Kogarah Golf Course Redevelopment – Concept & Early Works

Transport Impact Assessment

Prepared for:

Stockland Development Pty Limited

19 March 2026

PROJECT INFORMATION

Project Name:	Kogarah Golf Course Redevelopment – Concept & Early Works
Client:	Stockland Development Pty Limited
Project Number:	1911
Prepared By:	JMT Consulting

DOCUMENT HISTORY

Document Title	Revision	Date issued	Author
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KGC Concept & early works TIA	70% draft report	14.11.25	JM
KGC Concept & early works TIA	Final draft report	05.12.25	JM
KGC Concept & early works TIA	Issue for ToA	16.12.25	JM
KGC Concept & early works TIA	Post ToA	19.03.26	JM

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1 Introduction

1.1 Background

This transport impact assessment report has been prepared for Stockland Development Pty Limited ('Stockland' or 'the Applicant') to accompany a State Significant Development Application (SSDA) (SSD-84467726) for a Concept Masterplan and Early Works associated with the Kogarah Golf Club Redevelopment located on land identified as 13-19A Marsh Street, Arncliffe (the site).

The vision for the Kogarah Golf Club Redevelopment is to create a world-class precinct that leverages the site's strategic location adjacent to Sydney Airport and strong transport connections by delivering multi-level logistics development, trade-related enterprise and supporting uses with publicly accessible open space. It seeks to deliver state-of-the-art facilities that will redefine the logistics landscape in Australia, setting new benchmarks for scale, efficiency, sustainability and innovation.

The Concept & Early Works SSDA seeks consent for an overarching Concept Masterplan that establishes maximum building envelopes, Gross Floor Area (GFA), land uses, and other parameters through Urban Design Guidelines and technical reporting. It also seeks consent for the carrying out of Early Works to facilitate the initial site preparation and infrastructure works required to support future development and publicly accessible open space.

1.2 Site description

The site is identified as 13-19A Marsh Street, Arncliffe within the Bayside Local Government Area (LGA). It is situated to the immediate west of the Cooks River and Sydney Airport, located approximately 6km west of Port Botany and 10km south of the Sydney Central Business District (CBD). It includes frontages to Marsh Street, providing direct access to the M5 Motorway, Sydney Airport and St Peters Interchange (via the Sydney Gateway).

The site comprises land associated with nine (9) allotments and a total area of approximately 32 hectares. The existing uses include the previous Kogarah Golf Club (vacated in March 2025) accessed via Levey Street and the temporary M6 Stage 1 construction compound accessed directly from Marsh Street.

The development area represents Lot 31 DP1231486 and Lot 100 DP1231954, excluding land subject to future dedication to Bayside Council. It comprises an area of approximately 16.7 hectares and is zoned SP4 Enterprise and C2 Environmental Conservation under the Bayside LEP 2021.

The site is described in Table 1 and depicted in Figure 1 on the following page.

Table 1 Site description

Lot / DP	Address	Ownership
Lot 31 DP1231486	19 Marsh Street, Arncliffe	Cook Cove Nominees No 1 Pty Ltd as trustee of Cook Cove Property Trust 1
Lot 100 DP1231954	19A Marsh Street, Arncliffe	Cook Cove Nominees No 2 Pty Ltd as trustee of Cook Cove Property Trust 2
Lot 60 DP1301057	13 Marsh Street, Arncliffe	Bayside Council
Lot 61 DP1301057	19 Marsh Street, Arncliffe	
Lot 62 DP1301057	Marsh Street, Arncliffe	Transport for NSW
Lot 63 DP1301057	Marsh Street, Arncliffe	
Lot 12 DP570900	Marsh Street, Arncliffe	
Lot 102 DP1231954	Marsh Street, Arncliffe	
Lot 103 DP1231954	Marsh Street, Arncliffe	

Figure 1 Site aerial map

Source: Colliers Urban Planning

1.3 Project description

The Concept & Early Works SSDA seeks consent for the following:

- Concept Masterplan to support the staged delivery of the Kogarah Golf Club Redevelopment, including:
  - Maximum building envelopes, including maximum building heights and minimum building setbacks;
  - Maximum Gross Floor Area (GFA) up to 343,250m^2, comprising:
    - 3,250m^2 of GFA (FSR of 1.25:1) on Lot 31 DP1231486; and
    - 340,000m^2 of GFA on Lot 100 DP1231954.
  - Conceptual primary land uses, including:
    - Block 1 – Mixed-use and advertising structures;
    - Block 2 – Logistics and mixed-use;
    - Block 3A – Logistics;
    - Block 3B – Logistics; and
    - Block 3C – Logistics and Data centre.
  - Urban Design Guidelines to guide future development of the built form and public domain; and
  - Strategies and mitigation measures to manage potential environmental impacts.
- Early Works to support the future delivery of built form and publicly accessible open space, including:
  - Site preparation works, comprising:
    - Demolition of existing structures;
    - Clearing of existing vegetation;
    - Remediation works; and
    - Bulk earthworks, including ground improvement and flood mitigation works.
  - Site servicing and infrastructure works, including:
    - Construction of the Flora Street East extension consistent with Item 3 of the executed Voluntary Planning Agreement with Bayside Council;
    - Construction of stormwater infrastructure; and
    - Construction and augmentation of service and utility infrastructure as necessary.

For a detailed description, refer to the Environmental Impact Statement prepared by Colliers Urban Planning.

1.4 Indicative reference scheme

The Concept Masterplan is supported by Indicative Reference Schemes that present as 'proof of concepts' within the proposed planning framework. The schemes demonstrate suitable primary land use, built form and public domain outcomes that align with the vision for a world-class precinct that leverages the site's strategic location adjacent to Sydney Airport and strong transport connections.

The Indicative Reference Schemes consider different potential development outcomes enabled by the Concept Masterplan to support the delivery of the highest and best use at the time of redevelopment. This includes a Logistics scheme and Alternative Uses scheme, which facilitate the potential for four (4) different primary land use outcomes across the Site. The alternative land use outcomes enabled by the Concept Masterplan include an alternative mixed-use outcome on Block 2 and alternative data centre outcome on Block 3C.

The Indicative Reference Schemes are established in Figure 2, with the Logistics scheme and Alternative Uses scheme prepared by Grimshaw depicted in Figure 3 and Figure 4.

It is noted that the Indicative Reference Schemes are indicative only and the development of future built form and publicly accessible open space will be subject to future Development Applications. The Indicative Reference Schemes demonstrate the ability to support different potential outcomes, consistent with the proposed framework under the Concept Masterplan including Urban Design Guidelines.

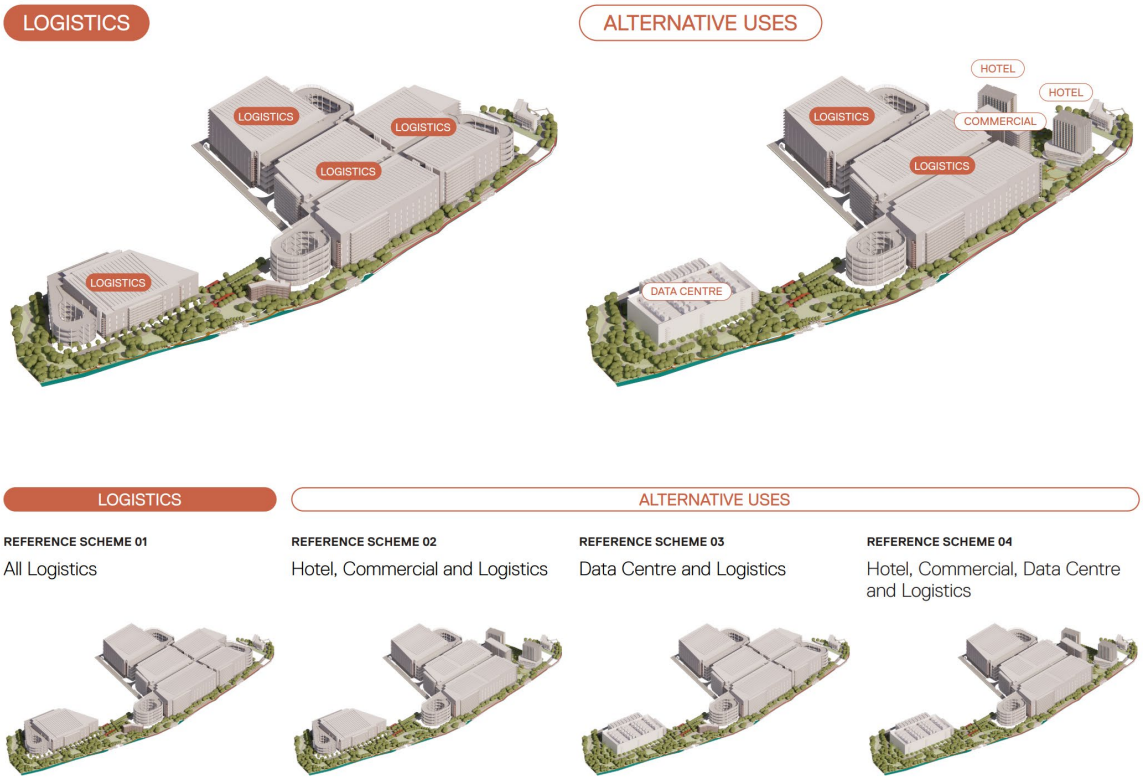


Figure 2 Indicative reference schemes

Source: Grimshaw

Figure 3 Indicative reference scheme – logistics scheme

Source: Grimshaw

Figure 4 Indicative reference scheme – alternative uses scheme

Source: Grimshaw

The development yield associated with each land use outcome under the Indicative Reference Schemes is presented in Table 2 below.

Table 2 Land use matrix – indicative reference schemes

Primary Land Use	Reference Scheme 1 Logistics	Reference Scheme 2 Logistics + Mixed-use	Reference Scheme 3 Logistics + Data Centre	Reference Scheme 4 Logistics + Mixed-use + Data Centre
Lot 31 DP1231486 (Block 1)				
Hotel	1,670m² (64 keys)			
Commercial	1,260m²			
F&B / Shops / Artisan F&B	320m²			
TOTAL	**3,250m²**			
Lot 100 DP1231954 (Block 2, 3A, 3B, 3C)				
Warehouse	336,200m²	293,000m²	276,200m²	231,600m²
F&B / Shops	1,950m²	10,000m²	1,850m²	10,000m²
Hotel	-	20,000m² (300 keys)	-	20,000m² (300 keys)
Commercial	1,850m²	17,000m²	1,850m²	17,000m²
Data Centre	-	-	25,400m²	25,400m²
TOTAL	**340,000m²**	**340,000m²**	**340,000m²**	**340,000m²**

1.5 Report purpose

This report has been prepared in response to the Secretary's Environmental Assessment Requirements (SEARS) for SSD- 84467726. Specifically, this report has been prepared to respond to those SEARS summarised in Table 3.

The TIA has been prepared with consideration of the relevant items contained within the TfNSW Guide to Transport Impact Assessment (GTIA) – Appendix E scoping checklist. It should be noted however that the GTIA provides for a generic set of guidelines across all types of development, with many of the items in the scoping checklist not relevant to a Concept Masterplan proposal. Section 1.1.3 of the GTIA specifically notes the following "*recommendations in this Guide may not be appropriate in all development situations. Discretion and professional judgement should always be exercised and clearly documented with justification*" There is no specific requirement to provide an itemised checklist in the GTIA within a TIA. In fact within Appendix E it is noted that "*This checklist is not prescriptive and aims to assist practitioners in optimising a TIA or TIS to focus on critical and impactful elements"*

Table 3 SEARs requirements

Item	Description of Requirement	Section Reference (this report)
Traffic & Transport	*a quantitative transport impact assessment prepared in accordance with the Transport for NSW Guide to Transport Impact Assessment (GTIA) and Austroads guidelines, that includes:*	This report
	consideration of all deliverables and actions for construction and operation of the development in Appendix E – Scoping checklist of the GTIA	This report
	an estimate of trip generation, and trip distribution likely to be generated by the development for all stages of operation and construction (including the fully developed site)	5.7, 6.4
	an assessment of cumulative traffic impact on road performance and safety implications at key intersections using an appropriate modelling framework (including the consideration of existing base case, future base case and project case scenarios)	2.2.3, 5.8
	plans demonstrating how all vehicles likely to be generated during construction	6.5

Item	Description of Requirement	Section Reference (this report)
Traffic & Transport	*details and plans of any proposed internal road network, access points, on-site parking provisions, in accordance with the relevant Australian Standards and Austroads/TfNSW technical guidelines*	5.2, 5.4
	detail of ownership of estate road infrastructure	5.2
	description of how the proposal will interact with M6 Motorway works	3.3, 5.2, 6.5
	swept path diagrams for the largest vehicles manoeuvring through site access points, internal roads, hardstand areas and nearby intersections (where necessary)	Appendix A
	details of road upgrades, traffic control measures, new roads or access points required for the development if necessary (including approval-in-principle from the relevant road authority, where relevant)	5.1
	details on how the proposal will interact with works under the Voluntary Planning Agreement SVPA2024-25, including the approval pathway for delivery of this road upgrade	2.3
	details of the likely trip generation, construction vehicle routes, access and parking arrangements during Stage 1 construction works and measures to mitigate any construction traffic and parking impacts, detailed in a draft Construction Traffic Management Plan.	6
	details of the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand for the proposed development	5.3, 5.6
	measures to integrate the development with the existing/future public transport network.	5.6

2 Site Specific Planning Proposal

2.1 Planning Proposal overview

A Planning Proposal (PP-2022-1748) was previously submitted by John Boyd Properties for the site to amend and integrate planning controls into the Bayside Local Environmental Plan 2021 (Bayside LEP 2021).

The Planning Proposal was granted Gateway Determination on 5 August 2022 and publicly exhibited between 24 April 2023 and 6 June 2023. It was determined to proceed to finalisation in March 2024, with the amendments to the Bayside LEP 2021 gazetted on 9 May 2025. The amendments to the Bayside LEP 2021 included:

- A total GFA of 343,250m^2, applied through:
  - Lot 31 DP 1231486 – A maximum FSR of 1.25:1 (3,250m^2);
  - Lot 100 DP 1231954 – A total floorspace that does not exceed 340,000m2 of GFA, inclusive of:
    - A maximum 20,000m^2 GFA for 'office premises';
    - A maximum 20,000m^2 GFA for 'hotel or motel accommodation' and 'serviced apartments'; and
    - A maximum 10,000m^2 GFA for 'shops' and 'food and drink premises'.

The Land Zoning Map for the Planning Proposal is presented in Figure 5.

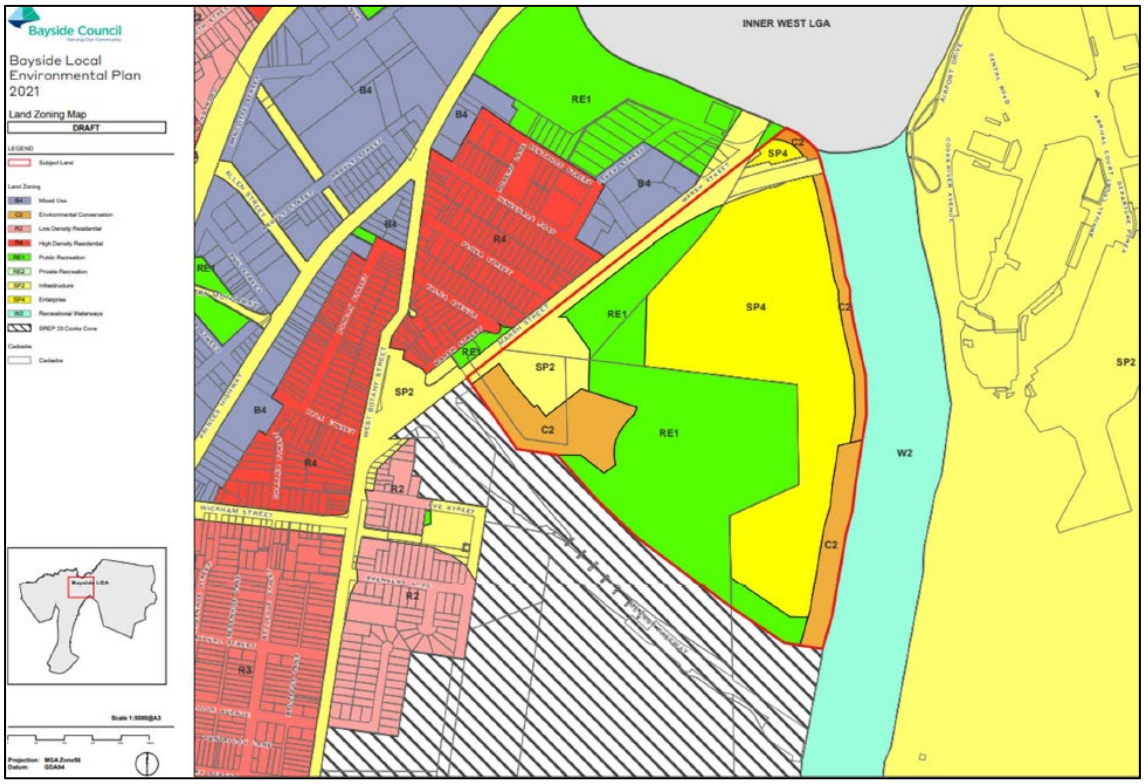


Figure 5 Land Zoning Map – Planning Proposal (PP-2022-1748)

2.2 Detailed traffic and transport study

To support the now approved Planning Proposal a detailed transport impact assessment was developed in close collaboration with Transport for NSW (TfNSW). Key aspects of the transport impact assessment are as follows:

2.2.1 Vehicle site access

The transport impact assessment established key parameters with respect to vehicular access to and from the site, including:

- Continued use of Levey Street under the Giovanni Brunetti Bridge to accommodate passenger vehicles and small to medium size service vehicles.
- A new signalised (four way) signalised intersection at Marsh Street and Gertrude Street which would form the primary access point into the site.
- Enhancement of the existing Marsh Street / Flora Street signalised intersection to provide access into the site as well as the Arncliffe MOC.

A summary of the vehicular access arrangements considered as part of the site specific Planning Proposal are indicated in Figure 6 below. These access arrangements were supported by concept civil engineering drawings of the upgraded signalised intersections on Marsh Street as prepared by Enspire Solutions.

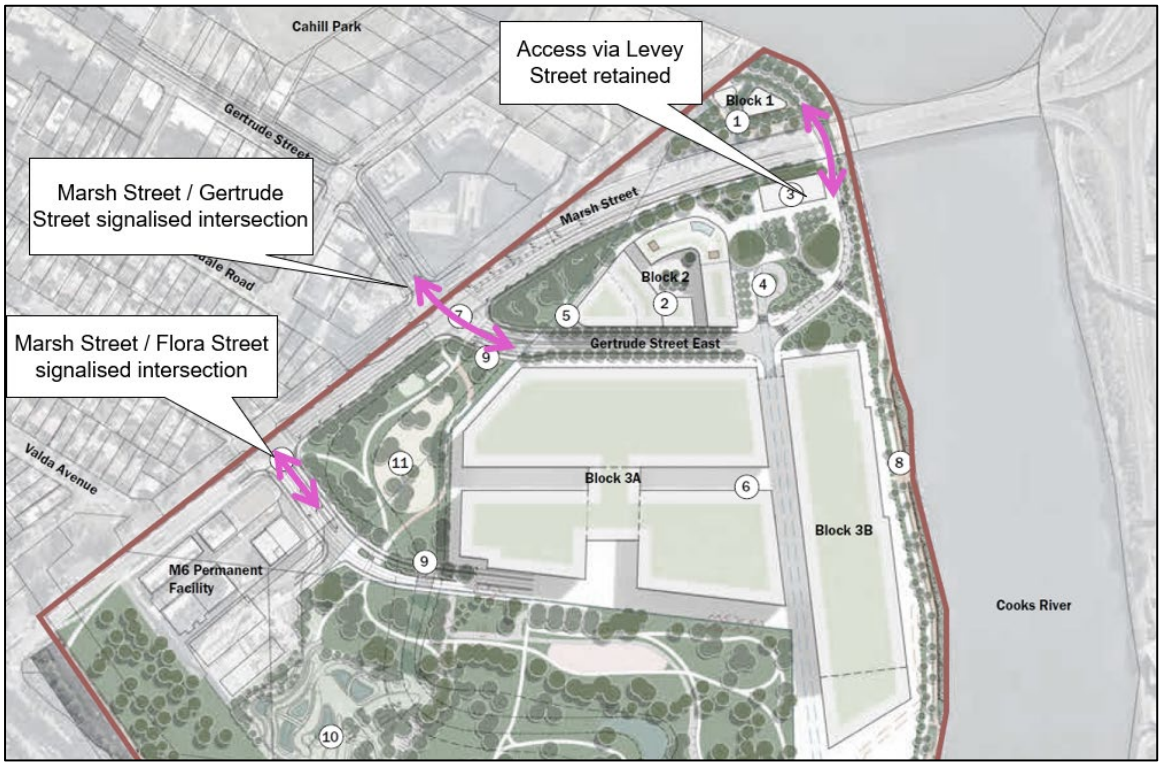


Figure 6 Vehicle site access assumptions – Planning Proposal

Source: Cooks Cove Planning Proposal, Transport Impact Assessment (JMT Consulting, May 2023)

2.2.2 Forecast traffic movements

A reference scheme was prepared in support of the Planning Proposal which informed the transport impact assessment. A summary of the traffic generation forecasts assumed for the Planning Proposal is provided in Table 4, with these figures ultimately informing the detailed traffic modelling.

Table 4 Forecast traffic generation – Planning Proposal

Peak Hour	Forecast traffic movements		
	Into Site	Out of Site	Total
AM Peak Hour	803	397	1,200
PM Peak Hour	484	776	1,260

2.2.3 Traffic modelling

Detailed micro-simulation traffic modelling was undertaken in support of the Planning Proposal. The purpose of the traffic modelling was to provide an understanding of the road and transport infrastructure upgrades needed to support the uses associated with Planning Proposal, including identification of transport network upgrades required to mitigate the traffic impacts of the scheme. The modelling was initially undertaken in 2019 and then subsequently updated in 2022 following advice from TfNSW. The extent of the traffic modelling undertaken is shown in Figure 7.

Figure 7 Traffic model extents for Planning Proposal

The traffic modelling factored in the various land uses associated with the Planning Proposal, including the future logistics / warehouse use. The associated increase in heavy vehicle proportions associated with this logistics / warehouse use was considered within the traffic modelling to account for heavy-vehicle performance characteristics.

2.2.4 TfNSW consultation

The traffic modelling was completed in close consultation with technical officers from TfNSW. A summary of the meetings held and TfNSW advice provided is noted below:

- 02 March 2022 – TfNSW provides detailed advice in relation to extent of future year traffic modelling required should project receive a Gateway determination
- 23 June 2022 – Traffic modelling methodology report issued to TfNSW
- 11 July 2022 – Meeting held with TfNSW to discuss traffic modelling methodology report. During the meeting TfNSW noted their preference for an updated 2022 base year traffic model to be prepared given the changes in traffic patterns since the opening of the M8 tunnels in 2020.
- 21 July 2022 – Cook Cove Inlet Pty Ltd provides suggested methodology for the update of the base model to TfNSW
- 22 July 2022 – TfNSW confirms that the proposed approach in updating the base year model is acceptable
- 30 August 2022 – Updated base year traffic model and report issued to TfNSW
- 13 September 2022 – Outputs from TfNSW strategic model provided to Cook Cove Inlet Pty Ltd
- 19 September 2022 – TfNSW provides comments on the base year traffic model
- 5 October 2022 – Revised base year traffic model and report issued to TfNSW addressing comments provided
- 31 October 2022 – TfNSW endorses base year model, noting "*TfNSW has completed the review and confirms that our previous comments emailed to you on 19 September 2022 have been satisfactorily addressed*"
- 23 November 2022 – Meeting held with TfNSW officers to present the findings of the future year traffic model.
- 25 November 2022 – Future year VISSIM traffic models issued to TfNSW for review
- 13 December 2022 – TfNSW provides comments on the future year traffic model
- 14 December 2022 – Responses to comments on future year traffic model issued to TfNSW
- 15 December 2022 – TfNSW confirms acceptance of future year traffic models

2.2.5 Traffic modelling outcomes

The detailed traffic modelling prepared for the Planning Proposal indicated that the proposed signalised intersections on Marsh Street at Flora Street and Gertrude Street could operate acceptably in both the morning and evening peak hours with consideration of future traffic growth in the area alongside the uses proposed for the site.

