leaks of vehicles or maintenance plant and equipment will be managed in accordance with Roads and Maritime's standard operating procedures.
CS23		Ongoing management measures will be implemented for any areas where contamination remains following construction, and has the potential to cause an ongoing risk to maintenance works, the community and/or the receiving environment. These management measures will be documented in the EMP(s).
Flooding		
HF7	Adaptive management of infrastructure	Roads and Maritime and Sydney Airport Corporation will review measures to maintain or improve over time the flood immunity of the infrastructure resulting from the effects of climate change.
Land use and property		
LU8	Future management of residual land	The ongoing management of residual land, and Roads and Maritime's role in this process, will be confirmed in consultation with Inner West Council.
Waste management		
WM7	Operational waste management	Operational waste, including general litter clean up, will be managed in accordance with existing operational maintenance requirements for the project and the waste hierarchy principles contained in the <i>Waste Avoidance and Resource Recovery Act 2001</i> .
Sustainability		
SU2	Sustainability management plan	Prior to the commencement of operation, the sustainability management plan and sustainability initiatives will be reviewed and updated.
Climate change and greenhouse gas		
CC4	Emergency management planning	Operational procedures for emergency planning and management will be prepared to consider the increased risk of flooding and storm surges on the road and active transport link.
CC5		Emergency management planning will be undertaken in consultation and collaboration with other key agencies and surrounding stakeholders, including Sydney Airport Corporation.
GHG5	Greenhouse gas emissions	A minimum of six per cent of operational phase energy will be purchased from an accredited GreenPower product.

27.4 Compilation of performance outcomes

The SEARs identify desired performance outcomes to be achieved during design, construction and operation of the project (see Table 27.16) and include a requirement for an EIS to include 'a statement of the outcome(s) the proponent will achieve for each key issue'.

Based on the outcomes of the environmental impact assessment summarised in Part B, and implementation of the mitigation measures compiled in section 27.3, project-specific environmental performance outcomes have been established and are listed in Table 27.16. The first and second columns of the table provide the key issue and desired performance outcome from the SEARs, and the third column provides the project-specific environmental performance objectives to achieve the desired outcome.

Future design development and any design changes would be considered against these environmental performance outcomes.

Table 27.16 Compilation of environmental performance outcomes

Key issue (as listed in the SEARs)	SEARs desired performance outcomes	Project-specific environmental performance outcomes
Environmental impact assessment process	The process for assessment of the proposal is transparent, balanced, well focussed and legal.	This assessment is prepared in consultation with relevant stakeholders through a transparent process and in accordance with Part 3 of Schedule 2 of the EP&A Regulation, the Airports Act, and the EPBC Act.
Environmental impact statement	The proposal is described in sufficient detail to enable clear understanding that the proposal has been developed through an iterative process of impact identification and assessment and proposal refinement to avoid, minimise or offset impacts so that the proposal, on balance, has the least adverse environmental, social and economic impact, including its cumulative impacts.	The project is described in detail in Chapter 7 (Project description) and Chapter 8 (Construction). Chapter 6 (Project alternatives and options) outlines the iterative process of project refinements to avoid, minimise or offset project impacts at the concept stage.
Assessment of key issues	Key issue impacts are assessed objectively and thoroughly to provide confidence that the proposal will be constructed and operated within acceptable levels of impact.	Impacts are assessed objectively and thoroughly. The implementation of environmental management and mitigation measures ensures the project is constructed and operated within acceptable levels of impact (see section 27.3).
Consultation	The proposal is developed with meaningful and effective engagement during proposal design and delivery.	Consultation to date is described in Chapter 4 (Consultation). The project is developed with meaningful and effective engagement. A communication strategy is implemented to guide effective engagement during project delivery.
Transport and traffic	Network connectivity, safety and efficiency of the transport system in the vicinity of the proposal are managed to minimise impacts. The safety of transport system customers is maintained. Impacts on network capacity and the level of service are effectively managed. Works are compatible with existing infrastructure and future transport corridors.	Impacts on traffic and transport is minimised. Safe access to properties is maintained. Access to Sydney Airport is maintained. The project is integrated with existing and future local and regional transport infrastructure and planning strategies. Motorist, pedestrian and cyclist safety is maintained or improved.
Noise and vibration - amenity	Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on acoustic amenity. Increases in noise emissions and vibration affecting nearby properties and other sensitive receivers during operation of the proposal are effectively managed to protect the amenity and well-being of the community.	The project minimises impacts on the local community by controlling noise and vibration. Feasible and reasonable mitigation measures are implemented to minimise the noise and vibration impacts on sensitive receivers.
Noise and vibration - structural	Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on the structural integrity of buildings and items including Aboriginal places and environmental heritage. Increases in noise emissions and vibration affecting environmental heritage as defined in the <i>Heritage Act 1977</i> during operation of the proposal are effectively managed.	The project minimises impacts on structures by controlling vibration through construction planning. Feasible and reasonable mitigation measures are implemented to minimise the structural vibration impacts. Vibration intensive construction work is managed to avoid or minimise adverse impacts on the structural integrity of buildings and heritage items.

Key issue (as listed in the SEARs)	SEARs desired performance outcomes	Project-specific environmental performance outcomes
Place making and urban design	<p>The proposal design complements the amenity, character and quality of the surrounding environment.</p> <p>The proposal contributes to the accessibility and connectivity of communities.</p> <p>The proposal contributes to an increase in tree canopy for greater Sydney.</p>	<p>The project provides a sense of arrival and contributes positively to the surrounding urban environment.</p> <p>Connectivity within the community is enhanced through pedestrian and cyclist access.</p> <p>Vegetation is retained where feasible and reasonable.</p> <p>Trees removed as part of the project are replaced in accordance with the tree management strategy.</p>
Visual amenity	<p>The proposal minimises adverse impacts on the visual amenity of the built and natural environment (including public open space) and capitalises on opportunities to improve visual amenity.</p>	<p>The project is designed to have regard to the surrounding landscape and visual environment and to minimise the potential for visual impacts.</p> <p>The project is visually integrated with its surroundings, where possible.</p>
Socio-economic, land use and property	<p>The proposal minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities.</p> <p>The proposal minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure.</p>	<p>The project minimises impacts on the local community, community infrastructure, and businesses.</p> <p>Impacts to existing land use and properties are minimised.</p> <p>The project is appropriately integrated with adjoining land uses and access to private properties is maintained.</p> <p>The project is appropriately integrated with local and regional land use planning strategies.</p> <p>Construction of the project has a positive impact on the local and greater Sydney economy.</p> <p>During operation, the project improves access to services and destinations, supporting opportunities for community interaction.</p>
Heritage	<p>The design, construction and operation of the proposal facilitates, to the greatest extent possible, the long-term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places.</p> <p>The design, construction and operation of the proposal avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.</p>	<p>Aboriginal heritage objects with the potential to be impacted by the project are salvaged and retained.</p> <p>Key Aboriginal heritage values are incorporated into the final urban design and landscaping outcomes.</p> <p>The design is sympathetic to the historic significance of Sydney Airport and the heritage significance of surrounding listed heritage items, and where practicable, avoids and minimises impacts on heritage.</p> <p>Visual impacts on heritage items are mitigated through individually tailored landscape treatments.</p> <p>Impacts on heritage are managed in accordance with relevant legislation, including the EP&A Act, the <i>Heritage Act 1977</i> (NSW), Airports (Environment Protection) Regulation 1997 and relevant guidelines.</p>
Biodiversity	<p>The proposal design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity.</p> <p>Offsets and/or supplementary measures are assured which are equivalent to any remaining impacts of proposal construction and operation.</p>	<p>The project is designed to minimise impacts on biodiversity. Where practicable, the design minimises the need to clear vegetation.</p> <p>Potential impacts on biodiversity are managed in accordance with relevant legislation, including the EP&A Act, BC Act, EPBC Act and the <i>Biosecurity Act 2015</i> (NSW).</p>

Key issue (as listed in the SEARs)	SEARs desired performance outcomes	Project-specific environmental performance outcomes
Flooding	The proposal minimises adverse impacts on existing flooding characteristics. Construction and operation of the proposal avoids or minimises the risk of, and adverse impacts from, infrastructure flooding, flooding hazards, or dam failure.	Construction is undertaken in a manner that minimises the potential for adverse flooding impacts, through staging of works and implementation of mitigation measures. Construction compounds and work sites are designed such that flows are not significantly impeded. The project maintains or reduces flood levels within and adjacent to the project site.
Water - hydrology	Long term impacts on surface water and groundwater hydrology (including drawdown, flow rates and volumes) are minimised. The environmental values of nearby, connected and affected water sources, groundwater and dependent ecological systems including estuarine and marine water (if applicable) are maintained (where values are achieved) or improved and maintained (where values are not achieved). Sustainable use of water resources.	The project avoids long term impacts on surface water and groundwater hydrology. Opportunities to reuse water resources during construction are considered during the design process. The use of water during construction is minimised.
Water - quality	The proposal is designed, constructed and operated to protect the NSW Water Quality Objectives where they are currently being achieved, and contribute towards achievement of the Water Quality Objectives over time where they are currently not being achieved, including downstream of the proposal to the extent of the proposal impact including estuarine and marine waters (if applicable).	Impacts to water quality during construction and operation are minimised. Erosion and sediment controls during construction are implemented in accordance with the Blue Book. The project protects or contributes to achieving the water quality objectives, during construction and operation by establishing discharge criteria that protect the environmental values of the receiving waters.
Soils	The environmental values of land, including soils, subsoils and landforms, are protected. Risks arising from the disturbance and excavation of land and disposal of soil are minimised, including disturbance to acid sulfate soils and site contamination.	Site-specific soil characteristics are taken into consideration during detailed design and construction. Soils excavated from potential acid sulfate areas are subject to the provisions of an acid sulfate soil management plan. Once acid sulfate soils have been treated, depending on the results of testing, they are either reused on site or disposed of at an appropriate facility. Existing contamination is managed in accordance with relevant regulatory requirements. Any spoil for off-site disposal is assessed, classified, managed and disposed of in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014a).
Air quality	The proposal is designed, constructed and operated in a manner that minimises air quality impacts (including nuisance dust and odour) to minimise risks to human health and the environment to the greatest extent practicable.	Potential air quality/dust impacts from the construction of the project are minimised and managed. Odour impacts are minimised through the implementation of the former Tempe landfill odour management plan. Dust and exhaust emissions of plant and equipment are controlled from construction activities. Adverse impacts on existing air quality are minimised.

Key issue (as listed in the SEARs)	SEARs desired performance outcomes	Project-specific environmental performance outcomes
Health and safety	<p>The proposal avoids or minimises any adverse health impacts arising from the proposal.</p> <p>The proposal avoids, to the greatest extent possible, risk to public safety.</p>	<p>Potential air quality/dust impacts, traffic impacts and noise and vibration impacts from construction of the project are minimised and managed.</p> <p>Utilities are managed in consultation with utility providers to minimise impacts on the community and Sydney Airport.</p> <p>Traffic management during construction is implemented to minimise the risk to public safety.</p> <p>The majority of potential impacts on amenity and community wellbeing, and access and connectivity during construction is temporary and short term.</p> <p>Safe and efficient road user movements is achieved through the project design and care is taken to minimise incidents and crashes during construction.</p>
Sustainability	<p>The proposal reduces the NSW Government's operating costs and ensures the effective and efficient use of resources.</p> <p>Conservation of natural resources is maximised.</p>	<p>Sustainability considerations are integrated throughout design, construction and operation.</p> <p>The project is carried out in accordance with the <i>Environmental Sustainability Strategy 2019–2023</i> (Roads and Maritime, 2019b).</p> <p>Water and electricity efficiency measures are implemented where practicable.</p> <p>Opportunities are taken to reduce material use and maximise the use of materials with low embodied environmental impact where practicable.</p>
Waste	<p>All wastes generated during the construction and operation of the proposal are effectively stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.</p>	<p>The preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and disposal is implemented.</p> <p>Measures to minimise waste, manage waste and conserve resources throughout the construction of the project are implemented.</p> <p>Construction staff have an increased level of understanding and awareness of waste and resource use management issues.</p> <p>Uncontaminated spoil is recycled or reused either on or off site.</p> <p>Reuse of waste is managed in accordance with relevant NSW EPA requirements.</p> <p>Waste is disposed of at appropriately licensed facilities.</p>
Climate change risk	<p>The proposal is designed, constructed and operated to be resilient to the future impacts of climate change.</p>	<p>Resilience to future extreme rainfall and sea level rise as a result of climate change.</p> <p>Surrounding asset owners are engaged for a coordinated approach to address potential future climate change related impacts.</p> <p>Design standards are applied for resilience to extreme heat conditions.</p> <p>Workplace health and safety aspects are considered, such as future climate change related heat stress.</p>

27.5 Project uncertainties and approach to design refinements

27.5.1 Project uncertainties

The design presented in this document is indicative and subject to further detailed design which may further minimise impacts. The design serves to:

- Confirm that the proposed performance and technical requirements can be achieved
- Validate the feasibility and potential methodologies of the construction
- Identify key risks, constraints and potential environmental impacts.

There remain some uncertainties relating to technical requirements and how the project would be constructed. These would be resolved during detailed design. A summary of the uncertainties that have the potential to impact on the environment, and how these would be resolved, is provided in Table 27.17. Considering the implementation of the proposed resolutions, the uncertainties listed are not expected to result in significant or unacceptable impacts on the environment that would not be capable of mitigation or management.

Table 27.17 Resolution of key project uncertainties

Key uncertainties	Category	How uncertainties will be resolved
Hydrology and flooding – requirement for flood storage basin	Design	Further flood modelling will be undertaken incorporating the detailed design, construction planning information, and additional information such as development floor levels of potentially impacted properties. This will provide further guidance on potential flood risks and confirm the required mitigation requirements.
Groundwater levels and fluctuations	Design	While monitoring has been conducted to date, groundwater level and quality monitoring will continue to be undertaken to provide a more reliable and robust dataset. This will allow for future predictions of groundwater drawdown (including settlement).
Water quality of surface waterbodies	Design	Surface water quality monitoring will continue to be undertaken in Alexandra Canal and Mill Stream to augment the existing dataset. This will facilitate establishing discharge criteria for surface water discharges (if proposed) to protect the environmental values of the watercourses.
The location and extent of likely ground settlement	Design	Further assessment will be undertaken of potential ground settlement associated with likely groundwater drawdown, including numerical modelling (if required).
Minimising groundwater interception	Design	The construction methodology will be refined, where practicable, to minimise interception of groundwater.
Groundwater dewatering methods and management	Design	A dewatering management strategy will be prepared, which will include proposed methods, procedures, testing and disposal of extracted groundwater.
	Design	The feasibility of options proposed in Chapter 15 (Groundwater) for discharging and managing extracted groundwater will be further investigated. This will include on-site reuse, infiltration, reinjection, discharge to stormwater, disposal to the wastewater system and collection for off-site disposal, including water accounting procedures.
Noise barriers – location, height and type.	Design	The noise barrier recommended in Chapter 10 (Noise and vibration) will be subject to further reasonable and feasible considerations during detailed design including construction limitations, aviation safety (turbulence) and urban design. Further noise modelling will be required to confirm the requirements of the noise barrier including the location, height and type.

Key uncertainties	Category	How uncertainties will be resolved
Emplacement mounds – location, design and configuration of the emplacement mounds in Tempe	Design	The location, design and configuration of the emplacement mounds at Tempe would be confirmed during detailed design in consultation with key stakeholders including Inner West Council and Sydney Airport Corporation. The mounds will be designed and managed as described in section 7.10.2. Key considerations include existing and future land uses, aviation safety (turbulence) requirements and the master plan for the Tempe Lands area being prepared by Inner West Council.
Contamination and waste management	Design	The expected volume of contaminated or unsuitable material to be managed and/or disposed of would be confirmed during detailed design.
Existing contamination and need for remediation	Design	Additional intrusive environmental site investigations will be undertaken to identify and confirm existing contamination levels across the project site. The need for and type of remediation to address specific areas of contamination will be confirmed following further intrusive investigations and identification of the construction methods proposed by the construction contractor(s).
Extent of odour impacts from the former Tempe landfill	Design	Further odour modelling and impact assessment will be undertaken, including of the construction contractor(s) preferred construction method, considering all potential odour sources.
Construction compounds, worksites and laydown facilities	Construction	The final location and layout of construction compounds, worksites and facilities will be confirmed based on the detailed design and final construction methodology, including flood risk assessment.
Relocation of Inner West Council Depot	Design	The need to relocate the existing council depot and identification of a preferred location will be confirmed in consultation with Inner West Council.
Communications, navigation and surveillance equipment effects at Sydney Airport	Design	Further advice from CASA and Airservices Australia is required to determine the extent of any operational impacts on communications, navigation and surveillance equipment and the mitigation that may be required.
Utilities – the nature and extent of utility works	Construction	The location, nature and extent of utility changes will be confirmed during detailed design in consultation with utility providers. Further consultation will be undertaken with utility providers to refine and confirm changes and manage the proposed staging of work.

27.5.2 Approach to design refinements

The concept design defines a project that provides a sound basis for developing the detailed design to the standard required to support project delivery. Sufficient flexibility has been provided to allow for the design to be refined during the detailed design stage, where relevant, to improve the road network and safety performance, minimise impacts on the community and the environment, and in response to feedback from the community and stakeholders. As a result, the final design may vary from the concept design described in this chapter.

Any proposed variations would be reviewed for consistency with the assessment contained in this document, including relevant mitigation measures, performance outcomes and any future conditions of approval. If any proposed variations are not consistent with the approvals, appropriate modifications to the project approval would be sought in accordance with legislative requirements, noting that only minor modifications can be made to approved MDPs under the Airports Act.

The design of the project as described in this document would be subject to ongoing refinements during the detailed design phase. Refinements may be made to:

- Avoid services that present significant construction difficulties in terms of logistics, time and/or cost
- Reduce the construction timeframe

- Avoid areas of environmental sensitivity identified following approval
- Reduce impacts on the community
- Improve operation without increasing the potential environmental impacts.

Such refinements may include (for example) minor changes to:

- The location of construction compounds and work area accesses
- The location of key infrastructure, refinement or reorientation of site boundaries
- Technology or the features of key project components.

Refinements would not include significant changes to the project.

A consistency review would be undertaken for design refinements to consider whether the refinement would:

- Comply with the conditions of approval
- Be consistent with the objectives and operation of the project as described in this document
- Result in a change to the approved project which is not considered significant
- Result in any potential environmental or social impacts of a similar scale and nature as those considered by this document.

If the proposed change is inconsistent with the above, it would be considered a project modification.

Approval for any modifications would be sought in accordance with the requirements of Division 5.2 of the EP&A Act and Section 95 of the Airports Act.

28. Project justification and conclusion

28.1 Summary description of the project for which approval is sought

Roads and Maritime and Sydney Airport Corporation are proposing new direct high capacity road connections linking the Sydney motorway network at St Peters interchange with Sydney Airport's domestic and international terminals and beyond.

The project comprises new and upgraded sections of road connecting to the airport terminals. It would also include four new bridges over Alexandra Canal and other operational infrastructure and road connections. The new connections and increased road capacity would help improve traffic flow to and from Sydney Airport and towards Port Botany, making the movement of people and goods easier, safer and faster.

28.1.1 Approval requirements

The project is subject to approval under NSW and Commonwealth legislation. Parts of the project located on Commonwealth-owned land leased to Sydney Airport Corporation (Sydney Airport land) are subject to the *Airports Act 1996* (Cth). In accordance with the Airports Act, these parts of the project are major airport development. A major development plan (MDP), approved by the Australian Minister for Infrastructure, Transport and Regional Development, is required before a major airport development can be undertaken at a leased airport.

Parts of the project located on other land have been declared State significant infrastructure in accordance with the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and *State Environmental Planning Policy (State and Regional Development) 2011*. As State significant infrastructure, these parts of the project need approval from the NSW Minister for Planning and Public Spaces. An environmental impact statement (EIS) is required to support the application for approval for State significant infrastructure under the EP&A Act).

This combined EIS/preliminary draft MDP considers the potential impacts of the project. It has been prepared to support an application for approval of the project as State significant infrastructure in accordance with the requirements of Division 5.2 of the EP&A Act (for those parts of the project subject to the EP&A Act), and as a major airport development under Section 90 of the Airports Act (for those parts of the project located on Commonwealth-owned land).

This EIS/preliminary draft MDP:

- Addresses the environmental assessment requirements of the Secretary of the Department of Planning, Industry and Environment (the SEARs), issued on 15 February 2019
- Addresses the MDP requirements defined by section 91 of the Airports Act.

28.1.2 Location

The project is located about eight kilometres south of the Sydney central business district, in the suburbs of Tempe, St Peters and Mascot. It is located in the Inner West, City of Sydney and Bayside local government areas.

The northern extent of the project site (the area that would be directly disturbed by construction and operation of the project) is located at St Peters interchange, which is currently being constructed as part of the New M5 project. The project site extends to the south-west in Tempe and crosses Alexandra Canal. The western extent of the project site is located near the entrance to Terminal 1 on Airport Drive. The project site also crosses Alexandra Canal further to the north and extends to the east in Mascot. The eastern extent of the project site is located at the entrance to Terminals 2/3.

The majority of the project site is owned by the Australian Government and is leased to Sydney Airport Corporation. Other land is owned by the NSW and local governments (including Inner West Council) and private landowners (including Sydney Airport Corporation).

The project site is shown on Figure 2.1 to Figure 2.5.

28.1.3 Objectives

The objectives of the project are to:

- Improve connectivity to Sydney Airport terminals by providing high capacity direct road connections that cater for forecast growth in passenger and air freight volumes
- Support the efficient distribution of freight to and from Sydney Airport and Port Botany to logistic centres in Western Sydney
- Improve the liveability of Mascot town centre by reducing congestion and heavy vehicle movements on the local road network.

28.1.4 Key design features

The project provides a number of linked road connections to facilitate the movement of traffic between the Sydney motorway network, Terminal 1 and Terminals 2/3. The project would connect Terminal 1 and Terminals 2/3 with each other and with the Sydney motorway network (ie New M5 and M4-M5 Link at St Peters interchange) via St Peters interchange. The project would also facilitate the movement of traffic towards Port Botany via General Holmes Drive. It would provide three main routes for traffic:

- Between the Sydney motorway network and Terminal 1, and towards the M5 motorway and the Princes Highway
- Between the Sydney motorway network and Terminals 2/3, and towards General Holmes Drive, Port Botany and Southern Cross Drive
- Between Terminal 1 and Terminals 2/3.

The project also provides access to Sydney Airport land on both sides of Alexandra Canal and the Botany Rail Line.

The key features of the project include:

- Road links to provide access between the Sydney motorway network and Sydney Airport's terminals, consisting of the following components:
 - St Peters interchange connection – a new elevated section of road extending from St Peters interchange to the Botany Rail Line, including an overpass over Canal Road
 - Terminal 1 connection – a new section of road connecting Terminal 1 with the St Peters interchange connection, including a bridge over Alexandra Canal and an overpass over the Botany Rail Line
 - Qantas Drive upgrade and extension – widening and upgrading Qantas Drive to connect Terminals 2/3 with the St Peters interchange connection, including a high-level bridge over Alexandra Canal
 - Terminal links – two new sections of road connecting Terminal 1 and Terminals 2/3, including a bridge over Alexandra Canal
 - Terminals 2/3 access – a new elevated viaduct and overpass connecting Terminals 2/3 with the upgraded Qantas Drive

- Road links to provide access to Sydney Airport land:
 - A new section of road and an overpass connecting Sydney Airport's northern lands on either side of the Botany Rail line (the northern lands access)
 - A new section of road, including a signalised intersection with the Terminal 1 connection and a bridge, connecting Sydney Airport's existing and proposed freight facilities on either side of Alexandra Canal (the freight terminal access)
- An active transport link, about 1.3 kilometres long and located along the western side of Alexandra Canal, to maintain connections between Sydney Airport, Mascot and the Sydney central business district
- Intersection upgrades or modifications
- Provision of operational ancillary infrastructure, including maintenance bays, new and upgraded drainage infrastructure, signage and lighting, retaining walls, noise barriers, flood mitigation basin, utility works and landscaping.

The key features of the project are shown on Figure 7.2 to Figure 7.7. The parts of the project located on Sydney Airport land are shown on Figure 1.3 and in more detail on Figure 7.3 to Figure 7.7.

Operational footprint

The operational footprint forms part of the overall project site. It consists of land that would be occupied by permanent project infrastructure. The total operational footprint has an area of about 36 hectares and includes about 21 hectares of Sydney Airport land. The operational footprint is shown on Figure 7.3 to 7.7.

28.1.5 Construction overview

A conceptual construction methodology was developed based on the concept design and used as a basis for the environmental impact assessment. Detailed construction planning, including programming, work methodologies, staging and work sequencing, would be undertaken once a construction contractor(s) have been engaged.

Timing and work phases

Construction of the project would involve four main phases of work. The indicative construction activities within each phase are outlined in Table 28.1.

Table 28.1 Indicative construction activities

Phase	Key activities
Enabling works	<ul style="list-style-type: none"> ■ Utility works, including the protection, adjustment and augmentation of utilities within the project site ■ Adjustments to existing transport networks, including active transport links and intersections, to ensure that existing networks are able to operate during construction.
Site establishment	<ul style="list-style-type: none"> ■ Installing site fencing, hoarding and signage ■ Installing site environment management controls and temporary road, pedestrian and cyclist diversions ■ Adjusting the Sydney Airport airside fence and other security fences ■ Establishing work areas, construction compounds and site access ■ Clearing/trimming of vegetation ■ Providing services (including power and water) to construction compounds and work areas.

Phase	Key activities
Main construction works	<ul style="list-style-type: none"> ■ Removal (or partial removal) of buildings and structures in the project site ■ Earthworks ■ Road construction and widening ■ Bridge and overpass construction ■ Constructing retaining walls and drainage.
Finishing and post-construction rehabilitation	<ul style="list-style-type: none"> ■ Erecting directional and other signage, and roadside furniture such as street lighting ■ Landscaping and revegetation ■ Site demobilisation ■ Removing site fencing and construction compounds ■ Rehabilitating work and construction compound areas.

It is anticipated that construction would start in mid-2020 and take about three and a half years to complete. Detailed construction planning would be confirmed once a construction contractor(s) have been engaged.

The project would include work undertaken during recommended standard hours as defined by the Interim Construction Noise Guideline (DECC, 2009):

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sundays and public holidays: no work.

It would also include work outside these hours (out-of-hours work) to minimise the potential for aviation and rail safety hazards, and maintain the operational integrity of the road network and to Sydney Airport.

