GTAconsultants

Melbourne Metro EES Report to Panel
Arden Station Precinct
Traffic and Transport Review

Expert //	Chris Coath
Client //	George Weston Foods Pty Ltd
Instructed by //	Emily Johnstone, Allens
Reference //	V103510
Hearing Date //	22/08/16
Report Date //	12/08/16

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Issue: Final 12/08/16

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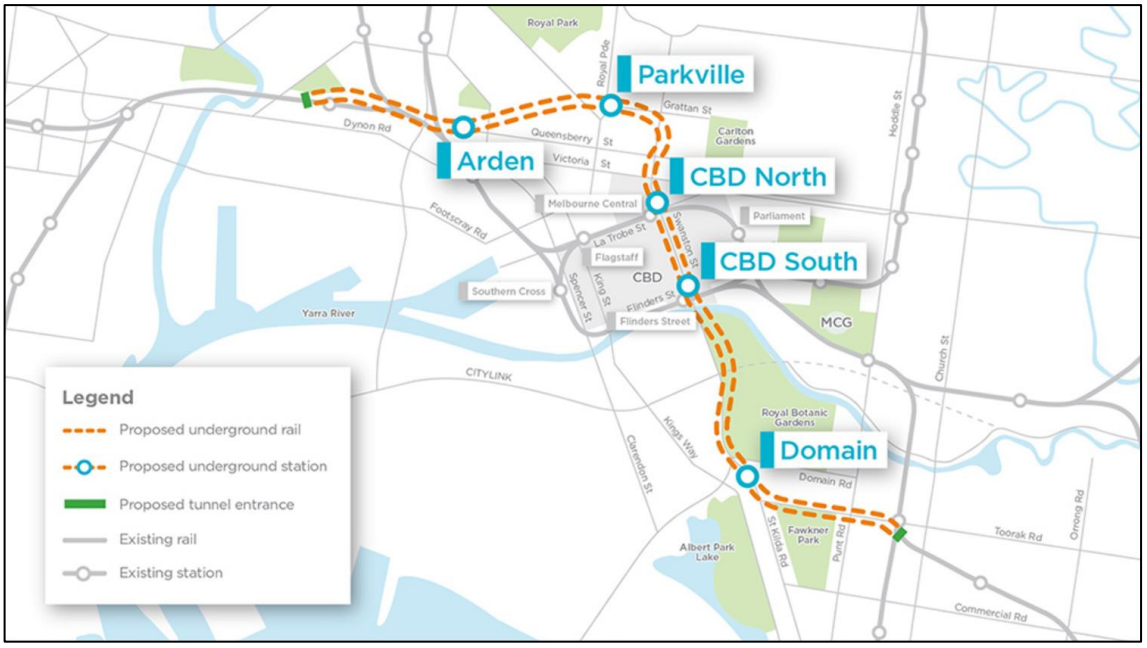
1. Introduction

1.1 Melbourne Metro Project Overview

The Melbourne Metro Rail Project (MMRP) is a fully funded ($10.9B) project of state significance designed to significantly increase the capacity of the metropolitan railway system. The MMRP includes the following key components:

- Two rail tunnels between South Kensington and South Yarra, through Melbourne's Central Business District (CBD). These lines will create a connection to the existing Sunbury and Cranbourne/ Pakenham railway lines.
- A total five new train stations will be constructed at the following locations as outlined in Figure 1.1.

Figure 1.1: MMRP – Project Station Map



Source: www.metrotunnel.vic.gov.au

Following completion of the project, the MMRP will free up the existing City Loop allowing additional trains to operate on the Upfield, Craigieburn, Sunbury, Frankston, Cranbourne, Pakenham, Werribee and Sandringham lines. Specifically, it is estimated that the project will deliver additional capacity for approximately 40,000 passengers during each peak period, ease overcrowding in the inner core of the existing rail network whilst relieving tram overcrowding and congestions issues within the Melbourne CBD and its immediate vicinity.

Construction of the MMRP is expected to commence in late 2018 and finish in 2026. It is expected to create 3,900 jobs across the state of Victoria with 4700 jobs supported at the peak of its construction.

1.2 Environmental Effects Statement Process

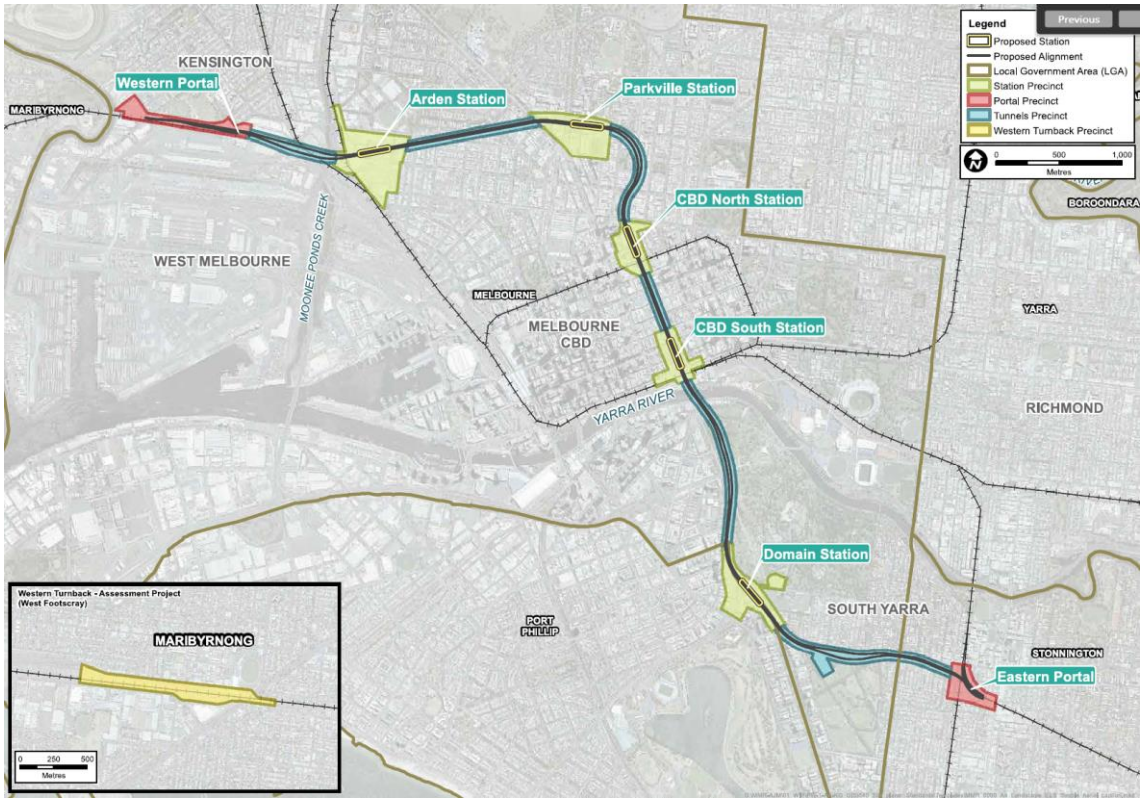
The MMRP is currently being assessed via an Environment Effects Statement (EES) process. The EES allows for an overarching and integrated assessment of impacts of the project and draws on the

findings of a number of supporting documentation and studies before any approval or conditions are granted. The EES process also allows for a comprehensive public engagement program to seek input from the community and other stakeholders which will help confirm the ultimate delivery of the MMRP including considerations throughout the construction period.

As part of the EES process, a Transport Impact Assessment (TIA) was prepared by AJM in April 2016. This TIA provides a high level review of transport related aspects associated with the construction and post development operation of the MMRP.

For the purposes of the EES assessment, the MMRP project was broken down into nine precincts as outlined below and shown in Figure 1.2.

Figure 1.2: MMRP Precincts



Source: MMRP Transport Impact Assessment, April 2016

Transport modelling was undertaken to assess existing and post development traffic conditions within each precinct of the MMRP. In order to ascertain baseline or a suitable existing conditions scenario, a desktop analysis of available traffic data and associated site inspections was undertaken. For comparison purposes, modelling and other analysis has been undertaken in an effort to estimate during the construction period (design year 2021) both with and without the MMRP and during the legacy state (i.e. post completion design year 2031[1]) both with and without the MMRP.

[1] 5 years post planned completion date of MMRP

1.3 References

In preparing this evidence, reference has been made to the following:

- Melbourne Planning Scheme
- Submission from George Weston Food to Melbourne Metro EES (letter dated 5 July 2016)
- Melbourne Metro Rail Project, Transport Impact Assessment prepared by AJM, April 2016, including appendices.
- George Weston Food Limited operational data provided to GTA Consultants
- Melbourne Metro Rail Project Traffic Review of EES on Behalf of George Weston Foods Limited prepared by Ratio Consultants dated 8 August 2016
- traffic and car parking surveys undertaken by GTA Consultants as referenced in the context of this report
- an inspection of the site and its surrounds
- other documents as nominated.