These site access intersections on Marsh Street and the traffic generated by the project would not compromise the ability of TfNSW to continue to deliver a safe road network in the area. The intersection level of service findings as presented in the transport impact assessment supporting the Planning Proposal are illustrated in Figure 8 – confirming that the uses contemplated under the reference scheme for the Planning Proposal could be supported.

Figure 8 Future intersection level of service

Source: Cooks Cove Planning Proposal, Transport Impact Assessment (JMT Consulting, May 2023)

Given the impacts of this level of traffic generation has been previously reviewed and deemed acceptable, the assessment for this Concept and Early Works SSDA has factored these values insofar as relevant to the transport impact assessment matters for the land uses that are proposed under this SSDA.

2.3 Voluntary Planning Agreement SVPA2024-25

A State Voluntary Planning Agreement (SVPA) (SVPA2024-25) was executed between Cook Cove Inlet Pty Ltd and TfNSW on 29 January 2025 for state development contributions supporting road infrastructure works and upgrades along Marsh Street to the north of the Site and a monetary contribution with an estimated total value of approximately $8.7 million.

The road infrastructure works along Marsh Street include upgrades to existing intersections, signalisation and installation of bus stops along Marsh Street. The upgrades are required to facilitate future access to the Site from Marsh Street, and support future traffic generation from the Kogarah Golf Club Redevelopment.

The development contributions under the SVPA (including timing) are described in Table 5, with the associated works and land dedication depicted in the Indicative Works Plan presented in Figure 9. A Development Application for the carrying out of the external roadworks under executed SVPA has been submitted to Bayside Council (refer to Section 3.3).

For further details in relation to the planning agreements for the site refer to the Environmental Impact Statement prepared by Colliers Urban Planning.

Table 5 Development Contributions Summary –SVPA2024-25

Item	Name	Timing
1	Marsh Street/Gertrude Street Intersection enhancement	Prior to the issue of the first Occupation Certificate for GFA within the Developer Land arising from the Instrument Change.
2	Marsh Street/Flora Street intersection enhancements	Prior to the issue of the first Occupation Certificate for GFA within the Developer Land arising from the Instrument Change.
3	Flora Street East Extension interface with Arncliffe Motorway Operations Compound	lnterface Agreement(s) to be entered into prior to the issue of a Construction Certificate for GFA within the Developer Land and prior to the issue of a Construction Certificate for any Works within the Council Land arising from the lnstrument Change. Developer works the subject of the lnterface Agreement are to be delivered prior to the issue of an Occupation Certificate for GFA within the Developers land arising from the lnstrument Change.

Item	Name	Timing
4	Additional southbound right-turn bay storage on Marsh Street at Gertrude Street intersection	Prior to the issue of the first Occupation Certificate for GFA within the Developer Land arising from the Instrument Change.
5	Bus Stops	Prior to the issue of the first Occupation Certificate for GFA within the Developer Land arising from the Instrument Change.
6	Monetary Contribution with estimated total value of $8.7 million	Payable in instalments, prior to the issue of each Occupation Certificate for GFA within the Developer Land arising from the lnstrument Change.

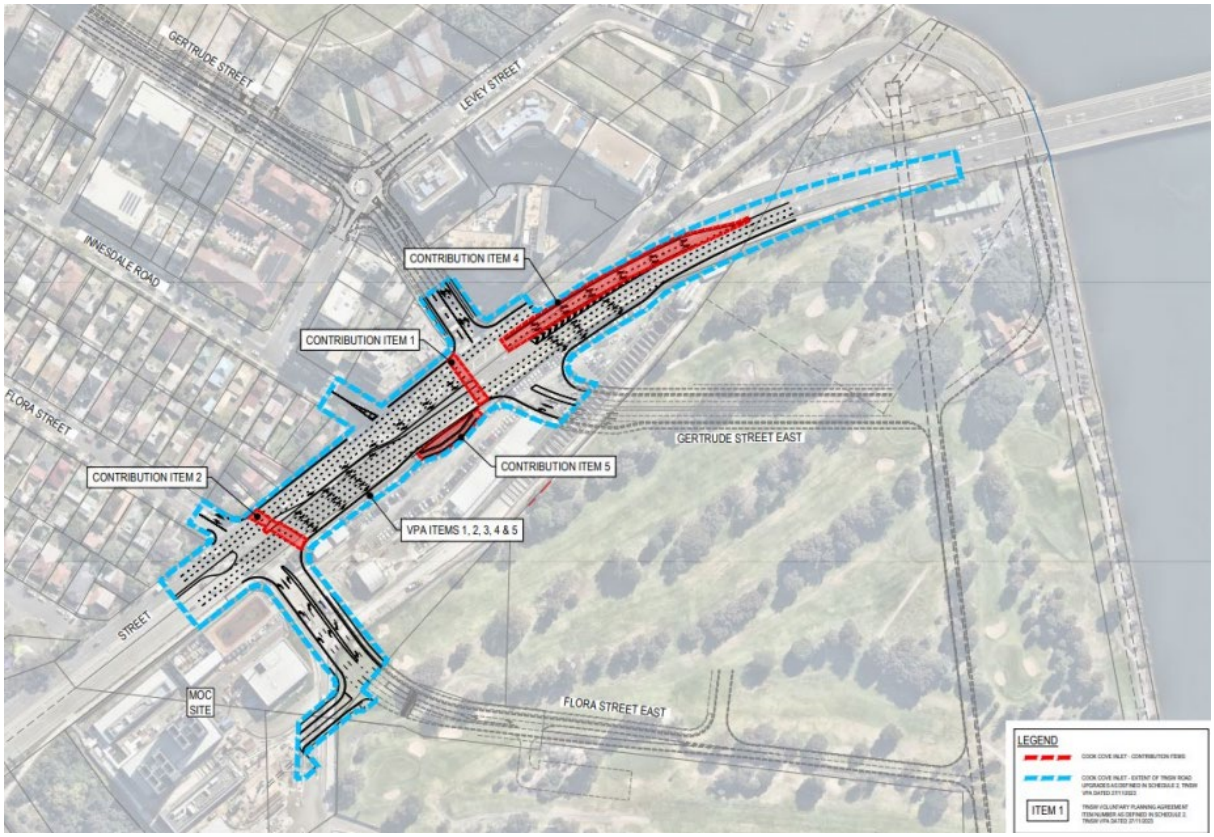


Figure 9 Indicative Roadworks Plan –SVPA2024-25

Source: Enspire

3 Planning Context

3.1 State planning context

3.1.1 Future Transport 2056

Future Transport 2056 is an update of NSW's Long Term Transport Master Plan. It is a suite of strategies and plans for transport developed in concert with the Greater Sydney Commission's Sydney Region Plan, Infrastructure NSW's State Infrastructure Strategy, and the Department of Planning and Environment's regional plans, to provide an integrated vision for the state.

The Services and Infrastructure Plans set the customer outcomes for Greater Sydney and regional NSW for the movement of people and freight to meet customer needs and deliver responsive, innovative services. The plans will define the network required to achieve the service outcomes.

Relevant to the site are a number of future mass transport corridors serving the Eastern Harbour City, as shown in Figure 10 below.

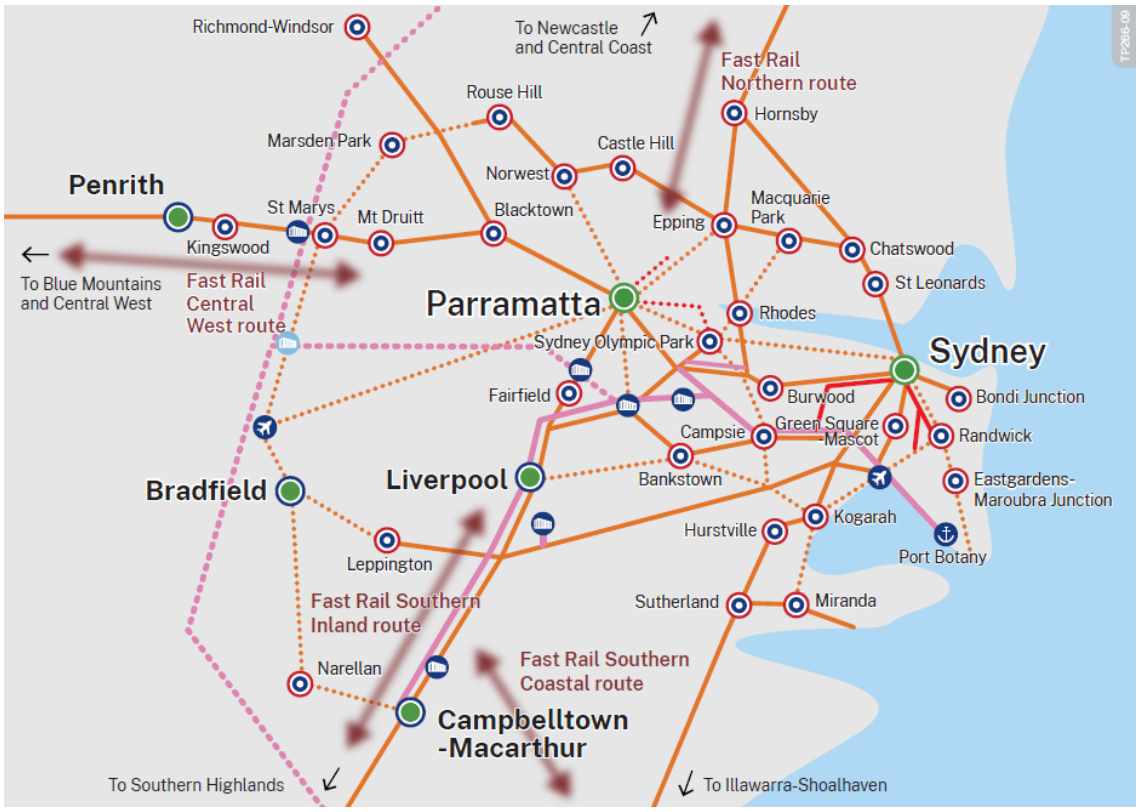


Figure 10 Existing and future passenger and freight rail network

Source: Future Transport Strategy (Transport for NSW)

3.1.2 Bayside West Precincts 2036

The main policy document guiding development in the Arncliffe and Banksia area is the Department of Planning, Industry and Environment's (DPIE) Bayside West Precincts 2036 Plan, finalised in September 2018. Cooks Cove is nominated as one of the three Bayside West Precincts.

As a result of the Bayside West Precincts Plan, Cooks Cove was identified for further investigation to determine its suitability for a mixed use high density residential community. This involved investigating the opportunities and constraint to urban renewal and the development potential of the area. The document notes that the planning for Cooks Cove is subject to assessment by Bayside Council.

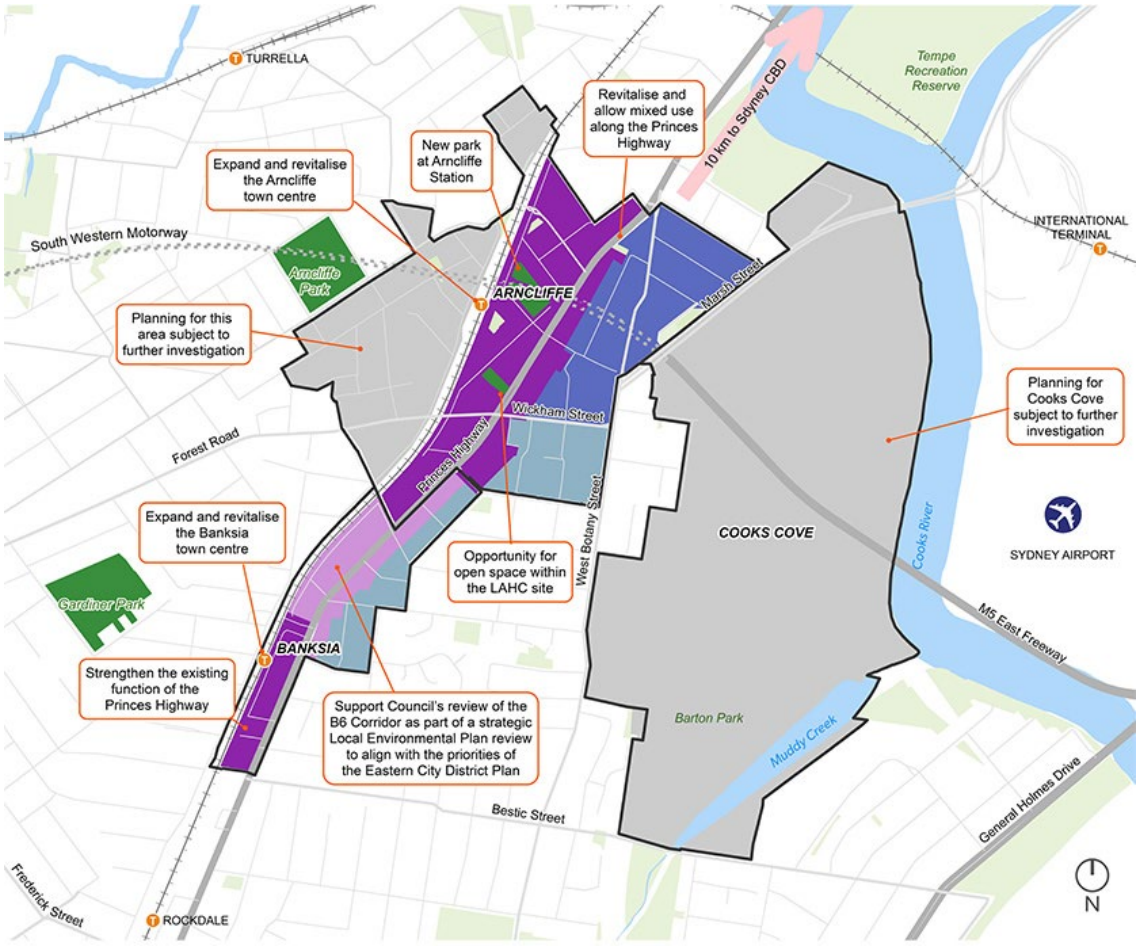


Figure 11 Bayside West precinct

3.2 Future transport infrastructure

3.2.1 Gertrude Street extension

As identified in the Rockdale DCP 2011 an extension of Gertrude Street is proposed from Levey Street (opposite Gertrude Street) to Marsh Street. The proposal would extend the existing Gertrude Street to connect to Marsh Street and would provide vehicle access into the precinct.

This project critical connection is contemplated by the Minister approved SREP33 Master Plan and associated TMAP, and is consistent with the Section 9.1 Local Planning Direction - 1.12 Implementation of Planning Principles for the Cooks Cove Precinct, specifically principle (h) to "*Deliver a safe road network that balances movement and place, provides connections to the immediate and surrounding areas and is cognisant of traffic conditions in this area*". Appropriately, the 9.1 Direction map (see Figure 12) extends west of Marsh Street to encompass the Gertrude Street extension as well as Levey Street.

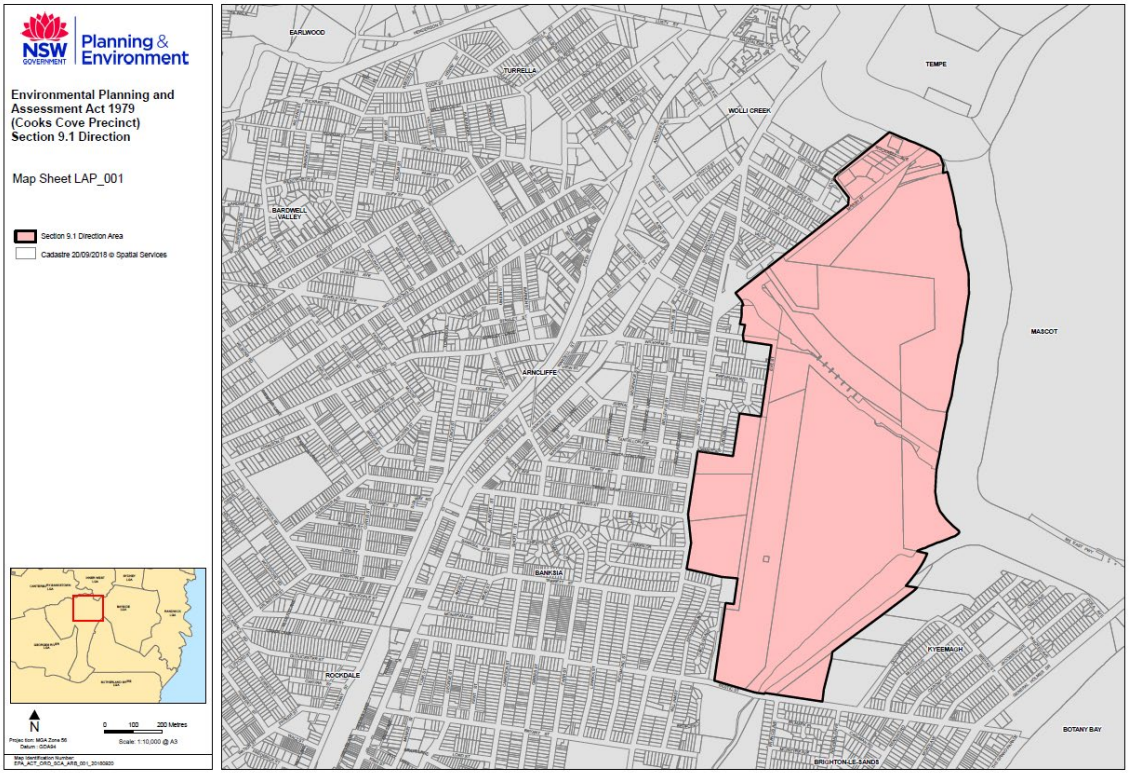


Figure 12 Section 9.1 direction map – Cooks Cove precinct

3.2.2 WestConnex

WestConnex is a 33 kilometre motorway that extends the M4 Motorway east to the Haberfield area and south to Sydney Airport and duplicates the existing M5 East. The overall scheme comprises a number of projects staged over a 10 year period, including:

Stage 1: M4 – Parramatta to Haberfield

Stage 2: M8 – Beverly Hills to St Peters

Stage 3: M4-M8 Link – Haberfield to St Peters.

Of particular relevance to the site is the introduction of 9km twin tunnel between the existing M5 east at King Georges Road and the St Peters Interchange. The project, which opened to traffic in 2020, also includes an upgraded interchange at King Georges Road which complements the recently completed widening works on the M5 between Camden Valley Way and King Georges Road.

3.2.3 Sydney Metro City & Southwest

The Sydney Metro City & Southwest project extends metro rail under Sydney Harbour, through the central business district (CBD) of Sydney and south west to Bankstown, with capacity to run up to 30 trains per hour in each direction through the city on the new line. Sydenham is the closest metro station to the site on the Sydney Metro City and Southwest line.

The Project represents a major increase in the capacity of Sydney's rail network, providing a 60 per cent increase in the number of trains in the peak periods and catering for an extra 100,000 customers per hour. The project, which opened in August 2024, significantly improves reliability across the rail network by addressing current and emerging constraints such as train crowding, platform and station crowding.

3.2.4 Sydney Gateway project

The Sydney Gateway project provides for improved capacity and accessibility between Sydney Airport (both Domestic and International) and the Sydney motorway network via the St Peters interchange. By 2036, the project would provide capacity for an additional 60,000 vehicles per day.

Key features of the project include:

- New road links between Sydney Airport's terminals and the Sydney motorway network at St Peters interchange
- New road links to Sydney Airport land
- An active transport link to maintain cycle and pedestrian connections between Tempe, Sydney Airport, the Sydney central business district and Mascot
- Other road operational infrastructure

The project benefits future site users by reducing traffic flows on surface roads in the vicinity of the site such as on the Princes Highway and provide a convenient connection to and from the motorway network. The transport impact assessment supporting the EIS for the Sydney Gateway project indicates that Marsh Street would carry 67,000 vehicles per day with the Sydney Gateway (and other committed motorway projects) by 2036, a very small increase compared to the 66,000 vehicles per day in a scenario without the project.

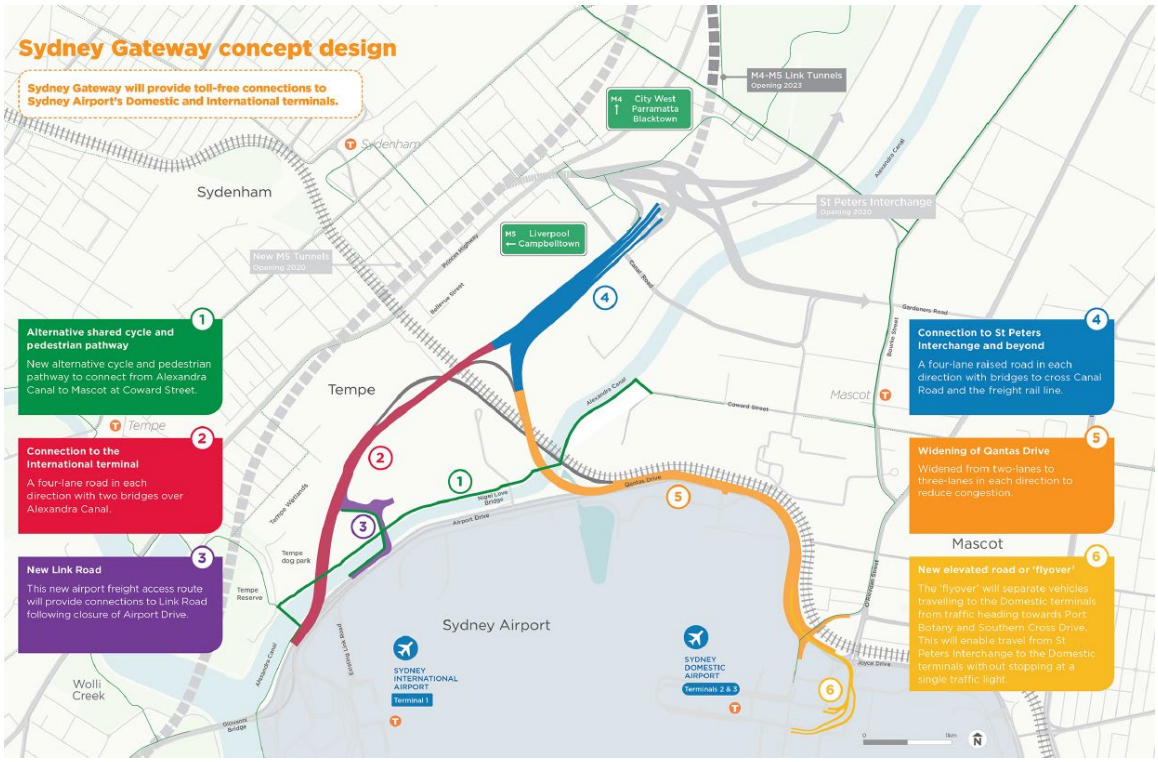


Figure 13 Sydney Gateway project

Source: Transport for NSW

3.2.5 M6 (F6) Motorway

The M6 Motorway (previously F6 Extension) program of works is an approved and committed NSW Government project involving a multi-lane road link that aims to provide better connectivity to Sydney's south. Stage 1 comprises an approximately four-kilometre multi-lane underground road link between the New M5 Motorway and a surface intersection at President Avenue, Kogarah.

