

Chapter 10

Impact assessment approach



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10. Impact assessment approach

This chapter outlines the approach to the assessment of potential environmental impacts associated with the Moorebank Intermodal Terminal (IMT) Project (the Project). This Environmental Impact Statement (EIS) presents an assessment of the potential worst case environmental impacts associated with the Project, as assessed in accordance with the Commonwealth Department of Environment (DoE)'s EIS Guidelines and the Secretary of NSW Department of Planning and Environment (NSW DP&E)'s Environmental Assessment Requirements (NSW SEARs) for the Project (refer to Volume 2, Appendix B).

An environmental risk analysis has also been undertaken (refer to Chapter 29 – *Environmental risk analysis*), with the objective of confirming the necessary scope of the assessments, and any other environmental issues that need to be addressed.

The worst case scenarios that were assessed for each environmental impact varied depending on the impact being assessed. This is explained further in section 10.1 below.

10.1 Approach to assessment of environmental impacts

10.1.1 Assessment of Early Works

As described in Chapter 8 – *Project development phasing and construction*, the Project is proposed to be built over an approximate 15-year timeframe, commencing with the Early Works development phase and concluding with final operation, referred to as 'Full Build' (i.e. all IMEX, interstate and all warehousing operating). Details of the Project's likely development phasing are provided in section 8.2 of Chapter 8 – *Project development phasing and construction*.

The Moorebank Intermodal Company (MIC) is seeking approval to commence the Early Works development phase as part of this Stage 1 State significant development (SSD) approval process, without the need for further approval (as explained in Chapter 4 – *Planning and statutory requirements*). As such, the impacts of the Early Works development phase have been assessed for all environmental issues and have been considered separately to allow their impacts to be clearly understood by the community and approval authorities.

10.1.2 Environmental issues subject to construction and operation assessment

In addition to the impacts of the Early Works phase, a number of environmental impacts associated with the construction and operation of the Project have also been considered separately, as follows:

- a construction scenario comprising 'typical' construction impacts; and
- a worst case operational scenario representing the fully developed (i.e. Full Build) Project in terms of Project footprint and other operational impacts.

This approach was applied to the following impact assessments:

- biodiversity (Chapter 13 – *Biodiversity*);
- preliminary hazard assessment (Chapter 14 – *Hazards and risks*);
- contamination and soils (Chapter 15 – *Contamination and soils*);

- hydrology and water quality (Chapter 16 – *Hydrology, groundwater and water quality*);
- Aboriginal heritage (Chapter 20 – *Aboriginal heritage*);
- European heritage (Chapter 21 – *European heritage*);
- light spill assessment (Chapter 22 – *Visual and urban design*);
- property and infrastructure (Chapter 23 – *Property and infrastructure*); and
- waste and resource management (Chapter 26 – *Waste and resource management*).

For the regional air quality impact assessment (Chapter 18 – *Regional air quality*) the study assesses operational (Full Build) impacts only, as this represents the impacts from the most intensive period of transport activities (from freight and road transport), which will be the key contributor to regional air quality impacts. Construction related air quality impacts from the Project would be local, as opposed to regional. These are addressed in the local air quality assessment (Chapter 17 – *Local air quality*).

For the visual impact assessment in Chapter 22 – *Visual and urban design*, impacts were assessed for each proposed development phase of the Project (i.e. Early Works to Full Build). This included consideration of potential construction and operational impacts within each phase.

10.1.3 Environmental issues subject to multiple scenario-based assessments

As identified in Chapter 8 – *Project development phasing and construction*, there will be periods when both construction and operational activities are occurring concurrently on the Project site (i.e. the construction of future phases and operation of completed phases). The traffic and transport, noise and vibration, local air quality and human health impacts have been identified as the most significant for the Project, and are also heavily influenced by Project phasing. Therefore, it was considered appropriate to assess the environmental impacts during the successive Project development phases, including points in time during which there would be concurrent construction and operation.

Thirteen scenarios (representing points in time as the Project is developed, in combination with three alignment options for rail entry into the site) were identified and used as a basis for the impact assessments. The scenarios represent indicative construction and operating activities at various points in time and will be subject to confirmation during subsequent assessment and approval stages.