Construction footprint

The construction footprint includes the land needed to construct the proposed roadways, bridges and ancillary infrastructure and land required for the proposed construction compounds. Utility works to support the project would generally occur within the construction footprint; however, some works (such as connections to existing infrastructure) may be required outside the footprint. The construction footprint, which is shown on Figure 8.2 to Figure 8.6, has an area of about 69.1 hectares, including about 37.3 hectares of Sydney Airport land.

Compounds, access and resources

Construction would be supported by five construction compounds located to support the main construction works. Construction compounds would include site offices, staff amenities, storage and laydown areas, workshops and workforce parking areas.

Materials would be transported to and from work areas via construction haul routes, which have been selected to convey vehicles directly to the nearest arterial road.

The construction workforce requirements would vary over the construction period based on the activities underway and the number of active work areas. The workforce is expected to peak at about 1,000 workers for a period of about 13 months, indicatively from the fourth quarter of 2021. Either side of this peak, workforce numbers are expected to reduce to about two thirds.

28.2 Justification of the project

The SEARs and clause 7(1)(f) of Schedule 2 of the EP&A Regulation require an EIS to provide *‘the reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development set out in subclause (4)’*.

The following sections provides a summary of the biophysical, economic and social considerations of the project justification.

28.2.1 Biophysical considerations

Detailed environmental investigations have been carried out as described in Chapters 9 to 26 to:

- Understand the existing environment
- Inform project development and route selection
- Inform project design
- Undertake environmental impact assessment
- Identify appropriate measures to avoid and minimise residual environmental and social impacts.

To provide a high level of certainty in understanding the environment and identifying potential impacts, all investigations were undertaken by technical specialists experienced in impact assessment using best practice methodologies in accordance with relevant requirement statutory requirements and guidelines, including the SEARs and the MDP requirements specified by the Airports Act. This included consideration of the potential for cumulative impacts during both construction and operation. Details of the investigations undertaken, methodologies applied, and results achieved, are described in Part B of this document.

The results of environmental investigations and consideration of the environmental risk analysis were used to ensure that potential impacts are avoided, where feasible, through route selection and project design. The key potential impacts of the project, based on the design and construction methodology described in Chapters 7 (Project description) and 8 (Construction), are summarised in section 28.1.

Ways to further reduce and minimise unavoidable potential impacts on the environment have also been considered. Mitigation and management measures to minimise any outstanding impacts are identified in this document. These measures, and the proposed approach to environmental management during construction and operation, are provided in Chapter 27 (Approach to environmental mitigation and management).

28.2.2 Economic and social considerations

Sydney Airport and Port Botany are among the busiest and most important air and sea freight terminals in Australia. The area around Sydney Airport and Port Botany has high concentrations of airport and port related businesses that are important to the economy. The Sydney Airport and Port Botany area is the largest employment area in Sydney after the Sydney central business district. As a result, high volumes of traffic access Sydney Airport and Port Botany from all over Sydney and NSW. The location of this area, around eight kilometres from Australia's most important central business district, offers the airport and port significant advantages. However, this location is also a key challenge.

The roads around Sydney Airport and Port Botany are becoming increasingly congested due to the increasing numbers of passenger, freight and commuter vehicles. The existing roads surrounding Sydney Airport and Port Botany are already operating near capacity. Botany Road is one of the main access roads to the Port Botany area and is an alternative route between Sydney's central business district and Sydney Airport. The amenity of Mascot's town centre and surrounding residential areas is substantially affected by traffic accessing Sydney Airport and Port Botany.

Over the next 20 years, container freight, air freight, air travel and general traffic in and around the Sydney Airport and Port Botany area are expected to grow significantly. This will put more pressure on roads and other infrastructure and impact local communities. Access to Sydney Airport's terminals and freight facilities needs sufficient capacity to safely and efficiently meet the predicted demands for vehicle movements and forecast growth in passenger numbers and freight transport.

The project would meet these needs. It would provide direct high capacity road connections linking the Sydney motorway network at St Peters interchange with Sydney Airport's domestic and international terminals.

The need for the project is recognised by the *Sydney Airport Master Plan 2039* (the Master Plan). One of the objectives of the Master Plan is to 'improve ground access to, from and past the airport'. The needs defined by the plan, which would be met by the project, include access improvements to Sydney Airport terminals, and to Sydney Airport's northern lands for the planned aviation support precinct (including freight and logistics facilities).

The project is consistent with future planning for ground transport as described by the Master Plan, and meets Sydney Airport's development, growth and infrastructure needs as defined in these plans.

The potential for social and economic impacts have been assessed by this document. The key potential impacts of the project are summarised in section 27.1. Measures to mitigate and manage these impacts are detailed in section 27.3.

The justification for the project has been considered within the context of the project objectives, impacts and benefits over the project design life. With implementation of proposed management and mitigation measures, the potential environmental impacts of the project are considered acceptable.

The project would deliver transport and economic benefits for current and future generations over its design life. The project would meet an identified strategic transport need, identified in NSW strategic plans and policies, and in the Master Plan. It is also consistent with the identified project objectives and the objectives of the Master Plan. It will deliver long term transport, economic and social benefits, taking into account biophysical, economic and social considerations, and the principles of ecologically sustainable development.

In summary, the project is considered to be justified for the following reasons:

- The project satisfies the project objectives and meets the identified needs and demands, as summarised in Chapter 5 (Strategic context and project need)
- Potential environmental and socio-economic impacts have been avoided and minimised as far as is reasonable and feasible
- Appropriate consideration has been given to the potential for biophysical, economic and social impacts
- The project would deliver long term transport, economic and social benefits to current and future generations.

28.2.3 Principles of ecologically sustainable development

The following sections provide reasons justifying carrying out the project with regard to the principles of ecologically sustainable development (as defined by clause 7(4) of Schedule 2 of the EP&A Regulation):

- The precautionary principle
- Intergenerational equity
- Conservation of biological diversity and ecological integrity
- Improved valuation and pricing of environmental resources.

Precautionary principle

The precautionary principle is defined as '*...if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation*'.

This EIS/preliminary draft MDP has been prepared using a conservative and precautionary approach, including investigating and considering potential worst-case outcomes where relevant. The purpose of this is to ensure that all potential environmental and social impacts are considered, and complete and adequate consideration is given to avoiding, minimising and mitigating impacts that could cause temporary or permanent environmental degradation or adverse social impacts.

Assessment of the potential impacts of the project has been undertaken in a way that is consistent with the precautionary principle and with accepted scientific and assessment methodologies, taking into account

statutory and agency requirements. Assessments have applied a conservative approach with regard to consideration and modelling of project construction and operational arrangements.

The project has been designed to avoid impacts where possible, and to reflect the findings of the assessments undertaken. Mitigation and management measures have been proposed to minimise potential impacts, and these management measures would be implemented during construction and operation.

Lack of full scientific certainty has not been used as a reason to postpone or avoid identification and adoption of design or management measures to avoid or minimise environmental degradation. No threat of serious or irreversible damage to the environment arising from the project has been identified.

Inter-generational equity

The principle of inter-generational equity is defined by clause 7(4)(b) of Schedule 2 of the EP&A Regulation as '*...the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*'

Project objectives include supporting future economic growth by improving access to Sydney Airport, Port Botany, and surrounding commercial areas, and enhancing amenity by reducing existing road congestion and reducing traffic impacts in surrounding areas.

While there would be some environmental impacts, economic expenditure and use of materials to construct and operate the project, the net benefit to human health and the environment over the project's design life would be positive. Importantly, this would include reduced emissions from stationary and slow moving vehicles, reduced stress to vehicle drivers and passengers, and improved amenity in residential and suburban streets.

Construction in a populated area cannot be achieved without some degree of environmental and social disturbance. However, the area affected and the extent of these impacts are considered to be relatively small and justified by the economic, social, environmental and health benefits over the project life. They are also considered justified by the improved access and reduction in vehicle congestion in this important area of Sydney.

No residual or outstanding impacts that will adversely affect the health, diversity and productivity of the environment available for the enjoyment and benefit of future generations have been identified.

Conservation of biological diversity and ecological integrity

The principle of conservation of biological diversity and ecological integrity is defined by clause 7(4)(c) of Schedule 2 of the EP&A Regulation as '*...conservation of biological diversity and ecological integrity should be a fundamental consideration.*'

The project is located in an environment that has been highly modified, but it still contains biodiversity and ecology that is valuable to this area. Key areas of ecological importance include Tempe Wetlands, Alexandra Canal and its riparian and shore bank zone, and wetlands at Sydney Airport. The fact that there are limited areas with high ecological integrity makes it even more important to ensure that the ecological and biodiversity values of these areas are protected and conserved.

Conservation of biological diversity and ecological integrity has been an important consideration in project planning, design development and construction planning. The alignment and project design has been developed to avoid or minimise impact on areas of high ecological value.

A biodiversity assessment was undertaken in accordance with the *Biodiversity Assessment Method* (OEH, 2017) to identify potential adverse impacts on biodiversity as described in Chapter 22 (Biodiversity). Detailed assessments have been carried out to identify biodiversity impacts and a range of mitigation measures have been identified for implementation. A robust method is proposed to set discharge criteria for construction water to protect the environmental values in Alexandra Canal and Mill Stream.

The assessment concluded that the project would not significantly impact any listed ecological communities or species, and impacts on biological diversity and ecological integrity have been assessed as minor.

Improved valuation and pricing of environmental resources

The principle of improved valuation and pricing of environmental resources is defined by clause 7(4)(d) of Schedule 2 of the EP&A Regulation as ‘...*that environmental factors should be included in the valuation of assets and services.*’

An economic appraisal of the project was undertaken using established methodologies that assign value to environmental factors and externalities. Environmental factors that can be assigned a monetary value include air pollution, greenhouse gas emissions, noise pollution, water runoff, nature and landscape, and urban separation. Broad average valuations are typically adopted in project assessment.

The value of the environment is also inherently considered in the development of a project design that avoids and minimises impacts. The extra cost of alignments, designs, project elements, management measures and impact offset or mitigation packages, are selected to avoid and minimise environmental and/or social impacts, are included in the total estimated project cost. Examples include the extra cost of alignment and ground treatments to minimise excavation into the former Tempe landfill, bridge designs that avoid the need for piers in Alexandra Canal and pass over the desalination pipeline, and noise barriers. These costs, plus the cost of implementing management and mitigation measures, increases the overall capital and operating costs of the project.

The costs of reducing overall waste generated, minimising noise, protecting air quality, biodiversity and heritage, and of ensuring sustainability in procurement and other environment protection measures, are all incorporated into the overall project cost. This is one way of demonstrating that environmental resources have been assigned an appropriate monetary valuation.

28.3 Concluding statement

The project alignment, concept design and construction methodology has been developed to avoid and minimise impacts on the local and regional environment, and impacts on the local community and local businesses as far as possible. Measures to minimise the identified potential impacts would continue to be implemented through the detailed design and construction planning phases, taking into account the input of stakeholders and the local community.

The project is considered to best meet the nominated project objectives when compared to all other alternatives considered. It would:

- Provide high capacity road connections to Sydney Airport terminals catering to an estimated 60,000 vehicles per day in 2036
- Support the efficient distribution of freight to and from Sydney Airport, Port Botany and logistic centres in Western Sydney via Sydney’s motorway network
- Improve the liveability of Mascot town centre by reducing traffic congestion and heavy vehicle movements on local roads.

The project would ease congestion on the road network serving Sydney Airport and Port Botany, enhance network capacity, improve access for passengers and freight, and remove heavy vehicle traffic from Mascot’s local streets, by providing new direct connections to the Sydney motorway network.

This EIS/preliminary draft MDP has been prepared in accordance with the requirements of the EP&A Act and Airports Act. It addresses the SEARs for the project, MDP requirements and requirements under the regulations to the EP&A Act and Airports Act. It also addresses relevant requirements of EPBC Act in relation to the potential for significant impacts on Commonwealth land. Issues raised by stakeholders and the community during project development have also been considered.

A project of this scale and location in a heavily urbanised environment would inevitably have some impacts on the local environment and community, particularly during construction. Adverse impacts have been avoided and minimised through design and construction planning and identification of management and mitigation measures. Potential impacts, management and mitigation measures are described in this EIS/preliminary draft MDP and will be implemented during project delivery.

Key environmental issues have been examined throughout the design development process. Consultation has been carried out with affected stakeholders to identify key potential impacts at an early stage, and where possible, impacts have been avoided or appropriate mitigation measures developed. This has resulted in a number of design changes that have mitigated many of the potential significant impacts. Provided the measures and commitments specified in the EIS/preliminary draft MDP are applied and effectively implemented during the design, construction and operational phases, the identified environmental impacts are considered to be acceptable and manageable. It is therefore in the public interest that the project proceeds.

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Appendices



Appendix A

Secretary's environmental assessment requirements

A1 General standard SEARs

Table A.1 General standard SEARs

Item	Requirement	Where addressed in this document?
1. Environmental Impact Assessment Process	1. The Environmental Impact Statement must be prepared in accordance with Part 3 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> .	Certification page Section 3.4.1 Appendix C
	2. It is the Proponent's responsibility to determine whether the proposal needs to be referred to the Commonwealth Department of the Environment and Energy (DoEE) for an approval under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). If DoEE has determined that an approval is required under the EPBC Act, as supplementary environmental assessment requirements may need to be issued to ensure that a streamlined assessment under an Accredited Assessment can be achieved.	Section 3.3
	3. Where the proposal requires approval under the EPBC Act and is being assessed under the Bilateral Agreement the EIS should address: (a) Consideration of any Protected Matters that may be impacted by the development where the Commonwealth Minister has determined that the proposal is a Controlled Action. (b) Identification and assessment of those Protected Matters that are likely to be significantly impacted. (c) Details of how significant impacts to Protected Matters have been avoided, mitigated and, if necessary, offset. (d) Consideration of, and reference to, any relevant conservation advices, recovery plans and threat abatement plans.	Approval under the EPBC Act is not considered to be required – see section 3.3
	4. It is the Proponent's responsibility to determine those parts of the project located on Commonwealth-owned land leased to Sydney Airport Corporation Limited which need to be referred to the Australian Minister for Infrastructure, Transport and Regional Development for an approval under the <i>Airports Act 1996</i> .	Section 3.2
	5. The onus is on the Proponent to ensure legislative requirements relevant to the proposal are met.	Chapter 3
2. Environmental Impact Statement	1. The EIS must include, but not necessarily be limited to, the following:	
	(a) executive summary;	Executive summary
	(b) a description of the proposal, including key components and activities (including ancillary components and activities) required to construct and operate it, including -	Chapter 7 describes the components required to operate the project. The activities required to construct the project are described in Chapter 8.
	— the proposed route,	Section 7.1.1
	— all surface road work upgrades including road widening, intersection treatments, partial or full road closures and bridges,	Sections 7.3 to 7.8
	— pedestrian and cyclist facilities including any temporary changes resulting from construction activities,	Sections 7.9 and 8.6.4

Item	Requirement	Where addressed in this document?
	— construction and operational ancillary facilities and infrastructure,	Sections 7.10 and 8.4
	— the relationship of the proposal with existing and proposed road and freight transport services,	Chapter 5
	— all utility undertakings (relocations, augmentations, adjustments and protection works) which will be undertaken as part of the proposal; and	Sections 7.10.11 and 8.7
	— land use changes and acquisition of privately owned, council and crown land.	Sections 7.11.1 and 8.4.1 Chapter 19
	(c) a statement of the objective(s) of the proposal;	Section 5.3
	(d) a summary of the strategic need for the proposal with regard to its State significance and relevant State and Australian Government policy including transport, infrastructure and land use strategies and policies, and district plans;	Chapter 5
	(e) an analysis of any feasible alternatives to the proposal;	Section 6.3
	(f) a description of feasible options within the proposal, including the placement of any bridge piers within or in close proximity to Alexandra Canal;	Section 6.5
	(g) a description of how alternatives to and options within the proposal were analysed to inform the selection of the preferred alternative / option. The description must contain sufficient detail to enable an understanding of why the preferred alternative to and options(s) within the proposal were selected;	Chapter 6
	(h) a concise description of alternative construction methods that were analysed and preferred methods;	Section 6.4.3
	(i) a concise description of the general biophysical and socio-economic environment that is likely to be impacted by the proposal (including offsite impacts). Elements of the environment that are not likely to be affected by the proposal do not need to be described;	Chapter 2
	(j) a demonstration of how the proposal design has been developed to avoid or minimise likely adverse impacts;	Chapter 6
	(k) the identification and assessment of key issues as provided in the 'Assessment of Key Issues' performance outcome;	Part B
	(l) a statement of the outcome(s) the proponent will achieve for each key issue;	Section 27.4
	(m) measures to avoid, minimise or offset impacts must be linked to the impact(s) they treat, so it is clear which measures will be applied to each impact;	Section 27.3
	(n) consideration of the interactions between measures proposed to avoid or minimise impact(s), between impacts themselves and between measures and impacts;	Section 27.3
	(o) an assessment of the cumulative impacts of the proposal taking into account other proposals that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed;	Chapters 9 to 26

Item	Requirement	Where addressed in this document?
	(p) statutory context of the proposal as a whole, including: <ul style="list-style-type: none"> — how the proposal meets the provisions of the EP&A Act and EP&A Regulation; — a list of any approvals that must be obtained under any other Act or law before the proposal may lawfully be carried out; 	Section 3.4 and Appendix C Sections 3.2 to 3.5
	(q) a chapter that synthesises the environmental impact assessment and provides: <ul style="list-style-type: none"> — a succinct but full description of the proposal for which approval is sought; — a description of any uncertainties that still exist around design, construction methodologies and/or operational methodologies and how these will be resolved in the next stages of the proposal; — a compilation of the impacts of the proposal that have not been avoided; — a compilation of the proposed measures associated with each impact to avoid or minimise (through design refinements or ongoing management during construction and operation) or offset these impacts; — a compilation of the outcome(s) the proponent will achieve; and — the reasons justifying carrying out the proposal as proposed, having regard to the biophysical, economic and social considerations, including ecologically sustainable development and cumulative impacts; and 	Section 28.1 Section 27.5 Section 27.1 Section 27.3 Section 27.4 Section 28.2
	(r) relevant proposal plans, drawings, diagrams in an electronic format that enables integration with mapping and other technical software.	Throughout the EIS
	2. The EIS must only include data and analysis that is reasonably needed to make a decision on the proposal. Relevant information must be succinctly summarised in the EIS and included in full in appendices. Irrelevant, conflicting or duplicated information must be avoided.	Throughout the EIS
3. Assessment of key issues	1. The level of assessment of likely impacts must be proportionate to the significance of, or degree of impact on, the issue, within the context of the proposal location and the surrounding environment. The level of assessment must be commensurate to the degree of impact and sufficient to ensure that the Department and other government agencies are able to understand and assess impacts.	Chapters 9 to 26
	2. For each key issue the Proponent must: <ul style="list-style-type: none"> (a) describe the biophysical and socio-economic environment, as far as it is relevant to that issue; including adequate baseline data; 	A general description of the biophysical and socio-economic environment is provided in section 2.2. Further detail is provided in Chapters 9 to 26.
	(b) describe the legislative and policy context, as far as it is relevant to the issue;	Chapters 9 to 26
	(c) identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst-case scenario of the impact (comprehensive risk assessment), the impacts of concurrent activities within the proposal, and cumulative impacts;	Chapters 9 to 26 Technical Working Papers 1 to 17

Item	Requirement	Where addressed in this document?
	(d) demonstrate how options within the proposal potentially affect the level of impacts relevant to the issue;	Sections 6.4 and 6.5
	(e) demonstrate how potential impacts have been avoided (through design, or construction or operation methodologies);	An overview of how the design has been developed to minimise potential impacts is provided in sections 6.4 and 6.5. A description of how further impacts would be avoided during construction and operation are provided in Chapters 9 to 26.
	(f) detail how likely impacts that have not been avoided through design will be minimised, and the predicted effectiveness of these measures (against performance criteria where relevant); and	Chapters 9 to 26
	(g) detail how any residual impacts will be managed or offset, and the approach and effectiveness of these measures.	Chapters 9 to 26
	3. Where multiple reasonable and feasible options to avoid or minimise impacts are available, they must be identified and considered and the proposed measure justified taking into account the public interest.	Technical Working Papers 1 to 17
4. Consultation	1. The proposal must be informed by consultation, including with relevant local, State and Commonwealth government agencies, infrastructure and service providers, special interest groups, affected landowners, businesses and the community.	Section 4.1
	2. The Proponent must document the consultation process and demonstrate how the proposal has responded to the inputs received.	Sections 4.2 and 4.3
	3. The Proponent must describe the timing and type of community consultation proposed during the design and delivery of the proposal, the mechanisms for community feedback, the mechanisms for keeping the community informed, and procedures for complaints handling and resolution.	Section 4.4

A2 Key issue SEARs

Table A.2 Key issue requirements

Key issue	Requirement	Where addressed in this document?
1. Transport and Traffic	1. The Proponent must assess construction transport and traffic (network, vehicle (including freight traffic), pedestrian and cyclists impacts), including, but not necessarily limited to:	
	(a) a considered approach to route identification and scheduling of construction vehicle movements, with particular consideration of traffic impacts and transport movements outside standard construction hours including cumulative impacts;	Chapter 8 Section 5.1.5 of Technical Working Paper 1
	(b) the indicative number, frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements);	Chapter 8 Section 5.1.7 of Technical Working Paper 1
	(c) construction worker parking;	Chapter 8 Section 5.1.4 of Technical Working Paper 1
	(d) the nature of existing traffic (types and number of movements) on construction access routes (including consideration of peak traffic times, pedestrians and cyclists and parking arrangements);	Sections 9.2.2, 9.2.5, 9.2.6
	(e) access constraints and impacts on public transport, pedestrians and cyclists (infrastructure and services);	Sections 9.3.4 and 9.3.5
	(f) the need to close, divert or otherwise reconfigure elements of the road, pedestrian and cycle network associated with construction of the proposal and the duration of these changes; and	Sections 8.3.3, 8.6.5 and 9.3.1
	(g) impacts to on street parking, including for residents and businesses;	Section 9.3.7
	(h) cumulative impacts on the road, pedestrian and cycle network from other key infrastructure proposals including but not limited to the Botany Rail Duplication and New M5.	Section 9.5.1
	2. The Proponent must assess (and model) the operational transport impacts of the proposal, including:	Sections 9.4.1, 9.4.6 and 9.4.7
	(a) forecast travel demand and road traffic volumes for the proposal and the surrounding road, airport, freight, port, cycle and public transport network;	
	(b) travel time analysis for the different road transport modes	Section 9.4.2
	(c) performance of key interchanges and intersections by undertaking a level of service analysis at key locations;	Sections 9.4.3 and 9.4.4
	(d) wider transport interactions (local and regional roads, cycling, public transport, airport, port and freight transport);	Sections 9.4.1 to 9.4.7
	(e) induced traffic and operational implications for public transport (particularly with respect to strategic bus corridors and bus routes) and consideration of opportunities to improve public transport;	Sections 9.1.2 and 9.4.6
	(f) property and business access and on-street parking.	Sections 9.4.8 and 9.4.9

Key issue	Requirement	Where addressed in this document?
2. Noise and Vibration - Amenity	1. The Proponent must assess construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must consider cumulative impacts from nearby key infrastructure proposals and take into consideration and address the noise impacts arising from the redistribution of traffic (including on local feeder roads), and operational plant and equipment.	Chapter 10 Technical Working Paper 2
	The assessment must also include consideration of impacts to sensitive receivers and include consideration of sleep disturbance (including the number of noise awakening events), and, as relevant, the characteristics of noise and vibration (for example, low frequency noise).	
	2. An assessment of construction noise and vibration impacts which must address:	
	(a) the nature of construction activities (including transport, tonal or impulsive noise-generating works, as relevant);	Sections 10.1 and 10.2.1
	(b) the intensity and duration of noise (both air and ground borne) and vibration impacts. This must include consideration of extended impacts associated with ancillary facilities (and the like) and construction fatigue;	Sections 10.1, 10.2.1, 10.4 and 10.7
	(c) the identification of receivers, existing and proposed, during the construction period;	Section 10.3.1
	(d) the nature of the impact and, the sensitivity of receivers and level of impact;	Section 10.4
	(e) the need to balance timely conclusion of noise and vibration-generating works with periods of receiver respite, and other factors that may influence the timing and duration of construction activities (such as traffic management);	Section 10.7
	(f) noise impacts of out-of-hours works (including utility works), possible locations where out-of-hours works would be undertaken, the activities that would be undertaken, the estimated duration of those activities and justification for these activities in terms of the <i>Interim Construction Noise Guideline</i> (DECCW, 2009);	Sections 8.3.3 and 10.4.2
	(g) a cumulative noise and vibration assessment inclusive of impacts from the proposal, including concurrent construction activities within the proposal and the construction of other relevant development in the vicinity of the proposal;	Section 10.6
	(h) details and analysis of the predicted effectiveness of mitigation measures to adequately manage identified impacts, including impacts as identified in (g), and any potential residual noise and vibration impacts following application of mitigation measures; and	Section 10.7
3. Noise and Vibration - Structural	(i) a description of how sensitive receiver feedback received during the preparation of the EIS has been taken into account (and would be taken into account post exhibition of the EIS) in the design of mitigation measures, including any tailored mitigation, management and communication strategies for sensitive receivers.	Section 10.7.1 and Chapter 4
	3. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	No blasting required
3. Noise and Vibration - Structural	1. The Proponent must assess construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage), including cumulative impacts resulting from the Botany Rail Duplication	Sections 10.4 and 10.5 Technical Working Paper 2

Key issue	Requirement	Where addressed in this document?
	2. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	No blasting required
4. Place Making and Urban Design	1. The Proponent must identify how functional 'place' outcomes of public benefit will be achieved, including design principles and strategies that:	
	(a) consider areas identified for future urban renewal;	Section 7.12.2
	(b) identify areas of reduced traffic volumes and reduction of traffic permeation, particularly in and around commercial and community centres;	Section 7.12.2 and Chapter 9
	(c) avoid locating infrastructure, including ancillary facilities, adjoining residential areas and other sensitive receivers, and justify where this cannot be achieved;	Section 7.12.2
	(d) achieve high quality landscape design, streetscapes, architecture and design;	Section 7.12.2
	(e) identify and incorporate urban design strategies and identify opportunities that will enhance healthy, cohesive and inclusive communities, including in relation to accessibility and connectivity;	Section 7.12.2
	(f) consider residual land treatments, and demonstrate how the proposed hard and soft urban design elements of the proposal would be consistent with the existing and desired future character of the area traversed or affected by the proposal;	Section 7.12.2 to 7.12.4
	(g) identify opportunities to utilise surplus or residual land, particularly for the provision of community space (passive and recreational) and the process for determining ongoing maintenance of the lands; and	Section 7.12.4
	(h) explore the use of Crime Prevention Through Environmental Design (CPTED) principles during the design development process, including natural surveillance during the design development process, including natural surveillance, lighting, walkways, signage and landscape.	Section 7.12.2
	2. The Proponent must describe the accessibility elements of the proposal including relevant accessibility legislation and guidelines, including:	
	(a) Impacts on public transport infrastructure and services;	Sections 9.3.4 and 9.4.6
	(b) impacts on cyclists and pedestrian access, amenity and safety across and adjoining the proposal, including the relocation of cycle routes and delivery of new cycleways around the airport and Alexandra Canal; and	Sections 7.9, 8.6.4, 9.3.5 and 9.4.7
	(c) opportunities to integrate and enhance accessibility including the provisions for public and active transport infrastructure as a result of the proposal.	Sections 9.4.7 and 4 and Appendix B of Technical Working Paper 1
	3. The Proponent must:	
	(a) estimate the number of trees to be cleared by the proposal (a tree is defined by <i>Australian Standard (AS) 4970 Protection of trees on development sites</i>) that will not be covered by a biodiversity offset strategy; and	Section 21.3.3
	(b) for those trees to be cleared, describe how the proposal will achieve a net increase in tree canopy within or adjacent to the construction footprint.	Section 21.3.3