The M6 project will provide significant benefits to future users of the site by removing traffic from key surface roads such as the Princes Highway and West Botany Street.

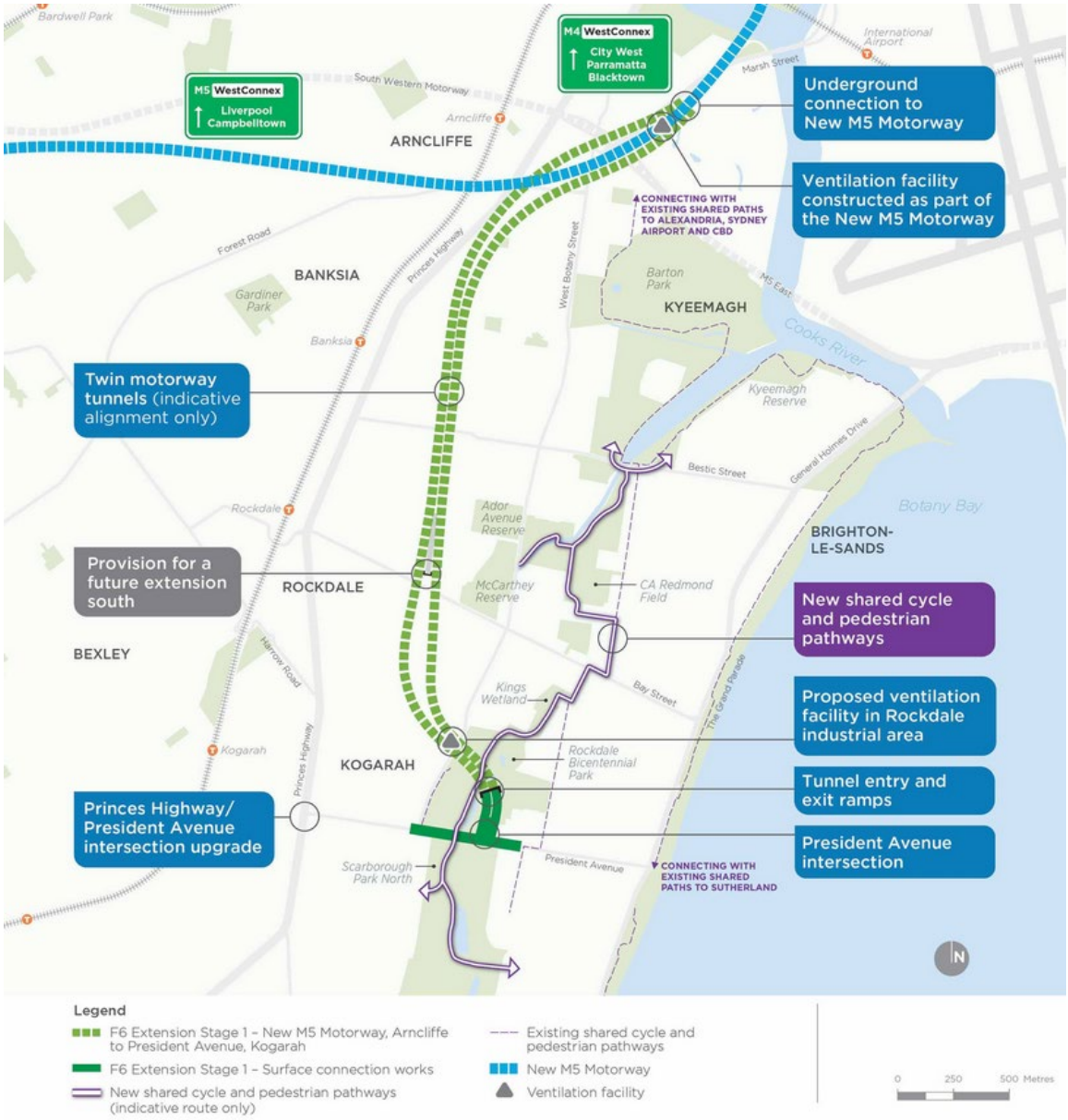


Figure 14 M6 Motorway project

Source: Transport for NSW

3.3 External roadworks Development Application

A separate Development Application has been submitted to Bayside Council for external roadworks associated with the Kogarah Golf Club Redevelopment. The external roadworks represent public benefits that are consistent with separate executed VPAs with Bayside Council and Transport for NSW that accompanied the previous Cooks Cove Planning Proposal (PP-2022-1748).

The external roadworks will deliver improved public infrastructure and connectivity, enabling suitable access to the Kogarah Golf Club Redevelopment and future Pemulwuy Park comprising 14 hectares of new public open space.

Specifically, the external roadworks are described as seeking consent for:

- Site preparation and establishment works;
- Construction of an extension and upgrades to Gertrude Street, including;
    - Extension of Gertrude Street between Marsh Street and Levey Street;
    - A new roundabout and kerb realignment at the intersection of Gertrude Street / Levey Street;
    - Widening of Gertrude Street between Levey Street and the Princes Highway; and
    - Ancillary works, including a footpaths and landscaping.
- Construction of a new signalised intersection at Marsh Street / Gertrude Street, including:
    - Dual right turn bays in both directions on Marsh Street;
    - A new dedicated left-turn lane into Gertrude Street east from Marsh Street;
    - New pedestrian crossings across Marsh Street and Gertrude Street;
    - Bus stops to the south of the Marsh Street / Gertrude Street intersection, including recessed bus bay and shelter (northbound) and signage only (southbound); and
    - Ancillary works, including a pedestrian refuge, traffic signals, footpaths and landscaping.
    - Removal of existing traffic signals at Marsh Street / Innesdale Road, including left-in and left-out only turning restrictions to/from Marsh Street at Innesdale Road;
- Construction of enhancements to the existing Marsh Street / Flora Street signalised intersection, including:
    - Modifications to existing concrete medians to remove the right-turn lane into the M6 construction compound, lengthening of the southbound right turn bay to the M5 Motorway, and extension of the northbound right-turn bay to Gertrude Street east;

    - Intersection line marking, traffic signal adjustments and new pedestrian crossing across Marsh Street (eastern approach);
    - A new dedicated left-turn lane to Flora Street east from Marsh Street;
    - Four (4) lanes connecting Flora Street east to Marsh Street; and
    - Ancillary works, including new kerb and gutter, footpaths, adjustment to Marsh Street east cycleway fencing, signage, lighting, road sheeting and landscaping.
- Construction of a new Flora Street east extension interface with the Arncliffe Motorway Operations Complex, including:
    - Works arising from any amendments to the Arncliffe MOC for the M6 Stage 1 and M8 Motorway projects;
    - Works to integrate Flora Street east and modifications to the road access arrangements arisings from M6 Stage 1 Project to the Arncliffe MOC;
    - Road connection from the Marsh Street intersection;
    - Construction of road base, drainage, subsurface utility relocation; and
    - Ancillary works, including new medians, footpaths, line marking, fencing, signage, lighting and landscaping.
    - Retention or replacement of existing trees;
    - Relocation and installation of stormwater infrastructure;
    - Relocation and augmentation of services and utilities (as required); and
    - Temporary construction compounds for the storage of construction materials and equipment.

The Applicant is seeking to deliver the external roadworks in accordance with the executed VPAs as soon as practical to enable suitable access and orderly delivery of the Kogarah Golf Club Redevelopment and future Pemulwuy Park.

It is expected that the construction of the external roadworks will be delivered in a staged manner with a total estimated duration of approximately 15 months. The final staging and duration will be confirmed once the detailed construction methodology, including Works Authorisation Deed (WAD) process with TfNSW, is completed. The Applicant will inform and engage with the community and stakeholders once these details are known.

The full extent of the external roadworks along Marsh Street and Gertrude Street is illustrated in Figure 15 and Figure 16.

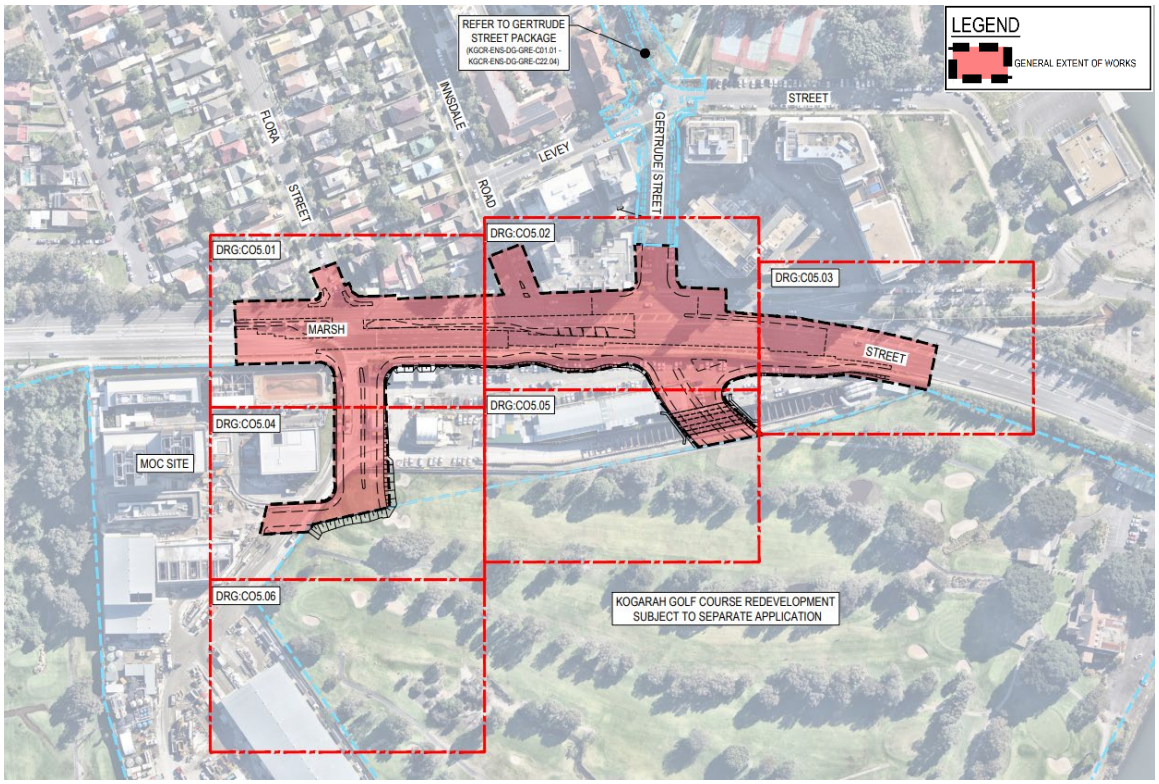


Figure 15 Roadworks Extent Plan – Marsh Street

Source: Enspire

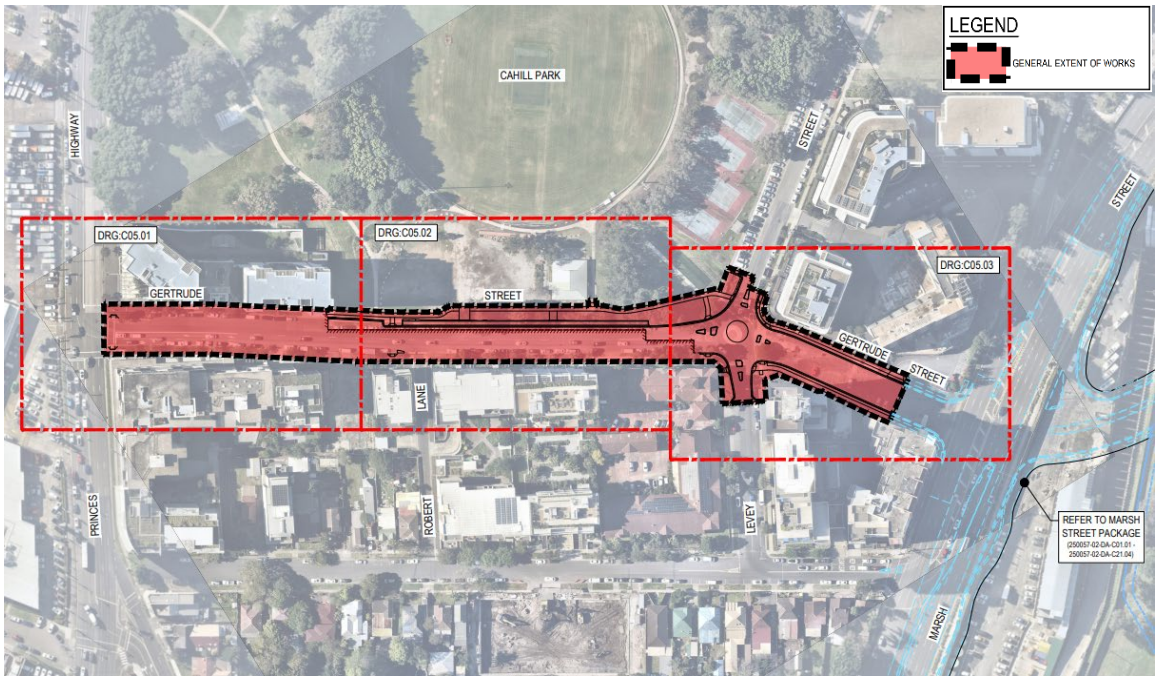


Figure 16 Road Works Extent Plan – Gertrude Street

Source: Enspire

4 Existing Transport Conditions

4.1 Road network and access

Access to and from the site is currently via one entrance found on the north-east corner of the Kogarah Golf Club known as Levey Street. The driveway passes under the Giovanni Brunetti Bridge and continues to Marsh Street. Access to the site can also be obtained via the Marsh Street / Flora Street signalised intersections which is currently used for construction vehicles associated with the M6 Stage 1 Extension as well as vehicles accessing the Arncliffe Motorway Operations Complex (AMOC).

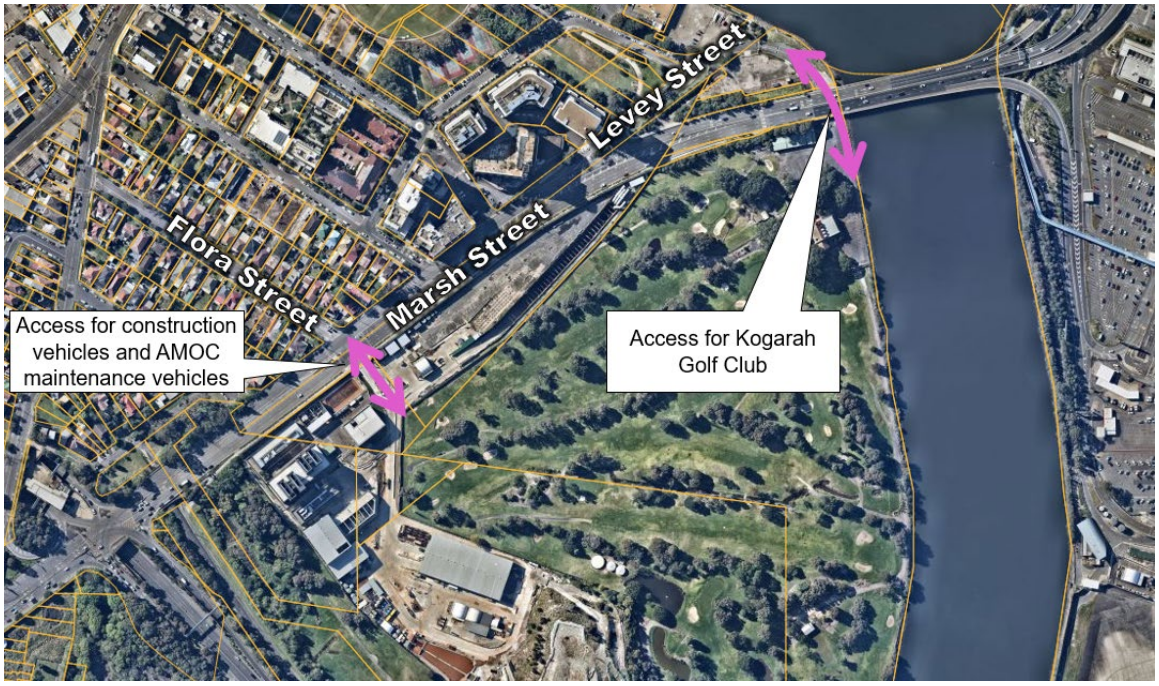


Figure 17 Existing access to and from site

Figure 18 Existing Kogarah Golf Club access

4.2 Public transport services

4.2.1 Bus

Rail in Sydney's south plays a critical role in moving people, and as such the bus network is usually designed to support access to rail, provide local access in areas not served by rail and provide cross-regional connections.

The site is located close to three bus lines; the 348, 420 and 422 route as shown in Figure 19. The site is adjacent to a key strategic bus corridor Miranda to Bondi Junction via the Airport (420 bus route) as identified in the TfNSW's 'Sydney's Bus Future's' document.

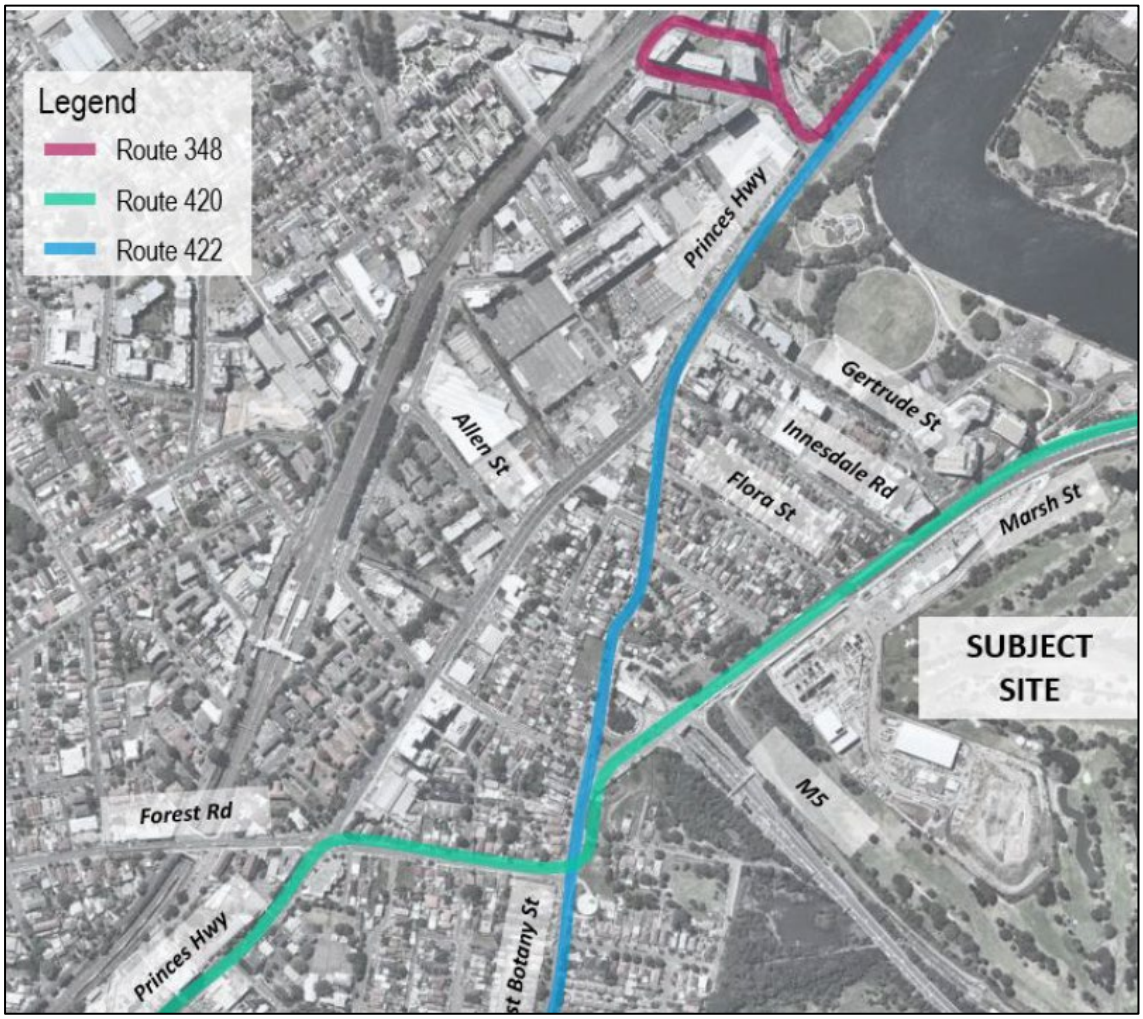


Figure 19 Existing bus routes

4.2.2 Rail

The northernmost edge of the site is approximately an 800m walk from Wolli Creek train station along the Cooks River foreshore and the westernmost edge of the site is around 1.1km walk from Arncliffe station.

Wolli Creek is serviced by the T8 South / Airport and T4 Eastern Suburbs / Illawarra lines (see Figure 20). The T8 line provides access to the Airport, Green Square, Mascot and suburbs in the southwest of Sydney. The T4 Line connects the Sydney CBD and the South Coast via key centres including Bondi Junction, Rockdale, Kogarah, Hurstville and Sutherland.

The T8 Line provides access between the South West and Sydney CBD via Airport. The nearest station to the east of the site is the International Terminal along the T8 Line, currently 1.2km walk away from the site.

Figure 20 Train lines serving Wolli Creek Station

4.3 Walking and cycling network

Existing cycling infrastructure in the area surrounding the site is shown in Figure 21 below. There are many off-road cycle paths in the area that link Botany Bay to Homebush Bay, although the routes the paths take tend to be not very direct and so are presently used more for recreational purposes than for transport. There is presently a missing link between the shared path on the northern side of the Giovanni Brunnetti Bridge and the newly constructed shared path on the southern side of Marsh Street, which connects with the path through to Barton Park.

