

Ref: P1277r01v1 6/04/2020

Document Control

Project No: P1277r01

Project: Moorebank Precinct West – Stage 3

Client: Tactical

File Reference: P1277r01 TA_MPW Stage 3

Revision History

Revision	Date	Details	Author	Approved by
-	18/02/2020	Draft		
1	06/04/2020	Issue I		

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Glossary

Abbreviation	Description
СС	Construction Certificate
CoC	Conditions of Consent
CTAMP	Construction Traffic and Access Plan
СТМР	Construction Traffic Management Plan
DA	Development Application
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
GFA	Gross Floor Area
HRVs	Heavy Rigid Vehicles
IMT	Intermodal Terminal
LGA	Local Government Area
LoS	Level of Service
MOD	Modification
MPE	Moorebank Precinct East
MPW	Moorebank Precinct West
ОС	Occupation Certificate
RMS	Road and Maritime Services of NSW
RtS	Response to Submissions
SSD	State Significant Development
TA	Transport Assessment
TCS	Traffic Control Signal
TEUs	Twenty-foot equivalent units



TfNSW	Transport for New South Wales
Trip	A movement with an origin and a destination
WAD	Works Authorisation Deed



Reference Documents

Abbreviation	Document	
AS 2890.1	Australian Standard 2890.1: Parking Facilities – Off-Street Car Parking (Standards Australia, 2004)	
AS 2890.2	Australian Standard 2890.2: Parking Facilities – Off Street Commercial Vehicle Facilities (Standards Australia, 2018)	
AS 2890.3	Australian Standard 2890.3: Parking Facilities – Bicycle Parking (Standards Australia, 2015)	
AS 2890.6	Australian Standard 2890.6: Parking Facilities – Off Street Parking for People with Disabilities (Standards Australia, 2009)	
CTIA	Moorebank Precinct West (MPW) – Stage 2 Proposal, Construction Traffic Impact Assessment (Arcadis, October 2016)	
LDCP	Liverpool Development Control Plan (Liverpool City Council, 2008)	
MPWS2 OTTIA	Moorebank Precinct West (MPW) – Stage 2 Proposal, Operational Traffic and Transport Impact Assessment (Arcadis, October 2016)	
PB memo	Moorebank Intermodal Precinct: Traffic generation and underlying assumptions memorandum (Parsons Brinkerhoff, 01 September 2016)	
RMS Guide	Guide to Traffic Generating Developments (RMS, October 2002)	
RMS Guide Update	Guide to Traffic Generating Developments – Updated Traffic Surveys (RMS, August 2013)	
RtS CTIA	Moorebank Precinct West (MPW) – Stage 2 Proposal, Response to Submissions, Appendix C: Construction Traffic Impact Assessment (Arcadis, June 2017)	



1 Introduction

1.1 Study Objective

Ason Group has been engaged by Tactical to prepare a Transport Assessment (TA) to support Stage 3 of the Moorebank Precinct West (the Proposal, or MPW S3)).

From the outset, it is noted that no works proposed are outside the scope of the Concept Plan approval (SSD 5066); the vast majority of impacts associated with MPW S3 have therefore been previously considered and assessed as part of original MPW Concept and Stage 1 development and the more recent MPW Stage 2 (SSD 7709) assessment.

1.2 Site Details

MPW S3 forms part of the larger Moorebank Precinct West (MPW), itself forming part of a larger intermodal precinct at Moorebank that comprises MPW and Moorebank Precinct East (MPE) areas.

The extent of MPW is shown in **Figure 1** presenting its context with regard to MPE, Moorebank Avenue and the M5 Motorway to the north.





Figure 1: MPW Local Context

(Source: Moorebank Precinct West Stage 2 Proposal Response to Submissions - Appendix B: Architectural drawings)

1.3 Description of Proposal

This application seeks approval for: the following:

- Establishment of a works compound,
- Progressive subdivision of the site into 9 lots, and
- Ancillary works including access roads, earthworks, utilities, stormwater and drainage, signage and landscaping.

Further detail with respect to the above is provided below.

1.3.1 Subdivision

The Proposal seeks for progressive subdivision of the MPW site into 9 allotments for warehousing and distribution facilities, biodiversity conservation, interstate intermodal terminal facility (IMT); rail corridor



for completion and operation of the import/export (IMEX) freight terminal and rail link. A copy of the subdivision plan is provided below.

