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Transport Assessment

Oakdale West Industrial Estate – SSD-9794683 Stage 3 Development Application at Lots 2A, 2C and 2D

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Executive Summary

Ason Group has been engaged by Goodman Property Services (Aust) Pty Ltd (Goodman) to prepare a Transport Assessment (TA) to assess the traffic and parking implications from the proposed development of Lots 2A, 2C (2-C1 and 2C-2) and 2D of the Oakdale West Estate (OWE). This TA has been prepared in appreciation of the latest approved Modification 3 (MOD 3) and MOD 5 to the State Significant Development (SSD-7348) and, as such, the traffic assessment undertaken references the traffic reports associated with approved MOD 3 and MOD 5. In this regard, it is important to mention that a separate MOD 6 has recently been lodged with the Department of Planning, Industry and Environment (DPIE) related to changes to the Concept Plan to facilitate development of Lots 2A, 2C and 2D. However, at the time of this TA the MOD 6 to SSD-7348 has yet not been determined.

It is also noteworthy that the assessments of the Lots subject for this TA are related to a new SSD application (SSD-9794683), and DPIE has issued the Secretary's Environmental Assessment Report (SEARs) for both SSD-9794683 and SSD-7348 MOD 6 in November 2020 (a single SEARs). Therefore, this TA is prepared to respond to key traffic and transport related issues included in this SEARs.

For context, Lots 2A, 2C and 2D (the Site – subject for this SSD) as well as Lot 2B (recently approved under SSD-10397) form Precinct 2 of the OWE.

1.1 Planning Context—Oakdale West Industrial Estate

1.1.1 Concept Plan Approval

The original SSD approval for the OWE (SSD 7348) was granted on 13 September 2019 and envisaged a total GFA of some 475,269 m² GFA (original approved GFA) across the entire Estate spanning 5 precincts. Since that approval, the Estate has gone through several modifications with the latest approval being granted for MOD 5.

1.1.2 Latest Approved Modifications 3 and 5

MOD 3 to the SSD-7348 (approved on 3 April 2020) essentially involved major changes to the built form of Precincts numbers 2 to 5 within the approved concept plan at OWE, with some moderate changes to the Gross Floor Areas (GFAs) to Precinct numbers 4 and 5. However, MOD 5 (approved on 05/11/2020) only included minor adjustments to the proposed site layout at Lot 1A with minor amendments to the overall Estate GFAs. In this regard, Ason Group has previously undertaken detailed traffic assessment and SIDRA modelling for MOD 3 with only a brief Transport Statement prepared for MOD 5; suitable for the nature of changes proposed therein. Therefore, the traffic assessments and modelling included in this TA mainly refers to the MOD 3 TIA.



For context, the following **Table 1** provides a comparison between approved GFAs from the concept approval to the latest approved MOD 5.

Table	1:	GFA	Comparison
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Original Approval	Approved MOD 3	Approved MOD 5	Proposed MOD 6
Approved GFA (m ²)	Total GFA (m ²)	Total GFA (m ²)	Total GFA
475,269	595,765	599,455	599,455

The following table provides a comparison of relevant GFA metrics for each precinct under each relevant MOD, including the recent MOD 6 (yet to be determined).

Precinct No.	MOD 3 Approval (GFA, m ²)	MOD 5 Approval (GFA, m ²)	MOD 6 Proposal (GFA, m²)	Difference Between MOD 6 and MOD 5 (GFA, m ²)
Precinct 1	122,082	125,772	125,198	(-) 574
Precinct 2	266,186	266,186	269,390	+3,204
Precinct 3	57,819	57,819	56,759	(-) 1,060
Precinct 4	113,693	113,693	112,123	(-) 1,570
Precinct 5	35,640	35,640	35,640	0
Amenities Lot	345	345	345	0
Total	595,765	599,455	599,455	0

Table 2: Precinct Gross Floor Area Comparison by MOD

It is evident that Precinct 2 (under the MOD 6 application) will only result in an additional 3,690 m² GFA when compared to the approved GFA under MOD 3. This is a minor increase when considered in the scheme of the entire OWE; importantly where MOD 6 results in no GFA changes comparing to the latest approval of MOD 5.

1.2 Traffic Assessment

Traffic associated with the proposed Lots 2A, 2C and 2D has already been assessed as part of the approved MOD 3 traffic report which included detailed modelling for the surrounding road network (**Appendix A**). For context, key intersections within the broader locality were assessed as part of the MOD 3 assessment under 2026 interim and 2036 ultimate scenarios. This TA determines that the proposed GFAs for the Lots subject for this SSD are only marginally (+3,204 m²) greater than GFAs



approved for Precinct 2 under MOD 3 and MOD 5 approval and will not result in any material increase from what has already been assessed and approved for the Estate overall.

1.3 Other SSD Findings

A summary of the key findings of this TA are as follows:

 Estate wide vehicular traffic generation post completion of MOD 6 (yet to be determined) has been compared with the traffic generation post completion of MOD 3 and it is outlined in the following table.

Table 3: Vehicular Trip Generation Comparison

	MOD 3 Approval			MOD 6 Estimated				
Building	054	Trip Generation		054	т	Trip Generation		
	GFA	AM	РМ	Daily	GFA	AM	РМ	Daily
Building 1A ^{1&2}	107,212	79	54	2,222	107,212	79	54	2,222
Building 2B ^{1&3}	206,968	823	532	3,781	206,968	823	532	3,781
Other Buildings	281,240	458	458	5,321	284,930	464	464	5,391
Amenity Building	345	-	-	-	345	-	-	-
Total	595,765	1,360	1,044	11,324	599,455	1,366	1,050	11,394

Note: 1) Trip generation during 'seasonal peak' as 'worst-case' scenario.

2) Ason Group, *P0950r01v12 SSD MOD 2 TIA_Oakdale* West, dated 21 November 2019

3) Ason Group, P1086r01v7 SSD 7348 MOD 3 & Stage 2 DA TIA_Oakdale West Estate, dated 15 January 2020

- Accordingly, MOD 6 (including Lots 2A, 2C and 2D) will only result in minor increase on traffic generation comparing to the approved MOD 3, which includes detailed modelling for the surrounding road network.
- Individual buildings (2A, 2C and 2D) have been generally designed to meet the approved parking requirements, as outlined Condition B13 of the approval.
- Lots 2A, 2C, and 2D, access crossovers, internal hardstand area service and parking facilities have been generally designed to meet the relevant Australian Standards. Of particular importance, the proposal for these Lots allow for traffic movements by 26.0 metres B-Doubles (design vehicle).
- A preliminary Sustainable Travel Plan (STP) have been included in this TA to provide a high-level action plan and assist in reduction of reliance on private motor vehicle usage at these Lots.



1 Introduction

Ason Group has been engaged by Goodman Property Services (Aust) Pty Ltd (Goodman) to prepare a Transport Assessment (TA) to assess the traffic and parking implications of Lots 2A, 2C (2C-1, 2C-2) and 2D at the OWE.

1.1 Study Purpose

From the outset, it is critical to state that the recent DPIE approval of MODs 3 and 5 applications sets the 'benchmark' for the subsequent applications within the OWE. Providing that these conditions have inherently been considered and validated by the key consent authorities, including the DPIE and Transport for NSW (TfNSW), this TA therefore provides an assessment of the traffic characteristics of the proposed Lots, which have then been compared to the approved characteristics of the OWE to determine any departures from the current approvals.

1.2 Reference Documents

In the preparation of this TIA, reference has been made to the following key transport standards and guidelines:

- RMS Guide to Traffic Generating Developments (RMS Guide) version 2.2, October 2002.
- Australian Standard 2890.1: Parking Facilities Off-Street Car Parking (AS 2890.1), 2004.
- Australian Standard 2890.2: Parking Facilities Off Street Commercial Vehicle Facilities (AS 2890.2), 2018.
- Australian Standard 2890.3: Parking Facilities Bicycle Parking (AS 2890.3), 2015.
- Australian Standard 2890.6: Parking Facilities Off Street Parking for People with Disabilities (AS 2890.6), 2009.

This TA also references assessments relating to development within the OWE; the broader Oakdale Industrial Estate in which the OWE lies; and the Broader Western Sydney Employment Area, including:

- Ason Group, Traffic Impact Assessment Oakdale West Estate State Significant Development Application – Response to Submissions, 27 November 2018 (OWE TIA RTS)
- Ason Group, Traffic Impact Assessment Oakdale West Industrial Precinct State Significant Development Application prepared by Ason Group, 24 March 2017 (OWE TIA 2017).
- Ason Group, Traffic Impact Assessment Oakdale West Industrial Estate SSD MOD 2 prepared by Ason Group, 11 Oct 2019 (0950r01v10 SSD MOD 2 TIA).