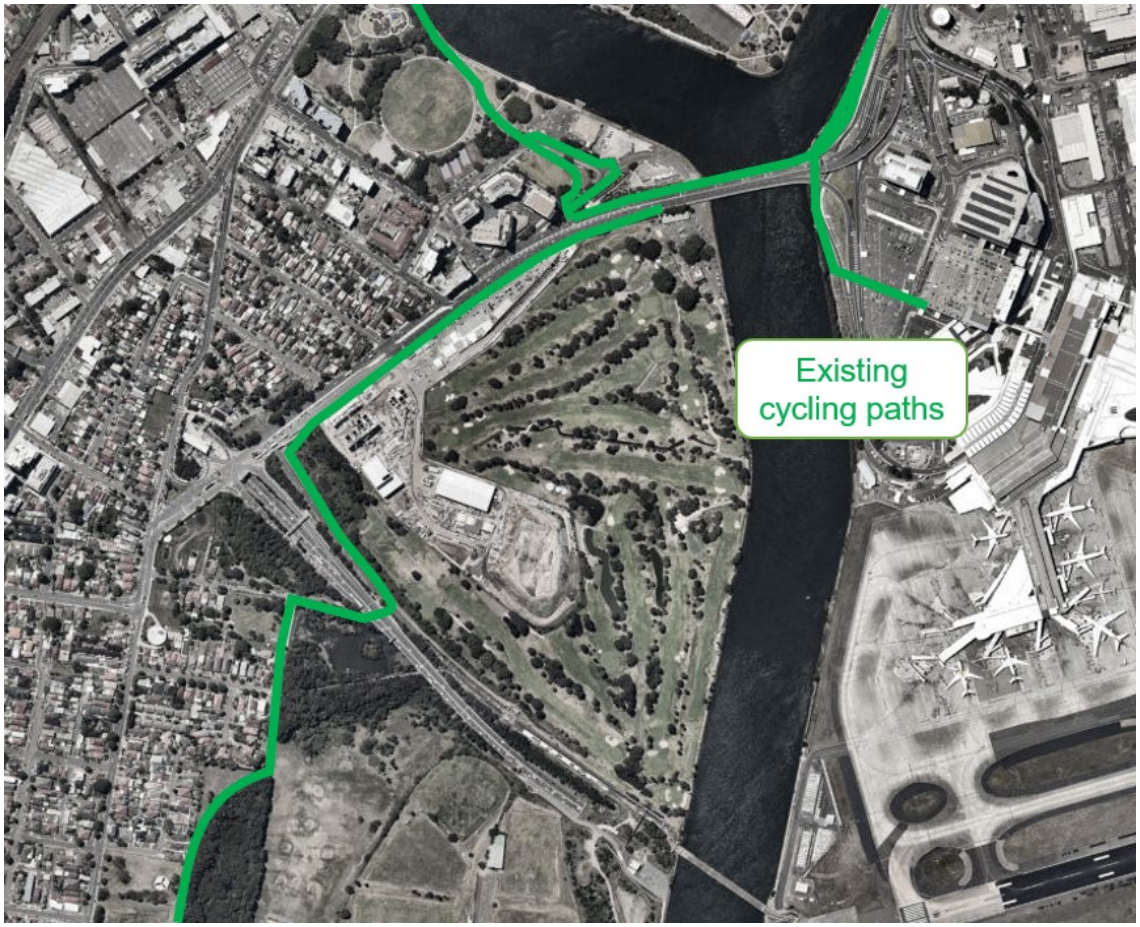


Figure 21 Existing cycling infrastructure

5 Transport Impact Assessment

5.1 Proposed vehicle site access

Under the concept proposal operational vehicular access into the site is proposed at three locations as indicated in Figure 6. This access strategy is entirely consistent with that assumed at the time of the site specific Planning Proposal (see Section 2.2) and the executed State VPA (see Section 2.3). It includes the following key features:

- **Levey Street:** The existing Levey Street under the Giovanni Brunetti Bridge will be retained for access into the precinct. Although a clearance height limit of 3.1m currently exists under the Giovanni Brunetti Bridge, Levey Street can still accommodate passenger vehicles and small to medium size service vehicles.
- **Gertrude Street**: A new signalised (four way) intersection is proposed at Marsh Street / Gertrude Street which will form the primary access point into the site. With the signalisation of the Gertrude Street intersection, the Marsh Street / Innesdale Road intersection will revert to a left in – left out arrangement – consistent with previous discussions with TfNSW.
- **Flora Street:** The existing signalised intersection at Marsh Street / Flora Street will be utilised to provide access into the site as well as the Arncliffe MOC. The intersection layout does not provide for right turns from Marsh Street into the site – consistent with previous advice provided by TfNSW.

The majority of heavy vehicles generated by the site were assumed to primarily use Marsh Street given this provides access to the broader arterial road network.

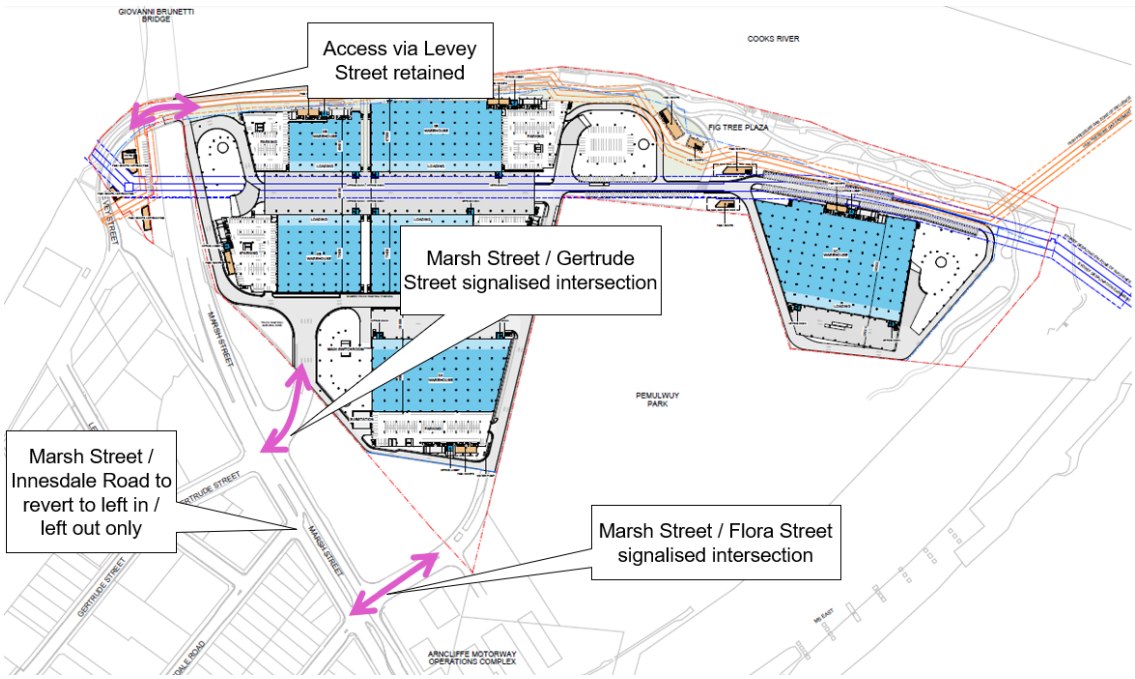


Figure 22 Proposed operational vehicle site access arrangements

5.2 Internal road network and vehicle circulation

The indicative internal street network prepared for the concept proposal provides sufficient flexibility and capacity to accommodate the traffic generated by the future development as envisaged under this concept proposal, including all vehicle movements including service/loading vehicles. Sufficient width is provided at intersections for vehicle manoeuvring including space for up to 19m long articulated vehicles. Appropriate travel lane widths are provided within the site to accommodate the movement of light and heavy vehicles to accommodate a safe, efficient and legible road network. Vehicle swept paths prepared by Costin Roe for the internal street network are provided as Appendix A of this document.

The southernmost street 'Flora Street East' provides access to the Arncliffe Motorway Operations Complex (MOC). A turning bay is provided mid-way along Flora Street to enabling turning into the MOC facility and prevent queuing back onto Marsh Street. This is consistent with the approach to road design adopted as part of the site specific Planning Proposal.

The extension of Gertrude Street into the site and connection with Levey Street would be a publicly accessible street with 24hrs access and is designed to the relevant road design standards. Similarly a publicly accessible road connection is available through the site to allow vehicles to access the MOC facility from any of the site access points.

All internal roads are intended to remain under private ownership (not dedicated to Council). Internal vehicle circulation for the reference schemes contemplated under this concept proposal are presented in the following figures.

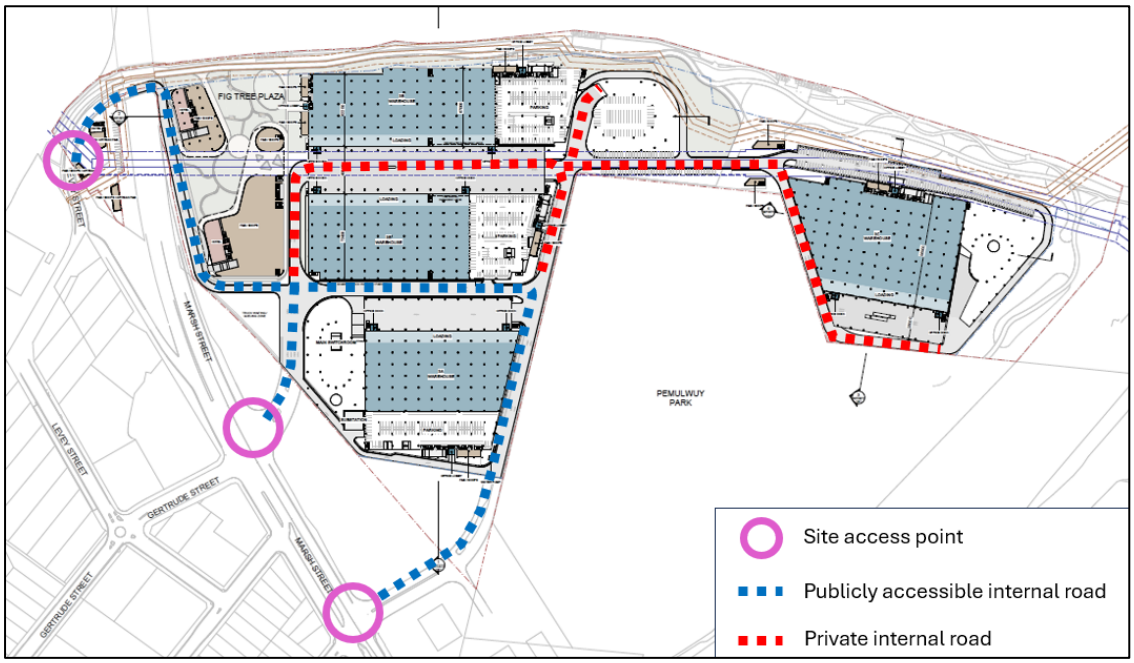


Figure 23 Internal vehicle circulation – logistics / mixed use scheme

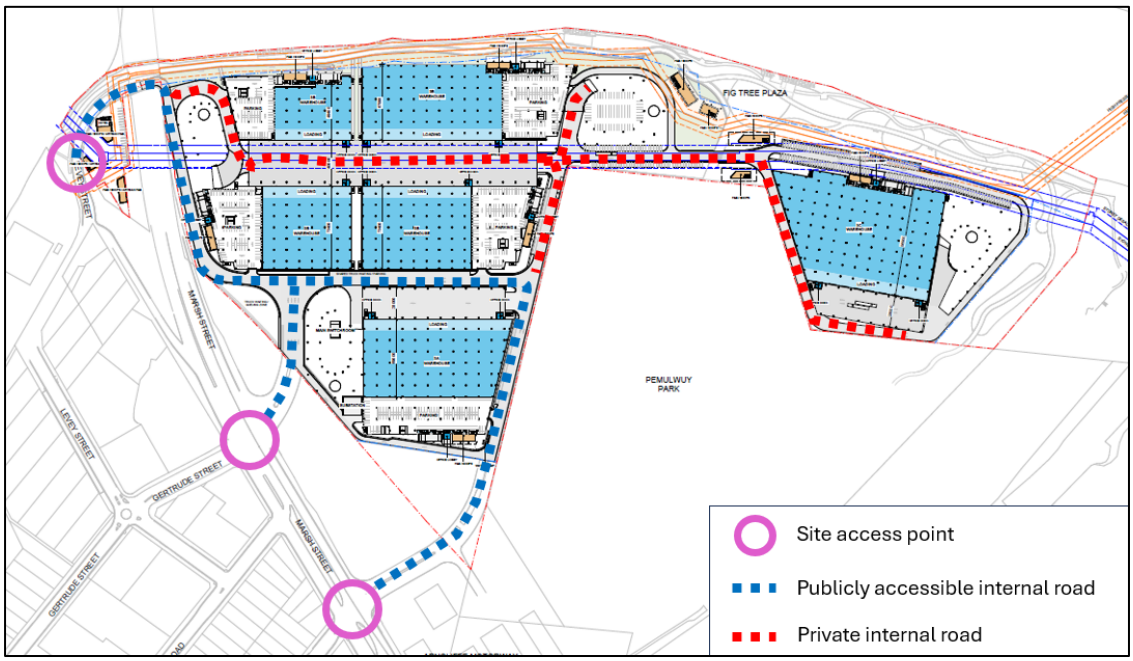


Figure 24 Internal vehicle circulation – logistics / data centre scheme

5.3 Pedestrian and cycling infrastructure

The following pedestrian and cycling initiatives will be provided as part of the future site development – consistent with those envisaged at the time of the Planning Proposal. This infrastructure will significantly improve connections from the site to surrounding train stations, public transport and services - reducing travel times, improving safety and providing more direct paths of travel.

- A regional separated pedestrian and cycle path, located parallel to the Cooks River. The proposal will deliver a missing 900m long x 20 m wide landscaped waterfront contribution to the 'bay to bay' regional active transport link along the western bank of the Cooks River, incorporating pedestrian, cycling and passive recreation infrastructure. This improvement for pedestrians and cyclists is identified as a desired regional infrastructure upgrade by the Bayside West Precinct 2036 Plan. This foreshore path will provide connectivity to the broader active transport network as illustrated in Figure 25.

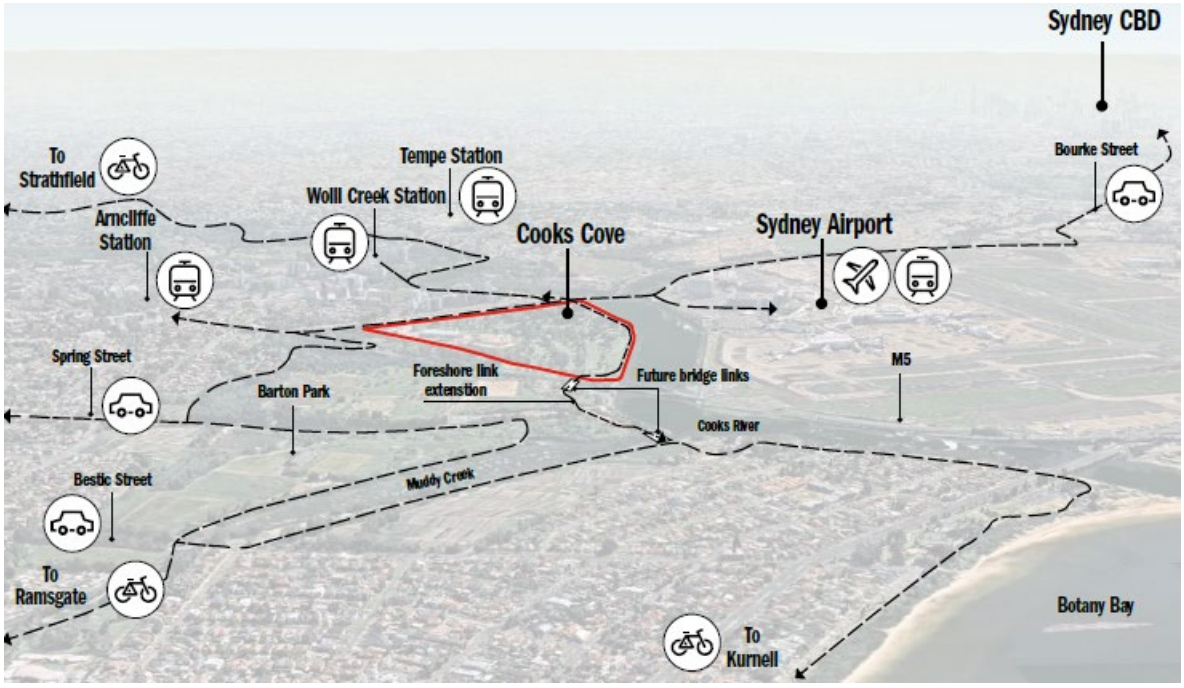


Figure 25 Regional cycling connections

- Connection to and embellishment of the new shared path along the length of Marsh Street, constructed as part of recent road widening upgrades;
- New pedestrian footpaths on Gertrude Street (between Marsh Street and Levey Street) as part of the Gertrude Street extension project;
- Bicycle parking and end of trip facilities within future buildings, as well as bicycle infrastructure within the public domain, provided in accordance with relevant Bayside Council controls. Bicycle parking facilities are to be distributed throughout the site to ensure it is convenient to use regardless of the ultimate destination within the site; and
- New pedestrian crossing opportunities across Marsh Street and Levey Street associated with the proposed new and upgraded signalised intersections, including:
  - New pedestrian crossing on the eastern side of the existing Marsh Street / Flora Street intersection
  - New pedestrian crossing on the western side of the future Marsh Street / Gertrude Street intersection

These improved pedestrian connections will be supplemented by the new Gertrude Street East extension providing new connectivity between Levey Street to a foreshore recreation precinct, to the Marsh Street (east) existing cycleway, and a new pedestrian and cycleway network within Pemulwuy Park (Marsh Street Parklands).

This new pedestrian and cycling network will be in part facilitated by freehold land dedications for public recreation, that will substantially improve east-west connectivity, and create the opportunity for further walking and cycling connections to Kyeemagh and beyond (subject to the assistance and co-operation of adjoining landowners and stakeholders Sydney Water, Bayside Council and the Commonwealth).

5.4 Off-street car parking

The subject proposal is a concept and early works SSDA with no built form and therefore no physical parking spaces will be provided. Car parking for future detailed Development Applications for the site will be provided within the development zone in accordance with the requirements of Section 3.5.3 of the Bayside DCP and the Urban Design Guidelines prepared by Colliers Urban Planning. These parking rates are consistent with those assumed at the time of the Planning Proposal for the site and are summarised in Table 6.

Table 6 Car parking rates

Use	Car parking rate
Warehouse / Logistics	1 space per 300m^2 GFA plus 1 space per 80m^2 ancillary office
Hotel	1 space per 4 rooms 2 * 12.5m long coach pick-up and set-down spaces
Commercial	1 space per 80m^2 GFA (maximum rate)
Retail	1 space per 40m^2 GFA
Supermarket	1 space per 25m^2 GFA (maximum rate)

A summary of the potential car parking numbers achievable under the various reference schemes developed for the concept proposal and early works SSDA is presented in Table 7. This number of parking spaces will be confirmed at the time of subsequent detailed applications to be lodged for the site.

Table 7 Potential car parking numbers

Reference Scheme	Number of Parking Spaces per Use						
	Warehouse	Ancillary Office	Office	Retail	Hotel	Data Centre	Total
Reference Scheme 1 (Logistics)	1032	333	39	57	16	0	**1477**
Reference Scheme 2 (Logistics + Mixed Use)	903	276	228	258	91	0	**1756**
Reference Scheme 3 (Logistics + Data Centre)	842	294	39	54	16	20	**1265**
Reference Scheme 4 (Logistics + Data Centre + Mixed Use)	709	238	266	258	91	20	**1582**

Numerous off-street parking areas have been identified in the reference schemes prepared for the concept proposal as indicated in Figure 26 and Figure 28. The extent of these car parking facilities, along with their design, will be confirmed at the time of subsequent detailed development applications for the site.

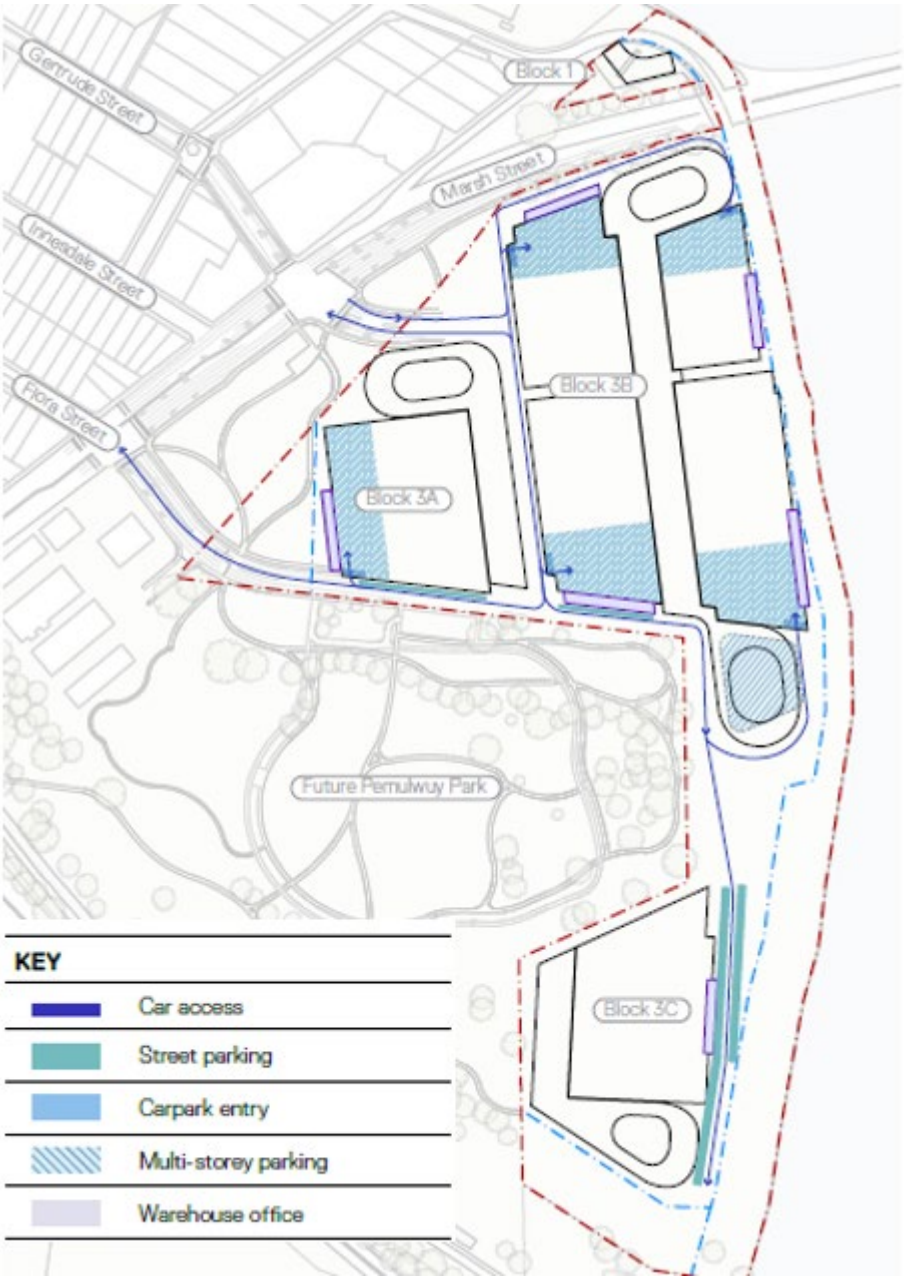


Figure 26 Indicative car parking locations (logistics schemes)

Source: Grimshaw

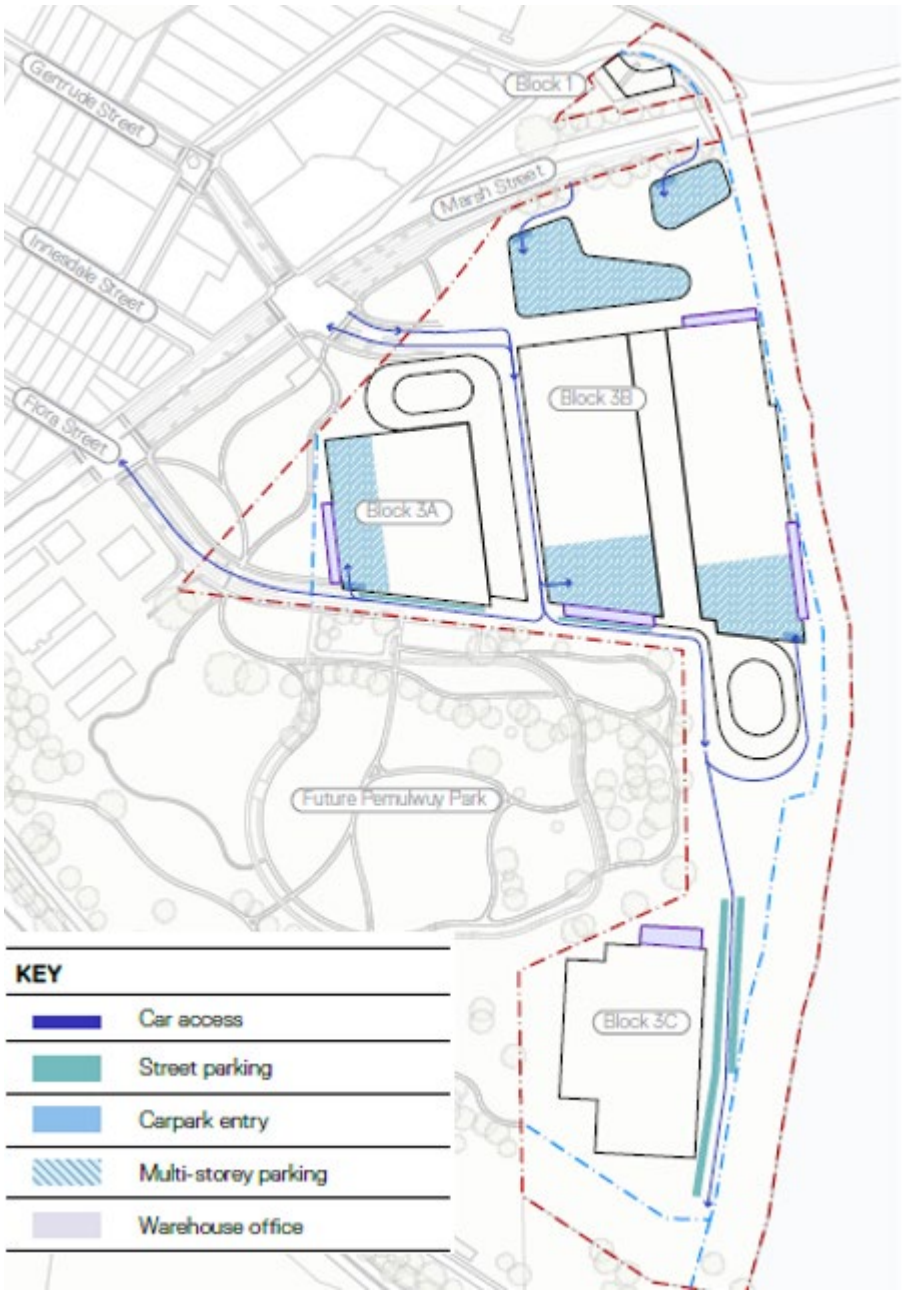


Figure 27 Indicative car parking locations (mixed use schemes)

Source: Grimshaw

5.5 Service vehicles and emergency vehicles

The indicative road layouts for the concept and Stage 1 development facilitate the internal movement of service and emergency vehicles which can access the site via either of the two signalised intersections on Marsh Street. The internal roads can accommodate service vehicles including 19m semi-trailers and 26m B-Double vehicles accessing the potential future warehouses. The road widths provided make suitable allowance for emergency vehicles including ambulances and specialist fire appliance vehicles as per the requirements of the NSW Fire Safety Guidelines.