1.4 Tests, Experiments & Assistance

In preparing this evidence, I received assistance from the following people:

- Mr John Kiriakidis – Director – BE (Civil & Computing) (Hons)
- Mr Simon Beardall – Associate – BAppSc(Geomatics)(Hons)
- Mr Joshua Haigh – Consultant – BEng(Civil)(Hons)

1.5 Expert Witness Details

Christopher Coath BE (Civil) (Hons), MIEAust CPEng NPER, MVPELA
Director – GTA Consultants (Vic) Pty Ltd
L25, 55 Collins Street, Melbourne
Areas of Expertise: Traffic Engineering & Transport Planning

I have a Bachelor of Engineering Degree and am a specialist traffic engineering and transport planner with over 14 years of experience encompassing an extensive range of car parking strategies, land use planning and design, integrated transport plans, traffic and transport planning, masterplan development, traffic engineering impact assessments, transport research and expert presentations at VCAT and Panel hearings.

I have extensive experience in managing a variety of large projects. I have been intimately involved in the preparation of a number of major development proposals including the Melbourne Convention Centre and South Wharf Precinct. A particular focus and passion of my work has been in developing best practice car parking strategies which have included works at a number of city and town centre locations with examples including Kew Junction, Footscray CBD, Box Hill, Dandenong CBD, Doncaster Hill, Bendigo CBD, Liverpool CBD, Newcastle CBD, Fyshwick, Parliamentary Zone (ACT) and Rosny Park and Bellerive.

Further details of my experience are provided in Appendix A.

1.6 Relationship to Applicant

I have no ongoing private or business relationship with the applicant, and have been retained to provide expert witness services at this hearing for a mutually agreed fee.

2. Purpose of Report

2.1 Appointment & Scope

GTA Consultants (GTA) was engaged by George Weston Food Limited (GWF) to provide traffic engineering and transport planning evaluation services in relation to the Melbourne Metro Environmental Effects Statement (EES) and its impacts on GWF operations and assets within the Arden Station precinct.

GWF are concerned with the potential impact of the MMRP both during construction and post construction on the day-to-day operation of its manufacturing operations (flour mill) and associated services. Specifically, GWF's concerns pertain to impacts generated by increased traffic and the loss of an existing weighbridge on Laurens Street, car parking and general transport activity on existing levels of service on the precinct road network and general road safety.

GTA has been requested to undertake a review of the EES material and identify any areas of legitimate concern around short-comings or omissions associated with the Melbourne Metro project and in particular the EES documentation (including transport impact assessment prepared by AJM) and identify any possible recommendations which can / should be made to better inform any EES review and protect the operational interests of GWF as they relate to the discipline of traffic and transport planning.

I have been retained by GWF to prepare and present expert traffic and transport evidence at the upcoming Melbourne Metro Rail Project Inquiry and Advisory Committee (IAC), scheduled to commence 22 August 2016.

Prior to preparing this evidence I was briefed by Emily Johnstone (Allens) regarding the matter via oral and written instructions.

This evidence sets out an assessment of the anticipated parking, traffic and transport implications of the proposed MMRP as it relates to GWF's operations within the Arden Precinct, including consideration of the:

i existing traffic and parking conditions surrounding the site
ii Arden-Macaulay Structure Plan and land use outcomes associated with that Strategic document on the short-term, medium term and long-term transport outcomes for Arden-Macaulay
iii impacts to on-street parking conditions in the vicinity of the Arden Station precinct and GWF operations as a result of the MMRP
iv appropriateness of the proposed construction traffic vehicle access routes in the vicinity of the Arden Station precinct and GWF operations
v impacts to GWF site specific operations associated with the removal of the existing Cockerill weigh bridge located at 103 Laurens Street
vi traffic generation characteristics of the MMRP, including construction traffic anticipated to be generated by the project
vii anticipated transport impact of the MMRP on the surrounding road network both during the construction phase and legacy phase (i.e. post completion of the project).

2.2 Review Area

This evidence has been prepared to have specific regard to the potential impact of the MMRP both during construction and post construction on the day-to-day operation of GWF facilities and infrastructure within the Arden Station precinct only.

2.3 Review Limitations

It is noted that, due to time constraints, no detailed interrogation of any modelling outputs contained within TIA prepared in support of the EES submission have been made. As such, I have relied on the outputs contained within the TIA (and associated modelling inputs) in forming my opinion and recommendations.

3. Arden Macaulay Structure Plan

The EES at Chapter 3 of the Transport Impact Assessment sets out a range of legislation, policy and guidelines that have helped inform the technical documentation and findings. A review of the nominated reference documents contained at Chapter 3 as well as those outlined in additional detail at Appendix A indicate the absence of any specific consideration around the Arden-Macaulay Structure Plan 2012 (adopted February 2012). This document was subject to a Planning Scheme Amendment (C190) which sought to:

"implement new land use and development controls into the Melbourne Planning Scheme as recommended within the Arden-Macaulay Structure Plan".

The Amendment was considered by a Ministerially Appointed panel which heard submissions in June and July 2015. As an outcome of the Panel Hearing a series of recommendations were formed and these were set out in their report of 23 October 2015[2].

City of Melbourne's Future Melbourne Committee was set to consider the panel's recommendations at its 2 August 2016 meeting.

The report submitted to Council nominates the population and employment growth forecasts set out in Table 3.1 and Table 3.2 noting that these forecasts represent an update of those originally set out in the 2012 Structure Plan. The original 2012 forecasts were limited to those associated with Stage 1 of the Structure Plan (or for Macaulay only)[3]. As I appreciate it, the revised figures now include estimates for Arden Central in association with the delivery of Arden Station.

Table 3.1: Summary of Employment Forecasts for Arden Macaulay

Precinct	Employment			Change	
	2011	2031	2051	2011-2031	2031-2051
Arden	3,000	9,000	34,000	6,000	25,000
Macaulay	3,000	5,000	9,500	2,000	4,000

Table 3.2: Summary of Population Forecasts for Arden Macaulay

Precinct	Employment			Change	
	2011	2031	2051	2011-2031	2031-2051
Arden	500	5,000	15,000	4,500	10,000
Macaulay	3,000	5,000	10,000	2,500	5,000

In comparison to estimates set out in the 2012 Structure Plan, the above figures contemplate an additional increase in employment of 14,000 jobs (23,000 to 31,000) and 4,000 residents (18,000 to 22,000) by 2051.

Table 3.1 and Table 3.2 indicate significant uplift in population and employment numbers within the precinct between 2011 and ultimately 2051 as a consequence of the Amendment. The extent to which these changes have been considered under the EES is unclear given that the EES states at Section 4.4 of the Transport Impact Assessment:

[2] This report can be accessed via: http://dsewebapps.dse.vic.gov.au/Shared/ats.nsf/(attachmentopen)/560814F4EE310ECFCA257EEE001273E1/$File/Melbourne+C190+Panel+Report.pdf?OpenElement

[3] Source: Agenda Item 6.3, @ August 2016, Report to the Future Melbourne (Planning) Committee.

"……Each mode has been assessed as part of this analysis taking into consideration the growth in population and employment (based on the VITM transport models) and the associated increase in travel demands in the vicinity of Melbourne Metro."

It appears that the population and employment estimates set out in Tables 3.1 and 3.2 are only recent i.e. nominated in the Report to the Future (Planning Committee) 2 August 2016 and therefore unlikely to have been included in the base case VITM model relied upon for the EES evaluation. Clarity should be provided by the Melbourne Metro Rail Authority (MMRA) as to what extent have the forward looking employment and population projections been considered in the Strategic Model and the various assessment scenarios.