Key issue	Requirement	Where addressed in this document?
5. Visual Amenity	1. The Proponent must assess the visual impact of the proposal and any ancillary infrastructure on: (a) views and vistas;	Sections 21.3 and 21.4.2
	(b) streetscapes, key sites and buildings (including existing landscape works, greenspace and tree canopy);	Sections 21.3, 21.4.1 and 21.4.2
	(c) heritage items including Aboriginal places and environmental heritage;	Section 17.4.1
	(d) the local community.	Sections 21.3, 21.4.1 and 21.4.2
	2. The Proponent must provide visual representations of the proposal from key receiver locations to illustrate the proposal and its visual impacts and how the proposal has responded to the visual impact through urban design and landscape works.	Sections 21.4.2 and 21.6.1
6. Socio-economic, Land Use and Property	1. The Proponent must assess social and economic impacts in accordance with the current guidelines.	Sections 20.3 and 20.4
	2. The Proponent must assess the social and economic impacts from construction and operation on potentially affected properties, infrastructure, utility services, businesses (including impacts to freight management associated with the reduction of container storage, and consequent impacts to the broader industry), recreational users and land and water users, and	Chapter 19 Sections 20.3 and 20.4
	3. The assessment must address as relevant, how environmental changes in the locality may affect people's: (a) way of life; (b) community; (c) access to and use of infrastructure, services and facilities (including recreational facilities and open space); (d) culture; (e) health and wellbeing; (f) surroundings; and (g) relevant statutory rights including personal and property rights.	Sections 20.3 and 20.4 No personal property rights would be affected by this project. Relevant statutory rights are discussed in Chapter 19 Potential health impacts are discussed in Chapter 23.
	It must also consider how different groups may be disproportionately affected and communities severed by the proposal.	Sections 20.3 and 20.4
7. Heritage	1. The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts and visual impacts) to the heritage significance of:	
	(a) Aboriginal places, objects and cultural heritage values, as defined under the <i>National Parks and Wildlife Act 1974</i> and in accordance with the principles and methods of assessment identified in the current guidelines;	Chapter 18
	(b) Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan;	Section 18.2.2
	(c) environmental heritage, as defined under the <i>Heritage Act 1977</i> ;	Chapter 17
	(d) items listed on State, National and World Heritage lists;	Sections 17.3 and 17.4
	(e) heritage items and conservation areas identified in local and regional planning environmental instruments applicable to the proposal area	Sections 17.3 and 17.4

Key issue	Requirement	Where addressed in this document?
	2. Where impacts to State or locally significant heritage items are identified, the assessment must:	
	(a) include a significance assessment, a statement of heritage impact for all heritage items including the Alexandra Canal, Cooks River Container Terminal and Mascot underbridges (O'Riordan and Robey Streets) (including significance assessment) and a historical archaeological assessment;	Sections 17.3 and 17.4
	(b) assess the consistency of the Proposal against conservation policies of any relevant conservation management plan, including the Conservation Management Plan for Alexandra Canal (NSW Department of Commerce, 2004);	Appendix B of Technical Working Paper 9
	(c) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence, architectural noise treatment, drainage infrastructure, contamination remediation and site compounds (as relevant)	Sections 17.3 and 17.4
	(d) outline measures to avoid and minimise those impacts during construction and operation in accordance with the current guidelines; and	Section 17.6
	(e) be undertaken by a suitably qualified heritage consultant(s) and/or historical archaeologist (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria).	The assessment was undertaken by qualified heritage consultants (see section 1.6 of Technical Working Paper 9).
	3. Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> (DECCW 2010).	Section 18.6.1
8. Biodiversity	4. Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines.	Sections 18.1.2 and 18.6.2
	1. The Proponent must assess biodiversity impacts in accordance with the <i>Biodiversity Conservation Act 2016</i> (BC Act), the Biodiversity Assessment Method (BAM) and be documented in a Biodiversity Assessment Report (BDAR) unless a BDAR waiver had been sought, where applicable.	Technical Working Paper 14
	2. The BDAR must include information in the form detailed in section 6.12 of the BC Act, clause 6.8 of the <i>Biodiversity Conservation Regulation 2017</i> , and the BAM.	Section 22.1.2
	3. The BDAR must be submitted with all digital spatial data associated with the survey and assessment as per Appendix 10 of the BAM.	Digital spatial data has been provided to the Department of Planning, Industry and Environment.
	4. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the <i>Biodiversity Assessment Method Order 2017</i> under section 6.10 of the BC Act	Section 2.4 of Technical Working Paper 14
	5. The BDAR must include details of the measures proposed to address offset obligations.	Section 22.5
	6. The Proponent must assess any impacts on biodiversity values not covered by the BAM. This includes a threatened aquatic species assessment (<i>Part 7A Fisheries Management Act 1994</i> – FM Act) to	Sections 22.3 to 22.5

Key issue	Requirement	Where addressed in this document?
	address whether there are likely to be any significant impacts on listed threatened species, populations or ecological communities listed under the FM Act.	
	7. The Proponent must identify whether the proposal, or any component of the proposal, would be classified as a Key Threatening Process (KTP) in accordance with the listings in the BC Act, FM Act and <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Section 22.3.5
9. Flooding	1. The EIS must include maps illustrating the following features relevant to flooding as described in the <i>NSW Floodplain Development Manual 2005</i> (2005): (a) flood prone land; (b) flood planning areas, the area below the flood planning level; (c) hydraulic categorisation (floodways and flood storage areas); and (d) flood hazard	Section 14.2.2 and Figure 14.2 to Figure 14.6
	2. The Proponent must assess and (model) the impacts on flood behaviour during construction and operation for a full range of flood events (including a minimum of the 5% Annual Exceedance Probability (AEP), 1% AEP) up to the probable maximum flood (taking into account sea level rise and storm intensity due to climate change) including:	
	(a) any detrimental increases in the potential flood affectation of other properties, assets and infrastructure;	Section 14.3.1
	(b) consistency (or inconsistency) with applicable Council floodplain risk management plans/studies;	Section 14.3.2
	(c) compatibility with the flood hazard of the land;	Section 14.3.3
	(d) compatibility with the hydraulic functions of flow conveyance in flood ways and storage areas of the land;	Section 14.3.4
	(e) adverse effects to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the proposal;	Section 14.3.5
	(f) redirection of flow, flow velocity and scour potential (including erosion, siltation, and bank stability of water courses from removal of riparian vegetation);	Section 14.3.6
	(g) impacts the development may have upon existing community emergency management arrangements for the full range of flood risks. These matters must be discussed with the State Emergency Services and Council; and	Section 14.3.7
	(h) any impacts the development may have on the social and economic costs to the community as consequence of flooding;	Section 14.3.8
	3. The assessment should take into consideration any flood studies undertaken by local government councils and State government agencies.	Section 14.1.2
10. Water - Hydrology	1. The Proponent must describe (and map) the existing hydrological regime for any surface and groundwater resource (including reliance by users and for ecological purposes) likely to be impacted by the proposal, including rivers, streams, estuaries and wetlands as described in the BAM.	Section 15.2 and Figure 15.2 Section 16.2 and Figure 16.1 Chapter 22
	2. The Proponent must prepare a detailed water balance for ground and surface water including the proposed intake from all water supply options and discharge locations (including figures showing these locations), volume, frequency, duration and proposed water conservation and reuse measures for both the construction and operation of the proposal.	Sections 15.3.3, 15.4.3, 16.3.1 and 16.4.1
	3. The Proponent must assess (and model if appropriate) the impact of the construction and operation of the proposal and any ancillary facilities (both	

Key issue	Requirement	Where addressed in this document?
	built elements and discharges) on surface and groundwater hydrology in accordance with the current guidelines, including:	
	(a) natural processes within rivers, wetlands, estuaries, marine waters and floodplains that affect the health of the fluvial, riparian, estuarine or marine system and landscape health (such as modified discharge volumes, durations and velocities), aquatic connectivity and access to habitat for spawning and refuge;	Sections 15.3 and 15.4 Sections 16.3.1, 16.3.2, 16.4.1 and 16.4.2 Chapter 22
	(b) impacts from any permanent and temporary interruption of groundwater flow, including the extent of drawdown, barriers to flows, implications for groundwater dependent surface flows, ecosystems and species, groundwater users and the potential for settlement;	Sections 15.3.1 and 15.4.1
	(c) changes to environmental water availability and flows, both regulated/licensed and unregulated/rules-based sources;	Sections 15.3.3 and 15.4.3 Not relevant for surface water
	(d) direct or indirect increases in erosion, siltation, destruction of aquatic and riparian vegetation or a reduction in the stability of river banks or watercourses;	Sections 16.3.1, 16.3.2, 16.4.1 and 16.4.2 Chapter 22
	(e) minimising the effects of proposed stormwater and wastewater management during construction and operation on natural hydrological attributes (such as volumes, flow rates) and on the conveyance capacity of the existing stormwater systems where discharges are proposed through such systems; and	Sections 16.3.1 and 16.4.1
	(f) water take (direct or passive) from all surface and groundwater sources with estimates of annual volumes during construction and operation.	No water take (direct or passive) of surface water is proposed. Sections 15.3.3 and 15.4.3 (groundwater take)
	4. The Proponent must identify any requirements for baseline monitoring of hydrological attributes.	Sections 15.6 and 16.6.1
11. Water - Quality	5. The assessment must include details of proposed surface and groundwater monitoring.	Sections 15.6 and 16.6.1
	1. The Proponent must:	
	(a) describe the background conditions for any surface and groundwater resources likely to be affected by the proposal including leachate from Tempe Tip;	Sections 15.2 and 16.2.3 Chapter 15 Technical Working Paper 16 – Landfill Assessment
	(b) state the ambient NSW Water Quality Objectives (NSW WQO) and environmental values for the receiving waters relevant to the proposal, including the indicators and associated trigger values or criteria for the identified environmental values;	Section 16.14 Table 16.2 Appendix B of Technical Working Paper 8 – Surface Water
	(c) identify and estimate the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point and describe the nature and degree of impact that any discharge(s) may have on the receiving environment, including consideration of all	Sections 15.3.1, 15.3.2, 15.4.1, 15.4.2, 16.3.1, 16.3.2, 16.4.1 and 16.4.2

Key issue	Requirement	Where addressed in this document?
	pollutants (including contaminated groundwater) that pose a risk of non-trivial harm to human health and the environment;	
	(d) assess the impacts of leachate generation from proposal related activities on the Tempe Tip Site and proposed measures for managing potential impacts during construction and operation;	Sections 15.3.3, 15.4.3, 15.6, 16.3.2, 16.4.2
	(e) describe the proposed measures for treating and disposing of construction and operational wastewater flows;	Sections 16.1.4, 16.3.1 and 16.4.1
	(f) identify the rainfall event that the water quality protection measures will be designed to cope with;	Section 7.10.8
	(g) assess the significance of any identified impacts including consideration of the relevant ambient water quality outcomes;	Sections 16.3 and 16.4
	(h) demonstrate how construction and operation of the proposal will, to the extent that the proposal can influence, ensure that: <ul style="list-style-type: none"> – where the NSW WQOs for receiving waters are currently being met they would continue to be protected; and – where the NSW WQOs are not currently being met, activities would work toward their achievement over time; 	Sections 16.3.2 and 16.4.2
	(i) justify, if required, why the WQOs cannot be maintained or achieved over time;	Sections 16.3.2 and 16.4.2
	(j) demonstrate that all practical measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented;	Sections 15.6 and 16.6
	(k) identify sensitive receiving environments (which may include estuarine and marine waters downstream) and develop a strategy to avoid or minimise impacts on these environments; and	Sections 16.2.3 and 16.6
	(l) identify proposed monitoring locations, monitoring frequency and indicators of surface and groundwater quality.	Sections 15.6 and 16.6.1
	2. The assessment should consider the results of any current water quality studies, as available, for the catchment areas traversed by the proposal.	Sections 15.1.2, 16.1.2, 16.1.4 and 16.2.3
12. Contamination	1. The Proponent must assess the potential for contamination and any impacts associated with the management of contaminated soils and water resources including, but not limited to: <ul style="list-style-type: none"> (a) a detailed assessment of the extent and nature of any contamination of the soil, groundwater and soil vapour including from activities on Tempe Tip and PFAS; 	Section 13.2
	(b) an assessment of potential risks to human health and the environmental receptors in the vicinity of the site;	Sections 13.3 and 13.4
	(c) a description and appraisal of any mitigation and monitoring measures; and	Section 13.6
	(d) consideration of whether the site is suitable for the proposed development.	Section 13.4.3
	2. Any assessment of contamination must be in accordance with relevant guidelines produced or approved under the <i>Contaminated Land Management Act 1997</i> .	Section 13.1
	3. All reports prepared for the assessment of contamination must be prepared, or reviewed and approved, by a consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme.	Technical Working Paper 5

Key issue	Requirement	Where addressed in this document?
	4. The Proponent must assess whether the land is likely to be contaminated and identify if remediation of the land is required, having regard to the ecological and human health risks posed by the contamination in the context of past, existing and future land uses. Where assessment and/or remediation is required, the Proponent must document how the assessment and/or remediation would be undertaken in accordance with current guidelines.	Section 13.3 Section 13.6.1
13. Soils	1. The Proponent must verify if the proposal is on land marked as Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map or within 500 m of adjacent Class 2, 3 or 4 land that is below 5 m Australian Height Datum (AHD) and where the proposal is likely to lower the water table in this adjacent land below 1 m AHD.	Section 13.2.2
	2. The Proponent must assess the impact of the proposal on acid sulfate soils (including the impacts of acidic runoff offsite) in accordance with the current guidelines.	Sections 13.3.3 and 13.4.4
	3. The Proponent must assess whether salinity is likely to be an issue and if so, determine the presence, extent and severity of soil salinity within the proposal area.	Sections 13.2.2, 13.3.3 and 13.4.4
	4. The Proponent must assess the impacts of the proposal on soil salinity and how it may affect groundwater resources and hydrology.	Sections 13.3.3 and 13.4.4 Chapter 15
	5. The Proponent must assess the impacts on soil and land resources (including erosion risk or hazard). Particular attention must be given to soil erosion and sediment transport consistent with the practices and principles in the current guidelines.	Sections 13.2.2, 13.3.3 and 13.4.4 Chapter 16
14. Air quality	1. The Proponent must undertake an air quality impact assessment (AQIA) for construction and operation of the proposal in accordance with the current guidelines.	Technical Working Paper 4
	2. The Proponent must ensure the AQIA also includes the following:	Section 12.1
	(a) demonstrated ability to comply with the relevant regulatory framework, specifically the <i>Protection of the Environment Operations Act 1997</i> and the <i>Protection of the Environment Operations (Clean Air) Regulation 2010</i> ;	
	(b) the identification of all potential sources and types of air pollution (including PM ₁₀ , PM _{2.5} , CO, NO _x , volatile organic compounds and odour sources) during construction and operation including mechanically generated combustion and transport related emissions and potential for landfill gas generation from the Tempe Tip site;	Sections 12.4 and 12.5
	(c) any proposed air quality monitoring;	Section 12.7
	(d) a cumulative local and regional air quality impact assessment including impacts generated by the operation of nearby key infrastructure proposals such as (but not limited to) the New M5, M4-M5 Link and Botany Rail Duplication; and	Section 12.6
15. Health and Safety	1. The Proponent must assess the potential health impacts of the proposal, in accordance with the current guidelines.	Technical Working Paper 15
	2. The assessment must:	Section 23.2.2
	(a) describe the current known health status of the potentially affected population;	
	(b) assess health risks associated with exposure to environmental hazards;	Sections 23.3.1 and 23.4.1

Key issue	Requirement	Where addressed in this document?
	(c) assess the effect of the proposal on other relevant determinants of health such as the level of physical activity and access to social infrastructure;	Sections 23.3.1 and 23.4.1
	(d) assess opportunities for health improvement;	Sections 23.3.1 and 23.4.1
	(e) assess the distribution of the health risks and benefits;	Sections 23.3.1 and 23.4.1
	(f) assess the potential for construction fatigue and outline proposed management measures; and	Sections 23.3.1
	(g) discuss how, in the broader social and economic context of the proposal, the proposal will minimise negative health impacts while maximising the health benefits.	Sections 23.3.1 and 23.4.1
	3. The Proponent must assess the likely risks of the proposal to public safety, paying particular attention to pedestrian and cyclist safety, subsidence risks, bushfire risks and the handling and use of dangerous goods.	Sections 23.3.2 to 23.3.5, 23.4.2 and 23.4.4 There are no subsidence risks
16 Hazards and Risks	1. The EIS must:	Section 23.3.3
	(a) report on the consultation outcomes with all operators of high pressure dangerous goods (HPDG) pipelines licensed under the <i>Pipelines Act 1967</i> within or in the vicinity of the proposal with regards to the relevant sections of the <i>Australian Standard AS 2885 Pipelines – Gas and liquid petroleum</i> ;	
	(b) demonstrate that, during the construction and operation phases of the proposal, the proposal would not lead to non-compliance of the existing HPDG pipelines licensed under the <i>Pipelines Act 1967</i> with the current edition of <i>AS 2885 Pipelines – Gas and liquid petroleum</i> ; and	Sections 23.3.3 and 23.4.4
	(c) include a preliminary risk screening completed in accordance with <i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development and Applying SEPP 33</i> (DoP, 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the proposal during construction and operation phase. Should preliminary screening indicate that the development is "potentially hazardous," during construction and or operation phase, a Preliminary Hazard Analysis (PHA) must be prepared in accordance with <i>Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis</i> (DoP, 2011) and <i>Multi-Level Risk Assessment</i> (DoP, 2011).	Section 23.3.5
	2. The EIS must outline the process for assessing the risks of the proposal on airport operations, including encroachment into the prescribed airspace, potential impacts to airport Communication, Navigation and Surveillance Systems, light spill and landscaping associated with the construction and operation of the proposal.	Sections 11.1, 11.3 and 11.4 Technical Working Paper 3
17. Sustainability	1. The Proponent must assess the sustainability of the proposal in accordance with the Infrastructure Sustainability Council of Australia (ISCA) <i>Infrastructure Sustainability Rating Tool</i> and recommend an appropriate target rating for the proposal.	Section 25.2.1
	2. The Proponent must assess the proposal against the current guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport.	Section 25.2.2

Key issue	Requirement	Where addressed in this document?
18. Waste	1. The Proponent must assess predicted waste generated from the proposal during construction and operation, including:	
	(a) classification of the waste in accordance with the current guidelines;	Sections 24.2.1 and 24.3.1
	(b) estimates / details of the quantity of each classification of waste to be generated during the construction of the proposal, including bulk earthworks and spoil balance;	Sections 8.2.3 and 24.2.1
	(c) handling of waste including measures to facilitate segregation and prevent cross contamination;	Sections 24.2.3 and 24.3.3
	(d) management of waste including estimated location and volume of stockpiles;	Sections 24.2.3, 24.3.3 and 24.5
	(e) waste minimisation and reuse;	Sections 24.2.3 and 24.3.3
	(f) lawful disposal or recycling locations for each type of waste; and	Sections 24.2.3
	(g) contingencies for the above, including managing unexpected waste volumes.	Sections 24.2.3 and 24.5
	2. The Proponent must assess potential environmental impacts from the excavation, handling, storage on site and transport of the waste particularly with relation to sediment/leachate control, noise and dust.	Sections 24.2.2 and 24.3.2
19. Climate Change Risk	1. The Proponent must assess the risk and vulnerability of the proposal to climate change in accordance with the current guidelines.	Section 26.1
	2. The Proponent must quantify specific climate change risks with reference to the NSW Government's climate projections at 10 km resolution (or lesser resolution if 10 km projections are not available) and incorporate specific adaptation actions in the design.	Sections 26.1.2, 26.2 and 26.3
	3. The EIS must include a qualitative assessment of changes to the heat island effect in the local area.	Section 26.2.1

Appendix B

Major development plan and building activity requirements under the Airports Act

B1 Required contents of a major development plan

Section 91 of the *Airports Act 1996* (Cth) (Contents of a major development plan) defines the requirements for a major development plan. These requirements are listed in Table B.1, together with where they are addressed in this document.

Table B.1 Required contents of a major development plan under Section 91 of the Airports Act

Section no.	Issue	Requirement	Where addressed in this document?
91(1A)	Purpose	The purpose of a major development plan in relation to an airport is to establish the details of a major airport development that:	Chapters 7 and 8
		(a) relates to the airport; and (b) is consistent with the airport lease for the airport and the final master plan for the airport.	Section 3.7
91(1)	Content requirements	A major development plan, or a draft of such a plan, must set out:	
	<i>Objectives</i>	(a) the airport-lessee company's objectives for the development; and	The objectives of the project are provided in section 5.3
	<i>Extent to which airport users' needs will be met</i>	(b) the airport-lessee company's assessment of the extent to which the future needs of civil aviation users of the airport, and other users of the airport, will be met by the development; and	Section 5.2.2
	<i>Project description</i>	(c) a detailed outline of the development; and	Chapters 7 and 8
	<i>Consistency with airport lease</i>	(ca) whether or not the development is consistent with the airport lease for the airport; and	Section 3.7
	<i>Consistency with master plan</i>	(d) if a final master plan for the airport is in force—whether or not the development is consistent with the final master plan; and	Section 3.6 (summary) and Chapters in Part B (further detail)
	<i>Effect on noise exposure levels</i>	(e) if the development could affect noise exposure levels at the airport—the effect that the development would be likely to have on those levels; and	Chapter 10
	<i>Effect on flight paths</i>	(ea) if the development could affect flight paths at the airport—the effect that the development would be likely to have on those flight paths; and	Chapter 11
	<i>Plans to manage aircraft noise intrusion</i>	(f) the airport-lessee company's plans, developed following consultations with the airlines that use the airport, local government bodies in the vicinity of the airport and—if the airport is a joint user airport—the Defence Department, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; and	The project would not result in aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels
	<i>Approvals required</i>	(g) an outline of the approvals that the airport-lessee company, or any other person, has sought, is seeking or proposes to seek under Division 5 or Part 12 in respect of elements of the development; and	Chapter 3

Section no.	Issue	Requirement	Where addressed in this document?
91(1)	Effect of the development on:	(ga) the likely effect of the proposed developments that are set out in the major development plan, or the draft of the major development plan, on	
	• Traffic flows	(i) traffic flows at the airport and surrounding the airport; and	Chapter 9
	• Employment	(ii) employment levels at the airport; and	Chapter 20
	• Local and regional economy and community	(iii) the local and regional economy and community, including an analysis of how the proposed developments fit within the local planning schemes for commercial and retail development in the adjacent area; and	Chapter 20 (economy and community) and Chapter 19 (consistency with planning schemes)
	Assessment of environmental impacts	(h) the airport-lessee company's assessment of the environmental impacts that might reasonably be expected to be associated with the development; and	Chapters in Part B (summary) and Technical Working Papers
	Plans for dealing with environmental impacts	(j) the airport-lessee company's plans for dealing with the environmental impacts mentioned in paragraph (h) (including plans for ameliorating or preventing environmental impacts); and	Chapters in Part B and Chapter 29 (consolidated measures)
	Sensitive development	(k) if the plan relates to a sensitive development—the exceptional circumstances that the airport-lessee company claims will justify the development of the sensitive development at the airport; and	The project is not a sensitive development as defined by section 71A(2) of the Airports Act
	Matters specified in the regulations	(l) such other matters (if any) as are specified in the regulations	See Table B.2
91(2)		Paragraphs (1)(a) to (k) (inclusive) do not, by implication, limit paragraph (1)(l).	n/a
91(3)		The regulations may provide that, in specifying a particular objective, assessment, outline or other matter covered by subsection (1), a major development plan, or a draft of such a plan, must address such things as are specified in the regulations.	See Table B.2
91(4)	For particular objectives or proposals, the plan must address:	In specifying a particular objective or proposal covered by paragraph (1)(a), (c) or (ga), a major development plan, or a draft of a major development plan, must address:	
	• Consistency with planning schemes in force	(a) the extent (if any) of consistency with planning schemes in force under a law of the State in which the airport is located; and	Chapter 19
	• Justification for any inconsistencies	(b) if the major development plan is not consistent with those planning schemes--the justification for the inconsistencies.	Chapter 19

Table B.2 Requirements of clause 5.04 (Contents of a major development plan) of the Airports Regulations 1997

Clause no.	Requirements	Where addressed?
5.04	For subsection 91 (3) of the Act, a major development plan must address the obligations of the airport-lessee company as sublessor under any sublease of the airport site concerned, and the rights of the sublessee under any such sublease, including:	
	(a) any obligation that has passed to the relevant airport-lessee company under subsection 22 (2) of the Act or subsection 26 (2) of the Transitional Act	Section 3.7
	(b) any interest to which the relevant airport lease is subject under subsection 22 (3) of the Act, or subsection 26 (3) of the Transitional Act.	Section 3.7

B2 Requirements in relation to approval of a major development plan

Section 94 of the Airports Act (Approval of major development plan by Minister) defines the requirements for approval of a major development plan. These requirements are listed in Table B.3, together with where they are addressed in this document.

Table B.3 Matters for consideration under section 94 of the Airports Act

Section no.	Matters for consideration	Where addressed?
94(3)	In deciding whether to approve the plan, the Minister must have regard to the following matters:	
	(aa) the extent to which the plan achieves the purpose of a major development plan (see subsection 91(1A));	Section 3.2.1
	(a) the extent to which carrying out the plan would meet the future needs of civil aviation users of the airport, and other users of the airport, for services and facilities relating to the airport;	Section 5.2.2
	(b) the effect that carrying out the plan would be likely to have on the future operating capacity of the airport;	Chapters 5 and 9
	(c) the impact that carrying out the plan would be likely to have on the environment;	Chapters in Part B (summary) and Technical Working Papers
	(d) the consultations undertaken in preparing the plan (including the outcome of the consultations);	Chapter 4
	(e) the views of the Civil Aviation Safety Authority and Airservices Australia, in so far as they relate to safety aspects and operational aspects of the plan	CASA and Airservices will review the draft MDP and provide advice
	(f) if the plan relates to a sensitive development ...	The project is not a sensitive development as defined by section 71A(2) of the Airports Act

B3 Requirements in relation to approval of an application for building approval

The requirements that must be taken into account when considering an application for consent are defined by clause 2.04 of the Airports (Building Control) Regulations 1996. These requirements are listed in Table B.3, together with where they are addressed in this document.