5.6 Public transport assessment

The subject site is located within approximately 700m to 1.1km of three railway stations, being Arncliffe, Wolli Creek and Sydney International Airport. These train stations are serviced by the T8 Airport and South Line and the T4 Eastern Suburbs and Illawarra Line. Both lines operate for 20 hours per day and both have operational capacity for 18 trains per hour in each direction. The rail network provides access between Sydney CBD, southwest Sydney, the south coast and key centres including Bondi Junction, Kogarah and Rockdale.

The site is located in proximity to three existing bus routes: the 420 422, and 348. The 420 services part of the strategic bus corridor from Bondi Junction to Rockdale via the Airport and then on to Burwood. The 422 currently runs down the Princes Highway and West Botany Street connecting with Kogarah, Newtown and the Sydney CBD, while the 348 originates adjacent to Wolli Creek Rail Station, providing services to the growing Green Square area.

Consistent with the agreed works executed under SVPA2024-25 the project will facilitate improvements to existing bus services on Marsh Street through the provision of northbound and southbound bus stops and shelters on Marsh Street to the south of Marsh Street/Gertrude Street intersection, including recessed bus bay at the southbound bus stop. These measures align the recommendations of the Bayside West Precinct 2036 Plan and will support improved public transport access to the subject site.

As shown in Figure 28 the design for the external roadworks makes provision for the southbound recessed bus bay along Marsh Street.

Figure 28 Southbound recessed bus bay

Source: Enspire

5.7 Forecast traffic generation

The traffic generation rates adopted for this assessment are consistent with those utilised in the transport impact assessment supporting the site specific Planning Proposal. This ensures that a direct like for like comparison can be undertaken to confirm that the scale of uses considered under the concept proposal do not generate traffic at greater levels in comparison to that considered at the time of the detailed traffic modelling supporting the Planning Proposal.

A summary of the peak hour traffic generation forecasts for the various development schemes potentially arising from the concept proposal are indicated in Figure 29 and compared against those forecast for the reference scheme supporting the Planning Proposal. The analysis confirms that **the development schemes contemplated under the concept proposal would generate fewer traffic movements during peak hours when compared to the development scheme considered for the Planning Proposal**. Therefore the outcomes of the detailed traffic modelling prepared for the Planning Proposal (refer to Section 2.2) remain valid, with no additional impacts arising from the concept proposal subject to this application.

Detailed traffic generation forecasts are provided on the following pages of this document.

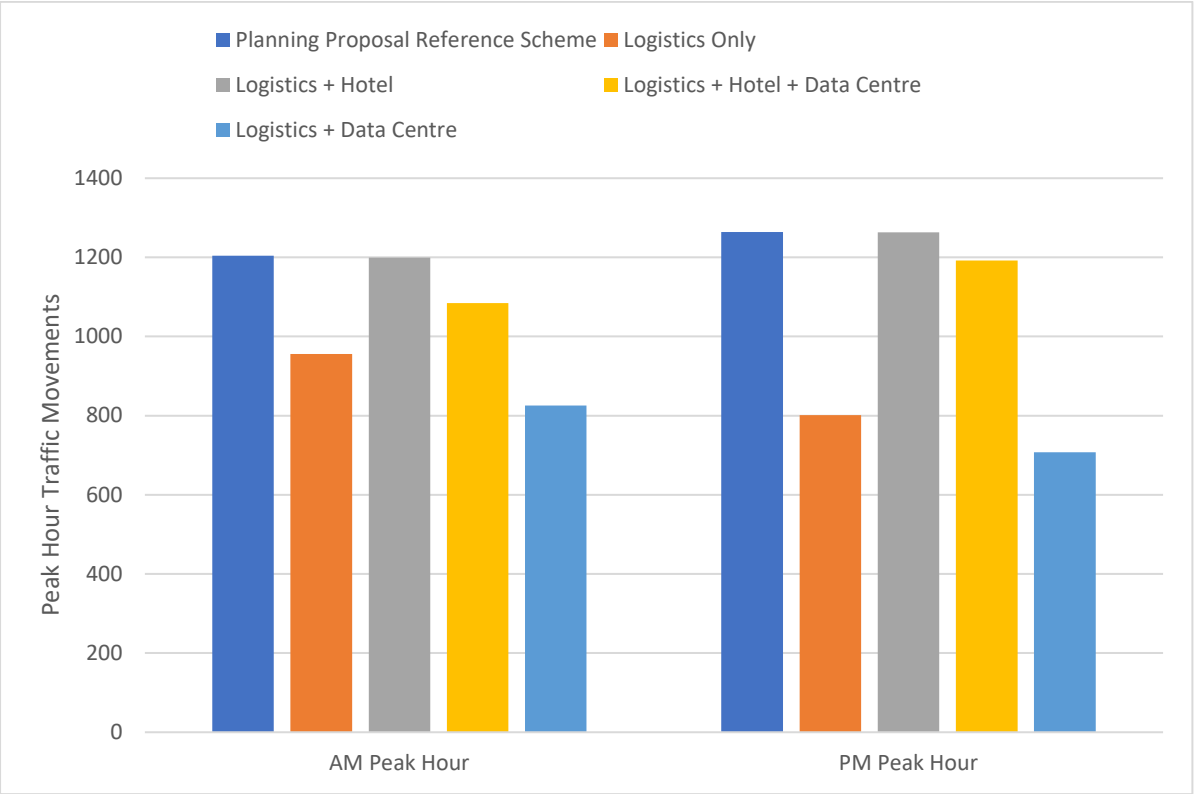


Figure 29 Traffic generation comparison

The assessed road network periods (i.e. AM and PM peak hours) are consistent with those agreed with TfNSW at the time of the site specific Planning Proposal. Further these road network periods coincide with the busiest periods on the external road network, as detailed in Section 5.8.1 of this document. Therefore the analysis undertaken represents a worst case scenario. This approach for assessing the network peak hour is consistent with the guidelines provided in the GTIA. Further other potential uses such as commercial, retail etc all generate the greatest levels of traffic during the road network peak hours. Any traffic generated outside of the road network peaks (e.g. early morning freight periods) would have reduced impacts given the lower traffic flows on the adjacent road network.

Table 8 Forecast traffic generation (Planning Proposal reference scheme)

Land Use	Quantum	Units	Generation Rate		Containment / Passing Trade		Directionality				Forecast Peak Hour Traffic Generation					
							AM		PM		AM			PM		
			AM	PM	AM	PM	*IN*	*OUT*	*IN*	*OUT*	*IN*	*OUT*	*TOTAL*	*IN*	*OUT*	*TOTAL*
Commercial	21,610	m²GFA	0.80	0.80	0.00	0.00	0.95	0.05	0.05	0.95	162	9	170	9	162	170
Retail	7,500	m² GLFA*	4.68	9.35	0.25	0.25	0.60	0.40	0.5	0.5	158	105	263	263	263	526
Hotel	300	rooms	0.14	0.14	0	0	0.3	0.7	0.7	0.3	13	29	42	29	13	42
Data Centre	0	m²GFA	0.09	0.08	0	0	0.30	0.70	0.7	0.3	0	0	0	0	0	0
Logistics / warehouse	290,400	m²GFA	0.25	0.18	0	0	0.6	0.4	0.4	0.6	435	290	725	209	313	522
Total											**803**	**397**	**1200**	**484**	**776**	**1260**

* Consistent with Section 5.7 of the RMS Guide, GLFA: GFA=0.75:1

Table 9 Forecast traffic generation - Reference Scheme 1 (Logistics)

Land Use	Quantum	Units	Generation Rate		Containment / Passing Trade		Directionality				Forecast Peak Hour Traffic Generation					
							AM		PM		AM			PM		
			AM	PM	AM	PM	*IN*	*OUT*	*IN*	*OUT*	*IN*	*OUT*	*TOTAL*	*IN*	*OUT*	*TOTAL*
Office	3,110	m²GFA	0.80	0.80	0.00	0.00	0.95	0.05	0.05	0.95	24	1	25	1	24	25
Retail	1,703	m²GLA	6.36	12.71	0.25	0.25	0.60	0.40	0.5	0.5	49	32	81	81	81	162
Hotel	64	rooms	0.14	0.14	0	0	0.30	0.70	0.7	0.3	3	6	9	6	3	9
Data Centre	0	m²GFA	0.09	0.08	0	0	0.30	0.70	0.7	0.3	0	0	0	0	0	0
Logistics	336,200	m²GFA	0.25	0.18	0	0	0.65	0.35	0.35	0.65	546	294	841	212	393	605
Total											**621**	**334**	**956**	**300**	**501**	**801**

* Consistent with Section 5.7 of the RMS Guide, GLFA: GFA=0.75:1

Table 10 Forecast traffic generation - Reference Scheme 2 (Logistics + Mixed Use)

Land Use	Quantum	Units	Generation Rate		Containment / Passing Trade		Directionality				Forecast Peak Hour Traffic Generation					
							AM		PM		AM			PM		
			AM	PM	AM	PM	*IN*	*OUT*	*IN*	*OUT*	*IN*	*OUT*	*TOTAL*	*IN*	*OUT*	*TOTAL*
Office	18,260	m²GFA	0.80	0.80	0.00	0.00	0.95	0.05	0.05	0.95	139	7	146	7	139	146
Retail (local)	7,740	m²GLA	4.64	9.28	0.25	0.25	0.60	0.40	0.5	0.5	162	108	269	269	269	539
Hotel	364	rooms	0.14	0.14	0	0	0.30	0.70	0.7	0.3	15	36	51	36	15	51
Data Centre	0	m²GFA	0.09	0.08	0	0	0.30	0.70	0.7	0.3	0	0	0	0	0	0
Logistics	293,000	m²GFA	0.25	0.18	0	0	0.65	0.35	0.35	0.65	476	256	733	185	343	527
Total											**792**	**407**	**1199**	**497**	**766**	**1263**

* Consistent with Section 5.7 of the RMS Guide, GLFA: GFA=0.75:1

Table 11 Forecast traffic generation - Reference Scheme 3 (Logistics + Data Centre)

Land Use	Quantum	Units	Generation Rate		Containment / Passing Trade		Directionality				Forecast Peak Hour Traffic Generation					
							AM		PM		AM			PM		
			AM	PM	AM	PM	*IN*	*OUT*	*IN*	*OUT*	*IN*	*OUT*	*TOTAL*	*IN*	*OUT*	*TOTAL*
Office	3,110	m²GFA	0.80	0.80	0.00	0.00	0.95	0.05	0.05	0.95	24	1	25	1	24	25
Retail (local)	1,628	m²GLA	6.41	12.81	0.25	0.25	0.60	0.40	0.5	0.5	47	31	78	78	78	156
Hotel	64	rooms	0.14	0.14	0	0	0.30	0.70	0.7	0.3	3	6	9	6	3	9
Data Centre	25,400	m²GFA	0.09	0.08	0	0	0.30	0.70	0.7	0.3	7	16	23	14	6	20
Logistics	276,200	m²GFA	0.25	0.18	0	0	0.65	0.35	0.35	0.65	449	242	691	174	323	497
Total											**529**	**296**	**825**	**274**	**434**	**708**

* Consistent with Section 5.7 of the RMS Guide, GLFA: GFA=0.75:1

Table 12 Forecast traffic generation - Reference Scheme 4 (Logistics + Data Centre + Mixed Use)

Land Use	Quantum	Units	Generation Rate		Containment / Passing Trade		Directionality				Forecast Peak Hour Traffic Generation					
							AM		PM		AM			PM		
			AM	PM	AM	PM	*IN*	*OUT*	*IN*	*OUT*	*IN*	*OUT*	*TOTAL*	*IN*	*OUT*	*TOTAL*
Office	21,260	m²GFA	0.80	0.80	0.00	0.00	0.95	0.05	0.05	0.95	162	9	170	9	162	170
Retail (local)	7,740	m²GLA	4.64	9.28	0.25	0.25	0.60	0.40	0.5	0.5	162	108	269	269	269	539
Hotel	364	rooms	0.14	0.14	0	0	0.30	0.70	0.7	0.3	15	36	51	36	15	51
Data Centre	25,400	m²GFA	0.09	0.08	0	0	0.30	0.70	0.7	0.3	7	16	23	14	6	20
Logistics	228,600	m²GFA	0.25	0.18	0	0	0.65	0.35	0.35	0.65	371	200	572	144	267	411
Total											**717**	**368**	**1085**	**472**	**720**	**1192**

* Consistent with Section 5.7 of the RMS Guide, GLFA: GFA=0.75:1

5.8 Road network impacts

As discussed in Section 2.2 of this document extensive traffic analysis, supported by detailed micro-simulation traffic modelling, was undertaken in support of the site specific Planning Proposal. The traffic modelling indicated that the proposed signalised intersections on Marsh Street at Flora Street and Gertrude Street could operate acceptably in peak hours with consideration of future traffic growth in the area alongside the uses proposed for the site. The modelling also considered the impacts on the surrounding state and local road network, with the impacts of the proposal deemed to be acceptable by TfNSW, Council and the Sydney Eastern City Planning Panel.

During discussions with TfNSW staff it was advised that, should this previous traffic modelling be relied upon for the subject Concept and Early Works SSDA, all of the following items would need to be demonstrated to TfNSW's satisfaction:

1. Traffic flows had not significantly changed on Marsh Street between 2019 (time of original traffic modelling) and current day conditions;
2. The designs for the Marsh Street signalised intersections were consistent with that contemplated in the traffic modelling for the Planning Proposal;
3. The vehicle access strategy for the subject site is consistent with that endorsed for the Planning Proposal;
4. The proposed car parking rates for future land uses are consistent with that endorsed for the Planning Proposal; and
5. Expected traffic movements / traffic generation arising from potential future built form are no greater than that envisaged in the reference scheme accompanying the Planning Proposal

These items are discussed in the following sections and confirm that the previous traffic modelling undertaken for the Planning Proposal remains suitable for use as part of ongoing planning for the subject site.

5.8.1 Marsh Street traffic flows

Analysis of traffic flows along Marsh Street have been undertaken based on data available on the TfNSW Traffic Volume Viewer website. Data from the permanent count station 23067 has been reviewed and a comparison undertaken between weekdays in May 2019[1] and September 2025. The data analysis excluded weekends, school and public holiday period to best reflect typical traffic conditions on Marsh Street.

[1] Corresponds to date of initial traffic modelling for the Cooks Cove Planning Proposal

The outcomes of the comparative analysis are presented in Table 13 and demonstrate there has been a significant reduction in traffic flows along Marsh Street in both the eastbound and westbound directions during the commuter peak hours.

Table 13 Marsh Street traffic volume comparison – 2019 vs 2025

Direction	AM Peak Hour (8am-9am)			PM Peak Hour (5pm - 6pm)		
	2019	2025	Change	2019	2025	Change
Eastbound	2,748	2,077	-24%	1,510	1,296	-14%
Westbound	1,857	1,480	-20%	2,540	2,170	-15%

A separate analysis was conducted which considered traffic volumes in 2022 compared against those recorded in late 2025 – noting the Cooks Cove traffic modelling was updated in 2022 to reflect a revised reference scheme for the Planning Proposal. This analysis is presented in Table 14 and indicates traffic flows have remained relatively stable during the commuter peak hours in the last three years, with a variance of between -4% and +5% recorded.

Table 14 Marsh Street traffic volume comparison – 2022 vs 2025

Direction	AM Peak Hour (8am-9am)			PM Peak Hour (5pm - 6pm)		
	2022	2025	Change	2022	2025	Change
Eastbound	2,162	2,077	-4%	1,265	1,296	2%
Westbound	1,415	1,480	5%	2,070	2,170	5%

As a final check traffic volumes through nearby intersections surrounding the site were compared via the use of SCATS detector data as provided by TfNSW. The intersections reviewed were as follows:

- Marsh Street / Flora Street signalised intersection (TCS 1039)
- Princes Highway / Gertrude Street signalised intersection (TCS 3017)

The outcomes of this comparison are presented in Figure 30 and Figure 31 and reconfirm that traffic flows have reduced along Marsh Street between 2019 and

2025. Traffic movements were found to be relatively consistent when comparing 2022 and 2025 data.

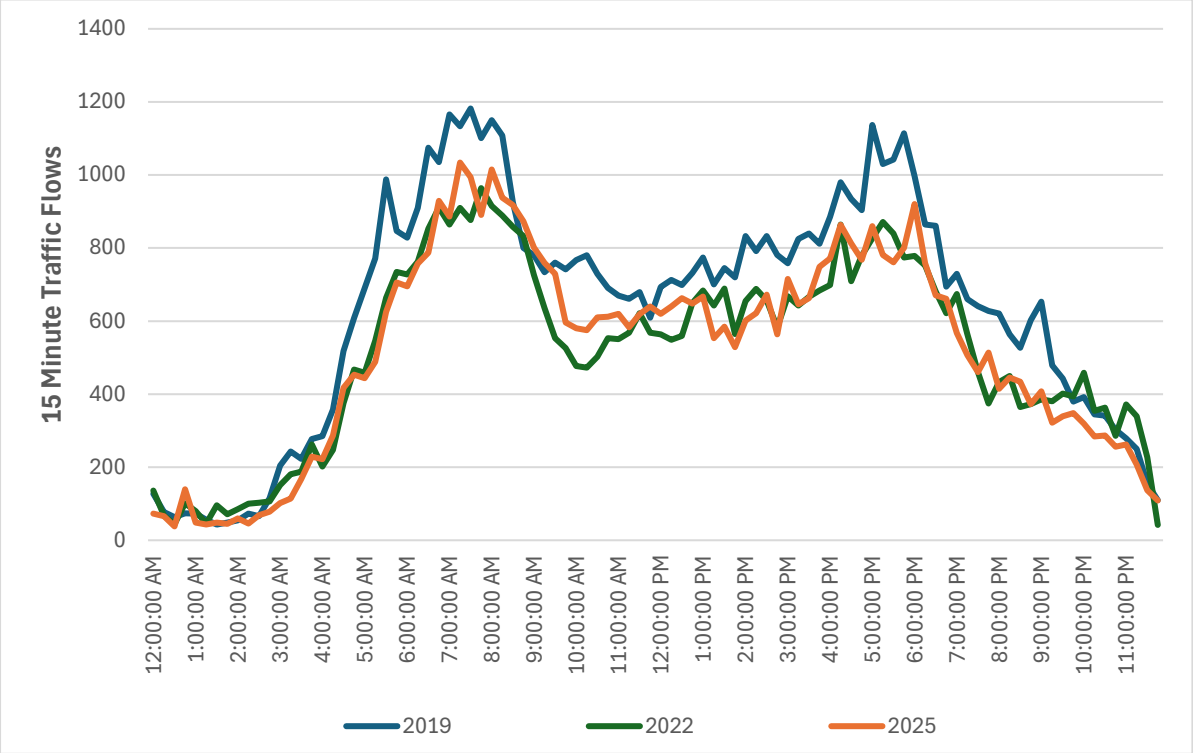


Figure 30 Traffic volume comparison - Marsh Street / Flora Street intersection

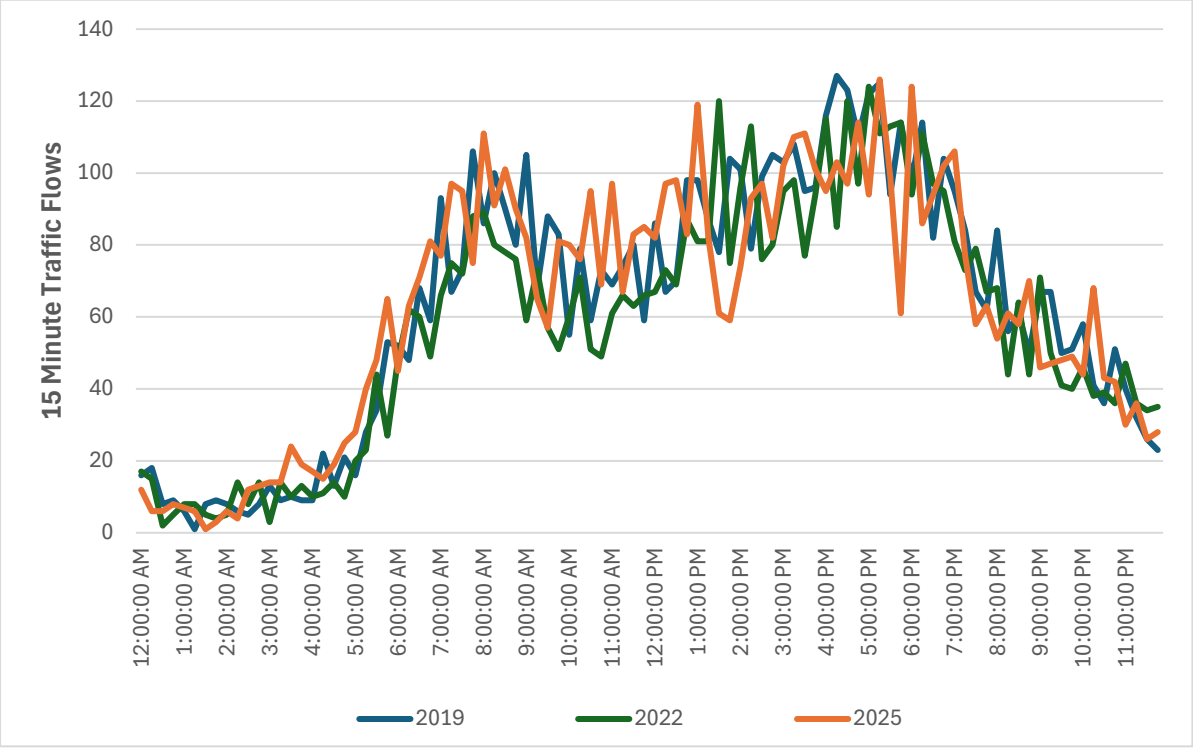


Figure 31 Traffic volume comparison - Marsh Street / Flora Street intersection

In this context it can be confirmed that traffic volumes on Marsh Street have not increased since the time of the original detailed traffic modelling for the Cooks Cove Planning Proposal in 2019, with flows relatively similar between 2022 (time of traffic model revision) and 2025. Therefore the base year traffic flows adopted in the detailed modelling supporting the Planning Proposal remain suitable for ongoing use.