The scenarios also take into consideration the potential impacts of each of three rail access options from the Southern Sydney Freight Line (SSFL) to the Project site, as outlined in Chapter 7 – *Project built form and operations*. Therefore, each scenario represents a point in time during the 15 years leading to full development of the Project, based on one of the three rail access options. Only one of the three rail access options would be built; therefore, several of the scenarios considered are alternatives to one another. The 13 scenarios are identified in Figure 10.1 and are discussed in further detail in section 10.2. More details of individual assessment approaches are provided in the relevant impact assessment chapters and technical papers.

This approach (i.e. the assessment of multiple scenarios) was applied to the following assessments:

- traffic, transport and access impact assessment (Chapter 11 – *Traffic, transport and access*);
- noise and vibration impact assessment (Chapter 12 – *Noise and vibration*);
- local air quality impact assessment (Chapter 17 – *Local air quality*);

- human health risk assessment and human health impact assessment (Chapter 25 – *Human health risk and impacts*);
- greenhouse gas emissions (Chapter 19 – *Greenhouse gas assessment*); and
- social and economic impacts (Chapter 24 – *Social and economic impacts*).

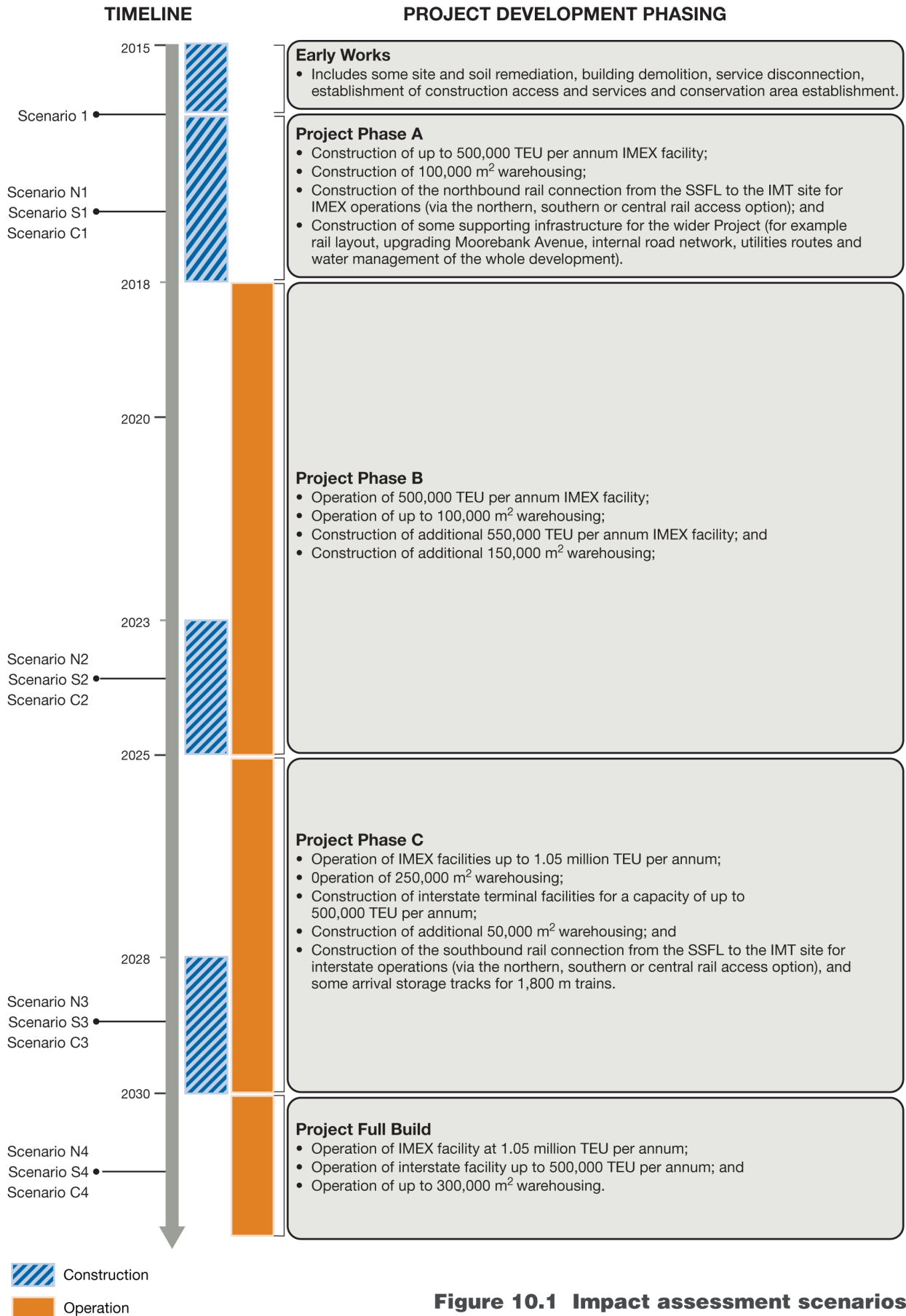


Figure 10.1 Impact assessment scenarios

10.2 Assessment scenarios during successive Project development phases

As outlined in section 10.1.2, in order to assess the noise and vibration, traffic, transport and access, local air quality and human health impacts of the Project, separate scenarios have been considered taking into account five Project development phases, as shown in Figure 10.1.

This approach allows for assessment of potential worst case impacts, by considering the cumulative impacts of simultaneous construction and operational activities. This assessment approach has also been applied to provide transparency to the community and approval agencies (DoE and NSW DP&E) in relation to the potential impacts over the course of development of the Project.

Figure 10.1 shows the relationship between the Project development phases and the scenarios.

10.2.1 Early Works (2015)