Table B.4 Requirements of the Airports (Building Control) Regulations 1996 – considerations for grant or refusal of consent

Clause no.	Requirements	Where addressed?
2.04(1)	(1) An airport-lessee company must not refuse consent to an application for building approval unless the proposed building activity is inconsistent with:	Section 3.6 (summary) and Chapters in Part B (further detail)
	(a) the final master plan for the airport (if any); or	Section 3.6.2
	(b) an approved major development plan for the airport (if any); or	Section 3.6 (summary) and Chapters in Part B (further detail)
	(c) the final environment strategy (if any), under Part 6 of the Act, for the airport; or	Appendix D
2.04(2)	(d) the airport-lessee company's planning objectives for the airport.	
	An airport-lessee company must not refuse consent to an application for building approval if, to do so, would be inconsistent with an obligation of the company, relating directly or indirectly to approval of the building activity:	
	(a) as lessor under a sublease to which subsection 22 (2) of the Act, or subsection 26 (2) of the Airports (Transitional) Act 1996, applies; or	n/a
2.04(3)	(b) under an interest to which subsection 22 (3) of the Act, or subsection 26 (3) of the Airports (Transitional) Act 1996, applies.	n/a
	In determining whether to refuse consent because a proposed building activity is inconsistent with a plan mentioned in paragraph (l) (a), (b) or (c), the airport-lessee company must have regard to the significance of the inconsistency.	n/a
2.04(4)	In determining whether to refuse consent because a proposed building activity is inconsistent with planning objectives for the airport, the airport-lessee company must have regard to the significance of the inconsistency and, in particular, to:	
	(a) the type, location, shape, size, height, density, design and external appearance of the development that will result from the proposed building activity; and	Chapter 7
	(b) if a building is intended to be constructed — the siting of the building in relation to the size, and shape, of the site it will occupy; and	Chapter 7
	(c) the relationship the results of the activity will have:	Chapters 7 and 19
	(i) to existing buildings and other structures on adjoining land at the airport; and	
	(ii) to other approved development on adjoining land at the airport; and	
2.04(5)	(d) if appropriate — the proposed means of entrance to, and exit from, the resulting development and, in particular, whether adequate provision has been made for loading, unloading, manoeuvring and parking of vehicles; and	Chapter 9
	(e) if appropriate — the management of travel of vehicles and pedestrians to and from the resulting development; and	Chapter 9

Clause no.	Requirements	Where addressed?
	(f) the impact the building activity, or resulting development, is likely to have on the environment and, if an adverse impact is likely, whether it is reasonably possible to protect the environment.	Chapters in Part B (summary) and Technical Working Papers
2.04(5)	In determining whether it is appropriate to grant a conditional consent, the airport-lessee company must have regard to possible impacts of the proposed building activity on:	
	(a) the safety and security of persons at the airport, in general; and	Chapter 11
	(b) airport services and the efficient operation of the airport.	Chapter 11

Appendix C

EIS form and content requirements – Environmental Planning and Assessment Regulation 2000

C1 Requirements of schedule 2 (Part 3) of the Environmental Planning and Assessment Regulation 2000

Requirement	Reference
6. Form of the environmental impact statement	
An environmental impact statement must contain the following information:	Refer certification at the front of the document with respect to (a) – (f)
(a) the name, address and professional qualifications of the person by whom the statement is prepared	
(b) the name and address of the responsible person	
(c) the address of the land: (i) in respect of which the development application is to be made, or (ii) on which the activity or infrastructure to which the statement relates is to be carried out	
(d) a description of the development, activity or infrastructure to which the statement relates	
(e) an assessment by the person by whom the statement is prepared of the environmental impact of the development, activity or infrastructure to which the statement relates, dealing with the matters referred to in this Schedule	
(f) a declaration by the person by whom the statement is prepared to the effect that: (i) the statement has been prepared in accordance with this Schedule, and (ii) the statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and (iii) that the information contained in the statement is neither false nor misleading.	
7. Content of environmental impact statement	
(1) An environmental impact statement must also include each of the following:	Executive summary
(a) a summary of the environmental impact statement	
(b) a statement of the objectives of the development, activity or infrastructure	Chapter 1
(c) an analysis of any feasible alternatives to the carrying out of the development, activity or infrastructure, having regard to its objectives, including the consequences of not carrying out the development, activity or infrastructure	Chapter 6
(d) an analysis of the development, activity or infrastructure, including:	
(i) a full description of the development, activity or infrastructure, and	Chapters 7 and 8
(ii) a general description of the environment likely to be affected by the development, activity or infrastructure, together with a detailed description of those aspects of the environment that are likely to be significantly affected, and	Chapter 2 and Part B
(iii) the likely impact on the environment of the development, activity or infrastructure, and	Part B
(iv) a full description of the measures proposed to mitigate any adverse effects of the development, activity or infrastructure on the environment, and	Part B

Requirement	Reference
(v) a list of any approvals that must be obtained under any other Act or law before the development, activity or infrastructure may lawfully be carried out	Chapter 3
(e) a compilation (in a single section of the environmental impact statement) of the measures referred to in item (d) (iv)	Chapter 27
(f) the reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development set out in subclause (4).	Chapter 28

Appendix D

Sydney Airport planning objectives

D1 Sydney Airport Master Plan 2039 planning objectives

Table D.1 considers the consistency of the project with the Sydney Airport planning objectives listed in *Sydney Airport Master Plan 2039*.

Table D.1 Sydney Airport planning objectives

Objective	Project consistency
<p>Enhance safety and security for users of the airport by:</p> <ul style="list-style-type: none"> ■ Safeguarding the airport's aviation operations ■ Ensuring a safe and secure environment for passengers, employees and infrastructure 	<p>The project has been developed with an objective of minimising potential impacts on the safety of airport operations. The design has evolved to avoid impacts and intrusions in Sydney Airport's prescribed airspace.</p> <p>The potential impacts of the project on aviation safety have been assessed and the results of this assessment are summarised in Chapter 11 (Airport operations). The assessment concluded that the project would not impact on the safety of airport operations.</p>
<p>Consider the interface with the community in planning, development and operations by:</p> <ul style="list-style-type: none"> ■ Engaging in an open and genuine manner ■ Supporting the NSW and local economies in which the airport operates 	<p>Community and stakeholder engagement has been, and would continue to be, an important part of the project's development. Further information on consultation is provided in Chapter 4 (Consultation).</p> <p>The potential social and community impacts of the project have been assessed and measures are provided to minimise the potential impacts of the project (see Chapter 20 (Socio-economic impacts)).</p>
<p>Enhance the experience of all passengers and airport users:</p> <ul style="list-style-type: none"> ■ Arriving and departing landside at the airport, including at ground transport facilities, rail stations, terminal forecourts and commercial precincts ■ Travelling through the terminals ■ Through safety and security improvements 	<p>The project would improve road access to and around Sydney Airport, which would benefit airport visitors and those travelling around and near the airport. It would enhance the transport experience for passengers and airport users arriving and departing landside at the airport, including to and from ground transport facilities.</p>
<p>Improve ground access to, from and past the airport through:</p> <ul style="list-style-type: none"> ■ Innovative solutions to ground access ■ Partnership with the Australian, NSW and local governments ■ Supporting increased public and active transport use 	<p>The project, as part of Sydney Gateway, has been developed in recognition of the existing access issues to Sydney Airport and Port Botany. The project recognises that efficient access to Sydney Airport is critical to the economic growth and prosperity of Sydney and Australia. The project forms part of Australian and NSW government investments in the transport network to cater for the forecast growth in passengers and freight through Sydney Airport and towards Port Botany.</p>
<p>Continue to improve environmental performance at the airport in order to:</p> <ul style="list-style-type: none"> ■ Reduce the carbon footprint of the airport ■ Conserve items of natural, indigenous or heritage value ■ Protect environmentally significant areas 	<p>This document considers the potential impacts of the project. The project has been, and would continue to be, designed to minimise the potential impacts and contribute to the sustainable operation of Sydney Airport.</p> <p>To manage the potential impacts identified by this document, and in some cases remove them completely, the chapters in Part B outline a range of mitigation measures that would be implemented during construction and operation. With implementation of the proposed measures, the potential environmental impacts of the project would be adequately managed.</p>
<p>Further embed sustainability into airport decision-making in order to:</p> <ul style="list-style-type: none"> ■ Minimise the impact on, and seek opportunities to enhance, the natural, constructed and social environments ■ Reduce waste and promote sustainable use of energy, water and materials 	<p>Chapter 25 (Sustainability) provides information on how sustainability has been, and would be, embedded into the design and construction of the project. Measures to reduce waste are provided in Chapter 24 (Waste management).</p>

Objective	Project consistency
<p>Improve the efficiency of the airport through:</p> <ul style="list-style-type: none"> ■ Investments in terminal and airfield infrastructure ■ Utilising new technology ■ Optimal use of the airfield 	Not relevant to the project
<p>Provide adaptable and flexible plans to accommodate aviation growth that:</p> <ul style="list-style-type: none"> ■ Meet forecast passenger growth ■ Ensure responsible investments ■ Are responsive to change 	As described in Chapter 5 (Strategic context and project need), the project has been proposed to meet predicted growth in passengers and transport demands, including freight transport, at Sydney Airport.
<p>Maximise the capacity of the airport to meet demand within existing operational restrictions including:</p> <ul style="list-style-type: none"> ■ 80 movements per hour ■ Curfew from 11pm to 6am ■ Access arrangements for regional airlines ■ Long Term Operating Plan (LTOP) 	Not relevant to the project
<p>Stimulate leisure and business travel to generate benefit and value for the economy:</p> <ul style="list-style-type: none"> ■ Facilitate the activities of businesses operating at the airport ■ Contribute to the growth of tourism, trade and jobs in the NSW and Australian economies 	The project would improve access to and around Sydney Airport, which would benefit airport visitors and those travelling in the vicinity of the airport.
<p>Create an airport that is able to compete internationally to capture aviation demand:</p> <ul style="list-style-type: none"> ■ Deliver efficient infrastructure capacity and facilities to service new and existing international markets ■ Continue to innovate and create a world class experience for our customers 	The project has been developed in recognition of Sydney Airport's role as one of NSW and Australia's most important infrastructure assets, providing essential domestic and international connectivity for people and goods. To support this role and predicted future growth, employees, residents, visitors and businesses need reliable access to the airport, and efficient connections between the airport and Sydney's strategic hubs. The project would meet these needs, and provide for future growth in passengers and freight transport.

Appendix E

Community and Stakeholder Consultation Report

Sydney Gateway Road Project

Community and Stakeholder Consultation Report

Roads and Maritime Services | October 2019

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Executive Summary

On 12 September 2018 the NSW Government announced its decision to progress planning for Sydney Gateway, a new toll-free connection from the Sydney motorway network at St Peters interchange to Sydney Airport's International and Domestic terminals.

Sydney Gateway will make journeys from west and south-west Sydney to Sydney Airport and towards Port Botany, easier, faster and safer. It will complete the missing link in Sydney's motorway network to deliver a high capacity network, vital for supporting the growth of our communities, places and economy, and enable people and goods to move safely and reliably around our city and beyond.

Engagement with the community and key stakeholders was carried out in two formal periods of consultation for the project including:

- Preliminary design (September to October 2018)
- Concept design (May to June 2019).

The purpose of consultation was to raise awareness of the project, understand community and stakeholder questions and concerns and obtain feedback to help shape the design of Sydney Gateway and the environmental assessment.

Engagement and communication with key stakeholders was ongoing outside of these formal periods of consultation to provide ongoing opportunities for dialogue.

Our engagement focused on four stakeholder groups (government organisations, directly impacted landowners/leaseholders, peak bodies, local businesses and interest groups and general public/local community). The issues raised during consultation were grouped into seven categories:

- Environment
- Traffic and road safety
- Shared cycle and pedestrian pathways (active transport)
- Parking
- Property and access
- Freight industry
- Public transport.

We have listened to the feedback received from community members and stakeholders which has helped shaped the design and planning for the project. This feedback has enabled us to develop a new proposed shared cycle and pedestrian pathway on the northern side of Alexandra Canal which has been warmly welcomed by bike users and walkers. We have also committed to provide a dog park in Tempe during the construction of Sydney Gateway road project, and to work closely with Inner West Council and the community to improve open space on Tempe Lands after construction.

We have welcomed your feedback throughout all stages of the planning process and will continue to do so, as we prepare for the next consultation phase – the combined public exhibition of the Environmental Impact Statement (EIS) and preliminary draft Major Development Plan (MDP).

Thank you to everyone who took the time to consider our proposals and provide valuable feedback.

What happens next?

Roads and Maritime has reviewed and summarised all feedback received which is outlined in this report.

The project team has used the stakeholder and community feedback as input to further develop the project's detailed design.

The next stage of community consultation will be during the public exhibition of the combined EIS/preliminary draft MDP from November 2019.

1. Introduction

1.1 Background and project overview

In September 2018, the NSW Government announced it would proceed with planning for Sydney Gateway (the project), a new toll-free connection from the Sydney motorway network at St Peters interchange to Sydney Airport's International and Domestic terminals. It will make journeys from west and south-west Sydney to Sydney Airport easier, faster and safer.

The NSW Government's vision for Sydney is one of an integrated road and public transport network that gives you the freedom to choose how and when you get around, no matter where you live and work.

One area of focus in Sydney is to complete the missing links in the motorway network with the construction of the project, a new road connection to improve traffic movements and ease congestion around the airport precinct. This high capacity network is vital for supporting the growth of our communities, places and economy, and will enable people and goods to move safely and reliably around our city and beyond.

The project will greatly improve the way motorists travel to Sydney Airport and Port Botany, delivering major new connections from the Sydney motorway network to Terminal 1 and Terminals 2/3.

The project will also increase capacity and improve connections to the ports to assist with the growth in freight movements across the region. It will strengthen Sydney's position as a global city, by expanding and improving the existing road network. The project will return local streets to the community in Mascot by allowing 10,000 trucks a day to travel on the project rather than through local Mascot roads.

2. Consultation approach

2.1 Consultation objectives

Roads and Maritime has carried out community and stakeholder engagement activities to:

- Build positive relationships with key stakeholders and establish understanding and empathy around the need for the project
- Provide clear, concise and targeted information which is readily accessible to all stakeholder groups, with dedicated channels for feedback and dialogue
- Ensure communities are aware of impacts prior to construction starting and have an opportunity to raise issues early in consultation that can be considered in the planning and design process.

A Community and Stakeholder Engagement Plan was prepared in 2018 to guide communication and engagement activities throughout project development, the planning process, and during construction.

The engagement process ensured relevant stakeholders and the wider community were proactively engaged and informed about the project and given opportunities to provide feedback. Regular briefings were held, outside the formal periods of consultation, as the project moved forward to ensure stakeholders were kept informed and issues were addressed.

Engagement activities included meetings, regular communication of project information and invitations to project displays. A detailed breakdown of engagement activities to date is outlined in Appendix 3.

Issues raised during consultation were provided to the project design and environmental teams to inform the project development, environmental assessment and preparation of the impact assessment.

2.2 Outcomes from consultation

2.2.1 Consultation by stakeholder group

This section outlines the feedback, comments and concerns that have been raised during our project consultation from residents, community groups, businesses, government organisations and freight industry associations.

While all feedback has been considered, the preferred route for the project has been driven by a range of factors that greatly limit options to change the route alignment. These factors include:

- The location of existing roads and the rail corridor
- Mandatory airspace safety restrictions
- Minimising impacts to residential and commercial property owners
- Alexandra Canal.

The project team consulted with four key stakeholder groups to better understand views, increase knowledge of the project and, where possible, enable opportunities for collaboration on project design including:

- **Group 1:** Government organisations (includes State and Federal departments, local councils)
- **Group 2:** Landowners (directly impacted landowners, leaseholders and utility companies)
- **Group 3:** Peak bodies, industry and interest groups (includes Sydney Airport Precinct, freight industry associations)

- **Group 4:** General public/local community and community interest groups (includes residents in Mascot, Tempe and Wooli Creek and active transport groups)

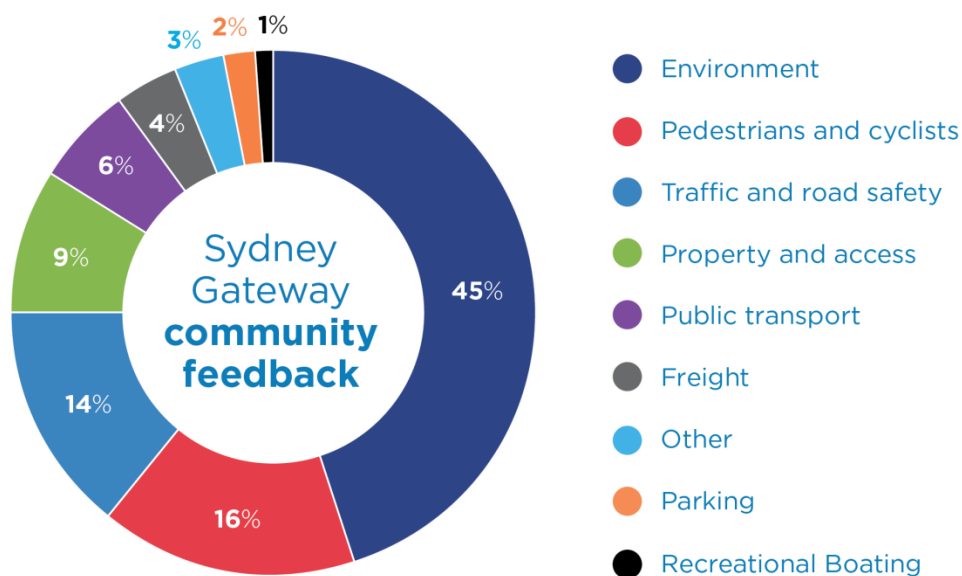
2.2.2 Preliminary design consultation summary

During consultation on the preliminary design between September and October 2018, our main engagement activities included:

- Distribution of 27,000 community updates to homes and businesses
- Door knocking 139 local residents and businesses
- Four pop up information booths (300 people engaged)
- Development of a project website with over 4,000 visits
- Individual stakeholder briefings.

A detailed summary of engagement activities carried out as part of the consultation is provided in Appendix 3.

During this consultation period we received 130 comments on the online ‘have your say’ map, and 12 email submissions. The key themes from this community engagement are described in the figure below:



2.2.3 Outcomes during concept design consultation period

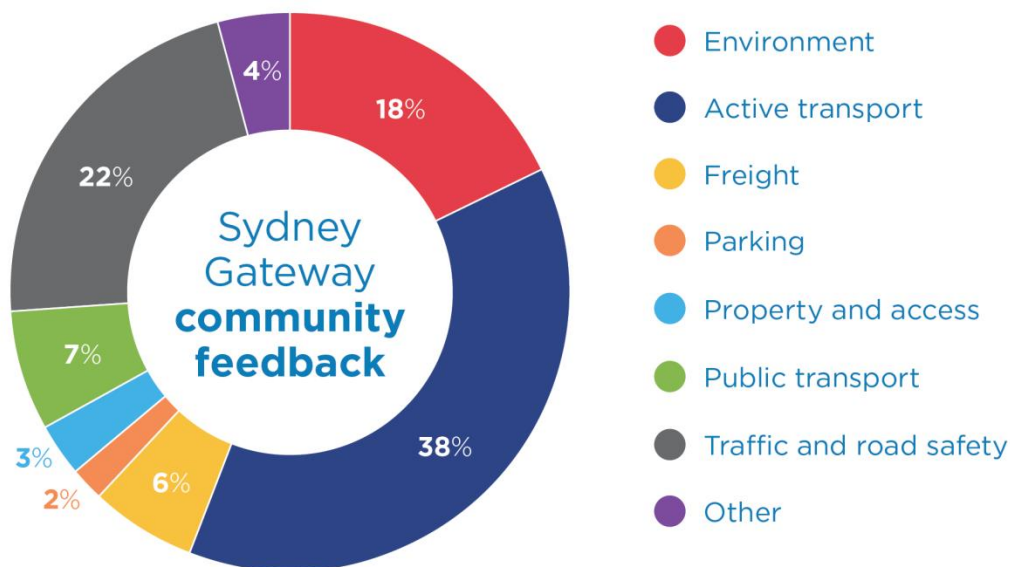
During the consultation period on concept design between 27 May and 23 June 2019, our main engagement activities included:

- Distribution of 22,000 community updates to homes and businesses
- Door knocking over 470 local residents and businesses
- Three information sessions, with 101 people in attendance
- Five information booths, with 387 people in attendance
- Reaching 94,000 people via Facebook posts
- Project interactive website attracting over 8,500 visitors
- Individual stakeholder briefings.

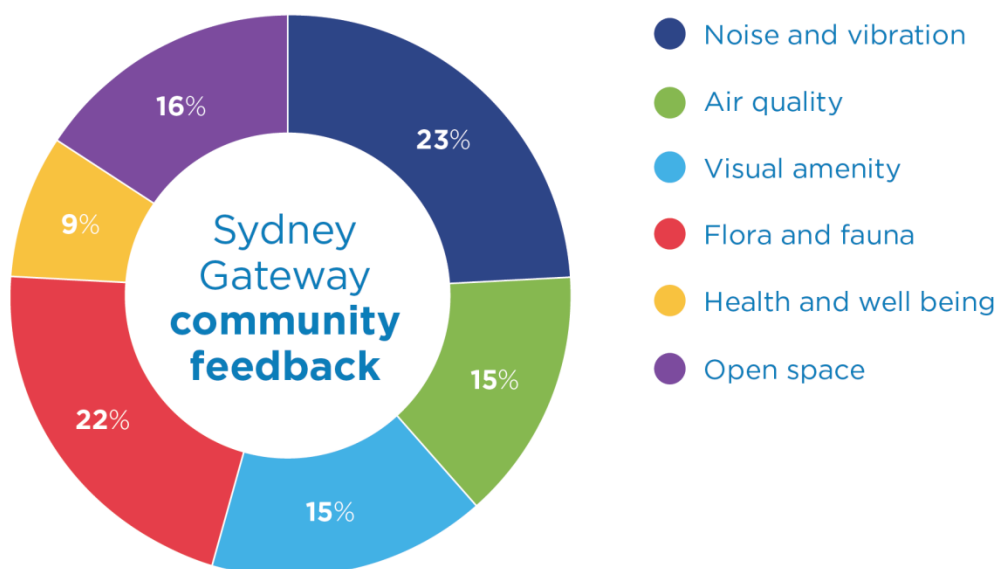
A detailed summary of engagement activities carried out as part of the consultation is provided in Appendix 3.

During this consultation period 246 comments were posted on the 'have your say' map, and 45 email submissions were received in the project inbox. The key themes from this community engagement are described in the following figures.

There were 291 submissions received during concept design consultation. This included 330 comments on the topics below (June 2019).



There were 58 environmental submissions received during concept design consultation. This included 129 comments on the topics below (June 2019).



2.3 Summary of feedback and key concerns received during consultation

The following tables summarise and address the key questions and concerns identified as part of the feedback received from the community and stakeholders during consultation on the project's preliminary and concept designs.

2.3.1 Support for the project	
Feedback you provided	Roads and Maritime response
Group 3: Peak bodies, industry and interest groups Group 4: General public/local community and active transport groups	
<ul style="list-style-type: none"> The project is needed to improve connections to the airport The project will improve connections and support customers to arrive on time for their flights, with an improved user experience The project will be positive for employees who travel from Western Sydney and park at the airport The project will take more trucks off local roads, making it safer for pedestrians who walk around local streets in Mascot The project ability to connect to the wider motorway network will improve the distribution of goods across NSW For Sydney to manage its future well, significant infrastructure investment is required. Well done and keep going. The project improves traffic flow dramatically It is pleasing to see new plans for the Sydney Airport The project's concept design looks good. 	Thank you for your valuable feedback, which will help us to deliver a project that meets the needs of the community and supports future growth.

2.3.2 Environment	
Key questions you have raised and feedback you provided	Roads and Maritime response
Group 1: Government organisations Group 3: Peak bodies, industry and interest groups Group 4: General public/local community	
Impacts on the environment were a key concern raised during consultation on the project's concept design. These environmental concerns have been summarised into six categories below:	<ul style="list-style-type: none"> We understand large scale infrastructure projects like the project can impact local communities and businesses, and we are committed to minimising this wherever possible. The project will be subject to Conditions of Approval set by the NSW Department of Planning, Industry and Environment (DPIE) and Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) for its construction and operation. Before we start construction, our appointed contractor(s) will need to prepare a detailed Construction Environmental Management Plan (CEMP) for approval by DPIE, Sydney Airport Corporation and DITCRD. The CEMP details how the contractor will implement and meet the planning

2.3.2 Environment

Key questions you have raised and feedback you provided	Roads and Maritime response
	<p>conditions for all stages of construction. It will include supporting plans on key construction impacts including:</p> <ul style="list-style-type: none"> ○ Traffic and transport ○ Noise and vibration ○ Biodiversity ○ Air quality ○ Aboriginal and non-Aboriginal heritage ○ Groundwater ○ Soil and water.
<p>1. Noise and vibration – community and stakeholder feedback</p> <ul style="list-style-type: none"> • Construction noise will be worse for Tempe residents living next to a new road who already experience noise from aircraft and Princes Highway. • The project will result in more traffic leading to increased noise for residents in Tempe. • Request for noise mitigation around Tempe and Mascot in streets close to the project's construction areas. This includes: <ul style="list-style-type: none"> ○ Noise barriers with requests for these to be vegetated to assist with further noise reduction, improve visual amenity and protect local wildlife in the Tempe wetlands ○ Noise treatments for properties. • Requests for more information about what mitigation plans will be in place to minimise noise, including night work, how cumulative noise will be managed and hours of operation. • Requests for information about noise modelling and testing that have been done for the project. • Questions regarding whether the existing shipping container 'sound barrier wall' remain in place during construction and whether the removal of these containers have been considered as part of the noise modelling. • Suggested design changes to help reduce noise include: <ul style="list-style-type: none"> ○ Lowering the road to below ground level ○ Building an above ground tunnel ○ Building an above ground tunnel to Port Botany 	<ul style="list-style-type: none"> • We have carried out a detailed noise and vibration assessment to understand potential impacts of the project. This includes modelling of the road during operation and includes modelling with the removal of the empty shipping containers from Tempe Lands. • This assessment will be presented in the impact assessment which will be released for public comment in late 2019. • Based on the results of the noise assessments so far, permanent noise treatments have been identified to mitigate noise impacts at select Tempe locations along the project route. Locations will be identified in the impact assessment. The noise treatments are subject to feasibility testing during detailed design. • The impact assessment will also identify properties that may be eligible for additional noise mitigation measures. We will contact eligible property owners once detailed design and assessments are complete. Any noise mitigation measures will be subject to further assessments. • Before we start construction, a Construction Noise and Vibration Management Plan will be prepared as part of CEMP, which will include details on: <ul style="list-style-type: none"> ○ Acceptable noise levels ○ Noise and vibration monitoring methods during construction ○ Measures to reduce noise and vibration during construction. • During construction, we will monitor noise levels. All feasible and reasonable work practices will be introduced to ensure we are within these acceptable levels. • Before we start any construction work, we inform all potentially impacted residents and businesses about the work, the expected noise levels and duration, as well as providing our 24 hour contact details.