5.8.2 Marsh Street intersection designs

The design of the signalised intersections on Marsh Street are consistent with those identified in SVPA2024-25 considered at the time of the Planning Proposal. This includes all relevant items such as:

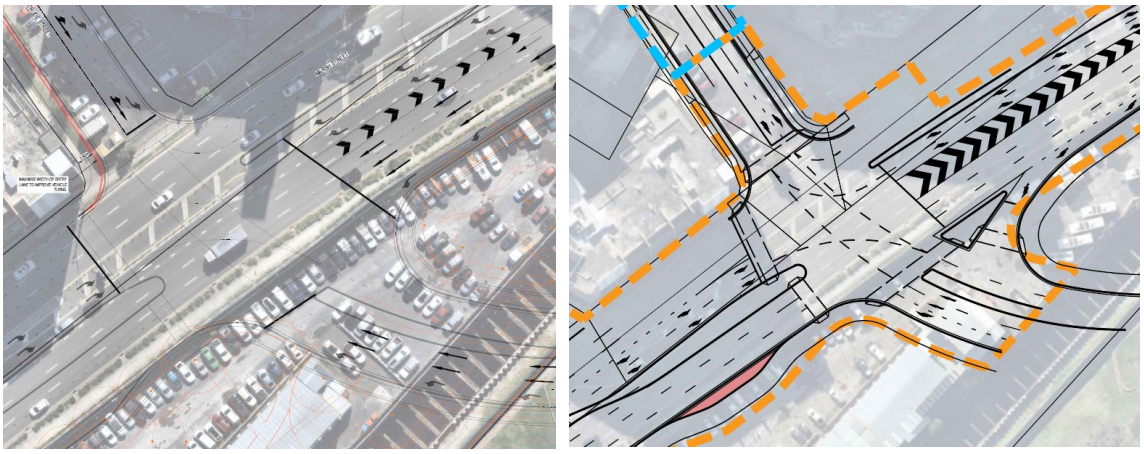
- Number of approach and departure lanes
- Turning restrictions (e.g. no right turn from Gertrude Street south into Marsh Street and no right turn from Marsh Street west into Flora Street)
- Lane widths
- Traffic light phasing
- Vehicle storage capacity
- Pedestrian crossing movements

The Marsh Street intersection designs are the subject of a separate external roadworks DA as detailed in Section 3.3 of this document.

The only change of significance in the intersection designs involves the left turn entry lane into the subject site at the Marsh Street / Gertrude Street intersection. The original intersection design considered a left turn bay whereas the latest design includes a left turn slip lane which is considered to provide a superior outcome given the following:

- The slip lane traffic movement can operate independently of the east-west pedestrian crossing movement on the southern approach of the intersection;
- Small extension in vehicle storage length with the slip lane option;
- The pedestrian crossing distance is shortened with the slip lane, allowing the intersection to operate more efficiently; and
- The alignment of the east-west pedestrian is significantly improved with the advent of the slip lane.

A comparison of the intersection layouts is presented in Figure 32.



Original intersection layout *Updated intersection layout*

Figure 32 Intersection layout comparison

5.8.3 Vehicle access strategy

The vehicle access strategy as previously presented in Section 5.1 of this document is entirely consistent with that considered in the traffic modelling support the Planning Proposal. This includes two primary points of vehicle access via Marsh Street and a secondary point of access for passenger vehicles underneath the Giovanni Brunnetti Bridge via Levey Street.

5.8.4 Car parking rates

The off-street car parking rates adopted for this Concept SSDA are consistent with those considered in the site specific Planning Proposal. Refer to Section 5.4 for further details.

5.8.5 Traffic generation

A detailed assessment of the potential traffic generation arising from the various development schemes potentially arising from the concept proposal has been undertaken and detailed in Section 5.7 of this document. The analysis confirms that the development schemes contemplated under the concept proposal would generate fewer traffic movements during peak hours when compared to the development scheme considered for the Planning Proposal. Therefore the outcomes of the detailed traffic modelling prepared for the Planning Proposal remain valid, with no additional impacts arising from the concept proposal subject to this application.

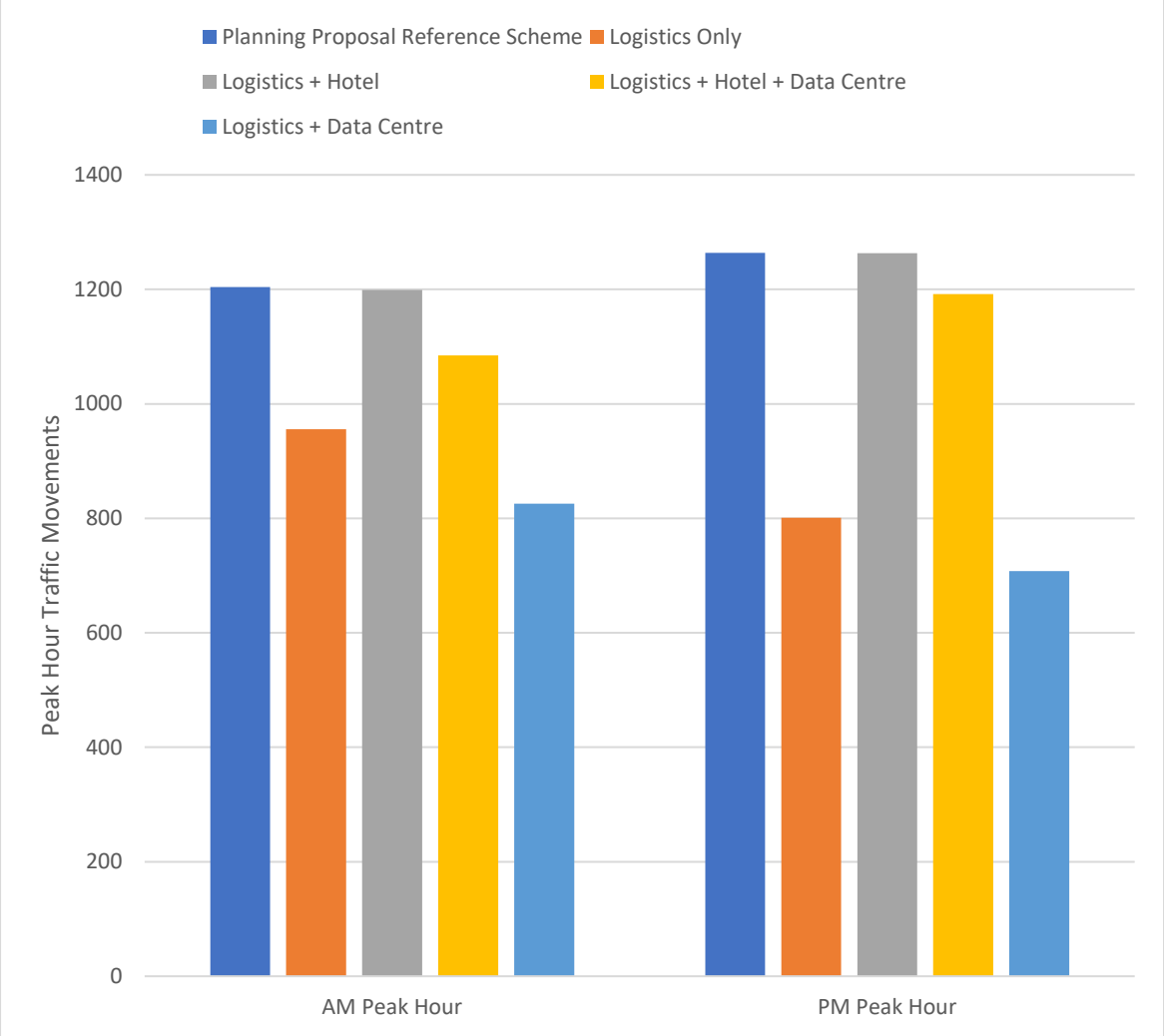


Figure 33 Traffic generation comparison

5.9 Signage safety assessment

5.9.1 Overview of proposal

The proposed Concept Masterplan includes provision for an advertising structures land use on Lot 31 DP 1231486 (19 Marsh Street, Arncliffe). It is supported by urban design guidelines that provide parameters for future advertising structures on the allotment. It is noted that the proposed Concept Masterplan does not seek approval for the construction of an advertising structure or display of an advertisement – this instead would be the subject of a future Detailed DA in accordance with Chapter 3 of the Industry Employment SEPP.

Although the design and operational details of the advertising structure and/or display content would not be available until the detailed DA stage, a preliminary safety assessment has been undertaken to confirm the appropriateness of this future facility.

5.9.2 Proposed sign location and details

The proposed Concept Masterplan seeks to support a future advertising structure on the allotment that would be visible to westbound traffic travelling across the Giovanni Brunetti Bridge, as indicated in Figure 34. It may include a freestanding pole sign (standalone in the interim or adjacent to a future building once developed), or a wall sign integrated into the façade of a future building.

The potential size and mounting details of the sign are presented in Figure 35, noting this would be confirmed as part of a future detailed DA for the signage.

Figure 34 Future advertising sign location

Source: Grimshaw

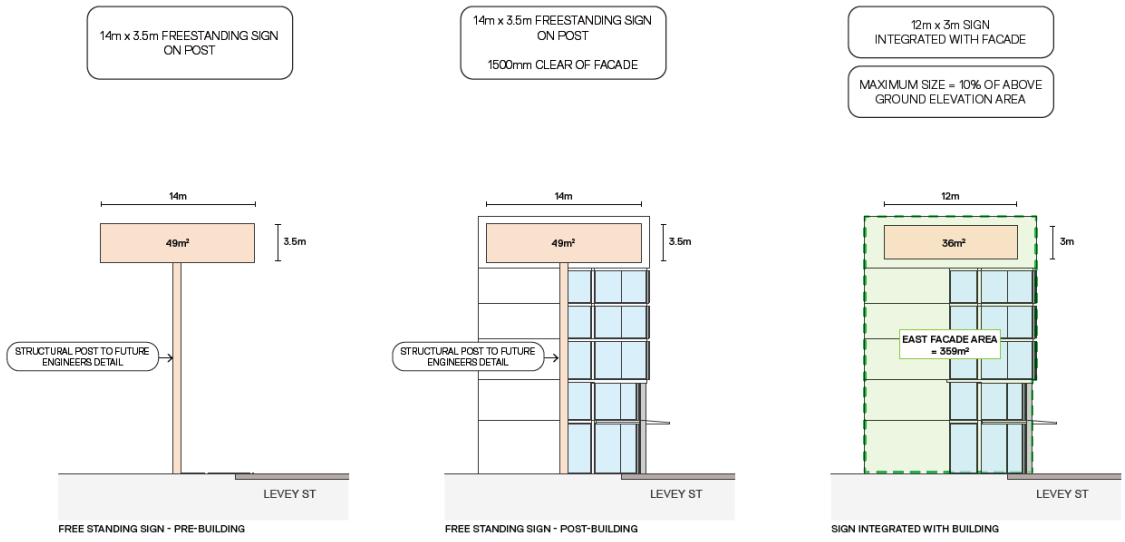


Figure 35 Potential signage details

Source: Grimshaw

5.9.3 Relevant crash history

A review of crash data along Marsh Street over the five year period 2020 to 2024 in the vicinity of the future advertising sign has been undertaken. Based on data provided by the TfNSW Centre for Road Safety there has been just two crashes in the past five years involving vehicles travelling in the westbound direction across the Giovanni Brunetti Bridge as presented in Figure 36 – indicating no significant concerns in relation to crash history.

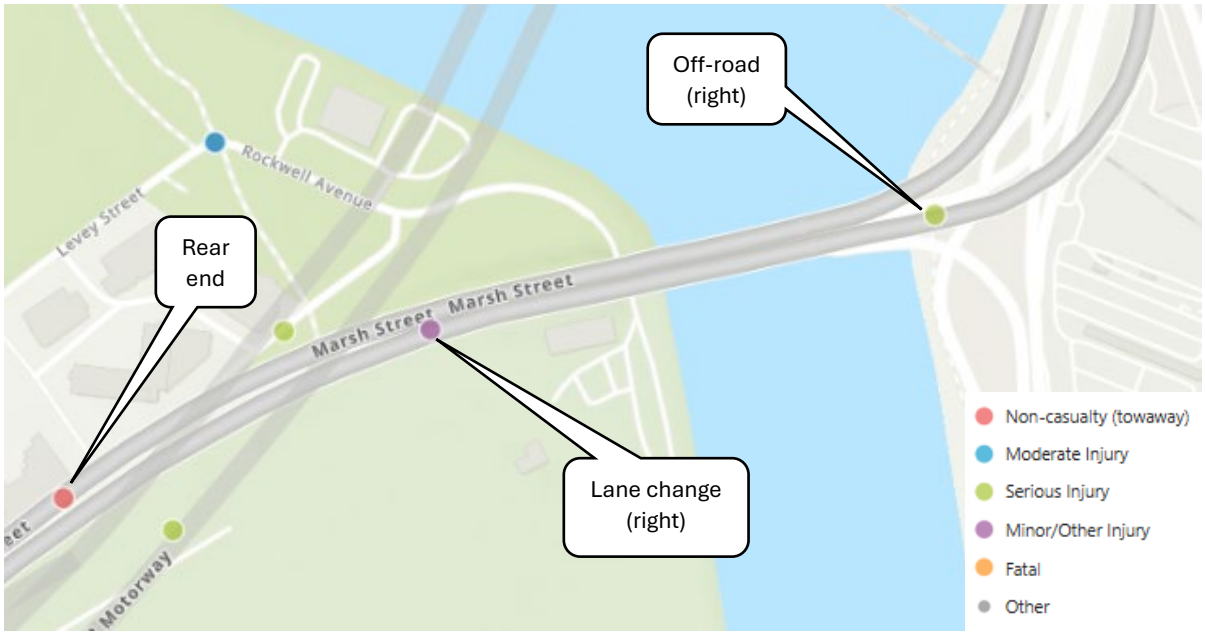


Figure 36 Crash data

Source: TfNSW Centre for Road Safety

5.9.4 Road safety assessment

A preliminary road safety assessment has been undertaken of the proposed sign against the objectives and criteria noted in Section 3 of the NSW Transport Corridor Outdoor Advertising and Signage Guidelines ('the guidelines'). This is outlined in the following sections:

Section 3.2.1 - *Road Clearance*

- The signage will not physically obstruct any vehicle, pedestrian and cyclist movements on Marsh Street as it will be placed to the side of the carriageway and not cantilever over the roadway.
- The sign would not be located within the clear zone. It would either be mounted to the building, or positioned on a structure located some 15-20m from the road carriageway.
- As part of the detailed design phase, the proposed signage will be designed in accordance with Australian Standards AS1170.2 and AS1170.2 to meet the

requirements for wind loading, whilst having consideration for height of the sign boards when under maximum vertical deflection.

Section 3.2.2 – Line of Sight

- The signage would not obstruct visibility to other vehicles at crossings in the vicinity. It would be located adjacent to the Marsh Street carriageway with no part of the signage obstructing visibility to any vehicles on the roadway.
- The signage will not obstruct pedestrian and cyclist's view when on the footpath.
- The signage would be positioned beside the roadway, not impeding motorists' visibility of the road alignment

Section 3.2.3 – Proximity to decision making points and conflict points

- The signage will only be visible to westbound traffic on Marsh Street travelling across the Giovanni Brunetti Bridge.
- As the signage will not be visible to eastbound traffic there will be no conflicts in relation to:
    - The future proposed signalised intersection of Marsh Street/Gertrude Street
    - The Marsh Street slip road to Levey Street/Rockwell Avenue
    - Airport directional signage on the approach to Giovanni Brunetti Bridge where drivers would be undertaking decisions and weaving manoeuvres
- The east facing signage would be visible from the Giovanni Brunetti Bridge for some 150m for westbound vehicles as indicated in Figure 37.

Figure 37 Driver sight distance to advertising sign

- The signage would be located some 300m prior to the future proposed traffic signals at Gertrude Street / Marsh Street, providing sufficient time for a driver to observe, read, interpret the signage and, most importantly, observe the traffic signals. This is indicated in Figure 38.

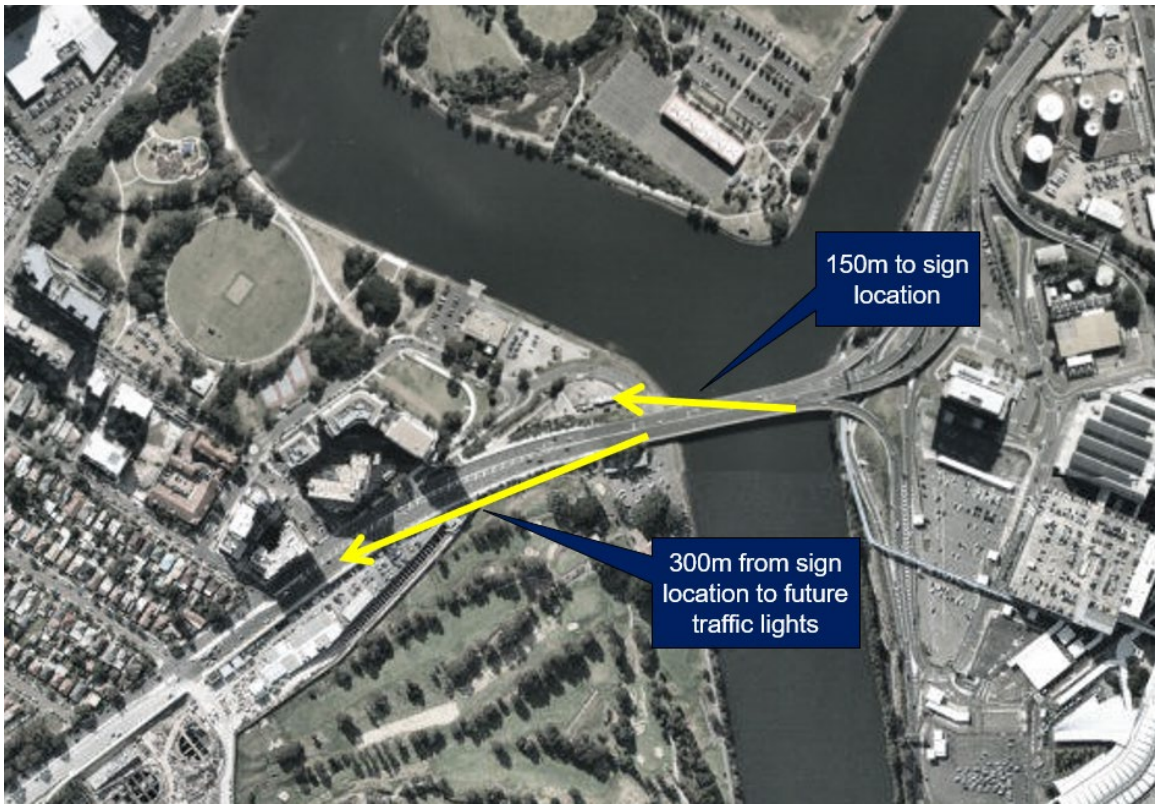


Figure 38 Proximity of sign to future traffic lights

- An assessment of safe stopping sight distance based on Austroads guidance has been undertaken. Given the posted speed limit of 60km/h on Marsh Street the assessment has considered a design speed of 70km/h. According to Austroads, the minimum safe stopping sight distance for a 70 km/h speed zone is 83m. As the sign is located some 300m from the future traffic lights on Marsh Street at Gertrude Street, the proposal comfortably meets the safe stopping sight distance requirements under Austroads.

Section 3.2.4 – Sign spacing

- There are no other digital signs or static billboards placed within 150m of the signage in either direction on Marsh Street.

Section 3.3.1 – Advertising signage and traffic control devices

- Details of the advertisement/s are not yet known since the project is at concept stage only. A further assessment against this criteria will be undertaken as part of a subsequent detailed DA once more details are known.

Section 3.3.2 – Dwell time and transition time

- The digital signage may contain text and images however this will be the subject of a subsequent detailed DA.
- Based on the NSW Guidelines, the minimum dwell time for content displayed on the digital signage would be 10 seconds.
- Further details of the dwell and transition times would be provided as part of a subsequent detailed DA.

Section 3.3.3 – Illumination and reflectance / Section 3.2.4 Interaction and sequencing

- The matters discussed in these sections of the guidelines would be addressed as part of a subsequent detailed DA and can not be assessed at this early stage.

5.9.5 Conclusion

This preliminary road safety assessment has concluded that the installation of a future advertising structure on Lot 31 DP 1231486 (19 Marsh Street, Arncliffe) would be acceptable, subject to a further assessment undertaken to support a detailed DA for the signage.

The preliminary assessment has concluded that the signage would comply with the relevant requirements noted in the NSW Transport Corridor Outdoor Advertising and Signage Guidelines and meet the overall objectives of these guidelines.

6 Preliminary Construction Traffic Management Plan

6.1 Overview

A preliminary Construction Pedestrian Traffic Management Plan (CTPMP) has been prepared which considers the potential impacts of the proposed early works. This preliminary CPTMP outlines the key principles for how construction may be carried out on the site, subject to further planning to be undertaken during subsequent stages of the project.

Prior to the commencement of construction for the subject site a detailed CPTMP will be prepared. The purpose of the CTPMP is to assess the proposed access and operation of construction traffic associated with the proposed development with respect to safety and capacity. The Contractor will be responsible for preparing the CTPMP, ensuring the following are addressed:

- Proposed construction vehicle routes;
- Indicative construction programme;
- Expected construction vehicle types and volumes;
- Car parking arrangements and site access during construction;
- Safety measures to minimise impacts to pedestrians and cyclists. T

The Contractor will also be responsible for monitoring and coordinating all vehicles entering and exiting the site.

6.2 Work hours

Consistent with standard Bayside Council guidelines working hours for the project would likely be as follows:

- Monday to Friday 7.00am to 6.00pm
- Saturday 7:00am to 5:00pm
- Sunday/ public holiday No work

The appointed contractor will be responsible for instructing and controlling all subcontractors regarding the hours of work. Any work outside the approved construction hours would be subject to specific prior approval.