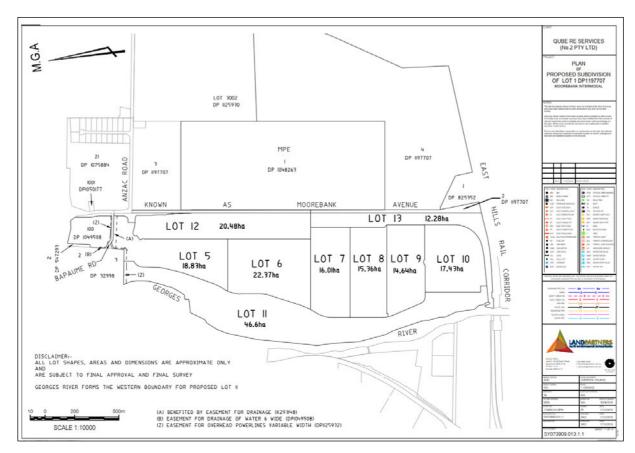


Figure 2: MPW S3 - Subdivision Plan

1.3.2 Works Compound

Approval is also sought for establishment of a works compound to facilitate site development works for the MPW development. This compound was previously located in the northern half of the MPW site, however, is proposed to be established to the southern portion of the MPW site to facilitate tenanting of the proposed northern lots and segregate site operations from operational intermodal freight terminal facility and warehouse activities.

Construction equipment, and heavy and light vehicles would access the compound area via the permanent road adjacent to the western MPW site boundary and proposed temporary loop road, with main MPW site access off Moorebank Avenue in the northern portion of the MPW site. Light vehicles would park in the allocated parking area on proposed Lot 10, and construction and heavy vehicles would progress to the materials stockpile, hardstand, and/or compound areas, as required.



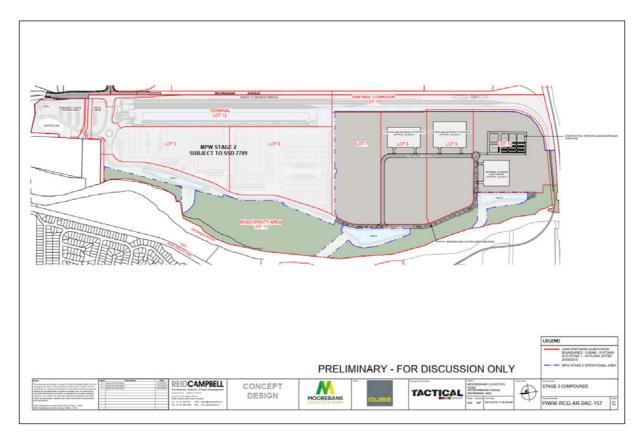


Figure 3: MPW S3 - Works Compounds

1.3.3 Ancillary Works

A range of ancillary works are also proposed, including (but not limited to):

- Access roads, including:
 - permanent access road, terminating in a cul-de-sac at Lot 10
 - temporary loop road from the permanent access road cul-de-sac through Lots 8 & 9 to provide access to hardstand and laydown areas
- Earthworks
- Services and Utilities Relocation, Installation and Connection
- Stormwater and drainage works, and
- Signage and landscaping works.

It is noteworthy that any potential environmental impacts relating to construction of ancillary works not currently mitigated in the current CEMP—prepared in response to MPW S2—will be addressed progressively and as required in a revised CEMP. In this regard, it is envisaged that relevant MPW S2



CEMP conditions will continue to be applied to MPW Stage 3. Furthermore, the OEMP for the MPW site will be updated to identify the entity(s) responsible for the delivery and ongoing maintenance of internal roads and pedestrian paths.

1.4 Response to SEARs

Planning Secretary's Environmental Assessment Requirements (SEARs) were issued on 20 March 2020. A response to relevant *Traffic and Transport* matters is provided below.