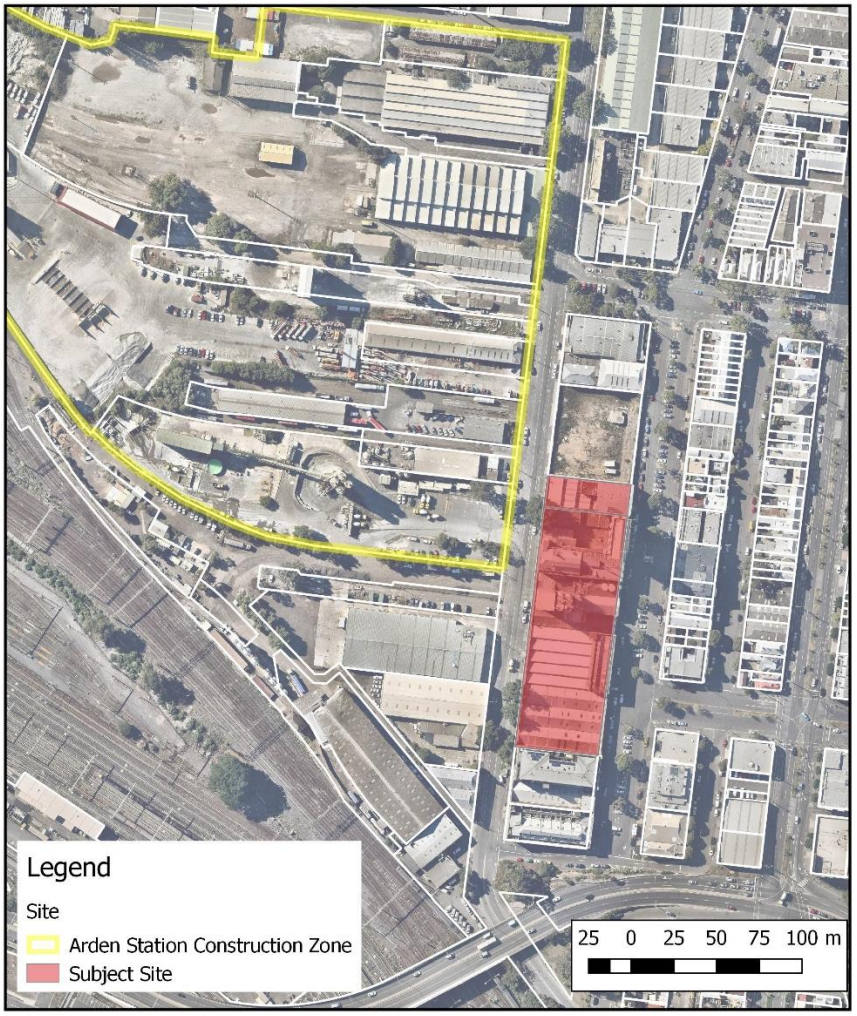
4. GWF Operational Characteristics

4.1 Overview

George Weston Foods (GWF) is a food manufacturing company with operations spread across the country including the MAURI ANZ Flour Mill located on Laurens Street in North Melbourne. GWF undertakes a number of operations at the Laurens Street premises including the processing of grain and subsequent distribution of goods to the broader Victorian market.

GWF employs approximately 50 full time staff (and up to 10 casual staff) at the Mill located at 24-78 Laurens Street. Its operations spread over a 24-hour period, 7 days per week and also rely on the use of an existing weigh bridge located at 103 Laurens Street managed by Cockerill Transport. GWF lease a parcel of land located at 67 Laurens Street to accommodate staff car parking demands. This off-street parking area accommodates in the order of 20 informal car parking spaces. It is understood from information provided by GWF, that when having regard for the nature of site shifts, a peak of 52 staff are present on site at any one time. Both the GWF Mill and the weighbridge are shown in Figure 4.1.

Figure 4.1: Location of GWF buildings within Arden Precinct

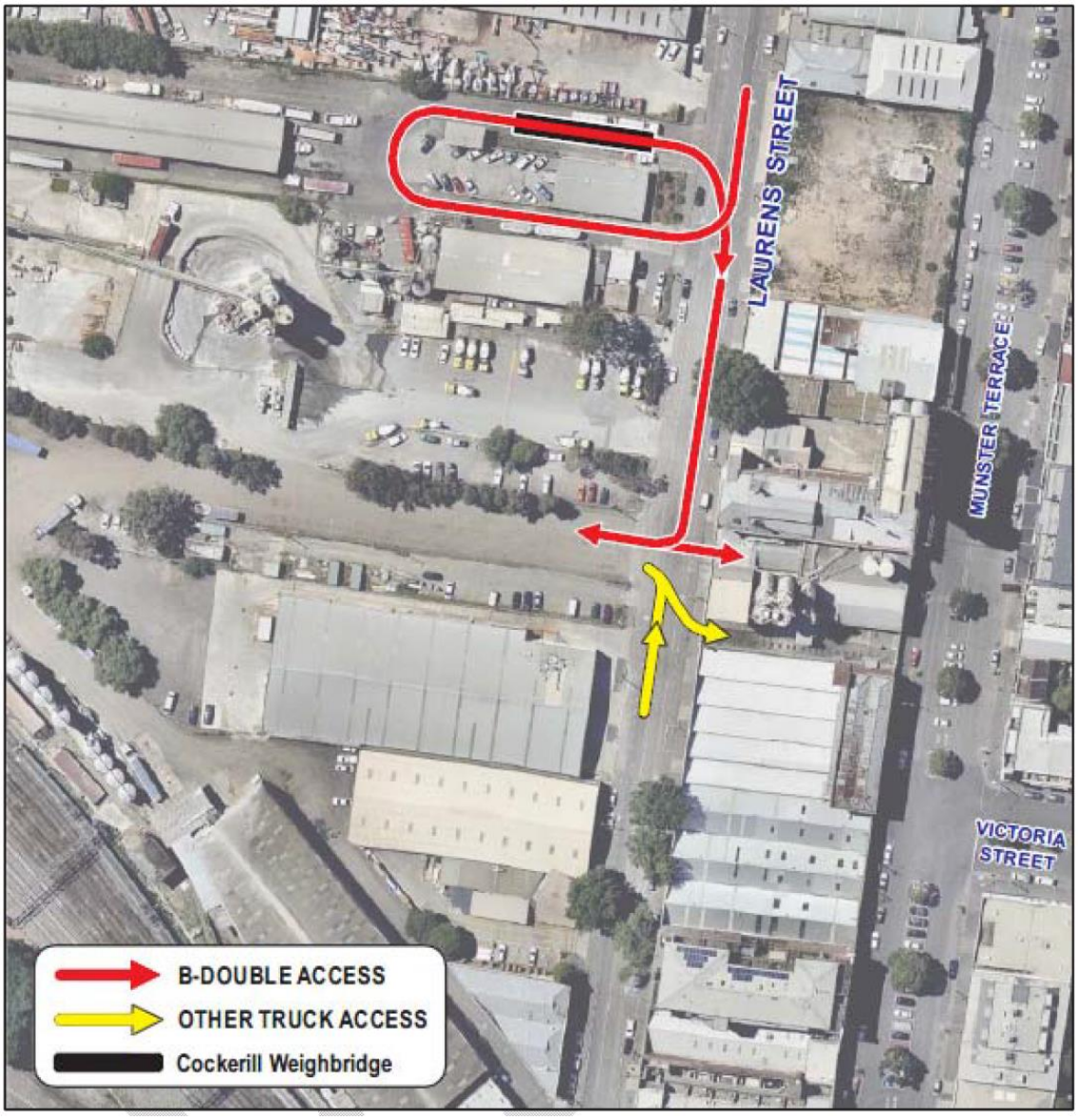


Source: Nearmap

4.2 Vehicle Access and Truck Types

Vehicle access to the GWF on-site loading facilities are provided via a number of crossovers on the eastern side of Laurens Street. In order to accommodate the loading requirements, trucks reverse into the loading docks. Rigid trucks and semi-trailers are able to undertake this manoeuvre fully within the Laurens Street carriage way. However, B-Double trucks are required to utilise the currently vacant land located immediately to the north of the leased off street car park at 67 Laurens Street. These manoeuvres are summarised in Figure 4.2. This Figure also demonstrates the use of the Cockerill Transport weigh bridge facility.

Figure 4.2: GWF Loading Operation Summary Diagram



Source: Ratio Consultants

Swept path diagrams of these arrangements are presented in Appendix B.

Operational data including a vehicle log of truck arrivals and departures to the site have been provided to GTA. This information indicates the following:

Table 4.1: GWF Truck Delivery Operations movements per week

Truck Type	Grain Operations	Mill/Mixing Operations	Flour Operations	Distribution (Palletised)	Total
B-Double	60	7	-	16	83
19m Semi Trailer	-	8	49	28	85
Rigid Truck	-	-	21	58	79
Total	**60**	**15**	**70**	**102**	**247**

A review of the operational data also indicates the following:

- Approximately 250 truck movements are generated by the GWF site per week.
- The split between B-Double, 19m semi-trailer and medium rigid trucks is generally even.
- The average time it takes for a truck to reverse into the on-site loading bays is approximately 5 minutes.
- Approximately 50% of all truck movements generated by the GWF operations are required to use the Weighbridge located at 103 Laurens Street. The trucks are weighed both upon arrival to the site and pre dispatch from the site.
- In some instances, trucks are unable to access the on-site loading bays immediately upon arrival to the site. The operational data provided to GTA indicates that between the 21 July 2016 and 1 August 2016, 123 trucks were required to wait on Laurens Street within the existing on-street loading zones along the sites eastern frontage. This represents 90% of all trucks arriving to the site over the nominated period.
- An average wait time of 10 minutes was recorded for those trucks that are required to prop within the on-street loading areas before accessing the site.

4.3 GWF Parking Requirements (on-street reliance)

As identified above, GWF North Melbourne facility employs approximately 50 full time staff plus up to 10 casual staff, operating a 24 hours per day, 7 days per week facility.