- Ason Group, Traffic Impact Assessment Oakdale West Industrial Estate SSD 7348 Modification 3 & SSD 10397 Stage 2 Development Application, 15 January 2020 (P1086r01v7) – (approved MOD 3 traffic report).
- Ason Group, Oakdale West Industrial Estate (SSD 7348) Modification 5 Transport Statement, P0950r03 (approved MOD 5 traffic report).
- Ason Group, Transport Statement Oakdale West Industrial Estate SSD 7348 Modification 6, dated 6 October 2020 (the MOD 6 traffic report).
- GHD, Erskine Park Traffic Modelling Proposed Western North South Link Road, May 2016 (WNSLR Report).
- AECOM, Broader WSEA SLRN Options Refinement (2014), 6 May 2014 (SLRN Options Report).
- GHD, Old Wallgrove Road Extension Interim Network Testing, 28 March 2014 (OWR Extension Report).
- GHD, Broader Western Sydney Employment Area Transport Planning Preliminary Analysis, Exhibition Draft, June 2013 (BWSEA Transport Report).
- GHD, Old Wallgrove Road Upgrade (Roberts Road M7 Motorway) Traffic and Transport Report, 30 April 2012 (OWR Upgrade Report).
- AECOM, Western Sydney Employment Area Southern Link Road Network Strategic Transport Assessment, 18 April 2011 (SLRN Report).
- RMS, Southern Link Road / WSEA RNS Key Stakeholder Briefing, July 2019
- RMS, Trip Generation Surveys Business Parks and Industrial Estate Data Report, August 2012



1.3 Response to Secretary's Environmental Assessment Report

Key traffic and transport related issues included in this SEARs, as well as brief responses, are outlined in the following table.

Table 4:	Response	to SEARs
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No.	Comment		Ason I	Response		
Traffic and	I Transport – including					
1	details of all traffic types and volumes likely to be generated during construction and operation, including a description of haul routes. Traffic flows are to be shown diagrammatically to a level of detail sufficient for easy interpretation;	This TA has The Propos pedestrian a operation of peak hour tra (at operation proposed S generation o	been prepared as sal is not antion nd/or public trans the proposed Lo affic generation of hal phase) and ou SD will generation nto the surroundi	s a response t sipated to g port trip during ts. However, f the Proposal utlined in sect e the followir ng road netwo	o this co enerate the con- details c has bee ion 5. A ng vehic ork:	mment. significant struction or if daily and n reviewed s such the ular traffic
		Lot No.	GFA m ²	AM Peak	PM Peak	Daily
		2A	46,400	76	76	878
		2C-1	5,500	9	9	104
		2C-2	5,065	8	8	96
		2D	5,380	9	9	102
		Total	62,345	101	101	1,180
		In summary, not have an approved by Section 6 construction the time of 6 Western Nor as such the approved int intersection	the traffic assoc y additional impa MOD 3 and MOI of this TIA pro- impacts associat construction of th th South Link Roa construction traffi ersection of Leno has been approve	iated with the act from what D 5. wides a prei ed with this SS iese Lots, it is ad (WNSLR) v ic will directly ore Dr / WNSL ed under origin	propose has alr liminary SD. In su s expecte vill be de access .R. Notin al appro	d SSD will eady been CTMP of immary, by ed that the livered and the interim ng that this wal and re-

assessed under MOD 3 approval for a greater operational traffic (then what is expected for construction of these Lots) therefore there should not be any issues with the traffic associated with the construction traffic. It is noted that a separate detailed CTMP for these Lots will be prepared separately and in response to a condition of consent as part of the Construction Certificate (CC) phase of the project.



No.	Comment	Ason Response
Traffic and	I Transport – including	
2	an assessment of the predicted traffic impacts on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic modelling;	In accordance with the SIDRA results, undertaken as part of the MOD 3 approved traffic report, all intersections in the broader locality of the OWE can accommodate the anticipated traffic to/from the Estate including the traffic associated with this SSD. Reference should therefore be made to Section 5 of this TA which determines that the proposed SSD traffic has readily been included in the assessments undertaken as part of the MOD 3 approval. Furthermore, MOD 5 approval refers to a great overall GFA for the OWE from what has been approved as part of MOD 3 which could further ascertain suitability of the surrounding road network to accommodate the traffic from this SSD.
3	plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network;	Detailed SSD plans have been provided separately with a reduced copy of the site plans presented in Figure 3 and Figure 4. A review of the proposed SSD access, hardstand area and parking facilities has been undertaken as part of this TA. reference should therefore be made to Section 7 which outlines key considerations of the SSD design elements. SSD parking provision in accordance with the approved conditions has been discussed in section 4. In this regard, ALL Lots under review as part of this SSD meet and exceed the requirements set out under Condition B13 of the SSD 7348 approval.
4	detailed plans of the site access and proposed layout of the internal road and pedestrian network and parking on-site in accordance with the relevant Australian Standards and Council's DCP as well as with reference to the latest approved Oakdale West Estate Concept Plan;	Details regarding on-site design for each individual building are provided in Section 2. In summary, the proposed Lot 2A will be accessed to/from the proposed Estate Road 03 (to the northern boundary of the OWE), via separate car and truck access crossovers. Furthermore, Lots 2C-1 and 2C-2 and 2D will all be accessed to/from Estate Road 03 via 2 access crossovers (refer Figure 5).
5	swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site;	All access locations have been reviewed against relevant Australian Standards with swept path analysis undertaken for 26.0 m B-Doubles included in Appendix B of this TA.
6	details of the proposed parking provision and its compliance with the Roads and Maritime Services (RMS) guidelines and Condition B13, Schedule B of SSD-7348 development consent;	A review of the proposed SSD access, hardstand area and parking facilities has been undertaken as part of this TA. reference should therefore be made to Section 7 which outlines key considerations of the SSD design elements. SSD parking provision in accordance with the approved conditions has been discussed in section 4. In this regard, ALL Lots under review as part of this SSD meet and exceed the requirements set out under Condition B13 of the SSD 7348 approval.
7	details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan and specific Workplace Travel Plan) and the provision of facilities to increase the non-car mode share for travel to and from the site;	As outlined in section 5, the traffic modelling undertaken as part of the MOD 3 suggests that NO additional road upgrades will be required as a result of this SSD when compared to the approved Modifications . Additionally, a Preliminary Sustainable Travel Plan is provided in Appendix C .
8	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 development; and	A Preliminary Sustainable Travel Plan is provided in Appendix C, which details existing public/active transport or any future public/active transport infrastructure within the vicinity of the site.



No.	Comment	Ason Response
Traffic and	d Transport – including	
9	measures to integrate the development with the existing/future public transport network.	An action plan is provided as part of the Preliminary Sustainable Travel Plan which details measures to integrate the development with the existing/future public transport network.

1.4 Conditions of Consent

With reference to the Conditions of Consents issued for SSD 7348 (MOD 3) and SSD 10397 (Stage 1 DA), relevant conditions as well as brief responses, are outlined in the following table.

Condition Number	Condition	Ason Response
B13	 The Applicant shall ensure the Concept Proposal provides car parking in accordance with the following rates: (a) 1 space per 300 m² of warehouse GFA; (d) 1 space per 40 m² of office GFA; and (e) 2 spaces for disability parking for every 100 car parking spaces. 	Noted. All warehouses provide sufficient on-site car parking spaces to readily satisfy this condition.
B14	The Applicant shall provide bicycle racks, and amenity and change room facilities for cyclists in accordance with Planning Guidelines for Walking and Cycling (December 2004, NSW Department of Infrastructure, Planning and Natural Resources and the Roads and Traffic Authority)	Provision of bicycle parking can be a condition of consent for this SSD which can readily be provided as part of the Construction Certificate (CC) stages of this SSD.
C9	Future DAs shall be accompanied by a transport, access and parking assessment. The assessment must: (a) assess the impacts on the safety and capacity of the surrounding road network and access points during construction and operation of the relevant Stage; (b) demonstrate internal roads and car parking complies with relevant Australian Standards and the car parking rates in Condition B13; (c) detail the scope and timing of any required road upgrades to service the relevant Stage; and (d) detail measures to promote non-car travel modes, including a Sustainable Travel Plan identifying pedestrian and cyclist facilities to service the relevant Stage of the Development.	Noted. This TA addresses this comment.
D47	The Applicant must design and construct the intersections of the WNSLR with Estate Road 1 and Lockwood Road to the satisfaction of the relevant roads authority.	Noted. WNSLR and Estate Road 01 and Lockwood Road are expected be delivered prior to construction of this SSD.
D48	Prior to the commencement of construction of the Lenore Drive/Grady Crescent/WNSLR intersection (the intersection), the Applicant must finalise the detailed design, including a Traffic Signal Plan, for the intersection works. The detailed design must: (a) cut back the median further with a taper in Grady Crescent to accommodate the dual B-Double swept paths turning from WNSLR onto Lenore Drive; and	Noted. No change to the approved geometry or signal phasing arrangements is required as part of this SSD.