Table 1: Response to SEARs

SEARs	Response
Traffic and Transport— including but not limited to: A Traffic Impact Assessment that assesses intersection and road network impacts, including impacts on Cambridge Avenue. The traffic assessment must provide:	The Proposal seeks minor changes to the construction works and does not seek fundamental changes to the operational details approved as part of the original Concept Plan (SSD 5066) and subsequent Applications. In this regard, previous traffic modelling has been undertaken as part of the approved MPW—Stage 2 (SSD 7709) which is largely unaffected by the minor changes now proposed under MPW—Stage 3. Finally, it is noted that Condition B113 of MPW—Stage 2 (SSD 7709) approval requires the preparation of a Construction Traffic and Access Management Plan (CTAMP). That document—and the required program of monitoring contained therein—shall ensure that construction traffic generation is consistent with that of the previous MPW S2 assessments and/or further mitigating treatments developed, if required.
a) details of the current daily and peak hour light and heavy vehicle, public transport, pedestrian and bicycle movements (including consideration of pedestrian and bicycle access from Casula train station to the MPW and Moorebank Precinct East (MPE) sites), and existing traffic and transport facilities provided on the road network located adjacent to the proposed development	Refer Sections 2 & 3 of the MPW—Stage 2 (MPW S2) Operational Traffic and Transport Impact Assessment (OTTIA), prepared by Arcadis.
b) details of the proposed permanent access road and temporary loop road	Refer to relevant civil engineering drawings, included separately as part of the SSD. A reduced copy of the site plan is provided in Figure 3, providing the context as part of this assessment.
c) detailed traffic modelling analysis to assess the road network operation in consultation with Transport for NSW and identify intersection upgrade requirements (if required). This assessment must include both MPE and MPW sites under the State Significant Development (SSD) applications approved to date	Detailed traffic modelling has been undertaken as part of the earlier MPW S2 application during which time extensive consultation with TfNSW (and other Authorities) was undertaken. MPW—Stage 3 does not propose any material changes to overarching construction or operational traffic volumes; hence, does not warrant any changes to the upgrade works already identified (and conditioned) as part of MPW S2.



SEARs	Response
d) an assessment of operational traffic and transport impacts to the road network and transport operation, including any changes to local road connectivity and impacts on local traffic arrangements, road capacity/safety assessment and traffic capacity of the road network and its ability to cater for predicted future growth and the development traffic	As outlined above, MPW—Stage 3 does not propose any changes to future operational traffic volumes or associated impacts and upgrades.
e) details of mitigation measures for the identified impacts (if any)	Per above, the proposed changes will have no material impact on the previously identified mitigation measures, which are outlined in the previous MPW S2 OTTIA.
f) details of proposed upgrade(s) at key intersections (if any), such as vehicle swept paths, geometry and sight lines	No further upgrades are required as a result of MPW—Stage 3.
g) details of future public transport requirements including bus services and bus stops	No changes to future public transport services or infrastructure is required a result of MPW—Stage 3.
h) an assessment of construction traffic impacts, which may include a draft Construction Traffic Management Plan including	Construction traffic impacts have been previously assessed as part of MPW S2 and MPE—Stage 2 (MPE S2) applications. MPW—Stage 3 proposes only minor localised changes to the works compound location which will result in minor localised changes to traffic distribution. However, as outlined below, the changes will not materially impact construction vehicle movements, or impact on the broader road network. This is discussed further in Section 3.3.
the identification of haulage routes and details of the existing traffic situation on these routes	Refer Figure 6. All haulage shall occur from Moorebank Avenue, via the M5 interchange. A small proportion (10%) of Light Vehicles associated with construction may use Anzac Road. At no stage are construction vehicles to use Cambridge Avenue.
ii. an assessment of construction traffic volumes (including spoil haulage/delivery of materials and equipment to the road corridor and ancillary facilities)	No change to the overall construction traffic volumes are proposed, with the MPW S2 CTIA identifying the following peak hourly construction volumes associated with MPW: AM peak 481 veh/hr PM peak 436 veh/hr Importantly, no change from the limits imposed under MPW—Stage 2 are proposed, with the following conditions of consent imposed on MPW works: Importation of imported fill must not exceed a total of 22,000m³ per day across MPW and MPE, and Total volume of uncompacted fill to be imported must not exceed 1,600,000m³