In this regard advice from the GWF indicates that this equates to a peak of 52 employees on site at any one time.

It is understood from discussions with GWF that a high journey to work mode split to car exists due to the 24-hour operation of the site. As a comparison ABS Journey to Work mode split data for North Melbourne indicates a mode split to car of approximately 65%. It could be reasonable to adopt a mode split to car of 75% for the purpose of analysis.

On this basis a peak car parking demand in the order of 39 vehicles is expected to be generated by the development.

A provision of in the order of 20 spaces are available on the leased site from VicTrack on the western side of Laurens Street, resulting in a reliance on in the order of 19 spaces within the surrounding on-street network.

5. Arden Station Construction & Post Implementation Attributes

5.1 Preamble

Chapter 8 of the EES sets out an assessment of the transport connectivity impacts associated with the construction and operation of the Melbourne Metro and relies on Technical Appendices A through G to substantiate a range of findings.

Chapter 8.1.1 of the EES provides some generalised observations around the main construction generated impacts including:

i truck activity associated with spoil removal and equipment transfer
ii the temporary closure of a number of major roads to facilitate the build
iii the presence of a large construction workforce which would need to drive or be transported to and from the workplace, which could potentially have an impact on the local and wider road network at times.

As it relates to the Arden Station precinct, items 1 and 3 are of greater significance given the absence of any road closures proposals in association with the delivery of this Station and the limited impact by proposed road closures nearby associated with Parkville Station.

The following sections set out a review of the material provided in the EES as it relates to specifically to Arden Station and sets my appreciation of the construction approach and considerations relevant to any post implementation outcomes.

Under Chapter 8 of the EES, Arden Station is identified as Precinct 3. The documentation identifies the Arden Station Precinct as:

"one of the major sites for the construction of Melbourne Metro, more truck activity would be anticipated at this site than in other precincts. Activity at this site would extend over a period of 4years with 24hour, 7-day operations and an average of approximately 260 trucks trips each day for spoil removal and materials and equipment delivery. At peak activity, this could increase to around 360 truck movements per day"[4]

The EES goes on to note that the forecast level of construction workers for the Melbourne Metro project for the Arden Station precinct is 421 workers representing by far the largest workforce at any of the precinct locations[5]. The EES goes on to note that traffic and transport activity associated with precinct site workers are not included in the forecast truck activity[6].

On managing impacts, the EES notes under its performance requirements at Section 8.6.6 of the Transport Impact Assessment, the requirement for the project to consider and prepare transport management plans (TMPs) for a range of impacts on road transport, public transport, active transport and travel demand management during the construction phase.

The EES nominates a range of considerations and in some cases references a need to consult with key transport agencies on TMP content. The need to consider input from others, other than agencies, whom are likely to be effected in the precinct is considered later in this review.

4 Section 8.10, page 8-28.
5 Table 8-1, EES Transport Impact Assessment.
6 Technical Appendix D, Section 8, Page 62, Paragraph 1

5.2 Station Characteristics – Legacy Layout

A review of the EES indicates that significant works will be performed to deliver the Arden Station as part of Melbourne Metro. An outline of the proposed layout and configuration of the station is provided below in Figure 5.1.

Figure 5.1: Arden Station Legacy Layout & Configuration

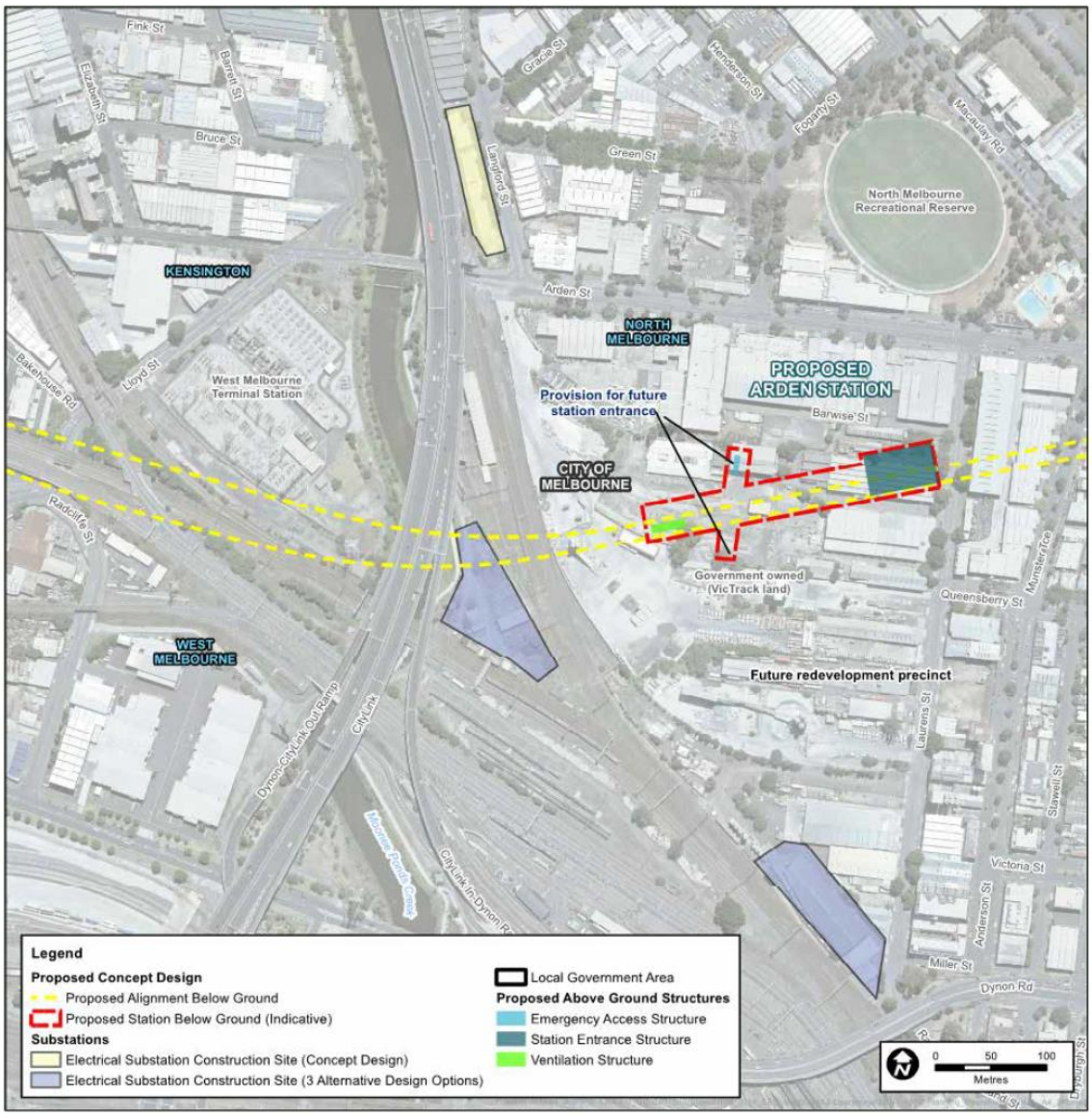


Figure 5.1 shows the proposed station box in red with the entrance structure in green interfacing with Laurens Street. Provisions for future stations entrances are provided roughly at its mid-point to the north and south, these align with work completed under the Arden Macaulay Structure Plan including the provision of direct and connected north-south bus and bicycle routes through the precinct.

The design interface with Laurens Street is provided in Figure 5.2 for reference.