2.3.2 Environment

Key questions you have raised and feedback you provided	Roads and Maritime response
<ul style="list-style-type: none"> ○ Expanding road on the south side of the canal. • Vibration causing damage to homes. 	<ul style="list-style-type: none"> • We will introduce measures to reduce construction noise impacts, where reasonable and feasible. These might include: <ul style="list-style-type: none"> ○ Providing noise barriers ○ Completing noisy work during day work hours, where possible ○ Ensuring all equipment is shut down when not in use and non-tonal reversing beepers used on vehicles ○ Ensuring there are periods where construction work is not scheduled to give residents and businesses respite from the noisy work. • Further information on noise and vibration mitigation measures will be available during the public exhibition of the impact assessment later this year.
<p>2. Flora and fauna including Tempe Wetlands – community and stakeholder feedback</p> <ul style="list-style-type: none"> • Concerns regarding the impact on the Tempe Wetlands, local wildlife and bird habitat, waterways, biodiversity and the ecosystem as a result of the project. • The Tempe Wetlands should be fully protected during construction and design including water sensitive urban design to protect the wetlands from noise and air pollution during construction and the project's operation. • Local flora and fauna especially in green spaces in Tempe. • Unsupportive of the construction of roads through reserves and nature parks impacting on native flora and fauna. • Requests for fauna crossings for protection crossing the road. 	<ul style="list-style-type: none"> • We recognise the importance of the Tempe Wetlands and Recreation Reserve and the protection of flora and fauna to the local community and understand your concerns regarding potential impacts from the project. • When designing the project we have considered how the project may be built with the least amount of impact to these areas. • We have carried out investigations to understand the potential impacts of the project on fauna, flora and the environment so these can be managed and minimised. • We can advise: <ul style="list-style-type: none"> ○ construction of the project will not physically impact the Tempe Wetlands or Reserve. ○ we are consulting with environmental experts to ensure best practice approaches to minimise environmental impacts during construction. ○ there will be some impact to vegetation for construction; however we will provide replacement landscaping (including trees) suitable for the local area once the project is complete. • The impact assessment will include detailed assessments on the potential impacts to flora and fauna and the management measures that will be implemented to minimise these impacts. • Further information will be available during the public exhibition of the impact assessment later this year.

2.3.2 Environment

Key questions you have raised and feedback you provided	Roads and Maritime response
<p>3. Open space including Tempe Recreation Reserve and Tempe off-leash dog exercise area – community and stakeholder feedback</p> <ul style="list-style-type: none"> • Requests for the Tempe off-leash dog exercise area to be relocated close by and large enough for safe exercise especially for large dogs. • The Tempe off-leash dog exercise area should be relocated to a mutually agreed site of similar size and located within council's local government area (LGA). • Request for vegetation to provide adequate shade at the new off-leash dog exercise area. • Keep natural grass on the reserve – no synthetic turf. • Concerns about the proximity of the road to green space and potential environmental impacts once in operation. • Prevent construction vehicles accessing project sites via Tempe Recreation Reserve. • Suggestions to improve the open space once the project is complete: <ul style="list-style-type: none"> ○ Barbeque area ○ Licenced premises to take advantage of the river ○ Café within the parkland ○ Sporting facilities ○ Lands around the roads to be turned into parklands so Sydney Park continues through to St Peters interchange to connect to Tempe Recreation Reserve ○ Green-grid connection linking Tempe Recreation Reserve in the south to Sydney Park in the north ○ Increased parkland to compensate for increased noise. • Concerns open space will be used as a car park or a commercial site. 	<ul style="list-style-type: none"> • We recognise the importance of the Tempe Wetlands, Tempe Recreation Reserve and the Tempe off-leash dog exercise area to the local community and understand your concerns regarding potential impacts from the project. • We can advise: <ul style="list-style-type: none"> ○ Construction of the project will not physically impact the Tempe Wetlands and Reserve. ○ We are consulting with environmental experts to ensure best practice approaches to minimise environmental impacts during construction. ○ We will provide more detailed information about the management of environmental impacts and Tempe Lands during the public exhibition of the impact assessment later this year. • During construction, we will temporarily relocate the off-leash dog exercise area to a location agreed with Inner West Council. The temporary off-leash dog exercise area will be reduced in size during this time, but will remain an adequate size for dog exercise. The temporary off-leash dog exercise area will still be accessible to the public from Tempe Recreation Reserve. • We will work with Inner West Council, stakeholders and the community to understand the needs of park users, and develop a working plan for Tempe Lands and the surrounding area. • An Urban Design and Landscape Plan (UDLP) will be prepared by the appointed contractor, in close consultation with Inner West Council and the local community. The UDLP will outline detailed designs for the project, including the shared cycle and pedestrian pathways, landscaping, vegetation, lighting, signage and more. We will seek feedback on the UDLP from the community.

2.3.2 Environment

Key questions you have raised and feedback you provided	Roads and Maritime response
<p>4. Air quality – community and stakeholder feedback</p> <ul style="list-style-type: none"> Increased traffic from the project will negatively impact on air quality for nearby communities. Concerns the gradient of the ramp to Terminal 1 will cause poor air quality especially as a result of trucks breaking and accelerating. Requests for assurance that the project will not generate adverse air quality impacts. Requests for more information about what mitigation plans will be in place to minimise air quality impacts and protect air quality. Requests for information about the air quality modelling and testing completed for the project. Improve land management processes to avoid a similar situation to St Peters interchange with respect to dust generated by construction. Suggested design changes to minimise air quality impacts include: <ul style="list-style-type: none"> building an above ground tunnel expanding road on the south side of the canal. 	<ul style="list-style-type: none"> The impact assessment will include an air quality impact assessment on the potential health impacts of the project. This assessment will also consider potential changes to air quality and any resultant health impacts. While all feedback will be considered, the preferred route for the project has been driven by a range of factors that greatly limit options to change the route alignment. These factors include: <ul style="list-style-type: none"> The location of existing roads and the rail corridor Minimising impacts to residential and commercial property owners Mandatory airspace safety restrictions Alexandra Canal. We assessed tunnel options very early in the development process and it was decided tunnel options would not be feasible. This decision was reviewed as part of the route option selection process for the project. The challenges of tunnelling include: <ul style="list-style-type: none"> The short length and steep gradients of connections passing under Alexandra Canal which would result in a poor road outcome Poor ground conditions passing through Tempe Lands – the site of the former Tempe landfill Large construction sites would be required, creating substantial surface impacts during construction Difficulty in protecting tunnel construction sites and portals from flooding in this low-lying, flood prone area High groundwater levels would make tunnelling more difficult and expensive.
<p>5. Visual amenity – community and stakeholder feedback</p> <ul style="list-style-type: none"> The roadway will impact on visual amenity for local residents. How will the visual impact be minimised. Suggestions to minimise impact on visual amenity: <ul style="list-style-type: none"> More consideration of aesthetics and greenery to create a ‘Gateway to Sydney’ More vegetation and public art within all available open space 	<ul style="list-style-type: none"> The impact assessment will include an assessment of the visual impacts of the project, and its associated infrastructure, to understand options to minimise impacts to the community. This will include detailed urban design assessments and considerations. We are committed to improving open space after construction and will be working closely with Inner West Council and the local community on options for open space. An UDLP will be prepared by the appointed contractor, in close consultation with Inner West Council and the local community. The UDLP will

2.3.2 Environment

Key questions you have raised and feedback you provided	Roads and Maritime response
<ul style="list-style-type: none"> ○ Lowering the road to below ground level surrounded by vegetation to minimise the visual impact ○ Vegetation along the wetlands side to reduce visual impact of the road ○ The project to be underground. • Increasing the number of mature trees in the area as part of the UDLP. • Artist impressions of what the project will look like through the container park for East Tempe residents. • Details of the UDLP. 	<p>outline detailed designs for the project, including the shared cycle and pedestrian pathways, landscaping, vegetation, lighting, signage and more. We will seek feedback on the UDLP from the community.</p> <ul style="list-style-type: none"> • We will work with Inner West Council in the development of its master plan. • Further information on this process will be available during the public exhibition of the impact assessment later this year.
<p>6. Health and wellbeing – community and stakeholder feedback</p> <ul style="list-style-type: none"> • Understanding of how the project will improve local resident's lives when it has impacts on the environment, air quality and noise. • Health impacts on local residents as a result of the environmental impacts. • Well executed cycling connections will deliver positive outcomes including healthier lifestyles for people. • Concerns about risks to health from the construction activities on the former Tempe landfill site. Requests for an underground tunnel to avoid disturbing the site. 	<ul style="list-style-type: none"> • We understand that large scale infrastructure projects like the project can impact local communities, and we are committed to minimising this wherever possible. • The impact assessment will include a detailed assessment on the potential health impacts of the project as well as the cumulative construction impacts. It will also provide information on how these impacts will be managed. • We have developed an alternative shared cycle and pedestrian path on the northern side of the Alexandra Canal. • We are continuing to work closely with Inner West Council, Bayside Council, City of Sydney and Sydney Airport Corporation about future connections that may be delivered in the area by Transport for NSW. • The project will pass through the Tempe Lands, where we will be excavating material out of the former Tempe landfill. Our expert environment and construction teams are investigating ways to minimise our impact at this site and on the community. • Construction in the former Tempe landfill will be managed in accordance with regulatory requirements and planning conditions. We will continue to consult with Inner West Council and the EPA. • We assessed tunnel options very early in the development process and it was decided tunnel options would not go ahead. This decision was reviewed as part of the route option selection process for the project. The challenges of tunnelling include: <ul style="list-style-type: none"> ○ The short length and steep gradients of connections passing under Alexandra Canal which would result in a poor road outcome

2.3.2 Environment

Key questions you have raised and feedback you provided	Roads and Maritime response
	<ul style="list-style-type: none"> ○ Poor ground conditions passing through Tempe Lands – the site of the former Tempe landfill ○ Large construction sites would be required, creating substantial surface impacts during construction ○ Difficulty in protecting tunnel construction sites and portals from flooding in this low-lying, flood prone area ○ High groundwater levels would make tunnelling more difficult and expensive. ● Any tunnelling option would disturb the former Tempe landfill more significantly than the current project design which seeks to minimise environmental impacts. ● More details will be confirmed during the public exhibition of the impact assessment later this year.

2.3.3 Traffic and Road Safety

Key questions you have raised and feedback received	Roads and Maritime response
Group 3: Peak bodies, industry and interest groups Group 4: General public/local community and active transport groups	
The three key themes you raised about traffic were: <ol style="list-style-type: none"> 1. Congestion during construction 2. Road safety 3. The project road design. 	
1. Congestion – community and stakeholder feedback <ul style="list-style-type: none"> ● Changes to traffic conditions on Qantas and Airport Drive during construction will impact traffic flow. ● During construction, the project will cause travel delays for retailers, pilots, cabin crew, suppliers and employees traveling to work. ● Congestion on surrounding motorways and around the airport precinct will impact the customer experience. ● Issues around traffic flow in local streets during construction. ● General comments about existing congestion at Sydney Airport. ● Vehicles may exit the project onto local roads to avoid tolls onto the next sections 	<ul style="list-style-type: none"> ● We have been in ongoing discussions with transport providers, airport businesses, government authorities and local community groups to collect information from major users of the airport so this can be factored into our construction planning. ● We are working closely with Sydney Airport Corporation and our colleagues in Transport for NSW on ways to minimise congestion during construction. ● We have carried out comprehensive traffic modelling to assess the impact of the project on both the main road and local road network. The model provides information on the minimum number of lanes required during construction to keep traffic moving through the road network. ● To help manage traffic, a section of Qantas Drive will be widened. This will help ensure a minimum of two

2.3.3 Traffic and Road Safety

Key questions you have raised and feedback received	Roads and Maritime response
<p>of motorway connections, and create more congestion in the local area.</p> <ul style="list-style-type: none"> • Connect the project to local roads to reduce congestion. • Re-routing airport-bound traffic from the Marsh Street M5 exit will create further traffic congestion. • No right turns into and/or out of Lancastrian Road restricts access, will create confusion and more congestion. • Traffic leaving the Terminal 1 heading north will be in the right-most lane and will conflict with trucks trying to get into Link Road. This will result in eastbound traffic attempting to merge into the left-most lanes to avoid WestConnex, causing significant risk of crashes and traffic jams. • Improved signage for vehicles dropping off passengers at Terminal 1 they can use the entire frontage to avoid congestion on Qantas Drive. 	<p>lanes in each direction remain open during peak periods.</p> <ul style="list-style-type: none"> • The project design and the potential impacts and benefits of Sydney Gateway will be available as part of the impact assessment. • To ease congestion and provide you with the most direct journey to Sydney Airport, we will be removing the traffic lights at the intersection of Lancastrian Road and Qantas Drive. This intersection currently provides vehicle access to the Jet Base, catering and car parks. • We are working closely with Sydney Airport Corporation and will ensure all businesses and employees are kept well informed of impacts as a result of planned work. • These will include discussions and decisions about wayfinding and signage to help communicate changes to the road network. • Our interactive Sydney Gateway online portal will model new journeys to and from Terminal 1 and Terminals 2/3 to help the community prepare for changes to the way they access Sydney Airport. • We will use established internal communication channels to ensure local businesses and employees who work at the airport and nearby are informed well in advance of our activities and can plan their journeys to the airport effectively. • Our proposed construction phasing is currently in development and will be presented in the impact assessment. This proposed phasing is subject to change and review by the contractor(s) once they are appointed.
<p>2. Safety – community and stakeholder feedback</p> <ul style="list-style-type: none"> • We received comments from a number of people regarding safety during construction and operation of the project. This includes safety concerns for local residents trying to exit local streets onto busy roads such as Railway Road. 	<ul style="list-style-type: none"> • We have carried out comprehensive traffic modelling to assess the impact of the project on both the main road and local road network. This models the traffic impacts during construction of the project and during operation once the project is complete. • The design and the potential impacts and benefits of the project have been assessed as part of the impact assessment. • A CEMP will be prepared once a contractor has been appointed that will outline: <ul style="list-style-type: none"> ○ What methods and mitigation measures will be in place to protect the community from activities occurring around construction sites ○ How the occupation of local streets and community assets will be managed ○ How construction sites will be managed securely and safely.

2.3.3 Traffic and Road Safety

Key questions you have raised and feedback received	Roads and Maritime response
	<ul style="list-style-type: none"> Due to the construction of the project in close proximity to Sydney Airport, it is important work is carried out at night to minimise congestion, keep the community and motorists safe and ensure ongoing access to the airport and other key Mascot destinations during peak periods. Every effort will be made to avoid construction traffic on local streets. Traffic management plans will be in place to ensure the safety of motorists, workers and the public during construction.
<p>3. Sydney Gateway road design</p> <ul style="list-style-type: none"> Concerns over why Airport Drive will be closed. Use Airport Drive as the key connection to the road network instead of bridges and new surface roads. Requests for more information on traffic configurations and traffic flow. Requests for access onto/off the project from Canal Road (please see the freight section of this table for more details and response). 	<ul style="list-style-type: none"> Airport Drive is located on Sydney Airport land and will be closed to the public once the project is complete. Your new journey to Terminal 1 and Terminals 2/3 will be via the new Sydney Gateway connection. The future use of Airport Drive will be determined by Sydney Airport Corporation. Qantas Drive will be widened from two lanes to three lanes in each direction to create more space on the road for vehicles accessing the Terminals 2/3 precinct and towards Port Botany. A new elevated road or 'flyover' will allow traffic from the south and west to connect directly to the front door of the Terminals 2/3 precinct. The 'flyover' will improve traffic flow by separating traffic travelling to the Domestic terminals from traffic travelling towards Port Botany and beyond. More than half the traffic within the airport precinct travels around the airport to other destinations.
<p>Out of scope suggestions – feedback from community and stakeholders</p> <ul style="list-style-type: none"> Cars are blocking traffic when turning right off Botany Road after Wentworth Avenue. Provide a right signal or a no right turn for cars turning right from Coward Street onto Bourke Street to minimise queuing and improve safety at this intersection. High Street should implement a no right turn into O'Riordan Street. There are safety issues on Bourke Street around Mascot train station where the pedestrian crossing is located, which poses a risk to drivers and pedestrians. Suggest it is replaced with a traffic light signal allowing timed crossings. Install temporary dividers to prevent cars merging across lanes on Robey St attempting to turn left in peak periods. 	<ul style="list-style-type: none"> Thank you for your feedback and additional suggestions for improving infrastructure around the airport precinct. These suggestions are outside the design scope of the project; however we will consider your suggestions and comments in future planning. Suggestions regarding improvements on Sydney Airport land will be referred to Sydney Airport Corporation for consideration.

2.3.3 Traffic and Road Safety

Key questions you have raised and feedback received	Roads and Maritime response
<ul style="list-style-type: none"> • Provide a right traffic light signal or no right turn signage, to prevent cars turning right from Coward Street onto O'Riordan Street to improve safety. • Consider additional flyovers from Joyce Drive to Wentworth Avenue. • Build a direct underground tunnel to Foreshore Road that includes a lane for bikes. This will improve traffic flow dramatically and cut down the amount of cars using it. • Extend the project to Foreshore Drive to remove larger vehicles from local streets in Mascot and Botany. • Provide a right turn onto Southern Cross Drive heading north from Botany Road. • Reduce the Botany end of Botany Road to a three tonne limit, because Foreshore Drive is available for large vehicles to use. • Reconfigure the M1 interchange into Botany Road. • Extend the project flyover to General Holmes Drive. • Reduce existing heavy freight vehicles on the Princes Highway around Sydenham and IKEA, and Mascot local roads. • Provide an off ramp for a bus lane to Bellevue Street and Sydenham Station. • Improve traffic phasing and signalling, and wayfinding on roads within, and on approach to the airport precinct, as well as closing local streets to prevent 'rat runs'. • Change lane configurations of roads around the airport precinct such as preventing right turn access. • Cap/subsidise tolls for airport employees. 	

2.3.4 Shared cycle and pedestrian pathways (active transport)

Key concerns raised and feedback received	Roads and Maritime response
Group 1: Local councils Group 3: Peak bodies, industry and interest groups Group 4: General public/local community and active transport groups	
Alexandra Canal Cycleway <ul style="list-style-type: none"> • Maintain a canal-side shared cycle and pedestrian pathway. • Keep the cycle routes open during construction. • Ensure safe cycling and pedestrian connections during construction. • The temporary cycleway route is not feasible. It is steep, longer and needs to connect better to existing links. • The temporary shared cycle and pedestrian pathway is a positive solution and is well supported. • Support for the permanent replacement route on the north side of Alexandra Canal • Requests to build the new permanent shared cycle and pedestrian pathway so it is operational before construction on the project starts. • Ensure adequate wayfinding is implemented during construction. 	<ul style="list-style-type: none"> • We have been working closely with Sydney Airport Corporation, local councils and the community to develop a permanent replacement route for a shared cycle and pedestrian pathway on the northern side of Alexandra Canal. • This route has been designed in response to community and stakeholder feedback which requested a canal side pathway. • We will ensure any shared cycle and pedestrian pathway impacted by the project is safely replaced and ensure the best permanent replacement route possible is created. • We will ensure safe temporary routes for shared cycle and pedestrian pathways are in place during construction of the project until a permanent route is opened. • We will continue to review and consider feedback and suggestions received to improve access to shared cycle and pedestrian pathways.
Connections to Sydney Airport <ul style="list-style-type: none"> • Access must be maintained along the existing shared cycle and pedestrian pathway on Qantas Drive as it is an important link between southern Sydney, the City and eastern suburbs. • Travellers and airport employees should be able to walk or cycle to and from the airport terminals. • Continue/extend the permanent Alexandra Canal shared cycle and pedestrian pathway around Qantas Drive to the Sydney Airport. • Suggest a pedestrian crossing on the Qantas/Mascot Central side of Bourke Road to serve frequent pedestrian traffic between Qantas, corporate buildings and Mascot Central, which requires pedestrians to cross the road three times. 	<ul style="list-style-type: none"> • We are working closely with Sydney Airport Corporation to look at options for cyclists and pedestrians who frequently use the shared paths. • Links for cyclists and pedestrian connections into Sydney Airport are being considered as part of the Sydney Airport Master Plan 2039. More information can be found at: masterplan2039.com.au

2.3.4 Shared cycle and pedestrian pathways (active transport)

Key concerns raised and feedback received	Roads and Maritime response
<p>Connections to the broader cyclist and pedestrian (active transport) network</p> <ul style="list-style-type: none"> We received a number of submissions from the community and stakeholders requesting: <ul style="list-style-type: none"> a continuous cyclist and pedestrian link between the Alexandra Canal shared cycle and pedestrian pathway through to St Peters interchange and Sydenham Station the extension of the existing shared cycle and pedestrian pathway route into Mascot and beyond a direct crossing over the Cooks River from the south towards the CBD direct connections from the Alexandra Canal shared cycle and pedestrian pathway to Terminals 2/3, Botany Road, Mascot and to the Bayside Council network a direct connection between Coward Street and Sydenham Station (and future Sydney Metro stations) improved cycle access from nearby suburbs and shared cycle and pedestrian pathway networks to Terminal 1 and Terminals 2/3 Connect to existing links (Bourke Road, Cooks River and southern shared cycle and pedestrian pathway) and create new links to Sydenham Station, Princes Highway and the Sydney CBD. 	<ul style="list-style-type: none"> We are continuing conversations with local councils, Sydney Airport and Transport for NSW about cyclist and pedestrian connections to Sydenham and St Peters interchange, and further enhancements around the airport precinct. However these are not included in the project's program of work. We welcome your ongoing feedback on what other shared cycle and pedestrian pathway connections you feel are important.
<p>Design</p> <ul style="list-style-type: none"> Consider necessary mobility requirements of the surrounding community such as; safe and direct walking and cycling links to Green Square, St Peters, Sydney Park, Erskineville, Tempe and Mascot to minimise the numbers of locals needing to drive. Suggestion for grade separated shared cycle and pedestrian pathways and more off road routes. Improve wayfinding onto Foreshore Drive and Botany Road due to interactions with heavy vehicles and traffic, and around the airport precinct. Deliver safe walking and cycling facilities around the airport with an 'orbital' network connecting into other active 	<ul style="list-style-type: none"> Providing an option for a northern canal side shared cycle and pedestrian pathway has required us to overcome a number of technical challenges. We are pleased to have identified a route option which is widely supported by the community, councils and cycleway users. Safety, surrounding landscapes and the ability to connect to existing and proposed shared cycle and pedestrian pathway are a few factors that led to the project's proposed alternative route. Feedback from local councils, bike users and pedestrians has strongly shaped and influenced the proposed replacement shared cycle and pedestrian pathway. We welcome your ongoing feedback on what other connections you feel are important.

2.3.4 Shared cycle and pedestrian pathways (active transport)

Key concerns raised and feedback received	Roads and Maritime response
transport routes. It's a once in a generation opportunity as part of the project's implementation.	
Safety <ul style="list-style-type: none"> • Suggestion for better pedestrian safety around Mascot and Tempe during construction. • Upgrade cyclist and pedestrian access on Giovanni Brunetti Bridge to better connect into the airport cyclist network and improve safety. • Ensure appropriate separation of cyclist and pedestrians from passing traffic through the use of concrete barriers. • Minimise pedestrian and cyclist proximity to cars and trucks to avoid inhaling fumes and polluted air. • Maintain a safe gradient along temporary and permanent shared cycle and pedestrian pathways. 	<ul style="list-style-type: none"> • Following feedback from cyclists, pedestrians and local councils, we will be providing a canal side shared cycle and pedestrian pathway replacement route once construction is complete. This new route will ensure pedestrians and cyclists are separated from cars and trucks. • The proposed replacement route will include a 20 metre long underpass at the Nigel Love Bridge and a dedicated bridge across Alexandra Canal, with enhancements to lighting and surveillance. • A construction environmental management plan will be developed once our contractor has been appointed to ensure the safety of pedestrians, cyclists and the local community is maintained throughout construction.
Other suggestions and comments/out of scope <ul style="list-style-type: none"> • There is a lack of pedestrian footpaths in East Tempe. • The existing shared cycle and pedestrian pathway connection to Canal Road, proposed as part of WestConnex, should go ahead to improve links in the Mascot area. • There has been a lack of consultation with the cycling community. 	<ul style="list-style-type: none"> • We are continuing conversations with Transport for NSW, Sydney Airport Corporation and local councils to explore options for further enhancements to shared cycle and pedestrian pathways within the area. These will not be delivered within the project. • We are committed to ongoing engagement with the cycling community as part of the delivery of the project. • As part of our ongoing design development and consultation with the cyclist community, we have held briefings with cycling groups including BikEast and Bicycle NSW, hosted design workshops and meetings with cyclists and held multiple community information and pop up sessions. • We encourage you to register to receive project updates to get the latest information on the project. Please email sydneygateway@rms.nsw.gov.au to be added to our stakeholder database.