	SEARs	Response
iii.	a draft construction staging plan that includes the proposed construction activities and timeframe for each stage for MPE Stage 1 and 2 approvals and MPW Stage 2 approval	Indicative construction staging details are provided in Section 3 of the MPW S2 CTIA. Furthermore, works (both current and future) in relation to MPE and MPW shall be addressed in the relevant CTAMP prepared for each approval. Timeframes shall be determined, subject to approval and hence is a matter best deferred to the post-approval CTAMP process.
iv.	an assessment of cumulative impacts associated with other construction activities, including MPE and MPW sites under the SSD applications approved to date	A cumulative assessment of both MPW and MPE construction activities has been undertaken previously as part of earlier MPW S2 CTIA. Noting that there is no change to proposed construction traffic generation, there is no need to revisit this earlier assessment.
V.	details of peak hour and daily truck movements, hours of operation, access arrangements at all stages of construction, including the access points to MPW Stage 2 and MPE Stage 1 and Stage 2 projects and traffic control measures for all construction activities	Construction traffic volumes are unchanged as part of this Proposal. Notwithstanding, it is worth noting that the original MPW S2 CTIA assessment1, forecast the following peak hourly construction traffic volumes: AM peak 481 veh/hr PM peak 436 veh/hr Access shall be provided via a new fourth leg of the Moorebank Avenue / Anzac Road intersection. Construction hours are generally: 7.00am – 6.00pm Monday to Friday 8.00am – 1.00pm Saturday No work Sunday or Public Holidays NOTE: these hours may be subject to change as a result of current COVID-19 response plans. Furthermore, work outside of standard hours may be required, including out of hours road works and the importation of some fill, so as to minimise the impact on through traffic. However, any works outside of standard hours would only be undertaken in consultation with relevant authorities and relevant permits.
vi.	an assessment of construction road safety at key intersections and locations subject to pedestrian / vehicle / bicycle conflicts	Construction access shall occur via the Moorebank Avenue / Anzac Road signals. As such, a suitable level of safety is afforded for all road users.
vii.	details of any required temporary cycling and pedestrian access during construction	Not specifically required. However, this is an ongoing matter that shall be reviewed as part of the CTAMP.
viii.	details of access arrangements for workers to / from the site, including pedestrian and public transport linkages, emergency vehicles and service vehicle movements	As above, all construction vehicle access shall occur via the Moorebank Avenue / Anzac Road signalised intersection. Access arrangements—including protocols for emergency vehicle access—shall form part of the relevant CTAMP; responding appropriately to changing conditions as they occur.

 $^{^1}$ Refer Table 4-2 of the Moorebank Precinct West (MPW) Stage 2 Proposal - Construction Traffic Impact Assessment, dated October 2016.



SEARs	Response
ix. details of mitigation measures for the identified impacts (if any).	Mitigation measures are outlined in relevant Construction Environmental Management Plan and Operational Environmental Management Plan, including relevant sub- plans: Construction Traffic and Access Management Plan (CTAMP) Operational Traffic and Access Management Plan (OTAMP)
i) be prepared in accordance with: Guide to Traffic Generating Developments (Roads and Maritime Services), EIS Guidelines — Road and Related Facilities (DoPI), NSW Planning Guidelines for Walking and Cycling and Guide to Traffic Management Part 12: Traffic Impacts of Development (AUSTROADS).	Noted.



2 Background

2.1 MPW—Stage 2 (SSD 7709)

The MPW Stage 2 Development (SSD 7709) was determined on 11 November 2019 by the IPC and approved with number of Conditions of Consent (Coca). A Site Plan for MPW S2 is presented in **Figure 2** demonstrating that Stage 2 focused on the northern part of the overall MPW precinct.

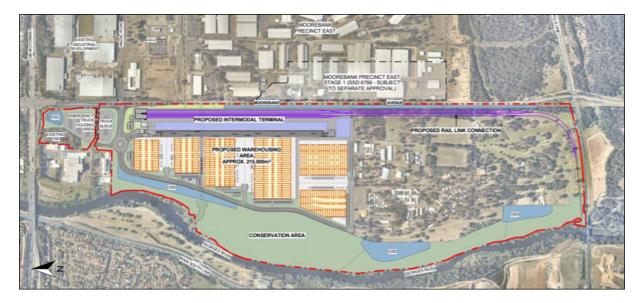


Figure 4: Approved MPW Stage 2 Concept Plan

(Source: Moorebank Precinct West Stage 2 Proposal Response to Submissions - Appendix B: Architectural drawings)

The following summarises the traffic relevant development components approved:

- Construction and 24/7 operation of an IMT facility to support a container freight throughput volume of 500,000 TEUs per annum.
- Construction and 24/7 operation of a warehousing estate on the northern part of the Precinct servicing the IMT facility and including:
 - 6 warehouses with a total GFA of 215,000 m² and, for each warehouse, associated offices, staff amenities, hardstands and truck and light vehicle parking.
 - 800 m² freight village (operating from 7.00AM to 6.00PM, 7 days / week) including staff / visitor amenities.
 - internal roads, noise mitigation measures, landscaping, lighting and signage.
- Intersection upgrades on Moorebank Avenue at:
 - Anzac Road providing site access

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Bapaume Road for left-turn only out of the site.