Figure 5.2: Laurens Street Design Treatment

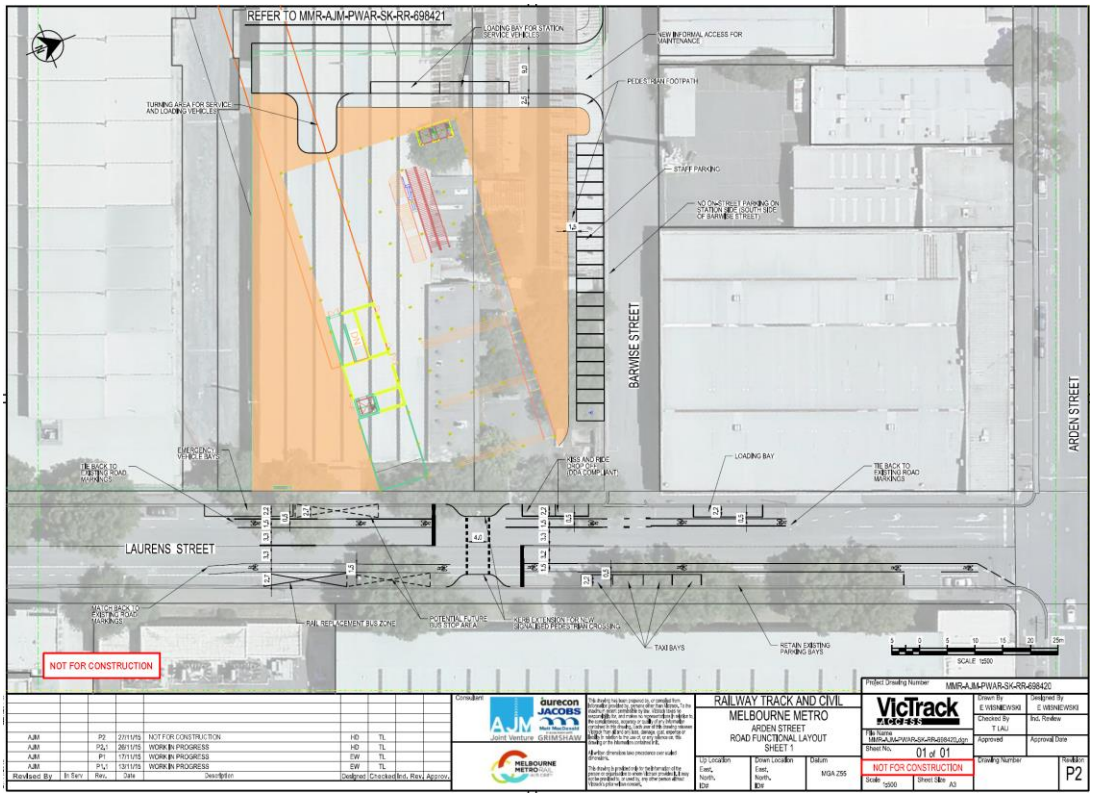


Figure 5.2 indicates the provision of pedestrian operated signals outside the station together with the provision of a single trafficable lane in each direction and independent bicycle lanes, parking lanes and associated bus stops. The plan indicates the proposed pedestrian operated traffic signals outside the station are located approximately 70 metres south of Arden Street[7].

The EES indicates that the station on activation will cater for around 880 passenger entries and exits during the AM 2-hour peak and 800 entry / exits during the PM 2-hour peak, respectively[8].

Section 4.4.3 of Appendix D, the origins of these passenger entry estimates, specifically states:

"Modelled station pedestrian entries and exits for Arden Station for the busiest two-hours in the AM and PM in 2031 are shown in Table 4-7. Initial land use forecasts for redevelopment at Arden have resulted in relatively low passenger volumes using the station. These numbers are likely to increase substantially if development assumptions increase."

Specific commentary contained in the EES raises concern over the land use assumptions relied upon in the Strategic Model (VITM) which may be absent of forecast population and employment changes for Arden Macaulay under the 2031 Arden Station legacy assessment.

Consideration must also be given to the status of Laurens Street as an approved B-Double route and being the only approved B-Double route providing access to and from industrial land uses within this precinct. This will be further discussed later in this report.

7 Measured from stop line to stop line on Laurens Street.

8 Table 4-7, Arden Station – 2031 Melbourne Metro weekday passenger entries and exits.

5.3 Construction Strategy

High level construction plans set out an outline of the site area extents being relied upon during construction to deliver Arden Station. These extents are provided at Figure 5.3.

Figure 5.3: Construction Area Extents – Arden Station

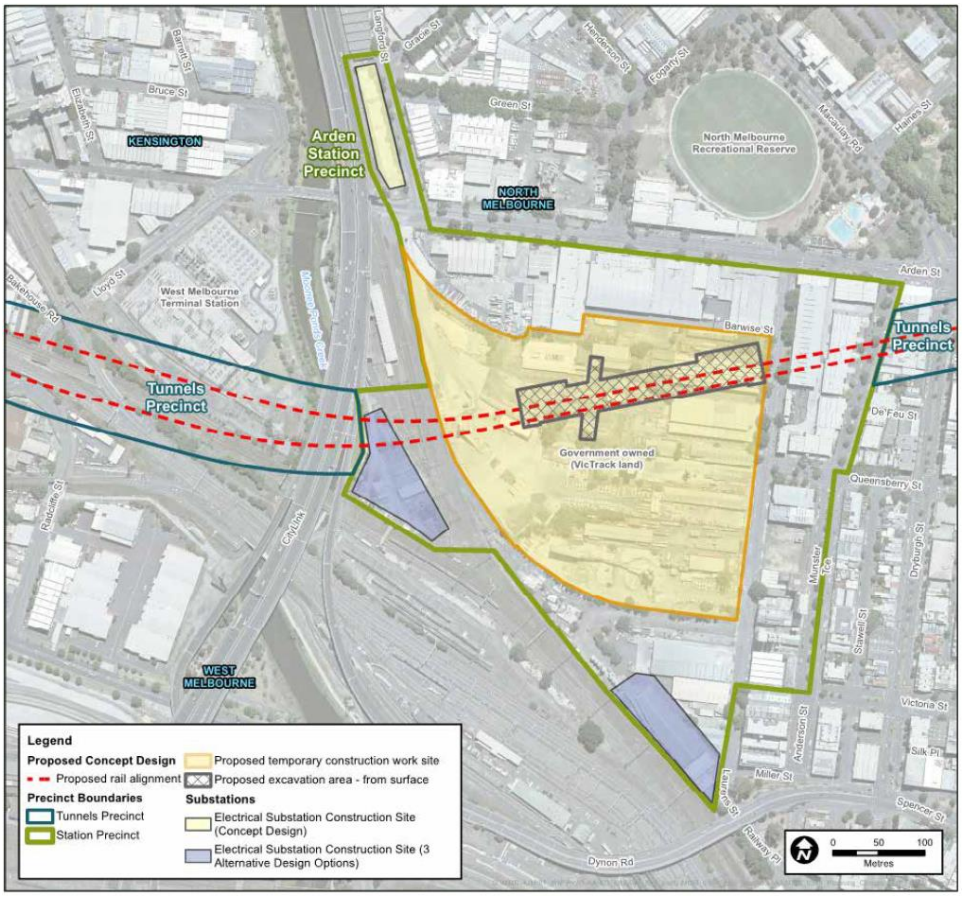


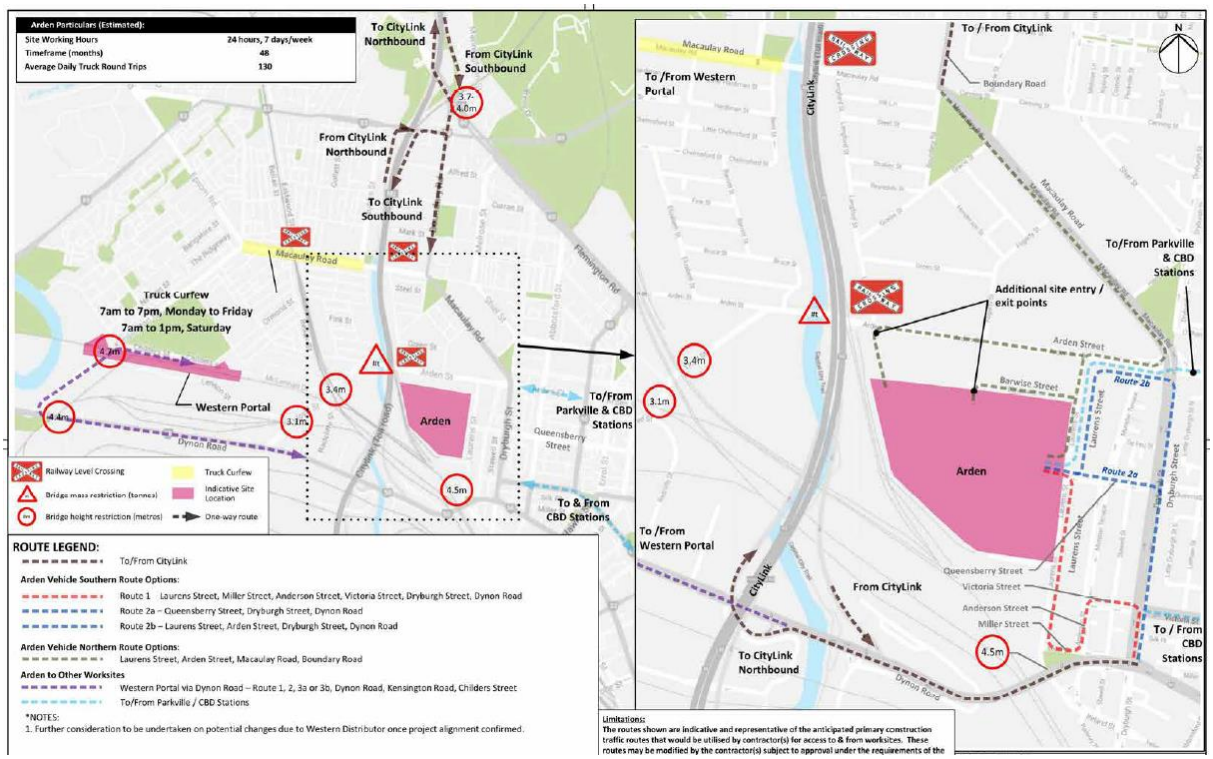
Figure 5.3 sets out the proposed temporary construction work site in yellow, the excavation area in grey and the Station Precinct in light green.