Condition Number	Condition	Ason Response
	(b) include an angled pedestrian crossing on the south- eastern corner of the intersection so that pedestrians are not confused by the pedestrian lantern on the opposite side of the intersection.	
D49	The Applicant must enter into a WAD for works at the intersection with TfNSW (former RMS). The WAD must be executed prior to the submission of the detailed design required under condition D48 to TfNSW for approval.	These works are currently underway and hence this conditions is not directly relevant to thi SSD.
D50	The Applicant must design the proposed traffic control light at the intersection in accordance with Austroads guidelines, RMS Signal Design Manual and Australian Codes of Practice. The traffic control light design must be endorsed by a suitably qualified practitioner whose qualification has been approved by TfNSW (former RMS).	Noted. No change to the approved geometry or signal phasing arrangements is required as part of this SSD.
D51	The Applicant must submit the certified copies of the traffic signal design plans to TfNSW (former RMS) for approval prior to the issue of a Construction Certificate	Noted.
D52	The Applicant must submit a request to TfNSW (former RMS) Network Operations Team to obtain relevant approvals to remove the signalised pedestrian crossing on the eastern leg of the intersection.	Noted.
D65	 crossing on the eastern leg of the intersection. Prior to the commencement of construction of Stage 1, the Applicant must prepare a Construction Traffic Management Plan (CTMP) to the satisfaction of the Planning Secretary. The CTMP must form part of the CEMP required by Condition D119 and must: (a) be prepared by a suitably qualified and experienced person(s); NSW Government 15 Oakdale West Estate Department of Planning, Industry and Environment (SSD 7348) (b) be prepared in consultation with Council, Mamre Anglican School, Emmaus Catholic College, Emmaus Catholic Care Village and Trinity Catholic Primary School; (c) detail specific measures to manage construction traffic to avoid school drop off and pick up times (Monday to Friday 8 am – 9.30 am and 2.30 pm – 4 pm) and Higher School Certificate exam periods, including any temporary infrastructure arrangements and traffic safety measures; (d) detail the measures to be implemented to ensure road safety and network efficiency during construction, including scheduling deliveries of heavy plant and equipment outside of peak periods, or during school holidays where possible; (e) detail heavy vehicle routes, access and parking arrangements; (f) include a Driver Code of Conduct to: i. minimise the impacts of construction on the local and regional road network; ii. minimise conflicts with other road users including the students, staff, visitors and residents of the neighbouring schools and aged care village; iii. minimise road traffic noise, both on Bakers Lane and from construction vehicles on Site; and iv. ensure truck drivers use specified routes and adhere to the speed restrictions on Bakers Lane; (g) include a program to monitor the effectiveness of these measures; and 	A detailed CTMP can be prepared in response to a suitable condition of consent for this SSD which ca readily be completed as part of the CC stage. Notwithstanding, it should be emphasised that the changes proposed as part of the SSD are largely internal and thus do not have a material impact on construction traffic impacts or management thereof.



Condition Number		Condition	Ason Response
	(h) detai and the potential	I procedures for early notification to residents community (including local schools), of any disruptions to routes.	
D67	The App estate re turning p Relevan	blicant must design and construct the internal bads and intersections to accommodate the bath of a B-Double, to the satisfaction of the t Roads Authority.	All OWE roads have been designed to cater for 26.0m B-Doubles as the relevant design vehicle.
D68	Followin estate ro Authority ensure complete Authority are in pla the satis	g the issue of a Subdivision Certificate, the bads shall be dedicated to the Relevant Roads /. Prior to any dedication, the Applicant shall construction of the estate roads has been ed to the satisfaction of the Relevant Roads / and measures (such as a performance bond) ace for any prescribed maintenance period, to faction of the Relevant Roads Authority.	Noted.
D69	The App a)	licant must ensure: Internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) are constructed and maintained in accordance with the latest version of AS 2890.1:2004 Parking facilities Off-street car parking (Standards Australia, 2004) and AS 2890.2:2002 Parking facilities Off-street commercial vehicle facilities (Standards Australia, 2002);	Review of the proposed SSD vehicular access, hardstand area and parking facilities against the relevant Australian Standards has been undertaken and summarised in Section 7 of this report. Swept path analysis for B-Doubles (design vehicle) has also been included in Appendix B for reference.
	b)	parking for Stage 1 is provided in accordance with the EIS and RtS for MOD 2	Not relevant to this SSD.
	c)	the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant Austroads guidelines	Swept path analysis are provided in Appendix B.
	d)	Stage 1 does not result in any vehicles queuing on the public road network	Not relevant to this SSD (being Stage 3 DA).
	e)	heavy vehicles associated with Stage 1 are not parked on local roads or footpaths in the vicinity of the Site	Noted. Although this condition is relevant to Stage 1, but heavy vehicles associated with this SSD shall also not park on local roads. This can be a scope for the Operational Traffic Management Plan for the SSD (if deemed necessary).
	f)	all vehicles are wholly contained on site before being required to stop	Noted.
	g)	all loading and unloading of materials are carried out on Site	Noted. Proposed SSD provides loading and unloading facilities on-site for each individual Lot.
	h)	all trucks entering or leaving the Site with loads have their loads covered and do not track dirt onto the public road network; and	Noted.
	i)	the proposed turning areas in the car parks are kept clear of any obstacles, including parked cars, at all times.	Noted.



2 OWE Approval

The original SSD approval for the Oakdale West Industrial Estate (SSD 7348) was granted on 13 September 2019 and envisaged a total GFA of some 475,269 m² GFA across the entire Estate spanning 5 precincts. Since that approval, the Estate has gone through several modifications with MOD 5 being the latest Modification approved on 05/11/2020 for a sum of 599,455 m².

Ason Group has undertaken traffic assessment for the original approval as well as the other Modifications with the latest Transport Statement related to the MOD 5 approval. However, MOD 3 approved TA included detailed traffic assessments and SIDRA modelling for all key intersections in the broader locality of the OWE. SIDRA analysis undertaken as part of the MOD 3 included assessment of seasonal peak demand for Lots 1A and 2B having regard for their operational traffic generation.

Accordingly, this TA refers to the approved MOD 3 traffic report for the traffic assessment purposes. Detailed SIDRA results from the approved MOD 3 is included again as Appendix A for reference.

2.1 Approved Generation Rates

Following traffic generation rates have been adopted as part of the approved OWE Master Plan and MOD 3 studies:

- 1.892 vehicles per day per 100 m² of GFA, and
- 0.163 peak vehicles per hour per 100 m² GFA.

2.2 Approved MOD 3 Projected Traffic Generation

Accordingly, the approved TIA for MOD 3 estimates the following traffic generation for the OWE:



Precinct No.	GFA m ²	AM Peak	PM Peak	Daily
Precinct 1 ¹	122,082	94 (103) ²	74 (78)	2,059 (2,503)
Precinct 2	264,107	677 (920) ²	468 (629)	3,797 (4,901)
Precinct 3	57,819	94	94	1,094
Precinct 4	113,693	185	185	2,151
Precinct 5	35,640	58	58	674
Amenities	345	-	-	-
Total	595,765	1,108 (1,360)	879 (1,044)	9,776 (11,324)

Table 5: MOD 3 Approved Traffic Generation

Note: 1) Detailed first principles traffic generation assessment of Building 1A is included in MOD 2 TIA.

2) Figures in bracket () refer to the peak seasonal traffic generation influenced by Buildings 1A and 2B.

Accordingly, the following maximum peak hour and daily traffic movements (inbound + outbound) have readily been approved for the entire Estate:

- AM Peak 1,360 veh/hr,
- PM Peak 1,044 veh/hr
- Daily: 11,324 veh/day

Furthermore, the approved MOD 3 traffic report estimates the following AM, PM and Daily peak hour traffic generation for the **Precinct 2** during seasonal peak periods:

- AM Peak 920 veh/hr (823 veh/hr related to Building 2B operation),
- PM Peak 629 veh/hr (532 veh/hr related to Building 2B operation), and
- Daily: 4,901 veh/day (3,784veh/day related to the Building 2B operation).