Construction works and temporary ancillary facilities, including:

· Vegetation clearing, topsoil stripping and stockpiling and site earthworks and temporary on-

site detention

Importation of up to 1.6 million cubic meters (m³) of uncompacted fill, temporary stockpiling

and placement over the entire site to raise the existing ground levels by up to 3 metres.

Installation and use of a concrete batching plant

Utilities installation / connection.

2.2 Approved Traffic Generation Thresholds

2.2.1 Construction Traffic Generation

Assessment of construction traffic impacts as part of the MPW S2 EIS has considered the cumulative

traffic generation of multiple stages, with a peak construction traffic expected to generate the following

peak hourly construction traffic volumes:

AM peak 481 veh/hr

PM peak 436 veh/hr

This original Construction Traffic Impact Assessment (CTIA) concluded that the performance of the key

Anzac Road / Moorebank Avenue intersection under these cumulative construction traffic volumes,

including both MPE and MPW works, resulting in the following Level of Service (LoS):

AM peak LoS C

PM peak LoS C

It should be noted that a revised Response to Submissions (RtS) CTIA, prepared by Arcadis in 2017 as

part of the RtS, adopted the following reduced traffic generation during peak periods:

AM peak 112 veh/hr

PM peak 386 veh/hr

That revised CTIA also assessed the performance of the key Anzac Road / Moorebank Avenue

intersection, resulting in minor improvements to the modelled Level of Service, as follows:

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- AM peak LoS C
- PM peak LoS B

This performance suggests a level of spare capacity within the intersection.

2.2.2 Operational Traffic Assessment

Previous assessments in relation to MPW have identified the following two-way traffic generation thresholds in relation to MPW S2:

- 4,128 vehicles per weekday, including:
 - 2,670 Light Vehicles, and
 - 1,458 Heavy Vehicle



3 Construction Assessment

3.1 Background

A revised Construction Traffic Impact Assessment (CTIA) for the MPW Stage 2 has been developed by Arcadis in June 2017 (the RtS CTIA). This document includes relevant information regarding construction hours, haulage routes and assessment of the estimated construction traffic volumes on the surrounding road network, having regard for the entire MPW Stage 2 development works. Mitigation measures for construction works – as necessary – have also been included in that report.

MPW S2 is broadly approved to utilise the full MPW site for the purposes of construction, except the specific areas used for the purposes of the IMT facility.

No change to the overall fundamental characteristics—fill import volumes or construction vehicle movements—are proposed as part of MPW S3.

Notwithstanding, it is worth noting that the original MPW S2 CTIA assessment², forecast the following peak hourly construction traffic volumes:

- AM peak 481 veh/hr
- PM peak 436 veh/hr

A copy of relevant peak hourly movements sourced from the MPW S2 CTIA are included in **Appendix A** showing the proportion of Light Vehicle and Heavy Vehicle movements on surrounding roads. Further to the revised RtS CTIA, a summary of forecast traffic volumes, including MPW construction traffic is presented below.

² Refer Table 4-2 of the *Moorebank Precinct West (MPW) Stage 2 Proposal - Construction Traffic Impact Assessment*, dated October 2016.



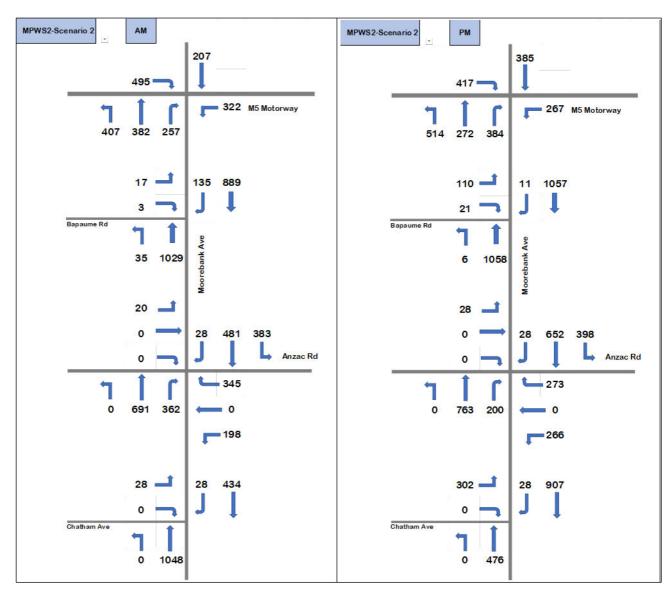


Figure 5: Network Traffic Volumes, with MPW S2 - Scenario 2

3.2 MPW Stage 3 Changes

The proposed changes to construction methodology contemplated under MPW S3 largely involve:

- Relocation of the contractor car park from the area to the north-east of the Anzac Road / Moorebank
 Avenue intersection to the southern area of the site.
- Consolidation of stockpiling and material handing areas to the south of the future MPW S2 builtform to ensure that construction works do not inhibit construction and operation of the MPW S2 lots.

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 Removal of the Chatham Avenue site access for MPW construction site access during later stages of MPW construction (Works Period C through to completion)

A comparison of traffic access routes is provided in below. It is noted that preliminary earthworks and stockpiling has already commenced, under existing approvals. As such, MPW S2 had assumed that both Anzac Road and Chatham Avenue construction site access points would be available.

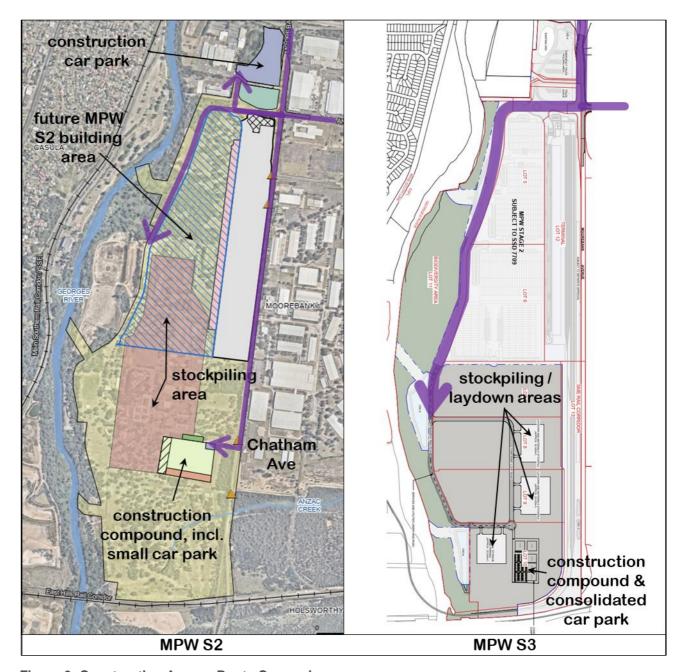


Figure 6: Construction Access Route Comparison



3.3 Construction Impacts

The proposed changes will not have a material impact off-site, with all construction traffic still traversing the MPW precinct access at Anzac Road, noting that there are specific controls in place to restrict construction vehicles from using Moorebank Avenue to the south. There is expected to be some localised redistribution of construction vehicle movements, as shown in . This assumes up to 10% of Light Vehicle traffic arrives / departs via the Anzac Road, east of Moorebank Avenue, as outlined in the MPW S2 CTIA.

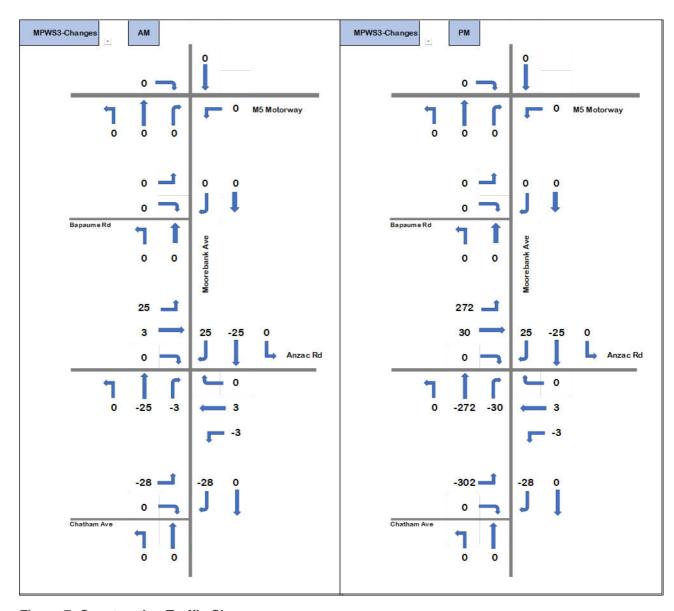


Figure 7: Construction Traffic Changes

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However, these localised changes will not impact the broader road network, with no change to traffic volumes in Moorebank Avenue at the M5 interchange, north of Bapaume Road, south of Chatham Avenue, or using Anzac Road to the east.