A range of access routes are currently proposed to/from the Arden Precinct as outlined below and shown in Figure 5.4.

- Red Line: Route 1 – Laurens Street, Miller Street, Anderson Street, Victoria Street, Dryburgh Street, Dynon Road
- Blue Lines:
  - Route 2a – Queensberry Street, Dryburgh Street, Dynon Road
  - Route 2b – Laurens Street, Arden Street, Dryburgh Street, Dynon Road
- Grey Line: Arden Northern Route – Laurens Street, Arden Street, Macaulay Road, Boundary Road
- Purple Line: Arden to Western Portal – Route 1,2,3a or 3b, Dynon Road, Kensington Road, Childers Street
- Light Blue Line: Arden to Parkville/CBD Stations – Laurens Street, Arden Street
- Brown: Citylink Access

- Laurens Street, Arden Street, Macaulay Road, Boundary Road, Racecourse Road or Flemington Road
- Route 1, 2a,2b

Figure 5.4: Proposed Construction Traffic Routes



5.4 Construction Activity – Traffic & Parking Estimate

Section 5.1 of this report sets out the level of truck activity likely to be generated through spoil removal and equipment delivery. Separate to this activity and in the absence of any specific detail around the management of Melbourne Metro workforce stationed at the Arden Precinct, it is estimated using characteristics established at Section 4 of this report that the demands set out in Table 5.1 will be generated.

Table 5.1: Melbourne Metro Workforce Generation Estimate - Arden Station Precinct

Category	Predicted Workforce	Estimated Rate of Demand	Estimated Demand
Car Parking	421 persons	0.64 cars per worker [1]	270 car spaces
Traffic Generation		3 vte/worker with car	810 vte/day

[1] Source: ABS Journey to Work data for North Melbourne

Table 5.1 indicates an unconstrained parking demand of 270 car parking spaces and around 810 vehicle trip ends per day on a typical day of construction. In the event that the workforce is segregated into shifts (most likely three), the peak level of demand (for parking) is estimated to be less than the total estimate but noting that periodic overlaps will occur at shift change.

Irrespective of the precise level of demand, it is evident from this assessment that the proposed construction works at the Arden Precinct are significant and will need to be carefully considered given:

i There is no indication in the EES that any significant worker car parking will be provided in the construction area.

ii Parking within the public on-street resource is saturated at present and serving existing businesses and operations currently in the area.

iii Any traffic activity (spoil / delivery trucks or worker traffic) generated during either of the respective AM and PM road network peak hours will add activity to a transport network which is currently struggling to cope with existing underlying demands.

Discussion in respect of these issues for the Panel's consideration are set out in Section 7 of this report.

6. Arden Transport Network

6.1 Existing Conditions

6.1.1 Road Network

Table 6.1 outlines the characteristics of key roads within the Arden Precinct area.

Table 6.1: Road Network Characteristics

Road Name	Road Classification	Road Zone	Authority	Alignment	Configuration	Road Reserve Width (approx.)	Daily Traffic Volumes (approx.)
Arden Street	Major Road	Industry/Mixed Use	Council	East-west	○ Two through lanes in each direction ○ Kerbside parking ○ Bicycle lane in each direction ○ Pedestrian paths on both sides of the road	30.0m	5,600vpd [1]
Boundary Road	Primary Arterial	Road Zone 1	VicRoads	North-south	○ One through lane in each direction ○ Kerbside parking ○ No bicycle provision ○ Pedestrian paths on both sides of the road	21.0m	5,800vpd [1]
Macaulay Road (East of boundary)	Primary Arterial	Road Zone 1	VicRoads	North-south	○ One through lanes in each direction ○ Kerbside parking ○ Bicycle lane in each direction ○ Pedestrian paths on both sides of the road	30.0m	9,500vpd [1]
Macaulay Road (West of Boundary Road)	Major Road	Industry	Council	East-west	○ One through lane in each direction ○ Kerbside parking ○ Bicycle lane in each direction ○ Pedestrian paths on both sides of the road	19.5m	6,500vpd [1]
Dynon Road (east of Dryburgh Street)	Primary Arterial	Road Zone 1	VicRoads	East-west	○ Two through lanes in each direction ○ No parking ○ No bicycle provision ○ No pedestrian paths	20.0m	16,000vpd [1]
Laurens Street	Local Road	Industry/Mixed Use/Public Use	Council	North-south	○ One through lane in each direction ○ Kerbside parking ○ Bicycle lane in each direction ○ Pedestrian paths on both sides of the road	20.0m	4,295vpd [2]
Dryburgh Street	Primary Arterial	Road Zone 1	VicRoads	North-south	○ Two through lanes in each direction ○ Kerbside parking ○ Bicycle lane in each direction ○ Pedestrian paths on both sides of the road	31.0m	8,100vpd [1]
Munster Terrace	Local Road	Industry/Mixed Use	Council	North-south	○ One through lane in each direction ○ Kerbside and median parking ○ No bicycle provision ○ Pedestrian paths on both sides of the road	30.0m	

Road Name	Road Classification	Road Zone	Authority	Alignment	Configuration	Road Reserve Width (approx.)	Daily Traffic Volumes (approx.)
Barwise Street	Local Road	Public Use	Council	East-west	○ One lane, two-way ○ Kerbside parking ○ No bicycle provision ○ No pedestrian paths	10.0m	
Queensberry Street (west of Dryburgh)	Local Road	Mixed Use/Industry	Council	East-west	○ One through lane in each direction ○ Kerbside and median parking ○ Bicycle lane in each direction ○ Pedestrian paths on both sides of the road	32.0m	4,660vpd [2]
Victoria Street (west of Dryburgh Street)	Local Road	Mixed Use	Council	East-west	○ One through lane in each direction ○ Kerbside parking ○ No bicycle provision ○ Pedestrian paths on both sides of the road	30.0m	
Miller Street (east of Anderson Street)	Local Road	Mixed Use	Council	East-west	○ One-way single width road ○ No parking ○ No bicycle provision ○ Pedestrian path on north side of the road	8.5m	
Miller Street (west of Anderson Street)	Local Road	Mixed Use	Council	East-west	○ One lane in each direction ○ Kerbside parking on south side of the road ○ No bicycle provision ○ Pedestrian paths on both sides of the road	15.0m	450vpd [2]
Stawell Street (south of Victoria Street)	Local Road	Mixed Use	Council	North-south	○ One through lane in each direction ○ Kerbside parking on both sides ○ No bicycle provision ○ Pedestrian paths on both sides of the road	20.0m	
Anderson Street (south of Victoria)	Local Road	Mixed Use	Council	North-south	○ One through lane in each direction ○ Kerbside and median parking ○ No bicycle provision ○ Pedestrian paths on both sides of the road	30.5m	

[2] Volumes sourced from VicRoads traffic profile viewer accessed 10/08/2016
[3] Volumes taken from surveys undertaken by GTA and adopting a peak-to-daily ratio of 10% for local roads.