2.3.5 Parking

Key concerns raised and feedback received	Roads and Maritime response
Group 3: Peak bodies, industry and interest groups Group 4: General public/local community and active transport groups	
Parking <ul style="list-style-type: none"> • Reduce airport parking fees to encourage more people to park at Sydney Airport rather than in local residential streets in Tempe. • Clarify the access routes to Terminal 1 from the project. • Concerns about street access in Tempe East during construction and local roads being used by construction heavy vehicles. • Concerns about the cumulative impacts of the project and Sydney Airport's Ground Transport Interchange impacting the accessibility of the airport and deterring customers. • Suggestions for more parking to be available around the airport to cater for more people driving via the project. • Discourage people parking in local streets while they travel to avoid paying parking at Sydney Airport. • Digital parking spot signage on the approach to Sydney Airport should be implemented to improve decision making. • Restrict parking on O'Riordan Street to allow two lanes of traffic from Redfern to the airport. 	<ul style="list-style-type: none"> • The impact assessment will include an assessment of the potential impacts on parking within the project corridor during construction and operation. • Parking changes, restrictions on local roads, and determining off-street parking requirements for new developments remains the responsibility of local councils. • Heavy vehicles will travel on major roads to access construction sites. Any travel on local roads in Tempe East will be limited. • We will work with councils to determine any potential changes to parking on the local road network as part of the development of the design for the project. • During construction, we will ensure parking spaces for construction vehicles are available within the project construction sites, and encourage ride sharing and use of public transport where possible. • Sydney Airport's ground transport interchange is part of a large program of ground transport improvements to enhance parking and access at Sydney Airport. • The project will provide for a future connection to the round transport interchange at Terminals 2/3 providing signal-free access for public transport and private vehicles to the Terminals 2/3 precinct via the Sydney Motorway network as well as free-flowing private vehicle pick up and direct access to parking. • Further information on planned ground transport improvements at Sydney Airport is available in the Sydney Airport Master Plan 2039 at: masterplan2039.com.au

2.3.6 Property and access

Key concerns raised and feedback received	Roads and Maritime response
Group 3: Peak bodies, industry and interest groups Group 4: General public/local community and active transport groups	
Property <ul style="list-style-type: none"> Interest around the use of unused land after the road is completed. 	<ul style="list-style-type: none"> We are committed to improving open space after construction and will be working closely with Inner West Council and the local community on options for open space. An UDLP will be prepared by the appointed contractor(s), in close consultation with Inner West Council and the community. The UDLP will outline detailed designs for the project, including shared cycle and pedestrian pathways, landscaping, vegetation, lighting, signage and more. We will seek feedback on the UDLP from the community. We will work with Inner West Council in the development of its master plan. Every effort will be made to minimise the impact on properties close to the project. Roads and Maritime is responsible for the acquisition of commercial properties required for the project in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>.
Access <ul style="list-style-type: none"> Concerns about vehicle access into Terminal 1 from the project. Concern about access to Terminal 1 and Terminals 2/3 as a result of congestion on Ross Smith Avenue. Suggestions that Airport Drive be used for transporting airport employees between Terminal 1 and Terminals 2/3. Concerns about travel delays on the Sydney Airport road network and designated access to pick-up and drop-off locations. 	<ul style="list-style-type: none"> We are committed to minimising the project's impacts on the local community and businesses, and we will work together to manage and mitigate impacts to access. The project will complement existing Airport East and Airport North road upgrades (planned for completion late 2020) by improving traffic flow and access around Terminals 2/3 precinct and Port Botany. The project will include two four-lane bridges over Alexandra Canal with two lanes on each bridge servicing Terminal 1. We will have traffic management plans in place to minimise impact to traffic and access.

2.3.7 Freight industry

Key concerns raised and feedback received	Roads and Maritime response
Group 3: Peak bodies, industry and interest groups Group 4: General public/local community	
<p>Access to Port Botany and Mascot</p> <ul style="list-style-type: none"> • Provide a road link between St Peters interchange and Port Botany. • The project should demonstrate the longer term benefits to Port Botany. • Container trucks will continue to use local roads around Canal Road, Ricketty Street, Kent Road, Coward Street, Bourke Road and O’Riordan Street for access to Port Botany. • It is important for motorists to be able to efficiently access business parks. • Incorporate future forecasted port uses and future demand usage into traffic modelling to inform the project’s environmental assessments and preferred design. • The project needs to demonstrate linkages/benefits to the port/rail to ensure longer term benefits. • The project should accommodate the proposed rail run out from the Cooks River Intermodal Terminal (CRIT) to Port Botany. This involves shuttle trains directly to and from Port Botany. This line would cross directly underneath the design. 	<ul style="list-style-type: none"> • Traffic modelling indicates that by 2036, 50 per cent of heavy vehicles travelling to and from Port Botany will use the project. • The new ‘flyover’ to Terminals 2/3 will provide dedicated access to Sydney Airport and separate vehicles heading to the airport from traffic bound for Port Botany. It will help to ease congestion and improve journey times for freight to and from Port Botany, as well as major logistic centres in Western Sydney • A Port Botany Access Study is being carried out to consider options for additional traffic improvements that may be required in the short, medium and longer-term to help address congestion around Port Botany. • The study identified some cost effective road enhancements that would improve traffic performance at these key bottlenecks until 2030. • Planning approval and delivery of these works will be taken forward by Roads and Maritime once competitive assessment and funding has been secured. These works are not part of the project. • Roads and Maritime is working closely with NSW Ports and Transport for NSW on these options. • ARTC is delivering the Botany Rail Duplication to implement additional rail track to increase freight rail capacity to Port Botany. • We appreciate feedback from the freight industry on the need to improve access to Port Botany and reduce heavy vehicle movements through Mascot. • Some of these suggestions are not in the scope of the project but will be considered as part of Roads and Maritime’s future planning to improve key intersections.
<p>Impacts on heavy vehicle and freight operations</p> <ul style="list-style-type: none"> • Residential apartments and other land uses in Mascot may attract a curfew for heavy vehicle travel on local roads and negatively impact truck operations. • Concern about relocating Tyne Containers and the loss of major empty container park terminals close to Port Botany. 	<ul style="list-style-type: none"> • The project’s new road connections will support the efficient distribution of freight vehicles to and from Port Botany, as well as major logistic centres in Western Sydney. • It also supports the forecast growth in containerised freight by increasing rail capacity and service reliability for freight moving in and out of Port Botany. • There are no plans to introduce heavy vehicle curfews in Mascot.

2.3.7 Freight industry

Key concerns raised and feedback received	Roads and Maritime response
<p>Empty container market</p> <ul style="list-style-type: none"> The relocation or removal of Tyne Containers from Tempe will reduce the volume of empty container park capacity close to Port Botany. Empty containers should be deferred to Port Botany and repositioned. Loss of investment land leased to Tyne Containers will impact on Inner West Council's revenue. 	<ul style="list-style-type: none"> The project will acquire land currently leased to Tyne Containers, with options for relocation currently being explored. We have commissioned an independent report into the empty container capacity in and around Port Botany, to explore the impacts of the potential loss of Tyne Containers in 2020, should the business not be successful in relocating its operations (see Technical Working Paper 12 (Business Impact Assessment) Appendix D). The current oversupply of empty containers being held close to Port Botany is a cyclical trend resulting in part from the recent drought. This is likely to naturally ease over the next two years as normal market activity returns, and industry transitions towards movement of empty containers by rail. We will see expanded empty container storage capacity at intermodal terminals, such as Moorebank. Inner West Council will be compensated for all reasonable costs incurred and loss of income resulting from the project in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>.
<p>Requests for heavy vehicle entry and exit ramps at Canal Road, St Peters</p> <ul style="list-style-type: none"> The project does not provide reasonable or efficient access to the project from the Cooks River Intermodal Terminal onto/off Sydney Gateway. Include on and off ramps at Canal Road for heavy vehicle access onto/off the project to service and support freight – only road assets and neighbouring businesses like Boral and Goodman's warehouse facility. If ramps at Canal Road are not implemented, heavy vehicles will be forced to use areas like Kent Street, Bourke Street and Coward Street, Canal Road, Ricketty Street, Bourke Road and O' Riordan Street and will have to navigate through already congested local urbanised streets, affecting efficiency and time cycles. Ramps at Canal Road would improve productivity through truck turnaround time savings. Without ramps at Canal Road, the design sends a message that freight is not a priority. Without suitable route options, container transport operations will be severely disadvantaged. 	<ul style="list-style-type: none"> We understand there is concern from the freight industry about the project not including heavy vehicle access onto/off Canal Road. The project did consider an early concept for access ramps onto/off the project at Canal Road for cars and trucks with and without tolling. Traffic modelling studies were carried out to determine the impact of any proposed Canal Road ramps on the local and surrounding road network. The future transport and general traffic benefits were low by comparison to the estimated costs of constructing the ramps and acquiring additional land from Sydney Airport and the Australian Government. Based on these studies, a decision was made not to progress with the Canal Road ramps and these are not part of the scope for the project. We have welcomed feedback from the freight industry, and Transport for NSW and Roads and Maritime have been working with industry throughout 2019 to explore options for a dedicated heavy vehicle access onto and off the project at Canal Road. While Canal Road ramps are not part of the project or funding package, its design will not preclude any

2.3.7 Freight industry

Key concerns raised and feedback received	Roads and Maritime response
<ul style="list-style-type: none"> Ramps at Canal Road would enable efficient travel for higher productivity vehicles, particular during off peak and throughout the night for continuous operations of empty container returns. Implementing the Canal Road ramps would complement the NSW Freight and Port Strategy 2018-2023 which is critical to the whole freight supply chain. 	<p>ramps at Canal Road being incorporated at a later date.</p> <ul style="list-style-type: none"> Ramps would require a separate business case with funding, and approvals from Sydney Airport and Government.

2.3.8 Public transport

Key concerns raised and feedback received	Roads and Maritime response
<p>Group 1: Local councils Group 3: Peak bodies, industry and interest groups Group 4: General public/local community</p>	
<ul style="list-style-type: none"> Encourage improved public and active transport. Suggestions to increase bus and train services to the airport. There are insufficient public transport routes to the airport. Suggestions to improve public transport connections, including buses from the south, particularly for employees who live south of the airport. Remove the station access fee on journeys to Terminal 1 and Terminals 2/3 train stations to encourage more people to use public transport. Request for an analysis on public transport options compared to the travel time savings of the project. 	<ul style="list-style-type: none"> We are working with Transport for NSW and Sydney Airport Corporation to explore options to improve public transport within the airport precinct. The 'More Trains, More Services' program has increased the number of services to Sydney Airport's train stations, including along the T8 Airport and South Line. From the early 2020s, train services will run on average every four minutes instead of every six. This will increase commuter capacity by around 50 per cent to support your journey to the airport. Transport for NSW Future Transport Strategy 2056 provides improved commuter bus access to Sydney Airport, with better east, west and southern links. This includes a new suburban route for journeys between Miranda and Sydney Airport through to St George. Feedback on the need for future investment in public transport has been referred to Transport for NSW who manage public transport bus and train services to Sydney Airport.

2.3.9 Other

Key concerns raised and feedback received	Roads and Maritime response
Group 1: Local councils Group 3: Peak bodies, industry and interest groups.	
Businesses and revenue <ul style="list-style-type: none"> Employee travel delays will result in financial implications for airlines and airport security providers. Construction staging, the height of the road, proposed traffic volumes and reduced travel times will impact on advertising revenue for advertisers. The project will impact how advertising is installed and promoted throughout the airport precinct. The project will cost businesses money due to construction impacts and its operation. Inner West Council should be compensated for loss of income from the relocation of Tempe Golf Driving Range and Academy. 	<ul style="list-style-type: none"> The impact assessment includes detailed assessments on socio-economic, business, land use and property impacts. It will identify the mitigation measures required for all phases of the project. We are working closely with Sydney Airport Corporation and will ensure businesses and employees are kept well informed of construction impacts and have opportunities to provide comments and feedback. As part of the project's detailed environmental assessment process, we surveyed local businesses to understand potential impacts as a result of the project both during construction and operation. This helped us to consider their needs and identify opportunities to minimise impacts to their operations. Inner West Council will be compensated for all reasonable costs incurred and loss of income resulting from the project in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>.
Group 4: General public/local community	
<ul style="list-style-type: none"> Will there be more planes flying overhead with the airport expansion? What is the cost benefit ratio for this project? 	<ul style="list-style-type: none"> The planned expansion of Sydney Airport is a proposed development in planning led by Sydney Airport Corporation. Further information is available in the Sydney Airport Master Plan 2039 at: masterplan2039.com.au The project is economically viable as the overall benefits are demonstrated to exceed the expected costs. Refer to http://insw.com/media/2154/sydney-gateway-program_final-business-case-summary.pdf

3. Public display of the combined EIS/preliminary draft MDP

3.1 Planning process overview

The project is unlike most other major road projects in NSW as it passes through both Sydney Airport controlled land, owned by the Commonwealth, and land subject to the NSW *Environmental Planning and Assessment Act 1979*. As a result, the project will require approval under both NSW and Commonwealth government legislations.

Under the NSW planning process, an EIS is required, that will be assessed under Division 5.2 of the *Environmental Planning and Assessment Act 1979*.

In line with the Commonwealth *Airports Acts 1996*, the preliminary development of a draft MDP is also required as part of the Commonwealth planning process.

A single document is being prepared that provides an integrated assessment of the project to fulfil both State and Commonwealth approval processes.

3.2 Engagement activities as part of the combined EIS/preliminary draft MDP consultation

Consultation activities to support the public exhibition will include:

- Project overview which provides summary information about the design of the project, potential construction and operational impacts and measures that will be put in place to manage impact
- Sydney Gateway interactive portal
- Stakeholder briefings
- Doorknocks with the community
- Community information sessions
- Information booths
- Fact sheets for key environmental and project information
- Distribution of project community and business updates
- Media releases
- Newspaper advertising.

3.3 Engagement after the combined EIS/preliminary draft MDP consultation

If the project receives planning approval, we would continue to engage with stakeholders and the community in the lead up to and during construction. A communications strategy will be developed for the construction phase of the project, which would include:


- A 24-hour free community project information line
- A community complaints and response management system
- Notifications regarding work outside standard working hours and work that might impact residents, businesses and stakeholders
- Email/SMS updates


- Project website
- Newsletters, information brochures and fact sheets
- Regular community updates to provide updates on the construction progress
- Meetings with key stakeholders
- Traffic alerts
- Site signage
- Media including media releases, social and advertisements
- Ongoing role of Community Engagement Manager(s) to act as a single point of contact for the community
- Translator interpreter services.

4. Appendices

4.1 Appendix 1 - List of stakeholders engaged and briefed

Stakeholders groups	Stakeholders engaged
<p>Group 1: Government organisations (includes State and Federal departments, councils and utilities)</p> 	<ul style="list-style-type: none"> • Department of Planning, Industry and Environment (DPIE) • Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) • Department of the Environment and Energy • Airport Environment Officer • Civil Aviation Safety Authority • Airservices Australia • Transport for NSW (TfNSW) • Sydney Co-ordination Office (CBD Coordination) • Transport Management Centre (TMC) • Property NSW • Heritage NSW, Department of Premier and Cabinet • Department of Planning, Industry and Environment – Environment, Energy and Science Group • Department of Planning, Industry and Environment – Water Group • NSW Environmental Protection Authority (EPA) • NSW Health • Sydney Water • Inner West Council • Bayside Council • City of Sydney • NSW State Emergency Service
<p>Group 2: Landowners (directly impacted) (includes lessors and utilities)</p> 	<ul style="list-style-type: none"> • Tyne Container Services • Boral Concrete • Boral Recycling • Tempe Golf Driving Range and Academy • Qube • NSW Ports • Port Botany Lessors • Tempe Tyres • Inner West Council • Qantas • oOh! Media • Visy Cardboard and Paper Recycling • Sydney Desalination Plant • Ausgrid • Jemena • Qenos • Telstra • Optus • Viva Energy • Caltex • TPG/APPT • Vocus • AARNet • Ucomm • NBN

Stakeholders groups	Stakeholders engaged
<p>Group 3: Peak bodies, local businesses and interest groups (includes Sydney Airport Precinct, freight industry associations and local businesses)</p> 	<ul style="list-style-type: none"> • Sydney Airport Corporation • Australian Rail Track Corporation (ARTC) • Sydney Airport Community Forum (representatives from local State and Federal MP offices, councils, Virgin, CASA, Airservices Australia and community members) • NSW Business Chamber • SNP Security – Aviation (Certis Group) • Qantas Airways Limited • Virgin Australia • Singapore Airlines • Air Canada • Delta Air Lines • Emirates Group and Emirates Leisure Centre • All Nippon Airways Co. Ltd. (Zennikkū/ANA) • Etihad Airways • Aeromedical – NSW Ambulance • Sydney Airport Regional Emergency Services Forum (representatives from NSW Police, Australian Federal Police, NSW Ambulance, Fire and Rescue NSW) • Avis Car Rental • Europcar • DHL • Dnata • Kentucky Fried Chicken (KFC) • Branksome Hotel • Stamford Plaza Sydney Airport • Felix Hotel (Citadines Connect Sydney Airport) • Uber • Sheba • NSW Hire Car Association • BusNSW • NSW Taxi Council • 13CABS • NSW Taxi Operator and Drivers Association • Heinemann • AMG Sydney (Mercedes-Benz) • JC Decaux • JJ Lawson Customs & Freight Brokers • Australian Logistics Council (ALC) • Port Botany Community Consultative Committee • NSW Ports • Road Freight NSW • Goodman Group • Shipping Australia • TOLL Group • Freight and Trade Alliance (FTA) • Australian Peak Shippers Association • Container Transport Alliance Australia (CTAA)

Stakeholders groups	Stakeholders engaged
<p>Group 4: General public, local community and active transport groups</p> 	<ul style="list-style-type: none"> Residents in Tempe, Botany, Mascot, Wolli Creek and Zetland Business and leisure travellers using Sydney Airport BikEast Bicycle NSW Sydney Orbital St George BUG

4.2 Appendix 2 - Communication collateral

The project's external facing communication material during both preliminary and concept design consultation periods have included the following:

- Community Update – Spring 2018
- Community consultation summary Preliminary design – Spring 2018
- Concept Design Project Overview – Autumn 2019
- Community Update – Autumn 2019
- Project Update for Business – Autumn 2019
- Shared cycle and pedestrian pathways fact sheet – Autumn 2019.



4.3 Appendix 3 – Engagement activities undertaken to date

Activity	Description	Timing	
		Preliminary design	Concept design
Traditional engagement and collateral			
1800 number and email	Contact methods were set up to enable community members to contact the project team: <ul style="list-style-type: none">Email: sydneygateway@rms.nsw.gov.auPhone: 1800 654 446.	September 2018	
Community update	A community facing overview document, describing the project and distributed to the project’s surrounding communities. Available on the webpage and portal.	27,000 distributed – September 2019	22,000 distributed – May 2019
Business update	A summary of the project released at concept design including benefits specific to businesses in proximity to the project. Available on the webpage and portal.	1,000 distributed – May/June 2019	
Project overview	A detailed overview of the project released at concept design including key features, benefits and impacts. Available on the webpage and portal.	500 distributed – May/June 2019	
Active transport fact sheet	An active transport fact sheet was developed at concept design showing proposed permanent options for a replacement shared cycle and pedestrian pathway and temporary routes during construction. Available on the webpage, portal, information sessions and emailed to subscribers.	May 2019	
Planning process factsheet	A summary of the NSW and Commonwealth planning process. Available on the webpage, portal information sessions and emailed to subscribers.	September 2018	
Route alignment factsheet	Information on why the proposed route of the project has been chosen, and the contributing factors. Available on the webpage and portal.	September 2018	

Activity	Description	Timing	
		Preliminary design	Concept design
Digital engagement			
Sydney Gateway project webpage	A dedicated webpage was established at: www.rms.nsw.gov.au/sydneygateway The webpage has been updated at regular intervals with ongoing announcements and updates as the project has progressed.	2016	
Sydney Gateway interactive portal	The interactive portal is a web-based digital platform that provides stakeholders with a single point of access to all project information.	Launched 27 May 2019	
Sydney Gateway animation	An overview animation was developed for preliminary design consultation, which has been updated as more information becomes publically available. Animation can be found on both the project webpage and portal.	Launched September 2018	
Interactive ‘have your say’ map	An online community consultation feedback mapping tool was made available on the project webpage. The tool provided an online mechanism for feedback and comments directly to the map.	September/ October 2018	May/June 2019
Social media campaign	Posts shared on the NSW Roads Facebook page. Two posts were published during preliminary design consultation	Two posts – October 2018	Four posts, reaching 94,021 people – June 2019
Sydney Airport static display	During both preliminary and concept design a dedicated display was installed at the International and Domestic terminals. For preliminary design, this consisted of a TV with the animation on loop. Concept design had two large interactive touch screens with the new interactive portal available.	One display, two weeks in Terminals 2/3 and two weeks in Terminal 1 – September/ October 2018	Two displays, one in Terminals 2/3 and another in Terminal 1 for four weeks – May/June 2018

Stakeholder briefings

Stakeholder	Engagement activity	Dates engagement started
Group one – Government		
Transport Cluster Transport for NSW, Sydney Coordination Office, Transport Management Centre	Ongoing liaison to inform the development of the project including design and integration with new and existing transport networks.	Ongoing since 2016
Local Councils Inner West Council (IWC), Bayside Council, City of Sydney	Project briefings with local Councils to inform engagement approach with residents and businesses in relevant LGA. Land negotiations with IWC. Inner West Council/Sydney Gateway Working Group. Council participation in active transport workshops	Ongoing since September 2018
Department of Infrastructure, Transport, Cities and Regional Development (DITCRD)	Planning focus group meeting to discuss issues relevant to the preparation of the impact assessment. Briefings on the project during the preparation of the impact assessment including discussion on key environmental matters.	Ongoing since September 2018
Airport Environmental Officer	Briefings on the project during preparation of the impact assessment, including a discussion on the Airports Act approvals, cross jurisdictional matters, contamination and groundwater including existing environment and management expectations.	30 August 2018, 8 March 2019, 23 August 2019 and ongoing
Airport Building Controller	A briefing on the project during preparation of the impact assessment, including a discussion on the Airports Act approvals, and cross jurisdictional matters.	30 August 2018, 8 March 2019
Civil Aviation Safety Authority (CASA)	Briefings on the project during preparation of the impact assessment including information on the aviation assessment.	9 July 2019, 23 September 2019 and ongoing
Airservices Australia	Briefings on the project during preparation of the impact assessment including information on the aviation assessment.	12 July 2019, 23 September 2019
Department of the Environment and Energy	Briefings on the project during preparation of the impact assessment including due diligence assessment of Matters of National Environmental Significance, and discussion on key environmental matters documented in the impact assessment.	Ongoing since November 2018
State Government Agencies Department of Planning, Industry and Environment (DPIE), Environment Protection Authority (EPA), NSW Health, Department of Planning, Industry and Environment (Water Group)	Planning focus group meeting to discuss issues relevant to the preparation of the impact assessment. EPA – Meetings to discuss cross jurisdictional matters, out-of-hours works, interactions with the former Tempe landfill, existing contamination and contamination management, and surface water discharge criteria.	Ongoing since September 2018

Stakeholder	Engagement activity	Dates engagement started
Heritage NSW, Department of Premier and Cabinet	<p>Department of Planning, Industry and Environment (Water Group) – A briefing on the project during preparation of the impact assessment, specifically targeting the groundwater assessment methodology.</p> <p>Heritage NSW, Department of Premier and Cabinet – A site visit and briefing on the project during preparation of the impact assessment, including a discussion as to whether a Heritage Council meeting was required.</p>	
Sydney Water Corporation	A briefing on the project during preparation of the impact assessment including potential interactions with Alexandra Canal.	Ongoing since September 2018
Emergency Services NSW Police, Australian Federal Police, Fire and Rescue NSW, NSW Ambulance, NSW Health NSW State Emergency Service	<p>Introductory briefing to the project and to consider the needs of emergency services in and around Sydney Airport.</p> <p>A briefing on the project to discuss flooding and the potential impact of the project on existing emergency management arrangements.</p>	June 2019 November 2019
Federal Ministers in neighbouring electorates Hon Matt Thistlethwaite MP, Hon Linda Burney MP, Hon Anthony Albanese MP	Contacted local electorate offices to offer a project briefing. No briefings requested to date.	June 2019
State Ministers in neighbouring electorates Hon Ron Hoenig MP, Hon Michael Daley MP, Hon Stephen Kamper MP, Hon Joanna Haylen MP	Contacted local electorate offices to offer a project briefing. Briefing requested by Joanna Haylen (to be held in November 2019).	June/August 2019
Group two – Landowners/leaseholders		
Sydney Airport Corporation	Ongoing commercial, technical, operational, planning and communications meetings to support the design and delivery of the project.	Ongoing since 2017
Australian Rail Track Corporation (ARTC)	Ongoing meetings to support the interface of the project and the Botany Rail Duplication (delivered by ARTC).	Ongoing since late 2017
Utilities Sydney Water, Ausgrid, Jemena, Qenos, Telstra, Sydney Desalination Plant, Viva Energy, Caltex, Optus, TPG/APPT, Vocus, AARNet, Uecomm, NBN, Department of Defence	Ongoing discussions to understand utility configurations and potential impacts from project design and delivery.	Ongoing since September 2018

Stakeholder	Engagement activity	Dates engagement started
Impacted landholders and leaseholders IWC, Tyne Containers, Tempe Golf Driving Range, Boral, Qube, NSW Ports, Port Botany Lessors, oOh! Media, Tempe Tyres	Ongoing property negotiations led by Roads and Maritime property team.	Ongoing since September 2018
Sydney Airport leaseholders Boral, Qube, Visy, Qantas	Project briefings provided jointly by Sydney Airport and Roads and Maritime. Ongoing property negotiations held between Sydney Airport and its tenants.	Meetings arranged as required since November 2018
Group three – Peak bodies, local business and business interest groups		
Airport precinct Airport operations and airlines Qantas, SNP Security, Virgin, Singapore Airlines, Air Canada, Delta, Emirates, ANA, Etihad, Air Ambulance, Emergency Services Car hire, rideshare and taxi companies AVIS, Europcar, Uber, Sheba, NSW Hire Car Association, BusNSW, NSW Taxi Council, 13CABS, NSW Taxi Operator and Drivers Association Retailers Emirates Leisure Centre, Heinemann, KFC, AMG Mercedes Freight and logistics DHL and Dnata Wider airport precinct JC Decaux, Stamford Plaza, Felix Hotel, Branksome, JJ Lawson Customs & Freight Brokers, Goodman Group, Abbie, NSW Rural Doctors Network, JSI Telecom Pty Ltd, Landis and Gyr, Lagardere Travel Retail Pacific, Transport for NSW Sydney Airport Planning Coordination Forum Bayside Council, IWC, City of Sydney, Sutherland Shire Councils, TfNSW, DPIE, Sydney Business Chamber	Introductory project briefings to understand the needs of stakeholders and develop mitigations to minimise traffic impacts where possible. 70 businesses within the airport precinct where contacted to offer a 1:1 briefing. 17 businesses requested a briefing. Presentations held at six Sydney Airport stakeholder forums.	Ongoing since January 2019

Stakeholder	Engagement activity	Dates engagement started
Sydney Airport Active Transport Forum Inner West Council, Bayside Council, City of Sydney, BIKEast, Bicycle NSW, Sydney Orbital, Transport for NSW		
Sydney Airport Community Forum (SACF) SACF's membership comprises: Federal MPs for Bennelong, and representatives from Reid, Grayndler, Sydney, Watson, Wentworth, Kingsford Smith, Cook, Barton, North Sydney and Bradfield, State MPs for Heffron and representative from Summer Hill, Officers from Bayside, Inner West and Sutherland Shire Council, International and domestic airline representatives, being Captain Rob Edney (Virgin Australia) and Mr Barry Abrams (Board of Airline representatives Australia), Community representatives, being Mr Kevin Hill (Community South), Ms Maria Patrinos (Community West) and Mr Bob Hayes (Community North), DITCRD, CASA, Airservices Australia	Presentation on the project delivered by Roads and Maritime. The views expressed by members are summarised in Chapter 4 of the impact assessment. It was noted that when the impact assessment is released for comment SACF members would be contacted and offered an opportunity to be briefed and make a submission.	11 October 2019
Freight industry Port Botany Community Consultative Committee, Road Freight NSW, NSW Ports, TOLL Group, Freight and Trade Alliance, Container Transport Alliance Australia, Australian Peak Shippers Association, Australian Logistics Council	Introductory project briefings provided to Port Botany Community Consultative Committee and Road Freight NSW. 31 freight companies and industry associations were contacted in May 2019 to offer a project briefing. Six companies and industry associations responded to request a briefing.	October/November 2018 and June/July 2019
Active transport groups BIKEast, Bicycle NSW and local councils	Workshops and discussions to explore shared pedestrian and cycle path route options and understand user preferences	November/December 2018 and June 2019
Group four – General public		
Residents and businesses in Tempe, Botany, Mascot, Wolli Creek and Zetland	Doorknocking, information sessions and booths as part of consultation to collect feedback and inform the development of the project	September and December 2018, May/June 2019
Business and leisure travellers using Sydney Airport		

Appendix F

Strategic planning review

F1 Strategic planning review

A summary of the plans and strategies that are relevant to the need for, and development of, the project is provided below.