2.3 Future Intersection Layouts

2.3.1 2026 Modelling Scenario (interim)

Indicative layouts of key intersections approved as part of the original SSD and MOD 3 approval are shown in **Figure 4**. Reference should be made to civil engineering drawings, prepared separately by AT&L, for detailed intersection and road designs.

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Figure 1: Approved Intersection Layouts – 2026 Modelling Scenario



2.3.2 2036 Modelling Scenario (Ultimate)

Furthermore, the original Concept Plan made allowances for potential – additional – upgrades to the Lenore Drive / WNSLR intersection by 2036, should this be deemed necessary by TfNSW at some point in the future. Accordingly, following intersection layout have previously been adopted for the ultimate modelling year (being 2036).

It is emphasised that additional upgrade works at this intersection are not proposed under this application and are generally attributed to additional background traffic growth to 2036. Notwithstanding, similar to the original SSD approval and MOD 3, sufficient space is expected to be provided at this intersection to accommodate the additional turning lanes necessary (as documented in the engineering drawings submitted by AT&L) should these forecast traffic volumes be realised and improvement works be required at some point in the future.



Figure 2: Lenore Drive / WNSLR intersection (Additional Upgrades) – 2036 Modelling Scenario



3 Description of the Proposal

Full details of the SSD are provided in the Environmental Impact Statement (EIS) which this TA accompanies. As mentioned before, this SSD refers to the design and built-form of Lots 2A, 2C and 2D included in Precinct 2 of the OWE. Broad changes to the Concept Plan required to reflect this SSD has separately been submitted to DPIE for assessment under a MOD 6 submission (yet to be determined). In this regard, this SSD and is focussed on the on lot built-form and compliance matters such as parking provisions and detailed design.

3.1 SSD Plans

A reduced scale copy of the SSD plans are provided in below figures for context. For detailed plans, please refer to the architectural package by SBA Architects.



Figure 3: Proposed Lot 2A Warehouse Development

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Figure 4: Proposed Lots 2C and 2D Warehouse Developments

3.2 Proposed SSD Description

This SSD seeks approval for the Stage 3 Development Application at OWE which broadly can be described as follows:

- Construction, operation and land-use approval of the warehouse and ancillary office facilities at Lots 2A, 2C and 2D with the detailed future on-site provisions outlined in Table 6.
- All proposed buildings will function as warehouse and distribution facilities with ancillary office uses,
- Proposed warehouses will operate as 24/7, and
- Lot 2A will be 14.9 metres in height, whereas Lots 2C and 2D will be 13.7 metres in height.



Lot No.	Warehouse GFA (m²)	Office GFA (m²)	Total GFA (m²)	On-site Car Parking Provision	Loading Bay Provisions
2A	44,000	2,400	46,400	208 ¹	25
2C-1	5,150	350	5,500	402	7
2C-2	4,735	330	5,065	49	6
2D	5,005	375	5,380	55 ³	6
Total	58,890	3,455	62,345	312	44

Table 6: Proposed SSD Characteristics

Notes: 1) Includes 6 accessible spaces,

2) Lots 2C-1 and 2C-2 will share parking. Includes 2 accessible spaces,

3) Lot 2D includes 2 accessible space.

3.3 Proposed MOD 6 Concept Plan

A reduced copy of the MOD 6 concept plan is presented in **Figure 5** to show an appreciation of the proposed Lots 2A, 2C and 2D locations within the MOD 6 plan. It is again emphasised that the MOD 6 application will be reviewed and assessed separate to this SSD. Furthermore, an area schedule comparison between the approved MODs 3, 5 and proposed MOD 6 is provided in below table for context.

Precinct No.	Precinct No. MOD 3 Approval (GFA, m ²)		MOD 6 Proposal (GFA, m ²)	Difference Between MOD 6 and MOD 5 (GFA, m ²)
Precinct 1	122,082	125,772	125,198	(-) 574
Precinct 2	266,186	266,186	269,390	+3,204
Precinct 3	57,819	57,819	56,759	(-) 1,060
Precinct 4	113,693	113,693	112,123	(-) 1,570
Precinct 5	35,640	35,640	35,640	0
Amenities Lot	345	345	345	0
Total	595,765	599,455	599,455	0

Table 7: Area Comparison

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It is evident that the proposed MOD 6 (including the latest built form and design of Lots under this SSD) will result in no changes to the OWE GFAs from what has been approved under MOD 5.



Figure 5: MOD 6 Concept Plan

Note: Lot 2B (Stage 2 DA including 206,968 m² GFA combined warehouse and office) has been assessed and approved separately under SSD-10397.

3.4 Vehicular Access Strategy

The vehicular access strategy for the development can be summarised as follows:

3.4.1 Lot 2A

Lot 2A truck movements will be facilitated via an access onto Estate Road 03 to northern boundary of the OWE precinct. Furthermore, 2 car entry/exit points will be provided directly onto Estate Road 03 to facilitate access to the proposed car parking areas (refer **Figure 6**).

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Figure 6: Proposed Lot 2A Vehicular Access

3.4.2 Lots 2C and 2D

Truck access into the proposed hardstand area associated with Lots 2C and 2D will be provided via a consolidated access onto Estate Road 03. This access will also provide vehicular connectivity to Lot 2D car parking facility. Proposed car parking facilities associated with Lots 2C-1 and 2C-2 will be provided via a single vehicular access onto Estate Road 03. Reference should be made to **Figure 7**.



Figure 7: Proposed Lots 2C and 2D Vehicular Access

In summary, the proposed SSD will provide sufficient vehicular accessibility for all three warehouses. Design of all these access points have been reviewed against relevant Australian Standards as outlined in Section 7.



4 Parking Provisions

4.1 Approved Parking Rates

For clarity, the approved car parking rates — in accordance with Condition B13 — are outlined below.

Land Use	Parking Rate
Warehouse	1 space per 300 m ²
Office	1 space per 40 m ²
Accessible Parking	2 spaces for disability parking for every 100 car parking spaces

Table 8: Approved Parking Rates

4.2 SSD Parking Assessment

Applying the approved parking rates result in the following parking requirements for each building.

Lots	Warehouse GFA (m ²)	Office GFA (m ²)	Total GFA (m²)	Parking Requirements	Parking Provision
2A	44,000	2,400	46,400	207	208
2C-1	5,150	350	5,500	26	4Q ¹
2C-2	4,735	330	5,065	24	73
2D	5,005	375	5,380	26	55
Total	58,890	3,455	62,345	283	312

 Table 9: Car Parking Demand and Supply

Note: 1) Lots 2C-1 and 2C-2 will share parking.

As indicated in the table above, the proposed design generally meets and exceeds the required on-site car parking spaces. It is noted that the provision of Lot 2C results in a shortage of 1 car parking space comparing to the parking requirements; however, the design review of Lot 2C suggests that there is sufficient space for Lot 2C to provide an extra parking space and it is expected that the parking requirement can readily be satisfied as part of the CC stages of the project.



4.3 Accessible Parking

Applying the accessible parking requirement rate (as outlined in Table 8) results in the following accessible parking requirements.

Lots	Parking Provision	Accessible Parking Requirement	Accessible Parking Provision
2A	208	5	6
2C-1	40	1	0
2C-2	49	I	Ζ
2D	55	2	2
Total	312	8	10

Table 10: Accessible Car Parking Demand and Supply

It is evident that the proposed accessible parking meets and exceeds the requirements.

4.4 Bicycle Parking

Condition B14 of the approval requires that the applicant shall provide bicycle racks in accordance with the *Planning Guidelines for Walking and Cycling* (December 2004, NSW Department of Infrastructure, Planning and Natural Resources and Roads and Traffic Authority). Accordingly, the following bicycle rates are applicable:

- Staff Bicycle Parking Requirement
 3-5% of staff number (for each building)
- Visitor Bicycle Parking Requirement
 5-10% of staff number (for each building)

It is noted that the detailed staff number is not available at the time of preparation of this TA.

In this regard the SSD plans currently provide for to 20 bicycles spaces at Lot 2A.

It is noted that the Lots 2C-2D do not show bicycle parking facilities, however, provision of adequate bicycle parking for the SSD can be considered as a condition of consent which can readily be satisfied as part of the CC stages of the project.



5 Traffic Assessment

This TA refers to the approved MOD 3 traffic report for the assessment of this SSD. In this regard, consideration has been given to the theoretical traffic generation of Precinct 2 (including all Lots) post completion of this SSD and comparing that to the approved OWE generation for MOD 3.