The first phase of the Project would consist of site preparation activities, referred to as the Early Works phase. This phase, which would commence in 2015, would include initial site preparation activities including some site remediation, building demolition, service disconnection and establishment of construction access and services. Section 8.3 in Chapter 8 – *Project development phasing and construction* provides a detailed description of the works included within the Early Works phase.

Construction is likely to commence in July 2015 and continue for 6 months. Construction hours would be 7.00 am to 6.00 pm Monday to Friday, 8.00 am to 1.00 pm Saturday and no work on Sunday and public holidays.

10.2.2 Phase A – Construction of initial IMEX terminal and warehousing (2015–2018)

Phase A is likely to commence in 2015. This project development phase involves construction activities associated with the development of the initial IMEX terminal (catering for a capacity of 500,000 twenty-foot equivalent units (TEU)) and the provision of 100,000 square metres (sq. m) of warehousing. In addition, construction of some supporting infrastructure for the wider Project (for example rail layout, upgrading Moorebank Avenue, internal road network, utilities routes and water management for the whole Project site) would also be undertaken.

The rail connection between the SSFL and the Project site for IMEX operations would also be developed during Phase A, including construction of the bridge across the Georges River. In order to adequately assess the impacts of each of the three rail access options included within this proposal concept, separate scenarios have been developed for each option:

- Scenario N1 assesses the impacts during Phase A and is based on the northern rail access option and associated IMT site layout.
- Scenario C1 assesses the impacts during Phase A and is based on the central rail access option and associated IMT site layout.
- Scenario S1 assesses the impacts during Phase A and is based on the southern rail access option and associated IMT site layout.

Standard construction hours would apply. These are 7.00 am to 6.00 pm Monday to Friday, 8.00 am to 1.00 pm Saturday and no work on Sunday and public holidays. As identified in section 8.8.5 in Chapter 8 – *Project development phasing and construction*, some construction activities may occur outside these hours, including utility and service connections, track possessions for tie-in to the SSFL, and oversized deliveries using machinery that can only travel between certain hours.

Further details of the construction activities occurring during Phase A are provided in section 8.4.