6.3 Vehicle types

To facilitate the works on site it is expected that a range of vehicles will be utilised, including:

- 18.5m truck and dog vehicles
- 12.5m Heavy Rigid Vehicles (HRVs)
- 8.8m Medium Rigid Vehicles (MRVs)
- 6.4m Small Rigid Vehicles (SRVs).

On a daily basis it is also expected that smaller utes and vans will access the site. Special permits and approval from Council will be required to bring in larger and oversize vehicles during the works if required. These will be managed on a case by case basis in close consultation with Bayside Council.

6.4 Construction traffic volumes

Based on movements generated of similar projects construction traffic generation of between 100 to 250 vehicles per day is anticipated at the peak of the early works associated with the bulk earthworks component. It is anticipated that a peak of 40 trucks may occur during a one hour period, which is significantly less compared to when the site is fully operational. This volume of construction traffic movements will be confirmed closer to the time of construction following the appointment of a contractor and outlined in the detailed CPTMP.

Trips generated by construction staff will typically be outside of the main road network peaks, with staff arriving prior to 7am and typically departing around 4pm.

6.5 Construction site access

All construction vehicles will enter and exit the site via Marsh Street, with no access to be provided by Levey Street underneath the Giovanni Brunetti Bridge given the limited headheight clearance available. Initially it is envisaged that construction vehicles will utilise the existing Marsh Street / Flora Street signalised intersection and share this access point with vehicles associated with the Arncliffe MOC. Appropriate arrangements will be made between the head contractor for the site and TfNSW to ensure suitable access is maintained to the Arncliffe MOC at all times during the construction works.

Following the construction of the Marsh Street / Gertrude Street signalised intersection construction vehicles will also have the option of utilising this point of access to the site.

6.6 Construction vehicle routes

The proposed construction vehicle access routes have been selected to align with key arterial roads such as the M5 Motorway, Sydney Gateway / WestConnex, Princes Highway and Forest Road. The construction vehicle routes will be developed as the project progresses further, however for the purposes of this preliminary assessment the anticipated routes are illustrated in Figure 39. All construction vehicles will enter and exit the site via Marsh Street.

Figure 39 Construction vehicle routes

6.7 Pedestrian management

Temporary fencing and hoardings will be installed along frontage of the works site to maintain pedestrian movements and ensure the safety of pedestrians walking adjacent to the construction site. The Marsh Street footpath will remain open at all times to pedestrians and therefore minimal impacts are anticipated.

Traffic controllers will be positioned at vehicle site access points to manage interactions between vehicles and pedestrians on the adjoining footpaths. Traffic control plans detailing further measures to manage pedestrian safety will be provided as part of the detailed CPTMP to be prepared prior to the commencement of construction on the site.

6.8 Works zones

No works zones on public streets are anticipated to be required to facilitate the early works.

6.9 Road closures and road occupancy

It is not anticipated that the works will necessitate the need for any road closures or occupation of roadways during the project. Should this need arise the appointed contractor would liaise closely with Bayside Council and TfNSW and schedule these works well in advance to minimise impacts to road users.

6.10 Road network impacts – construction

The volume of traffic generated during the construction phase of the project will be significantly less in comparison to that during operation. Initial estimates are that the early works may generate a maximum of 25-30 vehicles per hour which is less than that assumed (and considered acceptable) for the operation of the site. This level of traffic movement does not warrant modelling of the surrounding road network, nor is road network traffic modelling ever typically undertaken for construction traffic. Measures to provide for safe and efficient construction vehicle access are noted in Section 6.14 of this document, with further details to be provided as part of a detailed CTMP to be prepared prior to the commencement of works (and reinforced through a suitably worded consent condition).

6.11 Construction worker parking

On-site car parking for construction workers will be provided during the early works so as to minimise the impacts to the surrounding street network.

The extent of car parking arrangements will be outlined within the detailed Construction Traffic Management Plan (CTMP) to be prepared prior to the commencement of works on the site. This CTMP would outline how workers will travel to the site and measures to be in place to minimise impacts to the surrounding street network. These measures may include (but are not limited to):

- During site induction staff will be informed of the existing public transport network servicing the site
- Identification of suitable off-site parking areas from where workers can either walk or use public transport to access the site; and
- To support construction workers in utilising public transport, appropriate arrangements will be made for any equipment/ tool storage and drop-off requirements

6.12 Cumulative construction impacts

There may be other construction projects occurring at the same time as the proposed works at the site. Ongoing review of cumulative heavy vehicle traffic generation and coordination of heavy vehicle routes used by these projects will be undertaken on a regular basis between the appointed contractor, Council and TfNSW to minimise impacts on the road network. As other CTPMPs become available for adjacent projects, these will be reviewed by the contractor and discussions held with relevant stakeholders.

It is noted that the works at the site are anticipated to generate a relatively low level of construction vehicle activity of at most 10 vehicles per hour. This volume of vehicles would not impact the operation of the surrounding road network.

6.13 Emergency vehicle access

Emergency vehicle access will be maintained at all times with access via Marsh Street, or if necessary site personnel will grant access to emergency vehicles entering the site itself.

The contractor will liaise with the NSW Police, Fire Brigade and emergency services agencies throughout construction and a 24-hour contact would be made available for 'out of hours' emergencies and access. The emergency services will be briefed through the appropriate forum.

6.14 Mitigation measures

Mitigation measures would be adopted during construction to ensure traffic movements have minimal impact on surrounding land uses and the community in general, and may include the following:

- Trucks to minimise the use local streets for access to the construction site;
- Trucks to enter and exit the site in a forward direction;
- Pedestrians near the ingress/egress points will not be held unnecessarily.
- Trucks to not circulate on the road network to wait to enter the site (unless exceptional circumstances do not permit)
- Truck drivers will be advised of the designated truck routes to/ from the site;
- Pedestrian movements adjacent the construction site will be managed and controlled by site personnel where required;
- Pedestrian warning signs and construction safety signs/devices to be utilised in the vicinity of the site and to be provided in accordance with WorkCover requirements;

- Construction activity to be carried out in accordance with approved hours of work;
- Truck loads would be covered during transportation off-site;
- Construction vehicles not to queue on adjacent streets;
- During site induction, workers will be informed of the existing public transport network serving the site; and
- Development and enforcement of driver charter.

These mitigation measures will be further developed as the project progresses and outlined in detail in the CPTMP to be prepared prior to the commencement of construction.

6.15 Site induction

All staff employed on the head contractor (including sub-contractors) would be required to undergo a site induction. The induction would include permitted access routes to and from the construction site for site staff and delivery vehicles, parking arrangements, as well as standard environmental, workplace health and safety, driver protocols and emergency procedures. The approved work hours must be included as part of this induction.

6.16 Driver code of conduct

The appointed contractor will include the following in all subcontract procurement packages:

- a copy of the approved truck routes as previously detailed in this document.
- the approved maximum truck size
- any other entry restrictions, or site access restrictions as agreed to by the authorities.

The appointed contractor will be responsible for managing all site access points and monitoring subcontractor behaviour and subcontractor truck access arrangements to ensure compliance with conditions of the contract. They will be responsible for ensuring there is no access to or from the site before or after approved construction hours and no queueing occurs on the surrounding road network.

7 Summary

JMT Consulting has prepared this transport impact assessment report to accompany a State Significant Development Application for a Concept Masterplan and Early Works associated with the Kogarah Golf Club Redevelopment located on land identified as 13-19A Marsh Street, Arncliffe (the site). The Concept & Early Works SSDA seeks consent for an overarching Concept Masterplan that establishes maximum building envelopes, Gross Floor Area (GFA), land uses, and other parameters through Urban Design Guidelines and technical reporting. It also seeks consent for the carrying out of Early Works to facilitate the initial site preparation and infrastructure works required to support future development and publicly accessible open space.

Key findings of the transport impact assessment are as follows:

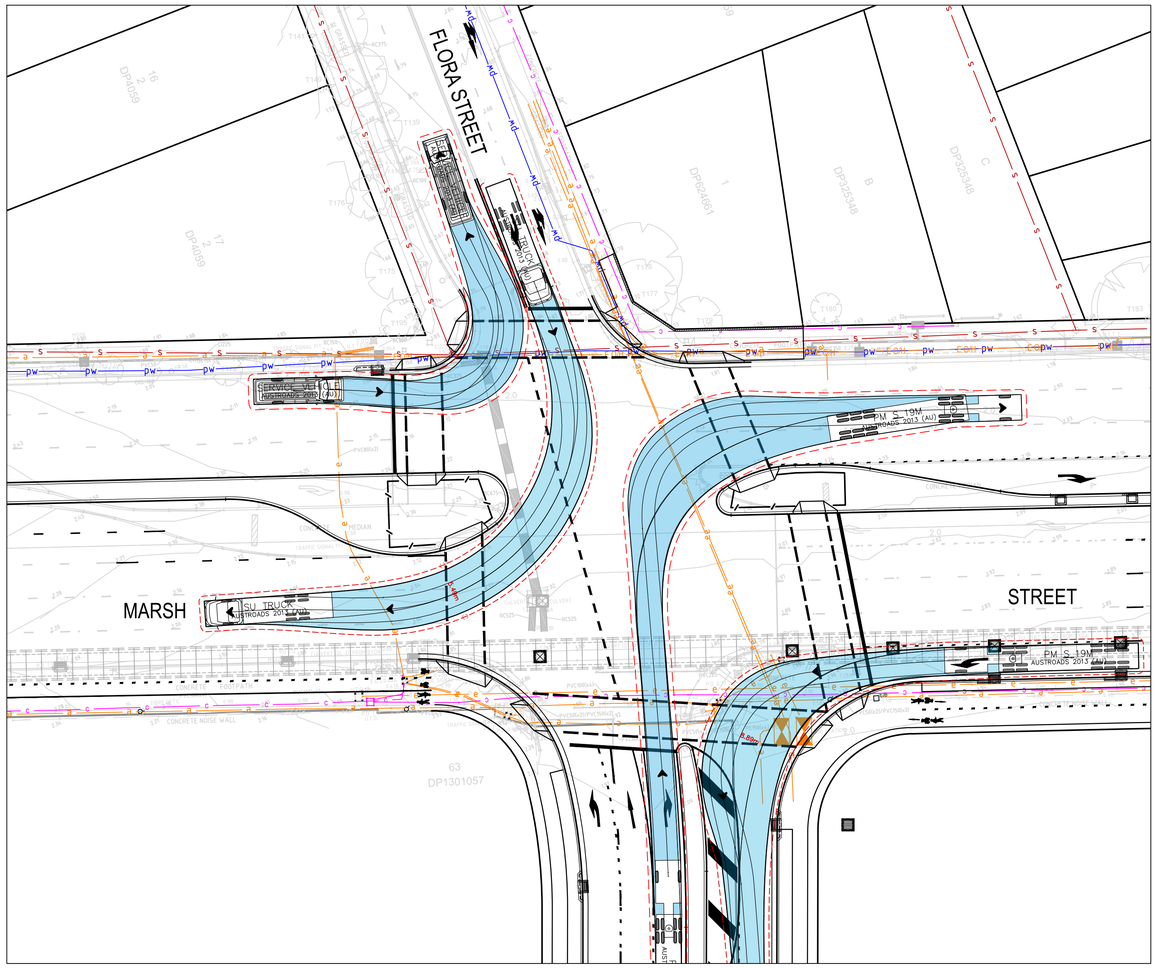
- Under the concept proposal vehicular access into the site is proposed at three locations, with this access strategy is entirely consistent with that assumed at the time of the site specific Planning Proposal.
- An internal street network has been included in the reference scheme which provides sufficient flexibility and capacity to accommodate the traffic generated by the future development as envisaged under this concept proposal, including all vehicle movements including service/loading vehicles.
- A suite of pedestrian and cycling initiatives will be provided as part of the future site development which will significantly improve connections from the site to surrounding train stations, public transport and services.
- Consistent with the agreed works executed under SVPA2024-25 the project will facilitate improvements to existing bus services on Marsh Street through the provision of northbound and southbound bus stops and shelters on Marsh Street to the south of Marsh Street/Gertrude Street intersection
- Detailed transport modelling was previously undertaken in support of the Planning Proposal for the site in close consultation with TfNSW. This transport modelling demonstrated an acceptable road network outcome subject to the implementation of various measures as documented in the State and Local planning agreements. This modelling is considered to remain suitable for ongoing use in the following context:
    - Traffic flows had not significantly changed on Marsh Street between 2019 (time of original traffic modelling) and current day conditions;
    - The designs for the Marsh Street signalised intersections are consistent with that contemplated in the traffic modelling for the Planning Proposal;
    - The vehicle access strategy for the subject site is consistent with that endorsed for the Planning Proposal;

    - The proposed car parking rates for future land uses are consistent with that endorsed for the Planning Proposal; and
    - Expected traffic movements / traffic generation arising from potential future built form are no greater than that envisaged in the reference scheme accompanying the Planning Proposal
- The impacts of construction related traffic movements will be considered in detail following the appointment of a contractor, with mitigation measures to be developed in close consultation with TfNSW to manage impacts on the surrounding road network.

In the above context the traffic and transport impacts of the proposal are considered acceptable and consistent with the outcomes of the approved Planning Proposal for the site.

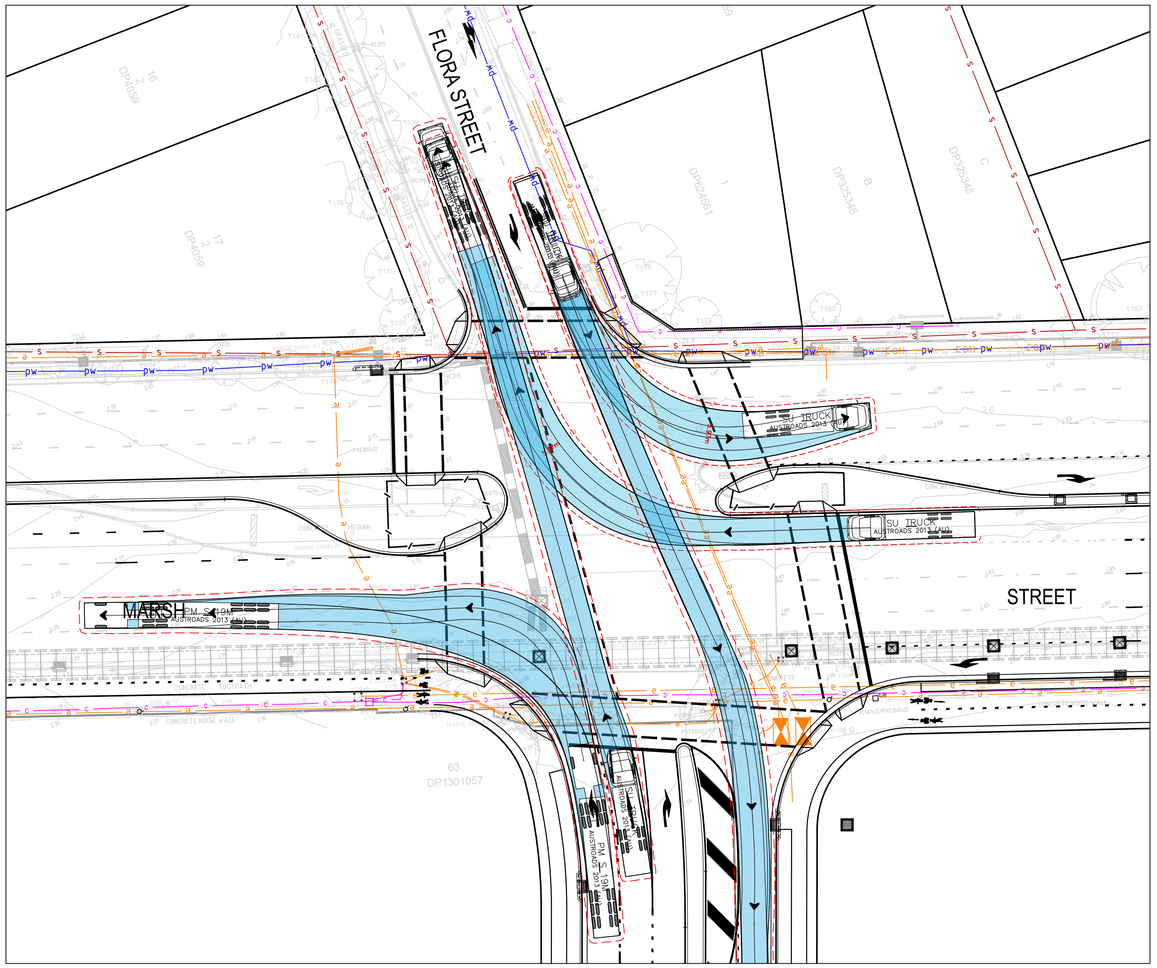
Appendix A: Vehicle Swept Paths

Source: Costin Roe / Enspire Solutions



MARSH STREET AND FLORA STREET INTERSECTION TURNING MOVEMENTS - DESIGN VEHICLE

SCALE 1:300



MARSH STREET AND FLORA STREET INTERSECTION TURNING MOVEMENT - DESIGN VEHICLE

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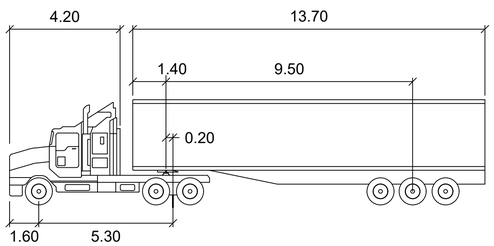

PM S 19M

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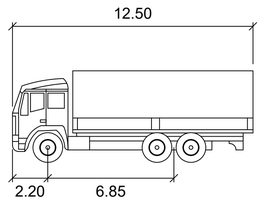
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



SU TRUCK

	meters
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Track	: 2.50
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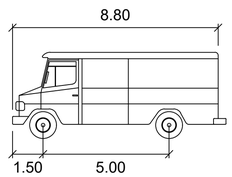
Steering Angle	: 36.6



SERVICE VEHICLE

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Track	: 2.50
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Steering Angle	: 38.7

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
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1	7/11/2025	ISSUED FOR INFORMATION	AR	JS		AD

Client: Stockland

Scale: 0 5 10 20 30m — SCALE 1:300 @A1

North

Enspire Solutions Pty Ltd
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Project: KOGARAH GOLF CLUB REDEVELOPMENT
MARSH STREET UPDGRADE
CIVIL ENGINEERING WORKS

Title: TURNING PATH PLAN

SHEET 01

Scale: 1:300

Date: 07/11/2025

Size: A1

Datum: MGA2020

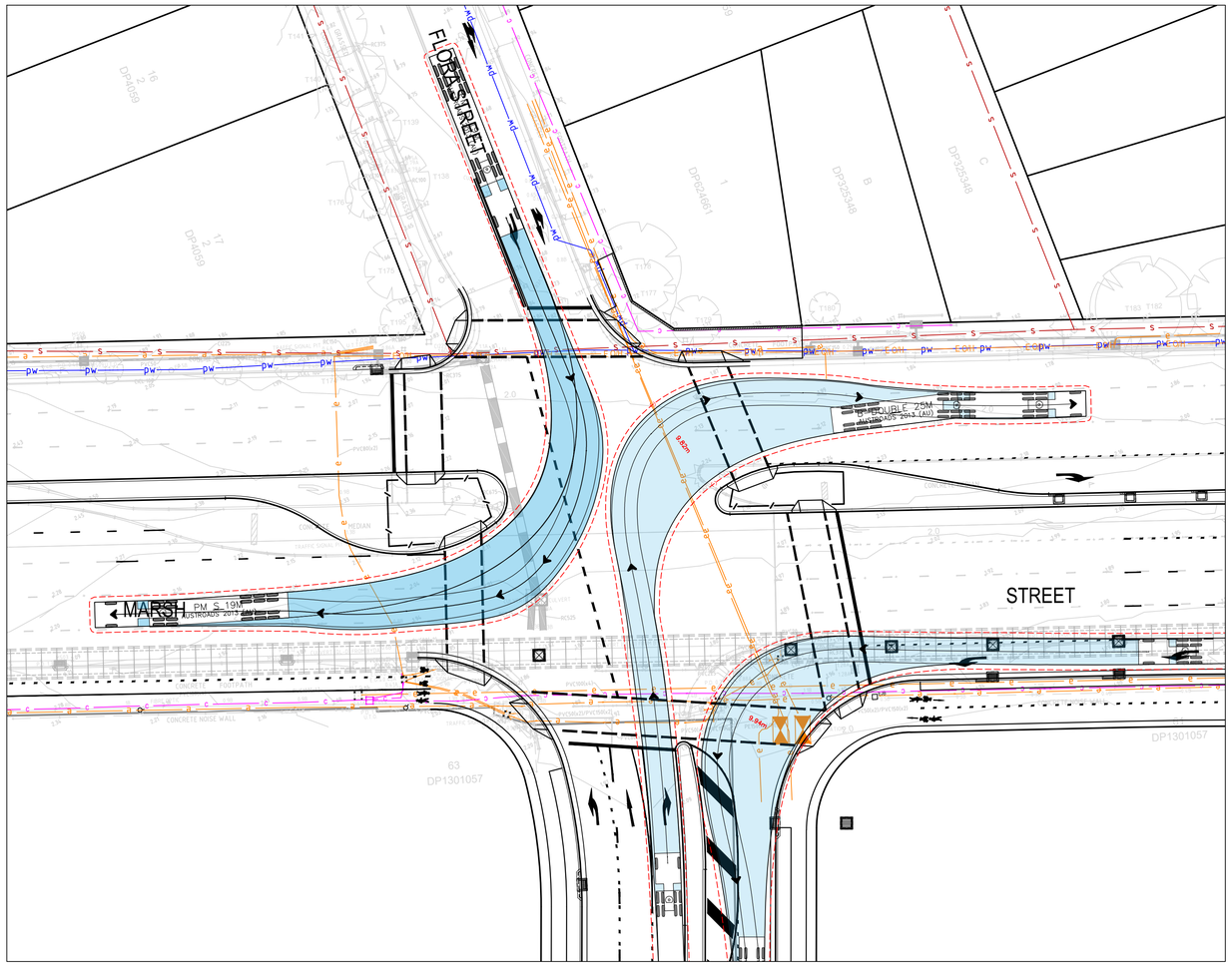
Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: KGCR-DG-MAR-C22.01

Revision: 2

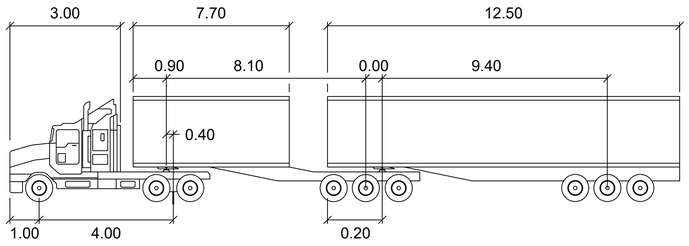
DATE PLOTTED: 14 November 2025 5:27 PM BY : ALEXANDER REINGASTLE

CAD File: \\ensdc01.enspiresolutions.local\Projects\250057 KGCR\D-Civil\02-Marsh St\Drawings\6-DACC\01-DA\KGCR-ENS-DG-MAR-C22.01-C22.02 TURNING PATH PLAN.dwg