5.1 SSD Traffic Generation

Applying the approved traffic generation rates (refer Section 2.1) to the proposed GFA results in the following estimated traffic generation (two-way, inbound + outbound):

Lot No.	GFA m ²	AM Peak	PM Peak	Daily
2A	46,400	76	76	878
2C-1	5,500	9	9	104
2C-2	5,065	8	8	96
2D	5,380	9	9	102
Total	62,345	101	101	1,180

Table 11: SSD Traffic Generation

5.2 Precinct 2 Traffic Generation

Referring to Section 5.2, the proposed Lot 2B (approved under SSD-10397) operational projected traffic volumes have also been added to the above SSD theoretical traffic generation to estimate the overall projected traffic volumes of the proposed Precinct 2:

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Lot No.	GFA m ²	AM Peak PM Peak		Daily
2A	46,400	76 76		878
2B ¹	206,968	823 532		3,784
2C-1	5,330	9	9	104
2C-2	4,930	8	8	96
2D	5,300	9	9	102
Total	268,928	924	633	4,964

 Table 12: Precinct 2 Traffic Generation (Post SSD)

Note) 1: traffic volumes for Lots 2B refers to the peak seasonal period for conservative assessment.

It is emphasised that the traffic assessments included in this SSD are conservative to reflect the worst case.

5.3 Traffic Impacts

It is noteworthy that the MOD 6 traffic report has already included assessment of the traffic from the broader OWE, including this SSD. However, noting that MOD 6 traffic report has not yet been approved, the impact of the SSD traffic has been assessed against the MOD 3 approved traffic projections indicated in Section 2.2.

For clarity, the MOD 6 traffic report clarifies that the proposed OWE built form under MOD 6 (including this SSD) will not have any material impact onto the surrounding road network and remains similar to what has been assessed and approved.

5.3.1 SSD Impact on Precinct 2 Traffic

Following **Precinct 2 maximum traffic projections** comparison have been made against MOD 3 Precinct 2 approved thresholds:

- AM Peak (approved MOD 3 threshold 920 veh/hr) (+) 4veh/hr from this SSD,
- PM Peak (approved MOD 3 threshold 629 veh/hr) (+) 4veh/hr from this SSD, and
- Daily (approved MOD 3 threshold 4,901 veh/day) (+) 63veh/day from this SSD.

Accordingly, the proposed SSD will increase the traffic project by 4 veh/hr during road network peak hours which is considered a minor increase and as such does not have any material traffic impact onto the operation of this Precinct or the broader road network.



5.3.2 MOD 6 (Including SSD)Traffic Analysis

Traffic generation of the SSD and the proposed MOD 6 has been assessed and summarised in the following table.

	MOD 3 Approval			MOD 6 Proposal (including this SSD)				
Building	CEA	Trip Generation		CEA.	т	Trip Generation		
	GFA	AM	РМ	Daily	GFA	AM	РМ	Daily
Building 1A	107,212	79	54	2,222	107,212	79	54	2,222
Building 2B	206,968	823	532	3,781	206,968	823	532	3,781
Other Buildings	281,240	458	458	5,321	284,930	464	464	5,391
Amenity Building	345	-	-	-	345	-	-	-
Total	595,765	1,360	1,044	11,324	599,455	1,366	1,050	11,394

Table 13: Traffic Generation Comparison

As indicated in the table above, resultant traffic generation of MOD 6 is generally consistent with the approved MOD 3 traffic generation. The traffic impact of proposed MOD 6 is expected to have no significant departure from the approved MOD 3; therefore, does not warrant any further traffic modelling assessment.

It is also noteworthy to mention that the proposed MOD 6 (including this SSD GFAs) results in no changes to the recently approved GFA for the entire OWE under MOD 5. Hence it can further ascertain that the proposed MOD 6 and this SSD traffic will not have any traffic impact over what has already been approved.

In summary, the projected traffic associated with this SSD will not result in requirements for any additional upgrades onto the surrounding road network during interim (2026) and ultimate (2036) from what has already been approved.



6 Preliminary Construction Traffic Management

A detailed CTMP for the construction of Lots 2A, 2C and 2D will be prepared subsequent to the SSD approval and at CC stage of the project.

6.1 Haulage Route

In this regard it is worth mentioning that this SSD are mainly related to the internal warehouse construction, therefore, the traffic associated with the construction should not be of any issue onto the surrounding road network already designed and approved for operational of the entire OWE. Furthermore, it is noteworthy that the construction of this SSD is expected to occur post completion of WNSLR and its connection to Lenore Drive. In this regard, the construction traffic can access the signal to enter/exit OWE without having to traverse Mamre Road and Aldington Road.

6.2 Construction Traffic Impact

Noting that the WNSLR / Lenore Drive intersection has been modelled and approved for the **operational** *traffic impacts under MOD 3 approval*, as such the SSD construction traffic volumes expected to be lower than the operational traffic generation of the OWE are not expected to cause any issues on the operation of this signal.

6.3 CTMP Summary

In summary:

- Proposed construction works will occur after completion of WNSLR and its connection to Lenore Drive,
- Construction vehicles will access the Site via Lenore Drive / WNSLR signal,
- Lenore Drive / WNSLR has been modelled for the operational traffic of the entire OWE, therefore, should be able to accommodate the construction traffic for this SSD noting that the construction traffic volumes are lower than the operational traffic volumes.
- While a separate and detailed CTMP will be prepared as part of the CC stage of the project, this TA suggests that the construction traffic for the SSD will not have any material impact onto the surrounding road network.



7 Design Commentary

7.1 Relevant Design Standards

The site access, car park and loading areas for all buildings shall comply with the following relevant Australian Standards:

- AS 2890.1 for car parking areas,
- AS 2890.2 for commercial vehicle loading areas,
- AS 2890.3 for bicycle parking, and
- AS 2890.6 for accessible (disabled) parking.

It is expected that any detailed construction drawings in relation to the car park or site access would comply with these Standards. Furthermore, compliance with the above Standards are required under D69 (a) condition of consent.

7.2 Design Vehicle

All warehouses have been designed to accommodate movements of 26.0 metres B-Doubles as the design vehicle.

7.3 Estate Roads

All Estate Roads, intersections and junctions thereof have been designed to accommodate trucks up to 26m B-doubles. Reference should be made to the turn paths drawings prepared by AT&L, provided separately.

NO PARKING and NO STOPPING restrictions are proposed on all future public roads within OWE.

7.4 Access and Internal Design

Internal hardstand area as well as the vehicular accesses to all warehouses are capable of accommodating the design vehicles. In this regard, consideration should be given to the swept path analysis included in **Appendix B**.



8 Summary & Conclusions

Ason Group has been engaged by Goodman Property Services (Aust) Pty Ltd (Goodman) to prepare a Transport Assessment (TA) to assess the traffic and parking implications associated with development of Lots 2A, 2C (2-C1 and 2C-2) and 2D within the Oakdale West Estate (OWE). This TA has been prepared to support the SSD-9794683.

8.1 Key Findings

The key findings of this TA are as follows:

 The estimated proposed SSD traffic generation having regard for the approved traffic generation rates as part of the MOD 3 traffic report are as follows:

Lot No.	GFA m ²	AM Peak	PM Peak	Daily
2A	46,400	76	76	878
2C-1	5,500	9	9	104
2C-2	5,065	8	8	96
2D	5,380	9	9	102
Total	62,345	101	101	1,180

- Traffic associated with the proposed Lots 2A, 2C and 2D has already been assessed as part of the broader concept plan assessment. In this regard, the traffic report accompanying the approved MOD 3 included detailed modelling for the surrounding road network. It is noted that the key intersections within the broader locality were assessed as part of the MOD 3 approval under 2026 interim and 2036 ultimate scenarios.
- The proposed GFAs for the Lots subject of this SSD are only marginally (+3,204 m²) greater than GFAs approved for Precinct 2 under MOD 3 and MOD 5 approvals. Therefore, traffic associated with Precinct 2 will only be +4 veh/hr above what has been approved for this Precinct which is a minor increase.
- Notwithstanding, a separate MOD 6 submission to SSD-7348 has been proposed which seeks changes to the Concept Plan to facilitate this SSD; those overall changes to the Concept Plan resulting in a no changes to the overall GFA across the Estate from what has been approved for MOD 5. Traffic analysis accompanying that MOD 6 (including this SSD) confirms that the overall traffic generation of the Estate will be consistent with the approved MOD 5, hence, neither the MOD 6 nor this SSD is expected to result in any adverse traffic impact onto the broader road network.