Indeed, the proposed amendments to the works compound and contractor car parking areas shall better respond to the traffic management principles outlined in the PCTMP by:

- Consolidating MPW contractor car parking areas, aiding effective management and control of vehicular movements.
- Minimise interaction between MPW construction vehicles and Moorebank Avenue diversion works,
 were use of the temporary Chatham Avenue construction access to be maintained.

Finally, it is noted that Condition B113 of MPW—Stage 2 (SSD 7709) approval (and D21 (a) of the SSD 5066) requires the preparation of a Construction Traffic and Access Management Plan (CTAMP). That document—and the required program of monitoring contained therein—shall ensure that construction traffic generation is consistent with that of the previous MPW S2 assessments and/or further mitigating treatments developed, if required.

In this regard, relevant construction limits imposed by conditions A8–A9 the SSD 7709 approval include:

- Importation of uncompacted fill to be imported must not exceed 1,600,000m³.
- Importation of imported fill must not exceed a total of 22,000m³ of material per day across this development and MPD Stage 2 (SSD7628) on the same day.



4 Operational Assessment

4.1 Operational Impacts

MPW S3 seeks approval for subdivision of the site and does not expressly seek any future built-form or land-use changes on respective lots. In this regard, there is no material operational impact as a result.

Furthermore, the proposed subdivision does not seek any changes to the existing 300,000m² warehousing GFA limit contemplated under the original Concept Plan approval.

As such, the traffic generation associated with the future built-form has previously been assessed and deemed acceptable.

4.2 Management Plan Mechanisms

It should also be emphasised that the MPW S2 approval is subject to strict environmental management plan reporting requirements, which are expected to be expanded to apply to subsequent applications within MPW. These reporting requirements include:

- Operational Traffic and Access Management Plan (OTAMP) Condition B118, and
- Biannual Trip Origin and Destination Report (MPW S2 Condition B120

These plans set out to monitor future operational traffic to ensure that the previously identified operational traffic thresholds are not exceeded. It is expected that these management plans would necessarily consider the operational traffic generated by future development in due course. This provides a level of comfort that future operational facilities on the subdivided MPW lots shall not result in unacceptable impacts on the surrounding road network.



5 Summary & Conclusions

5.1 Findings

The key findings of this Transport Assessment are summarised below:

- MPW S3 seeks approval for:
 - Establishment of a works compound,
 - Progressive subdivision of the site into 9 lots, and
 - Ancillary works including access roads, earthworks, utilities, stormwater and drainage, signage and landscaping.
- As such, the proposal will have negligible impact on future operational traffic volumes and impact thereof on the surrounding road network.
- Similarly, MPW S3 does not seek fundamental changes to the underlying construction fundamentals such as fill import volumes or contractor numbers. As such, there is no material change in construction generation estimates from that of the cumulative assessment already undertaken by Arcadis in support of MPW S2.
- Changes to the location of contractor car parking and access locations (removal of the Chatham Avenue) access for MPW construction vehicles will have a localised impact only and will not have a material impact on the performance of the broader road network.
- Indeed, the previous 2016 CTIA had modelled construction traffic volumes above that now projected; with intersection Level of Service C modelled during both peak periods. Those original construction estimates have subsequently been reduced (refer revised 2017 RtS CTIA). This suggests a level of spare capacity to readily accommodate the minor changes to construction access routes now sought.
- Furthermore, the proposed changes to works compound access will eliminate the need for MPW
 construction traffic to traverse Moorebank Avenue, south of Anzac Road. This will assist
 management of construction access to MPE and Moorebank Avenue Diversion Road (MADR) road
 works in that area.



5.2 Conclusions

In summary, the impacts of the Proposal have been satisfactorily addressed as part of previous assessments. The changes proposed under this application are of a minor nature and will not materially impact the outcome of those previous assessments.