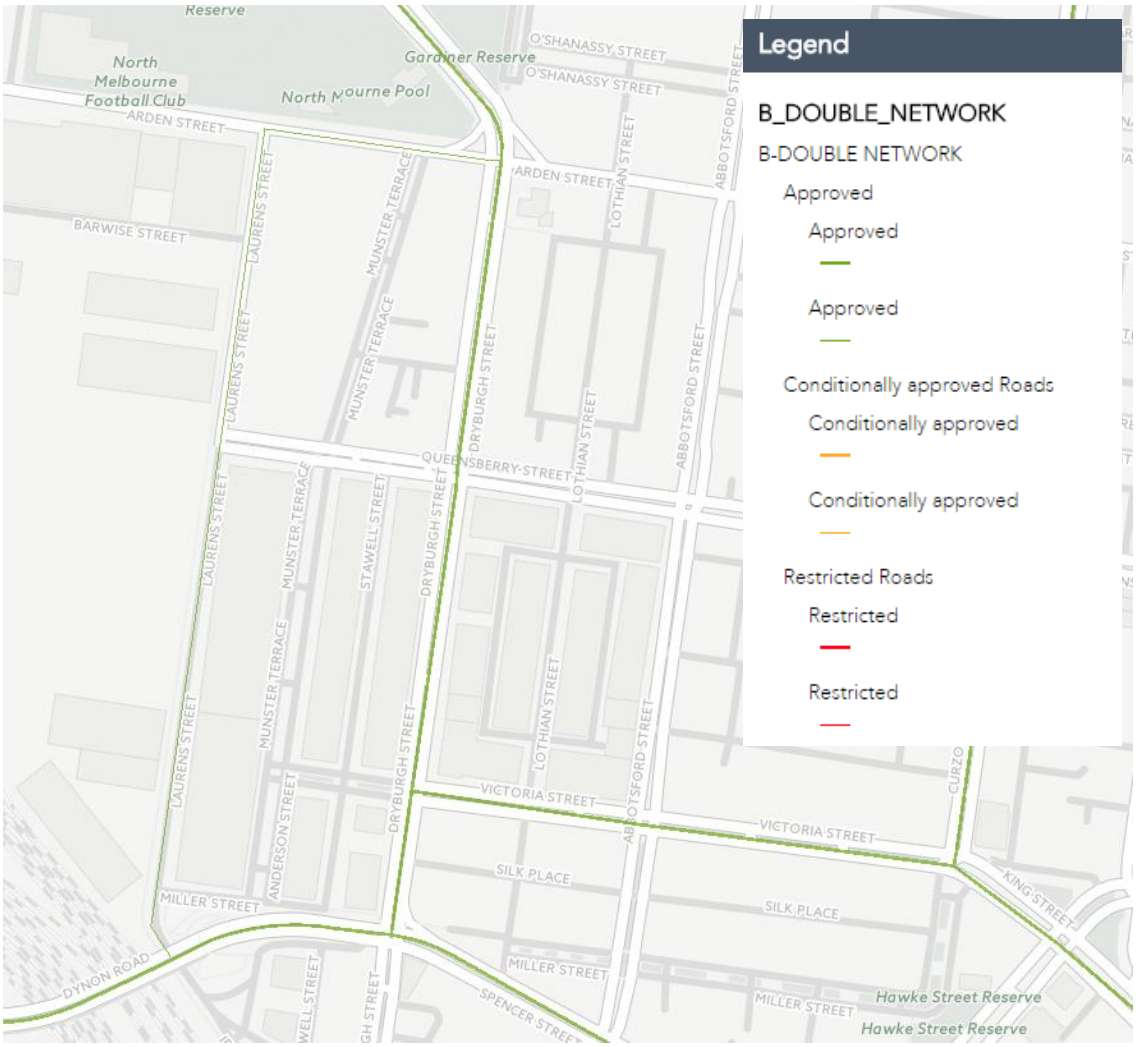
6.1.2 Heavy Vehicle Precinct Routes

Whilst the area immediately surrounding the Arden Station precinct is primarily industrial in nature, there are a number of restrictions to heavy vehicle traffic wishing to access the area from the arterial and toll road network. Primarily these restrictions exist to the north of Arden Street, however have not been further detailed in my report as these do not have a primary bearing on the operational impacts to GWF as discussed later within this report.

6.1.3 Approved B-Double Routes

Although many of the uses surrounding the Arden Precinct are industrial only limited roads in the vicinity of the site are VicRoads approved B-Double routes as illustrated in Figure 6.1.

Figure 6.1: VicRoads Approved B-Double Network



While B-Double vehicles may not be relied upon for construction activities these vehicles and routes have an important role in the operation of GWF.

6.1.4 SmartRoads

SmartRoads is a VicRoads policy which sets 'modal' priorities on the road network and underpins many of the strategies significant to the operational directions that support broader strategies around land use and transport. The policy recognises that:

"There is no single solution to managing congestion on our roads. Sustainable management of congestion will require an integrated approach involving better management of the existing network, building new infrastructure, visionary land use planning, encouraging sustainable transport modes, and changes in behaviour by individuals, businesses and a level of government."[9]

All road users will continue to have access to all roads. However, certain routes will be managed to work better for cars while others for public transport, cyclists and pedestrians during the various

[9] Sourced from VicRoads

peak and off-peak periods. In this regard, the following is noted by VicRoads for the various modes assigned to roads across the network that form part of the Network Operating Plans:

- *"Facilitate good pedestrian access into and within activity centres in periods of high demand*
- *Prioritise trams and buses on key public transport routes that link activity centres during morning and afternoon peak periods*
- *Encourage cars to use alternative routes around activity centres to reduce the level of 'through' traffic*
- *Encourage bicycles through further developing the bicycle network*
- *Prioritise trucks on important transport routes that link freight hubs and at times that reduce conflict with other transport modes"*

The SmartRoads network within the general Arden Precinct Area is shown in Figure 6.2.

Figure 6.2: VicRoads SmartRoads Network Operating Plan around Arden Station

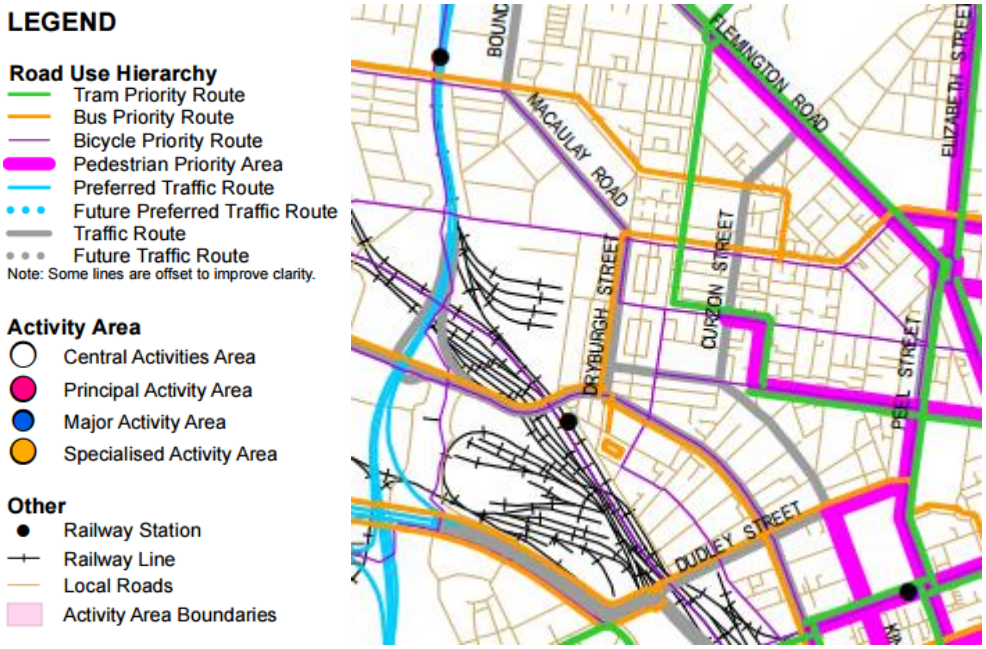


Figure 6.2 indicates that Macaulay Road and Dryburgh Street form the principal traffic routes through the area with Arden Street and Macaulay Road forming key roads required to support bicycle activity.

6.1.5 Traffic Activity

GTA undertook traffic movements counts at the following intersections on Tuesday 2 August 2016, during the AM (8:00am-9:00am) and PM (5:00pm-6:00pm) peak hours:

- Arden Street/Macaulay Road/Dryburgh Street
- Arden Street/Laurens Street
- Laurens Street/Queensberry Street/Vehicle Access
- Laurens Street/Miller Street

The results of these traffic counts are presented in Figure 6.3 to Figure 6.10.