- In summary, the projected traffic associated with this SSD will not result in requirements for any additional upgrades onto the surrounding road network during interim (2026) and ultimate (2036) from what has already been approved.
- On-site parking provisions for all Lots under this SSD generally meet and exceed the requirements under B13 condition of consent to the original SSD application. Therefore, the proposed SSD will not result in any adverse parking impact onto the surrounding road network.
- Construction of estate-wide infrastructure is currently underway as part of earlier approvals.
 Construction traffic associated with the built-form of the subject Lots of relevance to this SSD will require moderate contractor and delivery numbers, such that the construction traffic generation shall remain less than the forecast operation volumes outlined above.
- Furthermore, all construction associated with the SSD will occur post-completion of the WNSLR (being constructed under existing approvals) such that no construction traffic associated with Stage 3 will require the use of Bakers Lane or Aldington Road; instead being afforded safe access via the (soon to be completed) WNSLR / Lenore Drive signalised intersection.
- Noting that the WNSLR / Lenore Drive intersection has been assessed for the operational traffic impacts under MOD 3 approval and the construction traffic volumes which are expected to be of a lower order when compared to the operational traffic, construction traffic will not have any unacceptable impacts on the surrounding road network.
- Detailed design of each individual building is deferred to their respective DA assessment. However, the site access, car park and loading areas for all buildings are expected to comply with the following relevant Australian Standards:
 - AS 2890.1 for car parking areas,
 - AS 2890.2 for commercial vehicle loading areas,
 - AS 2890.3 for bicycle parking, and
 - AS 2890.6 for accessible (disabled) parking.
- It is expected that any detailed construction drawings in relation to the car park or site access would comply with these Standards. Furthermore, compliance with the above Standards would be expected to form a standard condition of consent to any development approval.

8.2 Conclusion(s)

In summary, this SSD is supportable on traffic planning grounds and will not result in any adverse impacts on the surrounding road network or the availability of on-street parking.



Appendix A

MOD 3 SIDRA Modelling Results

2026 Intersection Performance

				SSDA 73	48 Approval		N	lodification 3 (Non-peak Seasona	I)		Modification 3	8 (Peak Seasonal)			
Intersection	Control	Period	Overall Intersection Delay - LoS	Approach	Average Queue (m)	Average Delay (sec)	Overall Intersection Delay - LoS	Approach	Average Queue (m)	Average Delay (sec)	Overall Intersection Delay - LoS	Approach	Average Queue (m)	Average Delay (sec)		
				S	88	54.6		S	100	54.2		S	110	57.7		
			10.2 C	E	116	38.0	45.9 0	E	129	45.0	53.7 D	E	152	53.6		
		AIVI	40.3 - C	N	9	62.8	43.8 ° D	N	8	62.6	52.7 - D	N	8	62.6		
WNSLR /	Cianal		i i	w	169	31.5		w	225	39.4		w	269	47.8		
Lenore Drive	Signal			S	105	28.2		S	109	31.0		S	116	32.6		
		DM	21.7.6	E	76	28.2	24.0 6	E	79	31.4	26.2 6	E	82	32.8		
		PIVI	51.7 - C	N	36	62.5	34.9 - C	N	37	66.7	30.2 - C	Ν	37	66.7		
				w	42	50.5		w	77	50.5		W	85	50.6		
				S	6	10.7		S	7	10.7		S	8	10.7		
		A.M.4	12.1 A	E	1	13.1	124 4	E	1	13.4	126 4	E	1	13.6		
		AIVI	15.1 - A	N	11	10.9	15.4 - A	N	12	10.9	13.0 - A	Ν	13	10.9		
WNSLR /	Devedebevet			w	1	11.7		w	1	12.2		w	1	12.4		
Lockwood Road	Roundabout			S	16	11.3		S	16	10.9		S	16	11.0		
		014	14.0 0	E	2	12.1	14.0 0	E	2	12.7	15 1 D	E	2	12.8		
		PIVI	14.0 - D	N	6	10.7	14.9 - B	N	8	10.7	15.1 -В	Ν	9	10.7		
				w	3	14.8		w	4	14.9		w	4	15.1		
				S	6	7.8		S	5	8.2		S	6	8.7		
WNSLR /		AM	12.0 - A	N	11	12.0	11.8 - A	N	11	11.8	11.9 - A	Ν	12	11.7		
Estate Road 1	Deve de beut			w	2	11.8		W	5	11.6		w	6	11.9		
	Roundabout		15.1 - B	S	9	6.4		S	9	7.6		S	10	8.0		
		PM		N	8	12.4	13.4 - A	N	8	11.9	14.0 - A	Ν	9	11.9		
			w	9	15.1		w	6	13.4		w	8	14.0			
		АМ	1 28.4 - B	S	1	35.8	29.1 - C	S	2	35.6	í	S	2	35.6		
				E	37	32.0		E	34	30.5	20 5 6	E	34	29.8		
				N	70	35.1		N	69	36.4	29.5 -C	N	72	38.2		
	Signal			w	97	22.8		w	112	24.0		w	117	24.2		
WINSLR / SLR	Signal	PM	21.5 . 6	S	5	31.0	31.6 - C	S	6	37.8		S	6	37.8		
				E	107	30.8		E	131	34.7	22.4.6	E	139	36.0		
			51.5 - C	N	95	45.1		N	80	42.0	32.4 - C	Ν	80	42.0		
			1	w	98	21.1		w	49	20.6		w	52	21.2		
								s	17	69.4		s	17	69.4		
								F	71	11.3		F	73	11 /		
		AM					17.2 - B	N	20	71.0	17.3 - B	E N	20	72.2		
								w	154	16.1		w	160	16.3		
SLR x Estate Rd 01	Signal							s	41	80.7		·····	41	80.7		
										F	103	15.5		F	197	15.7
		PM	1				18.4 - B	N	19	15.5 18.5 - E	18.5 - B	N	19	80.1		
			1					w	99	12.8		w	101	12.9		
			1				-	 F	86	8.9		F	112	10.7		
		ΔМ					134-4	N	25	44.3	16.0 - B	N	38	10.7		
SLR x Estate Rd 03 Signal		,					10.11	14/	120	12.2	10.0 0	14	142	12.6		
						F	120	9.6			142	13.0				
	PM					16.8 - B	N	22	41.2	20 1 - B	N	255	39.6			
	PIVI					10.0 0	w	115	24.0	2012 0	w	120	27.0			
								••• c	115	0.2		۰۰ د	120	0.2		
		AM					9.3 - A	F	1	3.0	9.3 - A	F	1	3.0		
								w	7	7.6		w	7	7.6		
Estate Rd 01 x Estate Rd 03	Signal		·				;		<u>_</u>	85		· · · · · · · · · · · · · · · · · · ·		 9.9		
		PM					85-A	F	2	3.3	98-A	F	-	3.0		
		1 191					0.5 - A	L \\\/	2	3.3 7 7	3.0 - A	L W/	2	3.0		
								vv	2	1.1		vv	3	7.0		