10.2.3 Phase B – Operation of initial IMEX and warehousing, construction of additional capacity (2018–2025)

By 2018 it is expected that the initial IMEX and warehousing component of the IMT would commence operation. This would involve operation of the IMEX terminal at a capacity of 500,000 TEU a year and operation of 100,000 sq. m of warehousing. This Project development phase is referred to as Phase B.

The IMEX terminal and trains would operate 24 hours a day, 7 days a week. Truck gates to the terminal would be open 16 hours, 5.5 days a week. Operations within the warehousing precinct could occur 24 hours a day, 7 days a week.

During Phase B, additional IMEX freight terminal facilities would be constructed to increase the IMT capacity to 1.05 million TEU a year, along with an additional 150,000 sq. m of warehousing. Construction of the additional IMEX facilities and warehousing is likely to commence in the latter part of Phase B, around 2023.

As with the previous scenarios, Scenarios N2, C2, S2 each represent one of the three rail access options and associated IMT layouts. Scenario N2 assesses the impacts during Phase B using the northern rail access option, Scenario C2 the central rail access option and Scenario S2 the southern rail access option. The scenarios occur at a point of time between 2023 and 2025, when both construction and operation activities would be taking place on the Project site.

10.2.4 Phase C – Operation of IMEX and warehousing, construction of interstate terminal and additional warehousing (2025–2030)

Phase C would commence in 2025 and would involve the operation of the IMEX terminal at its maximum capacity (1.05 million TEU a year) along with 250,000 sq. m of warehousing.

Construction of the interstate terminal (for a capacity of 500,000 TEU a year) and the southbound rail connection from the SSFL to the IMT for interstate operations (via either the northern, southern or central rail access option) is likely to occur in the latter part of this phase, around 2028. An additional 50,000 sq. m of warehousing would also be constructed during this time.

Scenario N3 assesses the impacts during Phase C based on the northern rail access option, Scenario C3 assesses the central rail access option and Scenario S3 assesses the southern rail access option. The scenarios occur between 2028 and 2030, when both construction and operation activities would be taking place on the Project site.

10.2.5 Phase Full Build (2030)

By 2030 it is expected that the IMT would have reached its maximum capacity (i.e. Full Build). This phase would involve operation of the IMEX and interstate terminals and 300,000 sq. m of warehousing. It is expected that there would be no construction activities occurring during this phase, as the Project would have reached its maximum capacity.

The IMEX and interstate facility would operate 24 hours a day, 7 days a week, including truck access to the IMT site.

Scenario N4 represents the IMT at Full Build based on the northern rail access option, Scenario C4 represents the IMT based on the central rail access option and Scenario S4 represents the IMT based on the southern rail access option.

10.3 Cumulative assessment of the Project

Chapter 27 – *Cumulative impacts* summarises the assessment of potential cumulative impacts resulting from the Project in conjunction with development of the Sydney Intermodal Terminal Alliance (SIMTA) site.

As detailed in section 27.1.1 of Chapter 27 – *Cumulative impacts*, in recognition of rail network constraints particularly on the SSFL, and even assuming that upgrades are made to the line (including additional passing loops and intermediate signalling), rail freight to Moorebank (Moorebank IMT and SIMTA IMT) cannot exceed 1.05 million TEU a year. Furthermore, freight demand analysis undertaken by Deloitte in 2013 concluded that the demand for IMEX through a terminal at Moorebank would be limited to approximately 1.05 million TEU a year. As such, there would be insufficient demand for both Projects to operate in their current forms simultaneously.

In recognition of the community and approval agencies' concerns about the prospect of both the Project site and the SIMTA site being developed in some way, an alternative approach has been developed for the cumulative impact assessment. That is, development of both sites for a combination of IMEX, interstate and warehousing capacity (either as a single combined operation or as two complementary operations) is more likely and possible scenarios for development of these sites include:

- Cumulative impact scenario 1: Operation of the Moorebank IMT as described in this EIS, alongside development of the SIMTA site for up to 300,000 sq. m of warehousing;
- Cumulative impact scenario 2: Operation of the Moorebank IMT with an IMEX terminal at 500,000 TEU per year, an interstate terminal at 500,000 TEU per year and 300,000 sq. m warehousing alongside development of the SIMTA site with an IMEX terminal at 500,000 TEU per year and 300,000 sq. m of warehousing; and
- Cumulative impact scenario 3: Operation of the Moorebank IMT with a 500,000 TEU per year interstate terminal only and 300,000 sq. m of warehousing alongside the operation of the SIMTA site as currently proposed (1 million TEU per year and 300,000 sq. m of warehousing).