National strategic planning

Australian Infrastructure Plan and Priority List

The *Australian Infrastructure Plan* (Infrastructure Australia, 2016) sets out the infrastructure challenges and opportunities that Australia faces over the next 15 years and the solutions required. The plan was informed by a comprehensive review of existing and required infrastructure over the coming decades. The plan has four main themes:

- Productive cities, productive regions
- Efficient infrastructure markets
- Sustainable and equitable infrastructure
- Better decisions and better delivery.

In relation to the fourth theme, the plan recognises that Australia relies on its air and sea ports to provide vital links both within the country and to the global economy. It notes that demand for airport infrastructure is projected to approximately double between 2011 and 2031.

As part of the *Australian Infrastructure Plan*, the *Infrastructure Priority List* (Infrastructure Australia, 2019) is designed to give guidance to decision makers and provide transparency for industry and the community. It is a 'rolling' list that is updated periodically as proposals move through development and delivery and in response to emerging challenges and opportunities.

Sydney Gateway, described by the *Infrastructure Priority List* as a 'connection from WestConnex to Sydney Airport and Port Botany' is included as a high priority near-term (0–5 years) initiative on the priority list in the NSW urban congestion category. The priority list notes the following:

- Road congestion on the arterial road network in and around Sydney Airport and Port Botany is growing as airport and port throughput increases, causing significant delays
- Congestion is a problem throughout the day, rather than just at peak times, with the major road links congested for over half the day – part of this congestion is generated by road freight in and around Sydney Airport and Port Botany
- Increasing rail's share of both passenger and freight traffic through the precinct will reduce potential demand on the road network over coming years; however, the road network will still need substantial expansion to cater for traffic to and from locations that are only effectively serviced by road
- Sydney Gateway will provide substantial additional capacity into and out of the Sydney Airport and improve access to the Port Botany precinct, allowing airport and port traffic to avoid local arterial roads when accessing the broader Sydney motorway network (ie WestConnex).

National Land Freight Strategy

The *National Land Freight Strategy* (Standing Council on Transport and Infrastructure, 2012) is a partnership between Australian, State and local governments and industry to deliver a streamlined, integrated and multimodal freight transport and logistics system, capable of efficiently moving freight throughout Australia. The strategy recognises that:

- The efficient movement of land freight is crucial for Australia's productivity and competitiveness, and affects the lives of every Australian
- Continued growth in freight volumes is giving rise to a range of increasingly complex challenges for governments, industry and the community.

The strategy seeks to direct the efforts of all governments and industry towards the long-term vision, objectives and outcomes for freight in Australia. Identifying the current and future places for freight movement is a core element of the strategy.

The discussion paper for the strategy, the *National Land Freight Strategy Discussion Paper* (Infrastructure Australia, 2011) notes that general freight is likely to grow near population centres. In addition, population growth and urban consolidation will place added pressure on routes used by freight vehicles.

As a result of the predicted growth in population and freight, especially in urban areas, the need to resolve issues around effective freight movement will become increasingly important. The project would assist in addressing freight transport needs and congestion by providing an alternative route for State and regional freight travelling to and from Sydney Airport and Port Botany. This new route would be a high capacity road that would link to other arterial roads (ie Qantas Drive and Joyce Drive), as opposed to other arterial roads (including Botany Road or O'Riordan Street) that also provide a local transport and access function. In doing so, the project would assist in improving the efficiency of freight movement.

National Ports Strategy

The *National Ports Strategy* (Infrastructure Australia and the National Transport Commission, 2011) was developed as part of a collaborative approach to the future development and planning of Australia's port and freight infrastructure. The strategy covers bulk commodity ports and container ports, identifying:

- The most effective regulatory and governance frameworks
- Ways to improve land planning and corridor preservation
- Future infrastructure requirements of Australia's ports, including road and rail links.

The strategy notes that there are major efficiency implications for Australia if significant improvements are not made to ports and related landside road and rail systems over the coming decades.

The *National Ports Strategy* illustrates the need for improvements to the freight supply chain operating from Port Botany. The project would provide an alternative route between the to be constructed Sydney motorway network (at St Peters interchange) and existing arterial roads – Qantas Drive and onwards to Joyce Drive and General Holmes Drive – which provide access to Port Botany. This would assist in improving Port Botany's land-side transport capacity and contribute to improved accessibility, improving the productivity of national exports.

NSW planning

State Infrastructure Strategy

Building Momentum State Infrastructure Strategy 2018 – 2038 (Infrastructure NSW, 2018) establishes the strategic directions, projects and initiatives to meet the infrastructure needs of a growing population and a growing economy.

The strategy investigates infrastructure demands over the next 20 years. With regard to Sydney Airport, it notes that: 'An extra 48 million passenger trips are expected to and from Sydney Airport in 2036. This is the same annual growth rate as expected in 2012'. The strategy notes that container trade through Port Botany is expected to grow by 114 per cent between 2016 and 2036.

With regard to transport, the strategy notes the following:

- Rising congestion on parts of the road network will increase travel times and affect the reliability of the freight network
- Maintaining the efficiency of infrastructure networks and access to the international trade gateways of Sydney Airport and Port Botany will be critical to support the ongoing competitiveness of Sydney and NSW
- The value of goods moved by air freight through Sydney Airport is the same as almost the entire agricultural production of Australia

- Sydney Airport will remain the point of arrival for most international visitors and it is important that it operates to its highest potential.

The strategy recognises the importance of the Sydney Gateway road project, and states the following:

- Sydney Gateway will provide a valuable connection between WestConnex and the key international gateways of Sydney Airport and Port Botany. Planning for this link has consistently demonstrated that it returns a high benefit relative to its cost, commensurate with the high value of the productive traffic that is expected to use it
- Once the Sydney Gateway, Botany Rail Duplication and road pinch point works to improve freight flows in the Port Botany and Sydney Airport precinct are completed, the city's major road and rail networks will efficiently connect Sydney's eastern international gateways to strategic centres via WestConnex and the Botany Rail Line.

The project is consistent with the following strategic directions in the strategy:

- Improve access to international gateways
- Optimise existing infrastructure networks to provide greater capacity for better services.
- Maintain the Eastern Harbour City's position as the primary international gateway for people, goods and services by providing efficient and reliable connections to Sydney Airport and Port Botany.

The following action includes reference to the project: *60. Infrastructure NSW recommends that Transport for NSW finalise business cases by the end of 2018 to enable the NSW Government to partner with the Commonwealth Government to fund investment in Sydney Gateway, Port Botany Rail Duplication and Foreshore Road/Botany Road, as well as the Moorebank Intermodal Terminal Road Access Strategy, to remove bottlenecks on connections to and from Sydney Airport and Port Botany and to capitalise on development of the Moorebank Intermodal Terminal. (Planning: 0-5 years; Investment: 0-5 years).*

Future Transport Strategy

The *Future Transport Strategy 2056* (Transport for NSW, 2018c) is a suite of strategies and plans for transport developed in conjunction with the Greater Sydney Commission's *A Metropolis of Three Cities – the Greater Sydney Region Plan* and supporting regional plans, and Infrastructure NSW's *State Infrastructure Strategy*. The *Future Transport Strategy 2056* provides an integrated 40-year vision, directions and outcomes for transport in NSW.

The strategy provides a 40-year vision for our transport system. The strategy outlines a vision, strategic directions and customer outcomes, with infrastructure and services underpinning the delivery of these directions across the state. The strategy focuses on the role of transport in delivering movement and place outcomes that support the character of the places and communities we want for the future.

The strategy's vision for the future of transport is for road and transport links to form part of an integrated and connected network across the Greater Sydney region with each of the three cities described in *A Metropolis of Three Cities* (the Eastern Harbour City, Central River City and Western Parkland City). The vision for the future of transport is based on six outcomes:

- Customer focused
- Successful places
- A strong economy
- Safety and performance
- Accessible services
- Sustainability.

The project is consistent with the strategy, as it would provide for new high-capacity road connections, strengthening the linkages between Sydney Airport and Sydney's strategic road network. It would support safe, efficient and reliable journeys for people and freight.

The strategy shows Sydney Airport's location on the proposed city-shaping and city-servicing corridors. It also shows an additional connection between Sydney Airport and the Greater Sydney strategic road network via a new strategic road. The project would address these priorities.

As a result, the project is a key element of the strategy. Sydney Airport is Australia's busiest airport and Port Botany is one of the highest frequency freight terminals, serving state, national and international markets. The project would greatly improve access to this important precinct. The project would strengthen Sydney's position as a global city, providing more efficient connections to major business hubs, key commercial centres and freight terminals across Greater Sydney.

NSW State and Premier's priorities

The NSW Government has committed to 30 State Priorities, 12 of which are Premier's Priorities. The priorities aim to keep the economy strong, create jobs, deliver world-class services, protect the vulnerable and ensure that all NSW citizens and communities share in the state's success.

Relevant priorities, and the project's consistency with each, are summarised below:

- Creating jobs – the project would directly create jobs during construction and would service the predicted growth in employment in the study area
- Delivering infrastructure – the project involves delivering significant and important road infrastructure
- Encouraging business investment – the project would encourage business investment by improving the connections between Sydney Airport and Port Botany and other areas of Sydney and would provide improved conditions for freight transport
- Improving road travel reliability – the project would address existing congestion and access issues to and around Sydney Airport and towards Port Botany, delivering travel time savings
- Reducing road fatalities – the project would provide free-flowing high speed road connections, reduce traffic on local roads and improve traffic flows, which are correlated with a lower number of road crashes.

NSW Freight and Ports Plan

The *NSW Freight and Ports Plan 2018–2023* (Transport for NSW, 2018a), which forms part of *Future Transport Strategy 2056*, sets the strategic direction for freight and ports over the next 40 years. The plan identifies priority actions and initiatives to create a transport network where goods move efficiently to their markets. The plan notes that access by both road and rail to and from freight facilities such as ports is becoming increasingly constrained, and that congestion and constraints on the supporting land transport network can reduce the performance of ports.

With regard to Sydney Airport and air freight, the plan notes that:

- Most air freight (about 80 per cent) is carried in the hold of passenger planes, with the remainder being transported by dedicated freight aircraft
- Sydney Airport handles half of Australia's international freight and a third of the domestic freight task
- Sydney Airport handled \$39 billion in imports and \$12 billion in exports in 2016 (predicted to increase to \$54 billion in imports and \$17 billion in exports by 2036), with the volumes of exports and imports estimated to increase from 369,000 tonnes in 2016 to 613,000 tonnes in 2036 (a 65 per cent increase).

The plan also notes that about 80 per cent of freight in Greater Sydney is transported by road, and that WestConnex will become a major part of the freight network. The plan recognises that to support the growth in air freight, a range of constraints will need to be addressed, including congestion on the road network around Sydney Airport. The plan notes that congestion contributes to the cost of moving freight,

and that the cost of avoidable congestion in Sydney was \$6.1 billion in 2015, projected to increase to between \$9.5 billion and \$12.6 billion by 2030.

As traffic volumes increase, it will be necessary to manage congestion for key freight areas, particularly around Port Botany and Sydney Airport, supporting the growth of international trade. The project is consistent with the following objectives and goals in the plan:

Objective 2: Efficiency, connectivity and access, Goal 2: Improve flow of freight through trade gateways

The plan states that as access to the Port Botany precinct is impacted by traffic associated with Sydney Airport, the NSW Government will work with Sydney Airport Corporation to explore ways to improve the efficiency of operations in and around the airport.

Objective 3: Capacity, Goal 2: Deliver new infrastructure to increase road freight capacity and improve safety

The plan states that Sydney's motorway network is set to become more connected with the WestConnex and NorthConnex projects underway. It notes that the Sydney Gateway road project will provide additional road infrastructure to connect Sydney's motorway network to Sydney Airport and Port Botany.

The plan included reference to the project as part of the following action: *Develop a link between WestConnex at St Peters Interchange and the Sydney Airport and Port Botany precinct, improving freight connectivity between Port Botany and the strategic motorway network (subject to Final Business Case and funding).*

Metropolitan/regional planning

A Metropolis of Three Cities – the Greater Sydney Region Plan

A Metropolis of Three Cities – the Greater Sydney Region Plan (Greater Sydney Commission, 2018a) sets a 40-year vision (to 2056) and establishes a 20-year plan to manage Greater Sydney's growth and change. The plan is built on a vision of three cities, where most residents live within 30 minutes of jobs, education, health facilities, and other services – the Western Parkland City, Central River City and Eastern Harbour City. The plan notes that:

- Efficient trade gateways, freight and logistics networks are required for the Sydney region to be more internationally competitive
- Sydney Airport and Port Botany are Greater Sydney's two nationally significant trade gateways, with significant growth projected
- Retaining internationally competitive operations at Sydney Airport and Port Botany is vital for a productive NSW economy
- Ensuring transport networks can support the needs of these trade gateways is of national significance
- Providing for growth requires an efficient and effective road and rail freight network integrated with ports and airports.

The plan includes 10 directions and 40 objectives for the future of Sydney. The project is consistent with the following objectives:

- Objective 3 – infrastructure adapts to meet future needs
- Objective 15 – the Eastern, Greater Parramatta and the Olympic Peninsula, and Western Economic Corridors are better connected and more competitive
- Objective 16 – the freight and logistics network is competitive and efficient.

The project would ensure Sydney's strategic centres, as defined by *A Metropolis of Three Cities*, are connected by an effective, integrated transport network, which is fundamental to supporting growth – providing access to jobs, housing, recreation activities and business interactions. It would also facilitate improved connections between Western Sydney, Sydney Airport and Port Botany, south and south-

western Sydney and northern Sydney, as well as better connectivity between the important economic centres along Sydney's Global Economic Corridor and local communities

Eastern City District Plan

The Greater Sydney Commission's five district plans are a guide for implementing *A Metropolis of Three Cities – the Greater Sydney Region Plan* at a district level. These 20-year plans are a bridge between regional and local planning. Their purpose is to inform local environmental plans, community strategic plans and the assessment of planning proposals.

The project is located in an area subject to the *Eastern City District Plan* (Greater Sydney Commission, 2018b). Eastern Sydney is considered to be Australia's global economic gateway and the most concentrated area of economic activity, jobs and investment. The plan notes that Sydney Airport and Port Botany are global gateways that form part of the Eastern Economic Corridor. The plan recognises that:

- A significant freight and logistics task will remain in the Eastern City due to the competitive advantages and efficiencies afforded by proximity to these gateways
- Sydney Airport and Port Botany will grow significantly
- The Eastern City has the highest concentration of parcel deliveries across Greater Sydney, many of which arrive via air freight with others via road. The Sydney Airport curfew and the consequent timing of parcel deliveries and collections often coincides with the morning and evening peaks, intensifying peak traffic congestion.

The project is consistent with the following planning priorities in the *Eastern City District Plan*:

- E9 Growing international trade gateways
- E10 Delivering integrated land use and transport planning and a 30-minute city.

The project is consistent with these priorities as it would provide improved access to Sydney Airport and towards Port Botany. By reducing the growth of traffic through the Mascot and Botany town centres, it would improve amenity for land uses in these areas while also reducing traffic congestion.

The plan recognises the project as an important freight-related initiative and includes the following relevant actions:

- 30h Manage the interfaces of industrial areas, trade gateways and intermodal facilities by ... providing the required commercial and passenger vehicle, and freight and passenger rail access
- 31d Protect and grow Port Botany by... investigating a corridor for an enhanced road link from Port Botany to WestConnex
- 31k Protect and grow Sydney Airport by... facilitating road planning to connect Sydney Airport to WestConnex

The project is consistent with the above actions. In conjunction with the Botany Rail Duplication project, it would improve access for freight to Sydney Airport and Port Botany. It would also provide an enhanced road link between the Sydney motorway network and towards Port Botany

Greater Sydney Services and Infrastructure Plan

The *Greater Sydney Services and Infrastructure Plan* (Transport for NSW, 2018b), which forms part of the *Future Transport Strategy 2056*, sets the strategic direction for transport in NSW over the next 40 years. Building on the State-wide transport outcomes identified in the *Future Transport Strategy 2056*, the plan identifies specific transport outcomes for Greater Sydney and the policy, service and infrastructure initiatives to achieve these outcomes.

The plan defines the vision for Sydney's future transport networks, including the strategic freight network, and shows that the Sydney Gateway road project is part of Greater Sydney's strategic freight network. The plan notes that the NSW Government is investing or has committed to a number of initiatives to expand the freight network. It notes that WestConnex and Sydney Gateway will effectively extend the M4 corridor to

Port Botany and boost capacity on the M5 corridor, better connecting Port Botany and freight precincts in western Sydney.

Local planning

Sydney Airport Master Plan

As part of the planning framework under the Airports Act, leased federal airports are required to prepare a master plan. Section 70(1) of the Airports Act requires airports regulated by the Act to have a final master plan.

The *Sydney Airport Master Plan 2039* (SACL, 2019a) (the Master Plan) provides a 20-year plan for the development and operation of Sydney Airport.

The Master Plan includes reference to the Sydney Gateway road project and notes that Transport for NSW is preparing the concept design and working with Sydney Airport Corporation. The Master Plan was developed with reference to the project potentially being part of the external road network (subject to project approval). The Master Plan's five-year ground transport plan for Sydney Airport (2019 to 2024) has been developed to complement the project.

The Master Plan notes that:

- A Sydney Gateway connection will complement Sydney Airport's planned infrastructure improvements
- The ground transport solutions proposed at Sydney Airport's terminals recognise the potential changes in traffic volumes and patterns resulting from the opening of WestConnex and any Sydney Gateway connection
- The ground transport plan allows for widening of Qantas Drive and Airport Drive and a partial grade separated road at the entry to Terminals 2/3.

All development within Sydney Airport needs to be consistent with the Master Plan. Further information about the consistency of the project with the Master Plan is provided in Chapter 3 (Strategic context and project need) and in Chapters 9 to 27 in relation to each of the environmental issues.

The project is consistent with future planning for ground transport as described by Master Plan. One of the objectives of the plan is to 'improve ground access to, from and past the airport'. The needs defined by the plan, which would be met by the project, include access improvements to Sydney Airport terminals, and to Sydney Airport's northern lands for the planned aviation support precinct (including freight and logistics facilities). The master plan identifies that these improvements may include new roads and a bridge over Alexandra Canal, Airport Drive and the existing rail corridor, which are proposed as part of the project.

The project is consistent with future planning for ground transport as described by the Master Plan, and meets Sydney Airport's development, growth and infrastructure needs as defined in these plans. As described in section 5.14, Sydney Airport Corporation has proposed and carried out a number of road and access improvements within Sydney Airport land, including the proposed ground transport interchange. The project would complement and enhance the operation and efficiency of these improvements, working together to improve access to and from Sydney Airport's terminal and freight facilities.

NSW Ports' 30 Year Master Plan

NSW Ports began operations in mid-2013 under a 99-year lease for Port Botany, Port Kembla, the Cooks River Intermodal Terminal and the Enfield Intermodal Logistics Centre. *Navigating the Future: NSW Ports' 30 Year Master Plan* (NSW Ports, 2015) documents the actions required to create a sustainable port supply chain that will meet the needs of NSW over the next 30 years and beyond. It details expected trade growth and outlines the actions to address this growth. The plan notes that:

- Port Botany is vital to the economic wellbeing of Sydney and NSW and is NSW's only container port and the largest bulk liquid and gas port

- Most of Port Botany's trade caters for Sydney's consumers and businesses, with 80 per cent of import containers delivered within a 40 kilometres radius from Port Botany
- Port Botany will be required to cater for growing trade volumes over the next 30 years
- Container volumes could more than triple from 2.3 million to 8.4 million TEUs over the next 30 years
- Maximising the capacity of Port Botany and its ability to meet the predicted growth in freight throughput requires a combined investment in, and optimisation of, both road and rail networks.

The plan identifies five objectives to respond to these needs and sustainably cater for forecast trade growth. A key part of meeting Port Botany's future transport needs will be maximising the transport of containers by rail between Port Botany and Sydney metropolitan intermodal terminals. The Botany Rail Duplication project will contribute to meeting this objective.

The plan recognises that while the increased use of freight rail will assist in managing growth in truck volumes, roads will continue to be an important means of moving freight to and from ports and intermodal terminals. It is therefore essential that efficient road connections are available. The project will assist in achieving this and the plan's objective 1: 'Provide efficient road connections to the ports and intermodal terminals'. With regard to this objective, the plan notes that managing the growth in truck numbers will be important to limit congestion at Port Botany and to limit impacts on the local community. The plan notes a number of actions under this objective, including 'deliver an efficient connection from Foreshore Road to the proposed M4 Motorway connection at St Peters'.

The project would provide new high capacity road connections between the Sydney motorway network, towards Port Botany, allowing traffic to bypass roads through local areas, including Botany Road. It would provide a connection from St Peters interchange to the arterial road network near Sydney Airport, which would enable trucks to access Foreshore Road via General Holmes Drive and Joyce Drive.

The project, together with the Botany Rail Duplication project, the development of the Sydney motorway network (eg M4 East, New M5 and M4-M5 Link), and other key road infrastructure projects, would expand capacity and support connections to Port Botany.

Botany Bay Planning Strategy 2031

The *Botany Bay Planning Strategy 2031* (City of Botany Bay, 2009) was prepared to provide a framework for growth of the (then) Botany Bay local government area (now part of the Bayside local government area). The strategy provides employment and housing targets for different areas within the local government area, and notes the areas that provide opportunities for housing growth, renewal and redevelopment (including around Mascot Station and Botany Road).

The plan recognises that Sydney Airport is a nationally significant asset. One of the strategy directions of the plan is 'Maintaining Sydney Airport as a Global Gateway'.

The plan notes that many of the streets in the local government area have high daily traffic volumes, with a high proportion of traffic (including heavy vehicle traffic) associated with Sydney Airport and Port Botany, and that there is little distinction between local and regional traffic functions on roads in the local government area. In particular, the strategy notes urban amenity issues associated with heavy vehicle volumes using Botany Road to access Port Botany. The plan provides a number of actions aimed towards amenity improvements along O'Riordan Street and Botany Road.

The project is consistent with the strategy's planning principle 7: 'Separate regional and local traffic rail and road movements'. By providing high capacity road connections between the Sydney motorway network, Sydney Airport and towards Port Botany, the project would facilitate improved connections between Western Sydney, Sydney Airport and Port Botany. It would expand road capacity for airport and port traffic, and assist in improving traffic flow and reducing congestion on other roads in the local government area. It would facilitate opportunities for future urban renewal by reducing the growth in road traffic on Botany Road, O'Riordan Street and local roads. It would also create opportunities for improved connectivity, active transport links and public transport improvements, and improved urban design outcomes and local amenity.

Appendix G

Preliminary environmental risk assessment

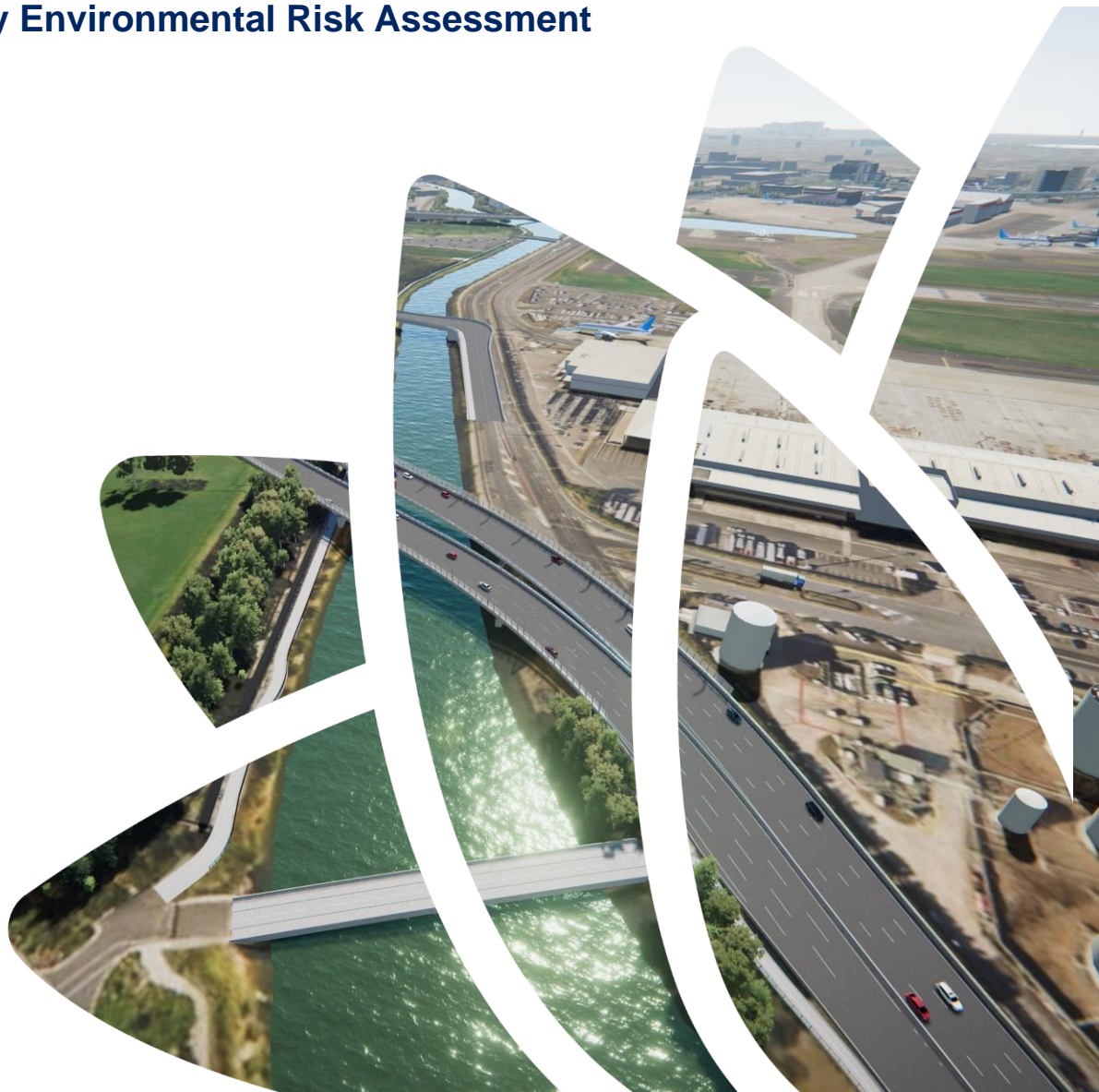
Sydney Gateway Road Project

Environmental Impact Statement /
Preliminary Draft Major Development Plan

Roads and Maritime Services | May 2019

Appendix G

Preliminary Environmental Risk Assessment



Sydney Gateway Road Project

Environmental Impact Statement /
Preliminary Draft Major Development Plan

Roads and Maritime Services | May 2019



WSP Australia Pty Limited and GHD Pty Ltd 2019

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1. Introduction

1.1 Background

Sydney Kingsford Smith Airport (Sydney Airport) and Port Botany are two of Australia's most important infrastructure assets, providing essential domestic and international connectivity for people and goods. Together they form a strategic centre, which is set to grow significantly over the next 20 years. To support this growth, employees, residents, visitors and businesses need reliable access to the airport and port, and efficient connections to Sydney's strategic centres.