MARSH STREET AND FLORA STREET INTERSECTION TURNING MOVEMENTS - CHECK VEHICLE

SCALE 1:300



B-DOUBLE 25M

	meters		
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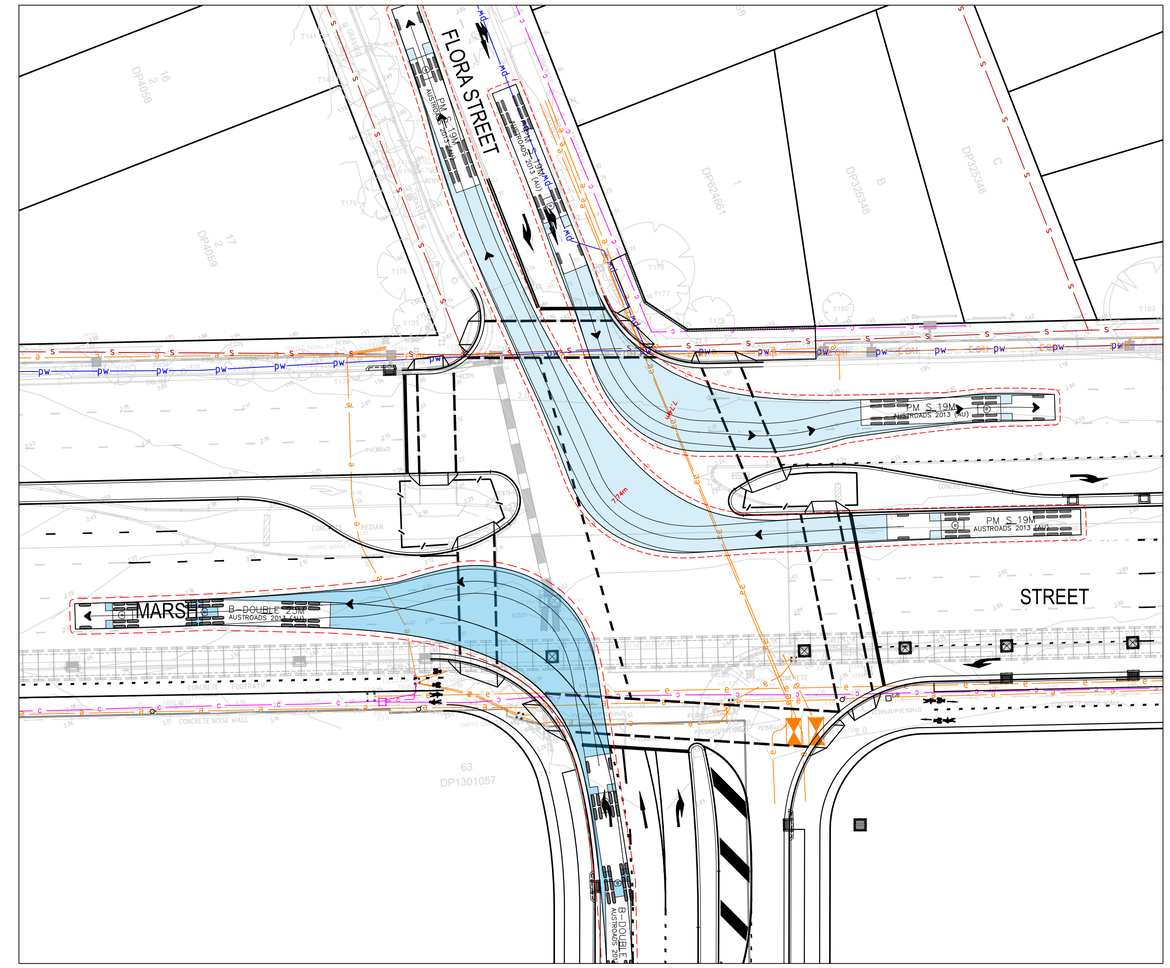
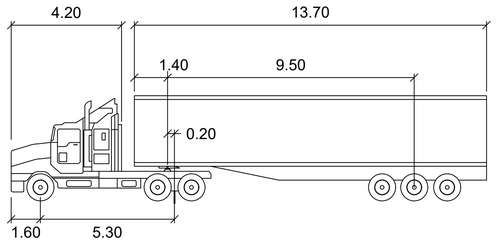
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



MARSH STREET AND FLORA STREET INTERSECTION TURNING MOVEMENT - CHECK VEHICLE

SCALE 1:300



PM S 19M

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Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	14/11/2025	ISSUED FOR INFORMATION	AR	JS		AD
1	7/11/2025	ISSUED FOR INFORMATION	AR	JS		AD

Client: Stockland

Scale: 0 5 10 20 30m — SCALE 1:300 @A1

North

Enspire Solutions Pty Ltd
Level 7, 54 Miller Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: KOGARAH GOLF CLUB REDEVELOPMENT
MARSH STREET UPDGRADE
CIVIL ENGINEERING WORKS

Title: TURNING PATH PLAN

SHEET 02

Scale: 1:300
Date: 07/11/2025
Size: A1
Datum: MGA2020

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: KGCR-DG-MAR-C22.02
Revision: 2

DATE PLOTTED: 14 November 2025 5:28 PM BY - ALEXANDER REINCASTLE

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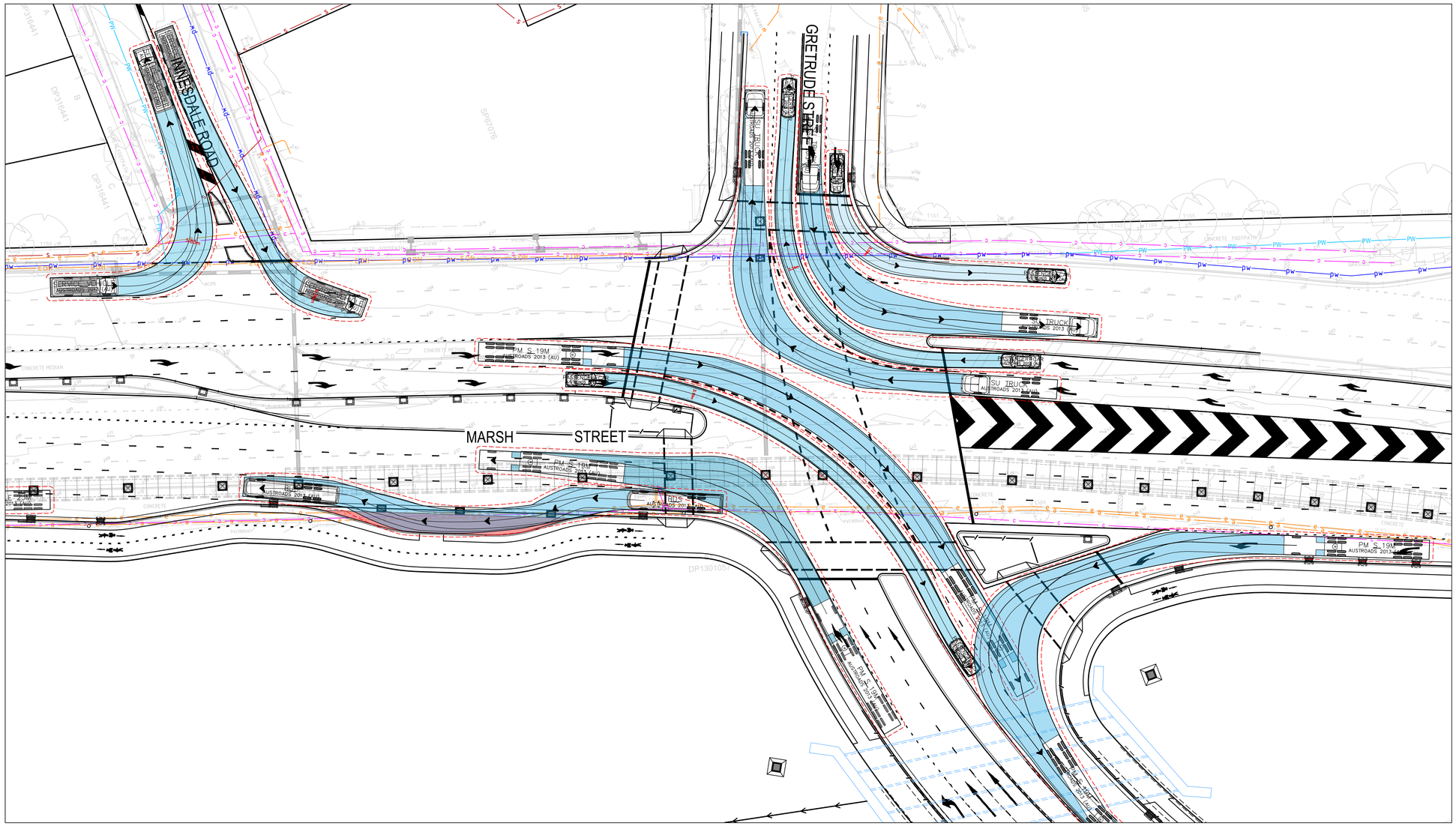
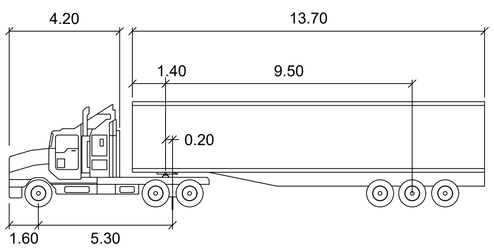


MARSH STREET AND GERTRUDE STREET INTERSECTION TURNING MOVEMENTS - DESIGN VEHICLE

SCALE 1:300



PM S 19M

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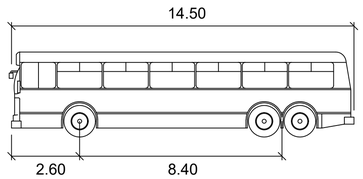

LONG RIGID BUS

	meters
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Track	: 2.50
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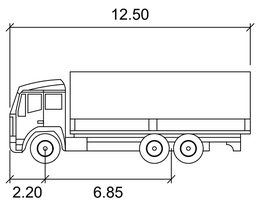
Steering Angle	: 46.4



SU TRUCK

	meters
Width	: 2.50
Track	: 2.50
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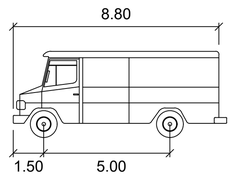
Steering Angle	: 36.6



SERVICE VEHICLE

	meters
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Track	: 2.50
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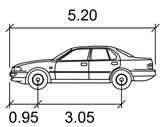
Steering Angle	: 38.7



PASSENGER-CAR

	meters
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Track	: 1.84
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Steering Angle	: 33.6

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Client: Stockland

Scale: 0 5 10 20 30m — SCALE 1:300 @A1

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CIVIL ENGINEERING WORKS

Scale: 1:300

Date: 07/11/2025

Status: FOR INFORMATION ONLY
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Title: TURNING PATH PLAN

SHEET 03

Size: A1

Datum: MGA2020

Project Number/Drawing Number: KGCR-DG-MAR-C22.03

Revision: 2

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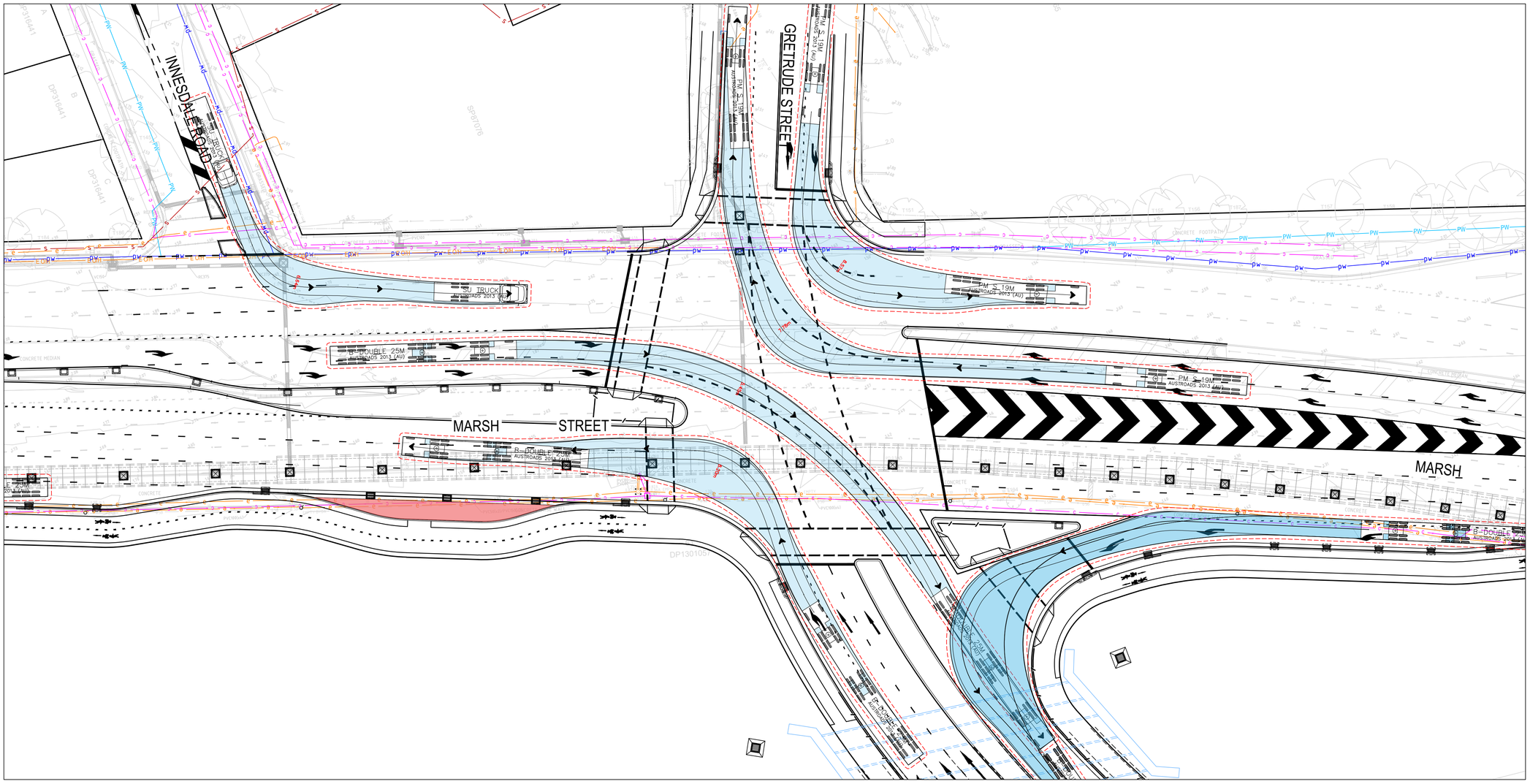
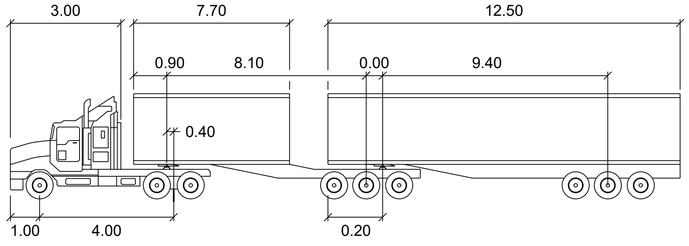


MARSH STREET AND GERTRUDE STREET INTERSECTION TURNING MOVEMENTS - CHECK VEHICLE

SCALE 1:300



B-DOUBLE 25M

	meters		
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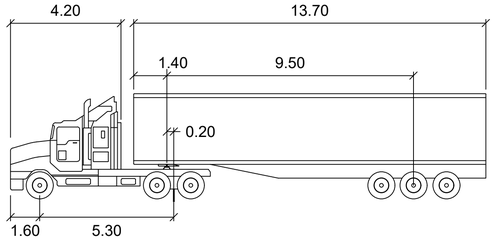
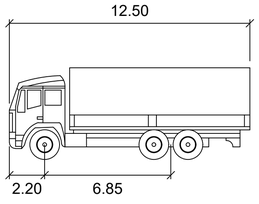


PM S 19M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



SU TRUCK

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
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Client: Stockland

Scale: 0 5 10 20 30m — SCALE 1:300 @A1

North

enspire
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Scale: 1:300
Date: 07/11/2025
Size: A1
Datum: MGA2020

Status: FOR INFORMATION ONLY
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Title: TURNING PATH PLAN
SHEET 04

Project Number/Drawing Number: KGCR-DG-MAR-C22.04
Revision: 2

DATE PLOTTED: 14 November 2025 5:28 PM BY: ALEXANDER REINCASTLE

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Appendix B: Traffic Generation Rates

Retail

Surveys undertaken by Transport for NSW at a number of retail centres in NSW have been used to determine the traffic generation from the retail uses. The floor area for each shopping centre has been plotted against the surveyed traffic generation rate, and a regression analysis undertaken to establish the relationship between floor area and traffic generation as shown in Figure 40.

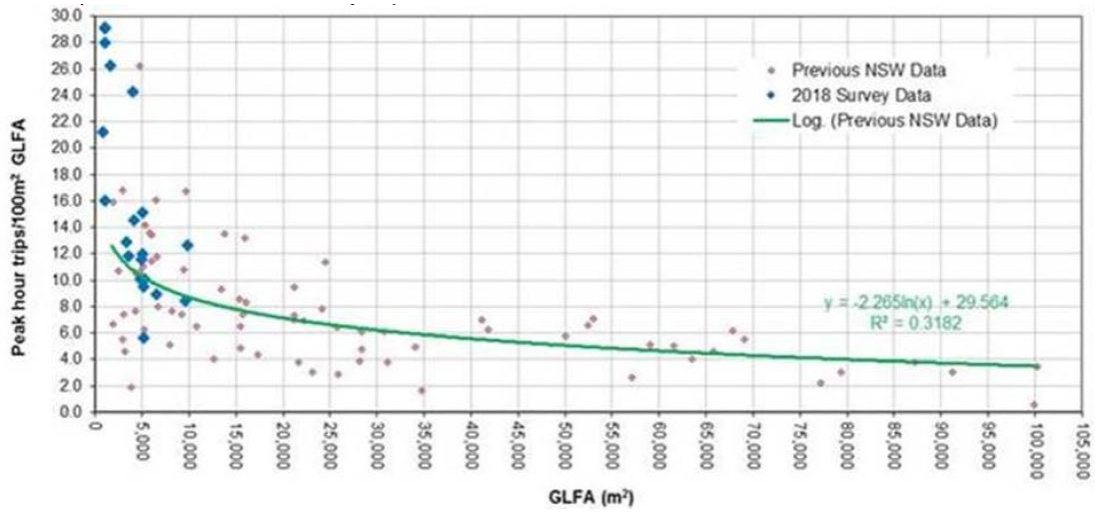

Figure 40 Relationship between retail floor area and traffic generation

Source: Transport for NSW

Hotel

Surveys of the Mercure Hotel (located on the northern side of Marsh Street) were previously undertaken in March 2017 to understand the likely traffic generation of this use. The Mercure Hotel contains 271 hotel rooms and serves a similar purpose to the proposed hotels within the Cooks Cove precinct. The survey observed a total of 21 vehicles over the PM peak hour (5pm – 6pm), comprised of 11 taxis, 5 car drop offs and 5 vehicles parking. This is equivalent to a peak hour traffic generation rate of 0.14 / vehicles room. This rate has been adopted for the purposes of this study.

Commercial

The trip rates adopted for commercial uses are heavily dependent on the rate of parking provided for the site. In the absence of all day commuter parking on nearby streets, workers choosing to drive to Cooks Cove will be reliant on on-site parking.

Although many of the sites surveyed in RMS TDT2013/04a are close to public transport, they contained high parking rates which directly influenced the proportion of people that travel by car. Analysis below demonstrates that, for the sites noted in RMS TDT2013/04a, there is a strong and direct relationship between

car parking provision and car mode share. Although each surveyed site has good access to public transport, the surveys showed a significant range in the associated car mode share (and therefore trip generation).

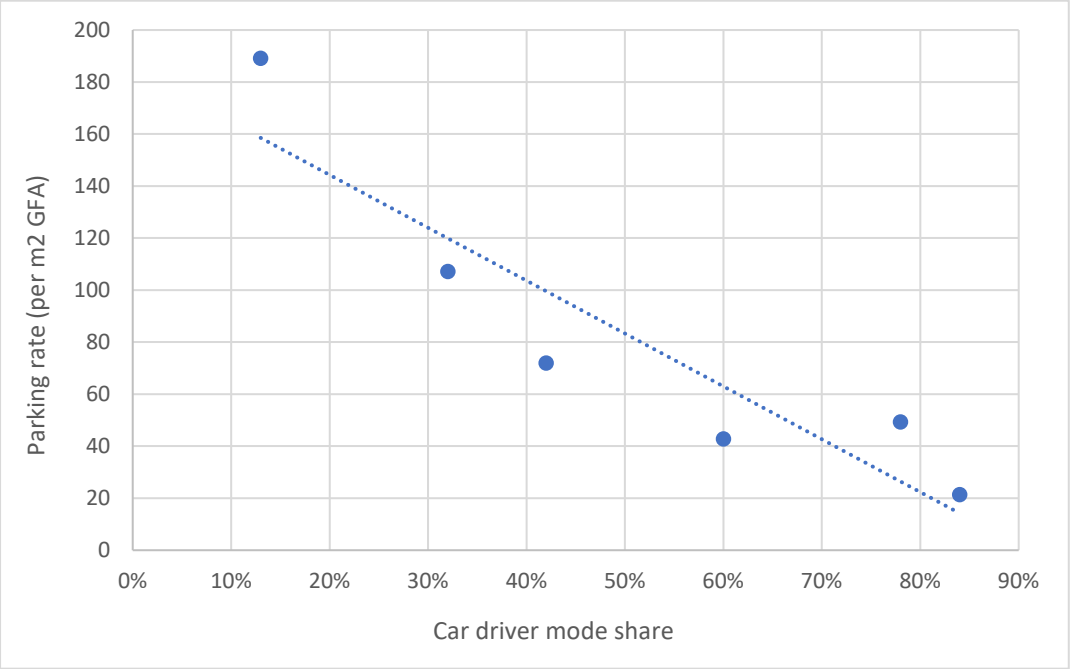

Figure 41 Relationship between parking rates and car driver mode share

The traffic generation rate to be adopted of 0.8 trips / 100m^2 is reflective of the proposed maximum on-site car parking rate of 1 space per 80m^2 GFA. This parking rate would yield a maximum of 265 spaces. The adopted traffic generation rate forecasts approximately 170 vehicle trips associated with the commercial uses, equivalent to 0.65 vehicle movements per parking space. This rate is significantly higher than the 0.4-0.5 vehicle trips / parking space as recommended in TDT2013/04a. Maximum car parking rates for the commercial uses will be adopted and be reinforced in the site specific DCP as well as any other relevant planning instruments (site-specific LEP clause).

Logistics uses

The forecast traffic generation arising from the logistics uses has been determined using trip generation rates for similar industrial sites noted in the Transport for NSW *Guide to Traffic Generating Developments* (TDT 2013/04a). Given the characteristics of the site with a significant amount of warehousing floor space and low proportion of ancillary office, the average trip generation rate of the following three sites in the Sydney Metropolitan area were adopted:

Site	Peak Hour Vehicle Trip Generation (vehicles / 100m² GFA)	
	AM Peak Hour	PM Peak Hour
Erskine Park Industrial Estate, Erskine Park	0.13	0.14
Wonderland Business Park, Eastern Creek	0.18	0.18
Riverwood Business Park, Riverwood	0.43	0.23
Average across sites	***0.25***	***0.18***

The fourth surveyed site in the Sydney Metropolitan Area noted in TDT 2013/04a, located in Helensburgh, was not considered appropriate for the purposes of determining a comparable traffic generation rate. This site, with only 1,605m² GFA, primarily contains office uses which the TfNSW summary report[2] notes would generate higher number of trips compared to industrial establishments. It is also noted that the Erskine Park and Wonderland sites are the most comparable to the future Cooks Cove site given the amount of GFA provided on these site (>250,000m²) however as a conservative estimate the Riverwood site (with a GFA of approximately 30,000m²) has also been included.

[2] Trip Generation Surveys—Business Parks and Industrial Estates – TEF Consulting