2036 Intersection Performance

				SSDA 73	48 Approval		N	lodification 3 (Non-peak Seasona	il)		Modification 3	8 (Peak Seasonal)		
Intersection	Control	Period	Overall Intersection Delay - LoS	Approach	Average Queue (m)	Average Delay (sec)	Overall Intersection Delay - LoS	Approach	Average Queue (m)	Average Delay (sec)	Overall Intersection Delay - LoS	Approach	Average Queue (m)	Average Delay (sec)	
				S	79	34.3		S	87	33.5		S	91	33.1	
		AM	37.9 - 0	E	125	39.9	37.9 - 0	E	126	42.3	382-0	E	130	42.4	
		-	57.5 - C	N	5	29.3	57.5 - C	N	5	28.4	30.2 - C	Ν	5	28.4	
WNSLR /	Signal		i	W	100	38.7		W	110	37.4		w	117	38.3	
Lenore Drive	Signal			S	107	22.7		S	104	24.5		S	106	24.6	
		PM	26.9 - 0	E	57	24.8	29.6 - 0	E	70	26.6	29.6 - 0	E	74	27.3	
			20.5 0	N	19	28.2	29.0 - C	Ν	20	29.0	25.0 0	Ν	18	28.1	
				W	34	52.9		W	34	55.1	1	W	34	52.3	
				S	7	10.7		S	9	10.8		S	10	10.8	
		AM	17.9 - B	E	1	17.9	181-B	E	1	18.1	18.7 - B	E	1	18.7	
				N	32	12.1		N	35	12.0		N	38	12.1	
WNSLR /	Roundabout -			W	2	12.3		W	2	12.8		W	2	13.0	
Lockwood Road				S	18	11.4		S	17	11.0		S	18	11.0	
		PM	15.1 - B	E	3	13.3	14.9 - B	E	3	14.0	15.1 - B	E	3	14.2	
				N	10	10.8		Ν	13	10.9		N	14	10.9	
				W	3	15.1		W	3	14.9		W	3	15.1	
				S	8	8.0		S	7	8.3	12.5 - A	S	7	8.8	
WNSLR /		AM	12.5 - A	N	38	12.5	12.0 - A	N	45	11.8		N	51	11.7	
Estate Road 1	Roundabout -		İ	W	3	12.2		W	5	12.0		W	7	12.5	
			17.7 - B	S	9	6.5	13.7 - A	S	10	7.6	14.3 - A	S	10	8.0	
		PM		N	15	12.7		N	13	11.9		N	15	11.9	
				W	14	17.7	[W	7	13.7	ļ	W	8	14.3	
		AM	40.3 - C	S	2	44.0	51.1 - D	S	4	51.9	53.8 - D	S	4	51.9	
				E	59	42.7		E	74	41.7		E	76	41.7	
				N	191	44.3		N	243	63.8		N	243	64.1	
WNSLR / SLR	Signal –			W	146	35.4		W	233	42.6		W	257	48.9	
		PM		S	12	47.0	40.4 - C	S	10	60.6	52.3 - D	S	11	64.5	
			40.8 - C	E	183	52.7		E	196	48.4		E	250	66.1	
				N	170	54.2		N	171	55.5		N	222	76.5	
				W	63	18.2		W	66	20.9		W	68	21.0	
								S	20	80.0	1	S	20	81.5	
							170 0	E	186	14.4	107.0	E	281	18.6	
		AIVI					17.8 - B	N	32	83.0	19.7 - В	N	34	88.6	
CLD v Catata Dd 01	Signal							w	190	16.1		w	193	15.7	
SER X ESTATE RU UT	Signal							S	44	89.7		S	47	97.1	
		DM					10.1.0	E	280	17.8	20.2 C	E	395	36.6	
		FIVI					19.4 - 8	N	19	81.2	30.3 - C	Ν	19	81.2	
									W	128	12.9		W	131	13.0
								E	222	18.8		E	423	40.4	
		AM					23.2 - B	N	23	51.0	49.4 - D	Ν	61	76.6	
SLR v Ectato Rd 02	Signal		i					W	262	25.6		W	356	54.0	
SLR x Estate Rd 03	Signal		1					E	235	15.6		E	334	26.3	
		PM	1				26.1 - B	N	31	58.3	38.4 - C	Ν	44	64.8	
								W	212	38.0		W	276	52.3	
								S	1	9.3		S	1	9.7	
		AM					9.3 - A	E	4	3.0	9.7 - A	E	5	3.0	
Estate Rd 01 v Estato Rd 02	Signal							w	2	7.6		w	3	7.6	
LSLOLE NU UI X ESLOLE NU US	Jightan							S	1	8.5		S	1	8.8	
		PM	1				8.5 - A	E	3	3.3	8.8 - A	E	3	3.3	
			1					w	2	7.7		w	2	7.7	



Appendix B

Swept Path Analysis





Boundary	+ RL 68.00	
FNC-2 Gate Carparking (102) Carparking (102)	Gi 12.5m Truck Entry / Exit	
10m Access Road		10m Access Road
Notes:	Document Info:	roject:
This drawing is provided for information purposes only and should not be used for construction.	Drawn by: JamesLaidler 1: File name: 1518d01v2 Warehouse 2A.dwg 0 Client: 0 Goodman 1:	9-Nov-20 9-Nov-20 S c a l e @ A3 [scale] Drawing Numb AG.03

















Appendix C

Preliminary Sustainable Travel Plan



9 Preliminary Sustainable Travel Plan

9.1 Purpose

This plan sets out objectives and strategies to assist both the DPIE and Penrith City Council in achieving their goals to improve sustainability of work trips for the proposal. This Sustainable Travel Plan (STP) includes a review of the existing transport choices and sets targets so that the effective implementation of the STP can be assessed. These targets are intended to be realistic but ambitious enough to initiate substantiative behavioural change to achieve the desired outcomes, given existing and future multi-modal transport networks.

This STP is expected to be coordinated with the site tenants or their representatives. It shall be reviewed and updated regularly as part of an ongoing review to ensure it remains relevant and reflective of current conditions.

9.2 Travel Mode Share Analysis

It is noteworthy that the OWE is still in development, as such existing travel patterns cannot be ascertained at this time. Therefore, for the purposes of the STP, a neighbouring travel zone with existing development, DZN114695449, has been identified and assessed.

Existing travel patterns of employees within the surrounding area were surveyed in the 2016 Census and presented in the Journey to Work (JTW) dataset provided by TfNSW. The JTW information for the surrounding locality is presented in **Figure 6** below.

It is evident that the area experiences a high proportion of private vehicle trips (inclusive of vehicle driver and vehicle passenger modes) and similarly a low proportion of public and active transport modes; reflective of the current availability of non-car opportunities. Accordingly, the mode share analysis indicates a high likelihood for staff associated with the development to use private vehicles as the primary mode of transport.

asongroup



Figure 8: Journey-To-Work 2016 Profile

9.3 Strategic Context

9.3.1 Western Sydney Employment Area

The Oakdale Precinct is located within the Western Sydney Employment Area (WSEA), part of the Western Sydney Priority Growth Area – planning for which being driven by the DPIE. A key outcome of the project involves providing land opportunity for industry and employment, including improvements in connectivity to benefit transport, logistics, warehousing and office space of the area.

9.3.2 North South Rail Link

The North South Rail Link is a rail access corridor supporting the urban growth and employment through the Western Sydney Priority Growth Area, providing connection between the northern growth centres, through the Badgerys Creek and southwards. The corridor study identifies St Marys Station and Schofields Road as junction points for the corridor, passing through the WSEA site and towards the Western Sydney airport. This rail link will provide additional connectivity to Erskine Park and Orchard Hills from the north and south, widening the potential catchment area of employment and improving workplace accessibility for public transport modes.



9.4 Surrounding Public Transport Services

9.4.1 Railway Services

The Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area (Transport for NSW, December 2013) states that rail services influence the travel mode choices of areas within 800 metres (approximately 10 minutes' walk) of a railway station. The closest railway station to the Oakdale West Precinct is Mt Druitt Station, is approximately 7km north of the site. This would imply that commuting by rail would have minimal influence on workplace travel.

It should be noted that several studies conducted for the Broader Western Sydney Employment Area (BWSEA) reference the potential development of connecting freight or passenger corridor to the Site's west, connecting the T1, T2 and T5 lines to Badgerys Creek Airport¹².

9.4.2 Bus Services

Having regard to the standard bus travel, the *Integrated Public Transport Service Planning Guidelines* state that bus services influence the travel mode choices of sites within 400 metres (approximately 5 minutes) of a bus stop. As there are no existing bus services in the proximity of the Site, this implies that bus commuting would have minimal influence on workplace travel.

As outlined in the WSEA, a new regional road network is being developed interlinking the industrial precincts within the region to support the growth and continued development of the area. This presents the potential for an accompanying expansion in the bus service network to connects places of employment within the region.

Currently, Goodman is investigating opportunities to facilitate bus service routes for the Oakdale West Precinct.

¹ Western Sydney Rail Needs Scoping Study <u>https://www.westernsydneyairport.gov.au/files/WSRNSS_Outcomes_Report.pdf</u>

² Broader Western Sydney Employment Area – Structure Plan <u>https://www.planning.nsw.gov.au//media/Files/DPE/Reports/broader-western-sydney-employment-area-structure-plan-transport-planning-preliminary-analysis-report-exhib-draft-2013-06.pdf?la=en</u>



9.5 Objective and Targets

9.5.1 Objectives

The primary objectives of this STP are to:

- Reduce the environmental footprint of the development,
- Promote the use of 'active transport' modes such walking and cycling, particularly for short-medium distance journeys,
- Reduce reliance on the use of private vehicles for all journeys,
- Encourage a healthier, happier and more active social culture.

Having regard for the above, this Plan adopts the following movement hierarchy with priority given to 'active transport' followed by mass public transport and lastly the use of cars and other private vehicles.



Figure 9 : Movement Hierarchy

In a broad sense, this STP is intended to encourage the use of active transport thereby reducing the overall distance travelled by private vehicles.