The NSW and Australian governments are making major investments in the transport network to achieve this vision. New road and freight rail options are being investigated to cater for the forecast growth in passengers and freight through Sydney Airport and Port Botany. Part of this solution is Sydney Gateway, which comprises the following road and rail projects:

- Sydney Gateway road project (the subject of this environmental risk assessment)
- Botany Rail Duplication.

Sydney Gateway will expand and improve the road and freight rail networks to Sydney Airport and Port Botany to keep Sydney moving and growing. The Sydney Gateway road project forms part of the NSW Government's long-term strategy to invest in an integrated transport network and make journeys easier, safer and faster.

As part of Sydney Gateway, NSW Roads and Maritime Services (Roads and Maritime) and Sydney Airport Corporation propose to build the Sydney Gateway road project (the project). The project comprises new direct high capacity road connections linking the Sydney motorway network at St Peters interchange with Sydney Airport's terminals and beyond.

The project is declared State significant infrastructure under Division 5.2 of the NSW *Environmental Planning & Assessment Act 1979* (EP&A Act) and needs approval from the NSW Minister for Planning and Public Spaces. The project is also major airport development under the Commonwealth *Airports Act 1996* (Airports Act) and needs approval from the Australian Minister for Infrastructure, Transport, Cities and Regional Development. A combined environmental impact statement (EIS) and draft major development plan (MDP) will be prepared to support the application for approval under the EP&A Act and the Airports Act, respectively.

1.2 Purpose

As part of the process of undertaking a detailed environmental impact assessment for the project, an environmental risk assessment has been undertaken. The purpose of undertaking the risk assessment process was to identify key issues and impacts to be incorporated into the impact assessment.

This environmental risk assessment also addresses the requirement to identify the impacts of the project, including the likelihood and consequence (including worst-case scenario) of the impact (comprehensive risk assessment) in accordance with Secretary's Environmental Assessment Requirements (SEARs) reference 3(c). There are no MDP requirements specifically relevant to environmental risk assessment.

2. Risk analysis framework

The environmental risk analysis was undertaken in general accordance with the principles of the Australian/New Zealand Standard *AS/NZS ISO 31000:2009 Risk management – Principles and guidelines* (Standards Australia, 2009). The risk analysis involved assessing the risk level of each identified potential impact by identifying the consequences of the impact and the likelihood that the impact can occur.

Definitions of the ‘consequence’ and ‘likelihood’ of the impacts are discussed in more detail in the following sections.

2.1 Evaluating consequence

Consequence is defined as the implication of an impact. The consequences of an impact require a degree of subjective assessment as the likely consequences of an impact may consist of several elements.

The elements that have been considered in this risk assessment are described in Table 2.1.

Table 2.1 Consequence definitions

Consequence	Definition
Extreme	<ul style="list-style-type: none">■ Long-term (greater than 12 months) and irreversible large-scale environmental, social or economic impacts■ May be local or wider spatial extent (including up to state-wide)■ One or more fatalities■ Resulting in major prosecution under relevant environmental legislation■ Extended substantial disruption and impacts to stakeholders
Major	<ul style="list-style-type: none">■ Medium to long-term (6 to 12 months) and potentially irreversible■ May be local or wider spatial extent (no greater than nearby local government areas)■ Two to ten serious injuries■ Extensive remediation required■ Resulting in a fine or equivalent penalty under relevant environmental legislation■ Severe disruptions or long-term impacts to stakeholders
Moderate	<ul style="list-style-type: none">■ Short to medium-term (1 to 6 months), reversible and/or well-contained impacts■ May be local spatial extent (the site and nearby surrounds)■ One serious injury■ Minor remedial actions■ Moderate disruptions or impacts to stakeholders
Minor	<ul style="list-style-type: none">■ Short-term (less than 1 month), and reversible■ May be localised spatial extent (within site boundaries)■ One or more minor injuries■ Within environmental regulatory limits■ Minor or short-term disruptions or impacts to stakeholders
Not significant	<ul style="list-style-type: none">■ Very short-term and readily reversible (not significant)■ No appreciable changes to environment■ No injuries■ Negligible impacts to environment, stakeholders or customers

2.2 Evaluating likelihood

The likelihood of an impact occurring can be described in terms of probability. Overlaying this is the need to recognise the uncertainty that may be associated with the possible impacts, particularly during the initial risk assessment process. Where there is scientific uncertainty a cautious approach will identify a higher level of risk (worst-case scenario).

Each identifiable impact can be assigned likelihood between rare and certain (refer to Table 2.2). In simplifying the possible impacts for the purpose of a risk assessment, an element of subjectivity is introduced. The purpose of the risk assessment is not necessarily to agree on the probability of any particular impact, but to facilitate an understanding of the relative probability of different impacts.

Table 2.2 Likelihood definition

Likelihood	Definition
Certain	Expected to occur frequently during the time of activity or project
Likely	Expected to occur occasionally during the time of activity or project
Possible	More likely to occur than not occur during the time of activity or project
Unlikely	More likely not to occur than occur during the time of activity or project
Rare/highly unlikely	Not expected to occur during the time of activity or project

2.3 Environmental risk assessment matrix

Based on the assessment of consequence and likelihood any foreseeable impact can be assigned a risk level. This determines the significance of the environmental risk associated with a given impact. Table 2.3 is to be read as a matrix, with increasing consequence left to right and decreasing likelihood top to bottom.

Table 2.3 Environmental risk assessment matrix

Likelihood	Consequence				
	Not significant	Minor	Moderate	Major	Extreme
Almost Certain	Medium	Medium	High	Very high	Very high
Likely	Low	Medium	High	High	Very high
Possible	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	High

Very high impacts were considered the highest priority and, where present, were the focus of the concept design and environmental assessment. In general, the following was applied when scoping requirements for the environmental assessment.

- **Very high impacts** – Assessment and planning is necessary to avoid these impacts to the greatest extent possible.
- **High impacts** – Detailed specialist investigation and assessment is necessary to enable identification of appropriate management and mitigation options.
- **Medium impacts** – Further investigation as part of the environmental assessment is desirable, to address some uncertainties. Impacts could be mitigated through the application of relatively standard environmental mitigation measures.
- **Low impacts** – May not require specialist investigations, particularly where identifiable management/mitigation guidelines exist then potentially only broad or desktop investigation is necessary. Impacts could be mitigated through other working controls (such as detailed design requirements, normal working practice, safety and quality controls).

3. Environmental risk assessment

Using the risk framework discussed in section 2 a preliminary environmental risk assessment and residual environmental risk assessment were undertaken for the construction and operation of the project and are presented in Table 3.1.

The preliminary environmental risk assessment was carried out in the form of a preliminary, desktop level risk assessment, to broadly assess the potential environmental impacts and risks associated with construction and operation of the project. The assessment was based on evidence, previous experience and professional judgement of potential risks, and their consequence, likelihood and significance (without mitigation). The environmental risk assessment identified and ranked potential impacts with the aim of refining and prioritising the scope of the environmental assessment including the specialist studies which support this environmental impact statement.

The environmental impact assessment addresses the issues that were confirmed as key issues through this preliminary environmental risk assessment process in addition to those identified in the Secretary's Environmental Assessment Requirements (SEARs). Key issues are those issues that have medium or higher impacts (actual or perceived) and require comprehensive assessment to determine the severity of potential effects and to identify appropriate management and mitigation measures. Those impacts that were identified as medium or above as part of the preliminary environmental risk assessment are detailed in Chapter 9 to Chapter 26.

Based on the impacts identified as part of the environmental impact assessment (refer to Chapter 9 to Chapter 26) the preliminary risk assessment was re-evaluated to assess the residual risks of the project. This enabled the preliminary risk analysis to be refined and to also take into account available mitigation measures, hence representing an analysis of residual risks. The assessment was based on evidence, previous experience and professional judgement of potential risks, and their consequence, likelihood and significance with mitigation (provided in section 27.3).

No impacts were identified as having a high residual risk following implementation of the environmental management approach and mitigation measures proposed in section 27.3. Residual risks are discussed further in Chapter 9 to Chapter 26.

For the majority of these impacts the risk ranking was high prior to mitigation, indicating that implementation of the environmental management approach and mitigation measures proposed in this EIS would effectively minimise the impacts associated with the project.

Table 3.1 Environmental risk assessment

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
Traffic, transport and access – construction	Changes to intersection and traffic performance due to heavy vehicle movements, narrowing of lanes, speed restrictions and temporary lane closures	Likely	Moderate	High	Refer to section 27.3	Possible	Moderate	Medium
	Disruptions and delays to public transport operations, particularly buses	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Impacts on access to Sydney Airport	Likely	Major	High	Refer to section 27.3	Possible	Major	High
	Impacts on access to commercial properties in the vicinity of work areas	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Impacts to pedestrian and cyclist access where modifications are required to accommodate access to construction areas	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Impacts to the existing shared path in Tempe and along Alexandra Canal	Likely	Moderate	High	Refer to section 27.3	Likely	Moderate	High
	Impacts on the availability of on street parking on local streets surrounding construction work areas	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low
	Impacts to access to residential properties	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
Traffic, transport and access – operation	Impacts to access for emergency services vehicles, particularly potential for delays	Possible	Major	High	Refer to section 27.3	Unlikely	Major	Medium
	Cumulative traffic and transport impacts taking into account other projects in the study area, particularly the Botany Rail Duplication project	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Changes (detrimental) to intersection and traffic performance in surrounding areas	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Effects on access to Sydney Airport	Unlikely	Major	Medium	Refer to section 27.3	Unlikely	Major	Medium
	Access changes associated with the closure of Swamp Road, Tempe	Almost Certain	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Increase in heavy vehicles travelling on Burrows Road	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
Noise and vibration (amenity) – construction	Elevated noise and vibration levels around construction sites, compounds, site accesses and haul routes affects amenity for sensitive receivers	Likely	Moderate	High	Refer to section 27.3	Possible	Moderate	Medium
	Noise impacts on sensitive receivers (including residents, employees, hotel guests and recreation facility users) for work undertaken outside of standard working hours (such as works the potential to intrude	Possible	Moderate	Medium	Refer to section 27.3	Possible	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Sydney Airport's prescribed airspace)							
	Cumulative noise impacts with the Botany Rail Duplication	Possible	Minor	Medium	Refer to section 27.3	Possible	Minor	Medium
	Cumulative noise impacts with other projects	Possible	Minor	Medium	Refer to section 27.3	Possible	Minor	Medium
Noise and vibration (structural) – construction	Vibration impacts on heritage structures causing structural damage	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Vibration impacts on sensitive equipment	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Vibration impacts on other structures	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Noise and vibration – operation	Impacts on sensitive receivers as a result of noise associated with the operation of new road infrastructure including elevated structures (such as bridges)	Possible	Moderate	Medium	Refer to section 27.3	Possible	Moderate	Medium
	Effects on noise generated by Sydney Airport as a result of the removal of potential noise shielding provided by buildings at the Qantas Jet Base on Qantas Drive	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
Air quality and odour– construction	Impacts on air quality as a result of dust generation during construction (from earthworks, ground disturbance, vegetation removal, exposed soil/stockpiles, excavation and vehicle movements)	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Impacts on air quality from decommissioning and demolition activities	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Impacts on air quality as a result of emissions from vehicles or plant during construction	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Impacts to air quality as a result of odours/emissions from disturbance of waste materials at the former Tempe Tip site	Possible	Moderate	Medium	Refer to section 27.3	Possible	Moderate	Medium
Air quality and odour – operation	Impacts to air quality as a result of vehicle exhaust emissions	Possible	Moderate	Medium	Refer to section 27.3	Possible	Minor	Medium
Aviation hazards – construction	Risks to aviation as a result of the use of large plant and equipment (such as cranes and piling rigs) which may intrude into Sydney Airport's prescribed airspace (including the OLS).	Likely	Extreme	Very high	Refer to section 27.3	Rare	Extreme	High
	Risks to aviation as a result of light spill	Possible	Extreme	High	Refer to section 27.3	Unlikely	Extreme	High
	Risks to aviation as a result of interference with navigational aids	Unlikely	Extreme	High	Refer to section 27.3	Unlikely	Extreme	High

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Accidental disruptions to utilities and services, which may affect airport lighting or power to navigational aids.	Unlikely	Major	Medium	Refer to section 27.3	Unlikely	Major	Medium
Aviation hazards – operation	Risks to aviation as a result of temporary or permanent intrusions in Sydney Airport’s prescribed airspace (including the OLS)	Possible	Extreme	High	Refer to section 27.3	Unlikely	Extreme	High
	Risks to aviation as a result of light spill from new lights and headlight glare	Possible	Extreme	High	Refer to section 27.3	Unlikely	Extreme	High
	Risks to aviation as a result of windshear and turbulence caused by the introduction of new structures or landforms close to the airport	Possible	Extreme	High	Refer to section 27.3	Unlikely	Extreme	High
Contamination – construction	Management and disposal of leachate from the former Tempe landfill where the removal of the capping layer results in the infiltration of rainwater and the production of additional leachate that may not be managed by the existing leachate system	Almost Certain	Moderate	High	Refer to section 27.3	Almost Certain	Moderate	High
	Potential disturbance to the leachate and gas management systems	Likely	Moderate	High	Refer to section 27.3	Unlikely	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Disturbance / mobilisation of the landfilled materials and contaminants at the Tempe Tip	Likely	Moderate	High	Refer to section 27.3	Unlikely	Moderate	Medium
	Disturbance / mobilisation of contaminated sediments in Alexandra Canal (as a result of construction in the banks of the canal)	Likely	Moderate	High	Refer to section 27.3	Unlikely	Moderate	Medium
	Interaction with potentially contaminated soils and groundwater, including PFAS	Almost Certain	Moderate	High	Refer to section 27.3	Likely	Moderate	High
	Accidental discharge of potentially contaminated groundwater	Likely	Moderate	High	Refer to section 27.3	Unlikely	Moderate	Medium
	Dewatering, management and disposal of contaminated groundwater / managing the disposal of contaminated soils.	Likely	Moderate	High	Refer to section 27.3	Unlikely	Moderate	Medium
	Contamination of soils and groundwater due to spills or leaks of fuels, oil or other hazardous substances	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Direct contact and or inhalation of contaminated soil / groundwater by site workers	Likely	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
Contamination – operation	Disturbance / mobilisation of sediments in Alexandra Canal due to new stormwater outlets	Likely	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Impacts on the leachate management system at the former Tempe Tip site	Unlikely	Minor	Low	Refer to section 27.3	Rare	Moderate	Low
Water quality – construction	Sedimentation of local and downstream watercourses and water bodies, including Alexandra Canal, Tempe Wetlands, Cooks River, and Botany Bay	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Impacts to water quality due to disturbance of actual or potential acid sulphate soils and / or acid drainage	Likely	Moderate	High	Refer to section 27.3	Likely	Minor	Medium
	Impacts on surface water from spills or leaks from construction plant and equipment.	Likely	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
Water quality - operation	Impacts on surface water quality as a result of runoff from road and pavement surfaces containing contaminants from vehicle movements (oils, grease, heavy metals etc)	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Spills or leaks of fuel and/or oils from vehicle accidents impacting surface water quality	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Sedimentation or scouring effects at stormwater discharge locations	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Hydrology and flooding – construction	Impairment or modification of existing drainage infrastructure which results in changes to overland flows, drainage pathways and flood regimes.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Changes to impervious areas and/or the catchment area of existing drainage infrastructure, reduction in floodplain storage	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low
	Impacts on existing flood evacuation routes and flood risk areas	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Changes to overland flows and drainage pathways as a result of the disruption of existing flow patterns and infrastructure	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Changes to flooding regimes and behaviour upstream or downstream of the location of temporary construction infrastructure and compounds	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low
Hydrology and flooding - operation	Changes to impervious areas and/or the catchment area of existing drainage infrastructure, reduction in floodplain storage	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low
	Impacts on existing flood evacuation routes and flood risk areas	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Changes to flooding regimes, including potential for increased property inundation, increased flood duration/velocities and impacts.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Groundwater – construction	Dewatering activities resulting in drawdown of the groundwater table, impacts to subsurface flow and potential settlement/ stability of nearby structures.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Groundwater – operation	Potential impacts to groundwater flows associated with new bridge piers and other subsurface infrastructure.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Minor	Low
Non-Aboriginal heritage – construction	Direct physical impacts to items listed on the State Heritage Register (Alexandra Canal)	Almost Certain	Moderate	High	Refer to section 27.3	Likely	Moderate	High
	Direct (physical) impacts on other heritage items	Almost Certain	Minor to moderate	Medium to High	Refer to section 27.3	Likely	Minor to moderate	Medium to High
	Impacts to the fabric of items as a result of vibration generated by construction in the vicinity of the item	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Temporary impacts to views to or from a heritage item.	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
Non-Aboriginal – operation	Impacts to the heritage significance of Alexandra Canal as a result of the change in the landscape and visual context	Likely	Major	High	Refer to section 27.3	Possible	Major	High

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Impacts to items of heritage significance at Sydney Airport	Likely	Moderate	High	Refer to section 27.3	Possible	Moderate	Medium
	Cumulative impacts to heritage in the study area	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low
Aboriginal heritage – construction	Impacts on the identified areas of archaeological potential	Likely	Moderate	High	Refer to section 27.3	Unlikely	Moderate	Medium
	Disturbance of any previously undiscovered items of Aboriginal heritage significance	Unlikely	Minor to moderate	Low to Medium	Refer to section 27.3	Unlikely	Minor	Low
Social and business impacts - construction	Impacts on some businesses as a result of the land requirements for the project (acquisition and lease cessation)	Almost Certain	Moderate	High	Refer to section 27.3	Likely	Moderate	High
	Impacts on community infrastructure at Tempe Lands as a result of the temporary land requirements of the project	Almost Certain	Minor	Medium	Refer to section 27.3	Likely	Minor	Medium
	Community and business amenity impacts during construction	Possible	Moderate	Medium	Refer to section 27.3	Possible	Moderate	Medium
	Temporary impacts on community values and lifestyle for local residents, workers, and visitors, due to changes to travel patterns	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Temporary access restrictions or changes resulting from construction sites and activities,	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	which may affect how people access community infrastructure, and how they use the existing rail and road infrastructure							
	Indirect (amenity) impacts to Tempe Recreation Reserve such that recreation land uses are affected	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Minor	Low
Social and business impacts - operation	Impacts on properties, including advertising structures located along Qantas and Joyce Drive, Qantas Flight Training General as a result of the project's land requirements	Almost Certain	Moderate	High	Refer to section 27.3	Likely	Moderate	High
	Changes to connectivity and access in and around the project site, negatively impacting local businesses and the community.	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Impacts to community and business amenity, including as a result of changes to traffic, noise, air quality and the visual environment.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Impacts on amenity and the use of other nearby community facilities and areas within the Tempe Recreation Reserve as a result of the presence of the project.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Impacts on community infrastructure as a result of the permanent land requirements of the project	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Land use, property - construction	Temporary leasing of additional areas outside the operational footprint to facilitate construction negatively affects the availability of land for other uses (temporary impacts to land use)	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Temporary direct impacts to land uses at Tempe Recreation Reserve, including restrictions of use in some areas	Unlikely	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low
	Temporary loss of public open space (recreation land uses) at Tempe Lands	Almost Certain	Moderate	High	Refer to section 27.3	Likely	Moderate	High
	Temporary leasing of additional areas outside the operational footprint to facilitate construction negatively affects the availability of land for other uses (temporary impacts to land use)	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
Land use and property impacts - operation	Permanent impacts on the availability of land for recreation uses (in Tempe Lands)	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Changes to land use and future development potential, including	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	as a result of any severance or sterilisation of land.							
	Land permanently required for the project results in a significant change to land use in the study area, negatively affecting the availability of land for non-transport related uses (including changes to the availability of industrial zoned land)	Possible	Moderate	Medium	Refer to section 27.3	Possible	Moderate	Medium
Urban design and visual – construction	Temporary visual impacts to sensitive visual receivers in the vicinity of the construction works and from areas with views of the project site	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Urban design and visual – operation	Permanent visual impacts as a result of introduction of new road infrastructure visible from a number of viewpoints (including new bridges, other elevated sections of road infrastructure, and permanent noise mitigation measures)	Likely	Moderate	High	Refer to section 27.3	Possible	Moderate	Medium
	Impacts on the landscape characteristics and visual amenity of Tempe Recreation reserve.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Visual impacts on the character and appearance of Alexandra Canal as a result of the proposed new bridges, including the provision of any piers within the canal	Likely	Moderate	High	Refer to section 27.3	Possible	Moderate	Medium
	Visual impact as a result of the removal of mature trees and vegetation in some areas	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Issues associated with the integration with the design of adjoining and nearby projects and developments, including St Peters interchange, the Botany Rail Duplication and developments at Sydney Airport.	Unlikely	Minor	Low	Refer to section 27.3	Unlikely	Minor	Low
Biodiversity – construction	Indirect impacts to aquatic habitats downstream of the project site (including as a result of reduced water quality)	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Direct impacts to species and habitats at Tempe Wetlands	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Impacts on foraging habitat for threatened species, such as the Grey headed flying fox	Likely	Minor	Medium	Refer to section 27.3	Possible	Minor	Medium
	Impacts to native vegetation	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Loss of fauna habitat, fragmentation and loss of connectivity	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Impacts to threatened flora species and/or communities	Unlikely	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Mortality of fauna during construction	Possible	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Introduction and/or spread of weeds.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Biodiversity – operation	Impacts to native vegetation and habitats as a result of uncontrolled discharge of polluted stormwater.	Rare	Minor	Low	Refer to section 27.3	Rare	Minor	Low
	Mortality of fauna during operation	Rare	Minor	Low	Refer to section 27.3	Rare	Minor	Low
Soils, landform and geology – construction	Erosion of exposed soil and stockpiled materials	Likely	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Exposure of soil containing acid sulfides to oxygen, resulting in the production and mobilisation of sulfuric acid	Likely	Moderate	High	Refer to section 27.3	Likely	Not significant	Low
	Increases in salinity levels in soil							
	Potential for localised changes to landforms such as earth embankments and cut or fill areas which could impact local hydrology	Almost Certain	Minor	Medium	Refer to section 27.3	Likely	Minor	Medium

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
Resource and waste – construction	Inappropriate management of waste generated during construction resulting in excessive waste being directed to landfill.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
	Inappropriate management of waste during construction and operation resulting in environmental, health and amenity impacts, including contamination, water quality impacts, odour and dust.	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Risks, health and safety - construction	Accidental release of dangerous or hazardous materials to the environment due to improper handling or storage or in the event of a vehicle or construction equipment incident	Possible	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low
	Accidental damage to, or interference with, live underground services during construction with impacts on utility users, including businesses and individuals	Possible	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low
	Hazardous materials exposure during demolition of buildings/structures and impacts on the surrounding environment, including nearby populations	Possible	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
	Working in/near an operating road and rail environment - worker safety	Possible	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low
	Unauthorised public access to the site causing public safety risks, due to the close proximity to residents, road users and business owners	Possible	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low
Risks, health and safety - operation	Risks associated with the accidental release of dangerous or hazardous materials to the environment in the event of a vehicle accident	Unlikely	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low
	Road safety risks for motorists, pedestrians and cyclists during operation.	Possible	Moderate	Medium	Refer to section 27.3	Rare	Moderate	Low
	The potential for negative health impacts associated with changes to the noise and air environment	Possible	Moderate	Medium	Refer to section 27.3	Unlikely	Moderate	Medium
Climate change and GHG – construction	Greenhouse gas emissions from combustion of fuels by construction plant/vehicles	Likely	Minor	Medium	Refer to section 27.3	Unlikely	Minor	Low
	Increased energy consumption associated with site compounds	Likely	Minor	Medium	Refer to section 27.3	Rare	Minor	Low

Key issue	Potential impact/risk	Initial risk rating			Potential mitigation and management approaches	Post-mitigation (residual) risk rating		
		Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating
Climate change and GHG – operation	Greenhouse gas emissions resulting from: <ul style="list-style-type: none"> Fuel consumed by vehicles using the road Road maintenance activities Electricity to power control systems such as computer systems, signage and lighting 	Almost certain	Minor	Medium	Refer to section 27.3	Likely	Minor	Medium
	Increased frequency and intensity in extreme weather events causing damage to road surfaces	Likely	Moderate	High	Refer to section 27.3	Likely	Minor	Medium
Waste - Construction	Inappropriate management of waste generated during construction resulting in excessive waste being directed to landfill	Possible	Minor	Medium	Refer to section 27.3	Rare	Minor	Low
Waste - Operation	Littering from maintenance teams resulting in pollution of receiving environments	Unlikely	Minor	Low	Refer to section 27.3	Rare	Minor	Low



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