These scenarios consider cumulative impacts and are therefore separate from the scenarios identified in section 10.2, which assess the impacts of the Project only. To ensure that the worst case cumulative impacts are considered, the assessments focus primarily on the cumulative impact of both sites in their fully developed form.

The NSW Planning Assessment Commission (PAC) recently determined to approve the SMITA concept plan, with modifications and subject to further assessment requirements. The PAC approval placed an upper limit throughput capacity of 500,000 TEU per annum on the SIMTA site. However the cumulative impact assessment and the assessment scenarios developed for this EIS is based on rail network constraints (being a maximum capacity of 1.05 million TEUs per year). Therefore the scenarios have not being modified following the recent PAC determination for the SMITA concept development.

For cumulative impact scenario 1, it is assumed that access from the SSFL to the Moorebank IMT would be via the northern rail access option, passing through the former Casula Powerhouse Golf Course, as this is considered a worst case in terms of noise impacts. For cumulative impact scenarios 2 and 3, access to the Moorebank IMT and the SIMTA IMT would be via the southern rail access option, which crosses the Glenfield Landfill site. These rail access assumptions are based on the likely interactions and site layout of the combined sites. It is assumed that only one rail access would be built to service both sites on the basis that it would be uneconomical to build two access and ARTC have also advised that they would not support two separate rail access points.

The cumulative assessment as detailed in Chapter 27 – *Cumulative impacts*, assesses the impacts of the Project with the SIMTA project in accordance with the scenarios identified above. The assessment considers impacts during construction as well as operations at Full Build.

In addition to the SIMTA site, section 27.2.3 of Chapter 27 – *Cumulative impacts* provides an assessment of the cumulative impacts of the Project with other planned developments within the surrounding region.

10.4 Future assessments and approval requirements

10.4.1 Additional assessment requirements

Under the NSW SSD process (Part 4.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), as described in section 4.2), the Project is subject to a staged approval process. The current EIS (this document) is seeking a Stage 1 SSD approval for the proposal concept described in this EIS.

The Stage 1 SSD approval would provide in-principle consent for the overall IMT development, including approval of the broad layout and operational parameters; however, it would defer approval of details (such as precise road layout and warehousing detail) until subsequent Stage 2 development approvals. As part of the Stage 1 SSD approval, MIC is seeking consent for the Early Works, which comprise the first Project development phase. Subsequent Project development phases would be subject to further Stage 2 development approvals.

As part of the Stage 2 development approval process, additional air, noise and traffic assessments would be undertaken as well as more detailed assessment of individual development stages of the Project. These further assessments would be contained in a new EIS document (or similar) that would provide an updated description of the Project and the supplementary impact assessments prescribed by the NSW Minister for DP&E.

10.4.2 Assessment of further scenarios

The development scenarios described in section 10.2 above are intended to represent the most significant impacts during various phases of the Project development, up to final operation of the fully developed IMT. However, further assessment of detailed scenarios would need to be undertaken to obtain future Stage 2 SSD approval.

The Stage 2 SSD approvals could theoretically be a single development application (DA) (and supporting EIS or equivalent) for the entire IMT development. However, it is more likely that multiple DAs for various components of the development would be sought over time (e.g. Phase A could feasibly be the subject of a stand-alone DA).

At the time of preparing each DA, a detailed assessment of the impacts of that phase (including both construction impacts and operation impacts) would be undertaken. As a minimum, each of the five Project development phases identified in this EIS are likely to require detailed impact assessments as part of the Stage 2 SSD approval process.

Importantly, the information contained in the Stage 2 SSD approval documentation (including an EIS or equivalent) will be placed on public exhibition and will be subject to approval under the EP&A Act.