It is noted that the above hierarchy applies to staff and visitor (i.e. car) movements. Given the nature of the development for warehouse and industrial purposes, it is acknowledged that there is limited ability to reduce the number of commercial vehicle movements without compromising site operations.

9.5.2 Mode Share Targets

With the above objectives in mind, the mode share targets outlined in below table are proposed, based on the JTW Profile discussed in Section 6.2.

Travel Mode.	Existing (DZN 114695449)	Proposed	Relative Change
Walking	0%	0%	0%
Cycling	0%	5%	+ 5%
Train ¹	1%	5% ²	+ 4%
Bus ¹	1%	10%	+ 9%
Vehicle Passenger	6%	10%	+ 4%
Vehicle Driver	90%	68%	- 22%
Other/Mode Not Stated	2%	2%	0%

Table 14: Mode Share Targets (Primary Mode of Travel)

Note: 1) Key opportunity in future with provision of further regional infrastructure

2) The JTW classifies multi-modal journeys by indicating the 'primary' mode only, and is considered in this proposition.

Given the limited options for modal availability in the area, it is difficult to quantify the degree of modal shift from private vehicular usage to public and active transport modes. However, in the context of development outlined in the above sections, it is evident that there is clear direction in a strategic context for the expansion of public and active transport networks to serve the western Sydney area.

In this context, the mode share targets identified above can be considered with a focus on 20% for public and active transport, and 80% on private car usage. This ratio is reflective of travel zones observed to have higher degrees of road network connectivity and limited access to rail facilities. It shall be necessary to adjust these mode share targets as future developments and planned transport infrastructure are realized, allowing for more ambitious targets to be set.

The changes made to cycling, train and bus travel modes are specifically reliant on the improvement of connectivity and additional infrastructure to facilitate them, which is anticipated to occur through several developments and initiatives associated with the broader WSEA. Similarly, the 'Vehicle Passenger' travel mode increase will primarily be met through Precinct specific initiatives.



9.6 Action Plan

9.6.1 Action Plan Measures

The following specific actions have been identified to aid achievement of the targets outlined in Section 6.5.2. It is anticipated that relevant actions in below table should be conveyed to the tenants at the time of tenancy agreement.

Identified strategies include promotion of some event or day-specific activities. In isolation, these may not dramatically alter the day-to-day travel of staff. However, there are benefits of such activities whereby participation can increase awareness of alternative modes of travel that can then form the basis of future travel choices.

ltem No.	Action / Description	Responsibility
1. Genera	al	
1.1	Establish a centralised Travel Plan Coordinator (TPC) which is to take responsibility for the ongoing review and monitoring of this Plan. This person(s) shall also provide direction to tenants in relation to tenant-specific requirements arising from the STP.	Goodman / Strata Manager
1.2	Establish and maintain a transport coordinator to engage with the overall transport coordinator above.	Tenant
1.3	Provide 'Travel Welcome Pack' for newly employed staff, highlighting	TPC /
	alternate modes of transport other than use of a private vehicle.	Tenant
1.4	Review of STP as a regular item on the agenda for the Tenant / Landowner meetings.	TPC
1.5	Encourage flexible work hours, where practicable. Whilst not reducing mode share, this can permit travel outside of peak periods which has other positive benefits.	Tenant
1.6	Preparation of a Transport Access Guide (TAG) – refer Appendix D.	TPC
2. Walkir	ng and Cycling	
2.1	Lobby Council / DPIE for improved cycle connections in the broader area.	TPC
2.2	Promote participation in the National <u>Ride2Work</u> Day activity.	Tenant
2.3	Promote participation in Walk to Work Day (and other) events.	Tenant
2.4	Provide and maintain clearly signposted bicycle parking within the Site.	Developer / Goodman
2.5	In accordance with the 5% cycling mode share target, sufficient secure parking spaces and 'EoT' facilities shall be provided and maintained. (NOTE: this can be staged to reflect realised demand)	Developer / Goodman

Table 15: Action Plan Measures



ltem No.	Action / Description	Responsibility
3. Public	: Transport	
3.1	Advocate for TfNSW to improve public transport services in response to increased development within the surrounding area.	Goodman / TPC
3.2	Update the STP to reflect changes to any bus routes and service times.	TPC
3.3	Undertake a review to promote initiatives for staff using public transport.	TPC / Tenant
4. Share	d Vehicles	
4.1	Review initiatives for staff to promote car-pooling. This may include (but not limited to) the provision of online services or forums to facilitate ease of finding carpooling scheme participants.	TPC / Tenant
4.2	Undertake research in the feasibility of providing shuttle services to and from the Site to train stations or other interchange nodes. This may require additional coordination with surrounding precincts to facilitate additional capacity potential.	TPC
4.3	In longer term, engage with Car Share operators to encourage provision of Car Share pods in proximity to the site. This transport option – for miscellaneous travel throughout the day – can then alleviate pressure for staff to drive as part of the primary mode of travel to work.	TPC

Bicycle parking spaces and End of Journey facilities are expected to be provided on-site to support the above Action Plan.

9.6.2 Communications Strategy

Welcome Packs

New staff shall be provided with a 'welcome pack' as part of the on-site induction process which includes the STP and other information in relation to sustainable transport choices. This pack shall include a copy of the Travel Access Guide (TAG) as well as general information regarding the health and social benefits of active transport. Advice on where to find further information should also be included such as links to Sydney Cycleways website (<u>http://www.sydneycycleways.net</u>).



9.7 Governance & Support

9.7.1 Travel Plan Coordinator

A person(s) shall be nominated as the Travel Plan Coordinator (TPC) and be responsible for:

- Engagement with the future tenants on-site,
- Implementation and promotion of the STP actions,
- Monitoring the effectiveness of the STP (refer to monitoring requirements outlined in Section 6.7.3) and ongoing maintenance of the Plan,
- Provide advice in relation to transport-related subjects to staff, tenancy management and visitors, as required, and
- Liaise with external parties (i.e. Council, public transport and car share operators) in relation to Travel Plan matters.

This role does not necessarily require full-time position; however, it should be clearly designated among the key responsibilities of the building management group.

This may include financial incentives for staff to use active transport and public transport to travel to work. However, this is not a mandatory requirement and would be subject to the management discretion.

9.7.2 Resourcing

It is not anticipated that the maintenance of this STP will have significant ongoing cost implications and shall be reviewed on an annual basis by the TPC in order for the best outcome.

9.7.3 Plan Maintenance

This Plan shall be subject to ongoing review and will be updated accordingly. Regular reviews – ideally on annual basis – will be undertaken by the TPC, as required. Key considerations regarding the review of the STP shall be:

- Updating baseline conditions to reflect any changes to the transport environment in the vicinity of the Site such as changes to bus services, new cycle routes etc. In this regard, review of the STP may be undertaken on a more frequent basis,
- Tracking progress against proposed travel mode targets,
- To identify any shortfalls and develop an updated action plan to address issues, and



- To ensure travel mode targets are updated (if necessary) and to ensure they remain realistic but also ambitious.
- To revise mode share targets and develop strategies that encourage the use of public and active transport and that discourage single occupant car travel to the site, as future public and active transport improvements around the development site occur.

9.7.4 Travel Mode Audit Requirements

Travel mode surveys will be undertaken to determine the proportion of persons travelling to/from the site by each transport mode. This will be in the form of annual travel mode questionnaire surveys to be completed by all persons attending the Site, as far as practicable. This survey may be undertaken online or in-person at the discretion of the TPC. A sample of a typical travel mode questionnaire form is included in **Appendix E**.



Appendix D

Transport Access Guide (for Lots 2A, 2C and 2D)







Appendix E

Sample Travel Mode Questionnaire



Instructions for Surveyor(s)

- 1. The Survey Form (over page) should be completed by EVERY PERSON attending the site on a particular day.
- 2. This survey should be completed SEPARATELY for EACH TRIP undertaken



Travel Mode Questionnaire Survey Form

Date:

Approximate Time:

Q1. Are you one of the following?

□ Office staff	Company driver / sub-contractor
Courier / office delivery	□ Warehouse ground staff
Casual contractor	□ Other (Please specify) .

Q2. How did you travel to / from the site today?

Walked only	□ Car share vehicle
Bicycle only	□ Motorcycle / scooter
Train	□ Car (as passenger)
□ Bus	□ Car (as driver)
🗆 Taxi	□ Other (Please specify)

Q3. If you drove to the site, where did you park?

□ Not applicable – did not drive	□ On-street
□ On-site car park	□ In other nearby off-street car park
On-site within truck hardstand	□ Other (Please specify)

Q4. What is your Residential Postcode?



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