Figure 6.3: Arden Street/Macaulay Road/ Dryburgh Street – AM Peak Hour

Figure 6.4: Arden Street/Macaulay Road/ Dryburgh Street – PM Peak Hour

Figure 6.5: Arden Street/Laurens Street – AM Peak Hour

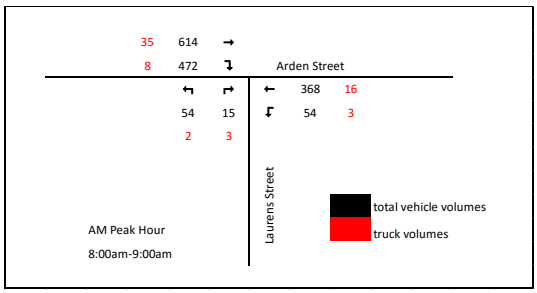


Figure 6.6: Arden Street/Laurens Street – PM Peak Hour

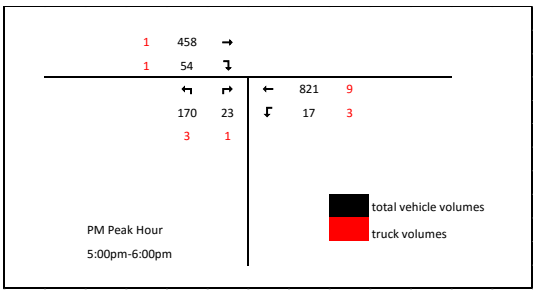


Figure 6.7: Laurens Street/Queensberry Street – AM Peak Hour

Figure 6.8: Laurens Street/Queensberry Street – PM Peak Hour

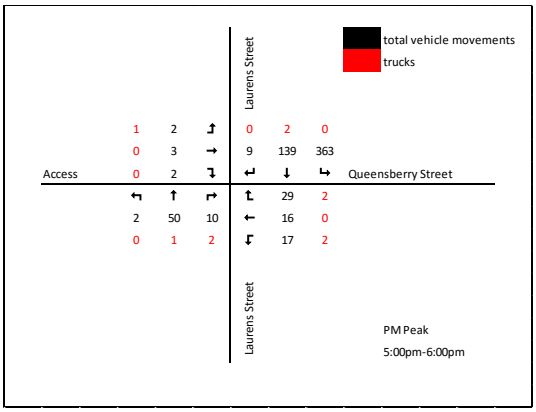


Figure 6.9: Laurens Street/Miller Street – AM Peak Hour

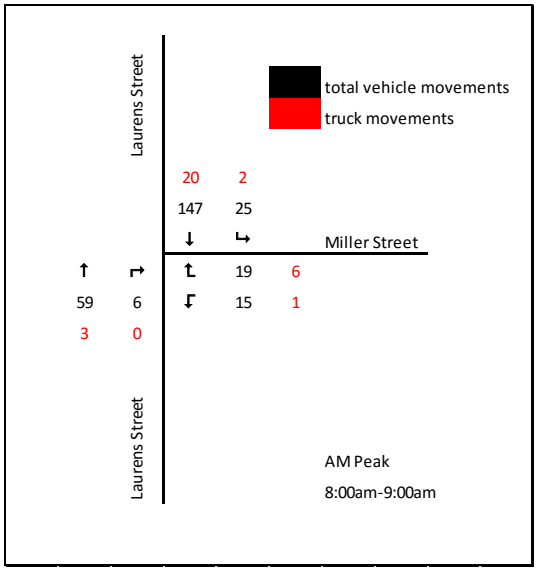
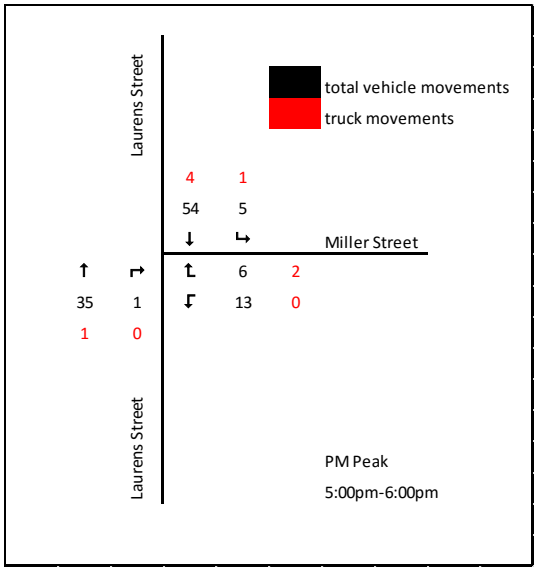


Figure 6.10: Laurens Street/Miller Street – PM Peak Hour



In summary, surveys indicate that eastbound traffic (towards the CBD) demands dominate traffic flows in the AM Peak hour with the opposite outcome recorded during the PM peak hour. Interestingly, an existing high level of demand currently occurs in the AM peak hour into Laurens Street from Arden Street with the reverse, to a lesser extent occurring in the PM peak hour. This activity appears to be related to non-local traffic bypassing the Arden Street / Macaulay Road / Dryburgh Street intersection during peak periods. These flows include, low levels of truck / heavy vehicle activity.

6.1.6 Operational Observations

In addition to the above traffic and parking surveys, GTA undertook AM and PM peak hour observations around the Arden Precinct to identify existing traffic and transport operations. During these surveys, the following observations were made:

Table 6.2: Summary of Observed Network Performance Characteristics

Peak Hour	Location	Observations
AM	Arden Street/Laurens Street intersection	Long eastbound queuing across Laurens Street
	Arden Street	Moderate use of Arden Street as a bicycle route, noting its connection to the Capital City Trail.
	Macaulay Road/Langford Street	Long eastbound queues across Langford Street
	Macaulay Road Rail Crossing	Creates significant delays and queuing for E-W transport movement
	Kensington Station Rail Crossing	Creates significant queues and delays on Macaulay Road High frequency service
PM	Arden Street	Queuing eastbound across Langford Street
	Langford Street/Macaulay Road	Queuing in both directions results in vehicles being unable to exit Langford Street

For reference purposes, Figure 6.11 and Figure 6.12 has been prepared illustrating the observed extents of queuing during the AM peak period and PM peak periods.

Figure 6.11: AM Peak Period – Observed Queues

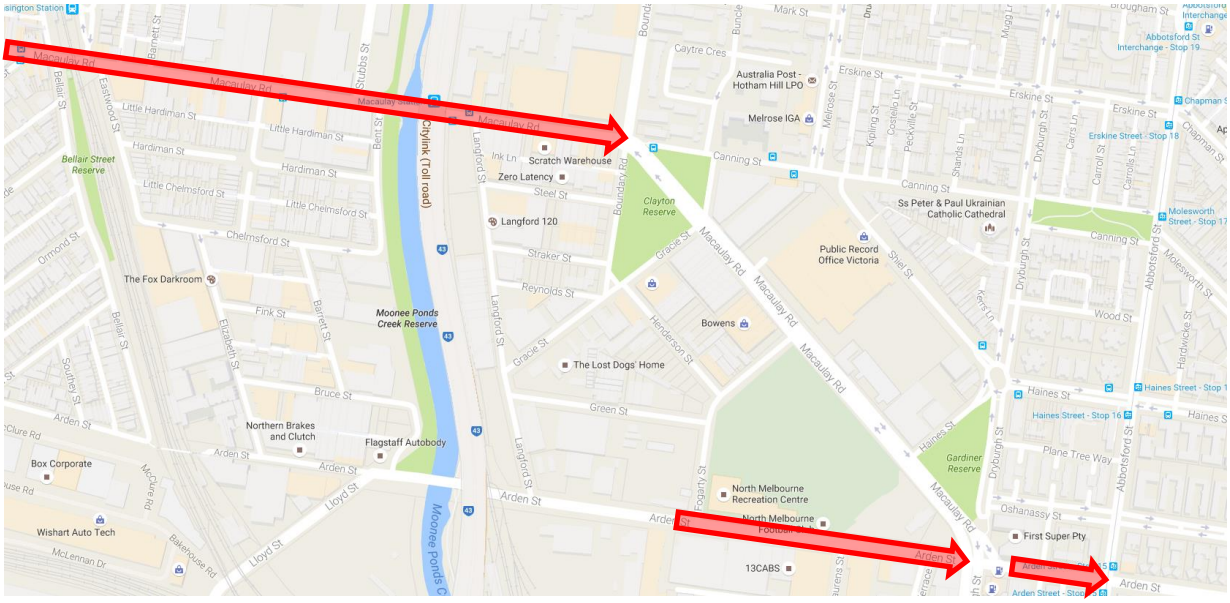
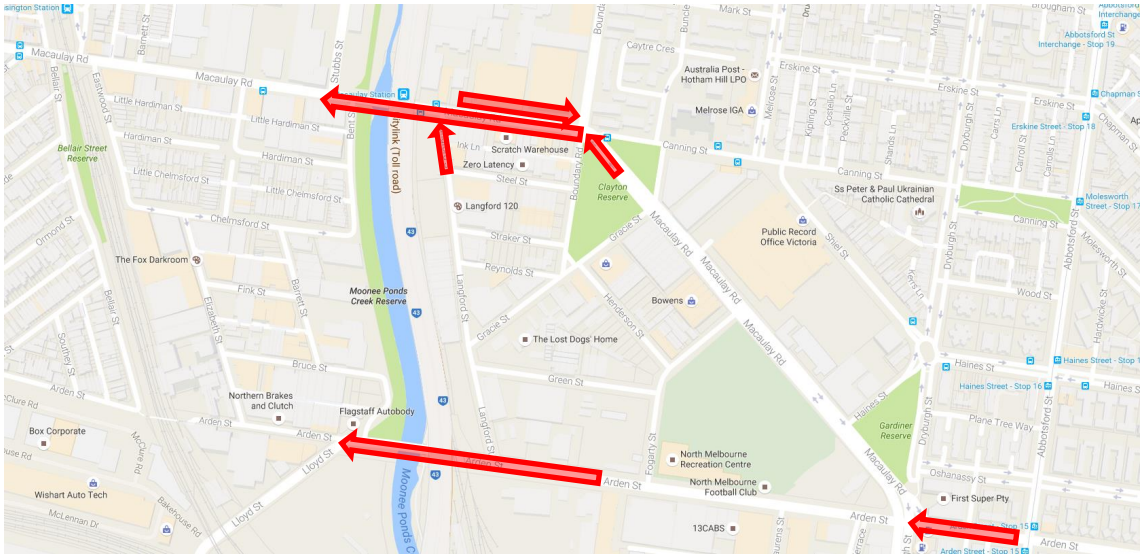


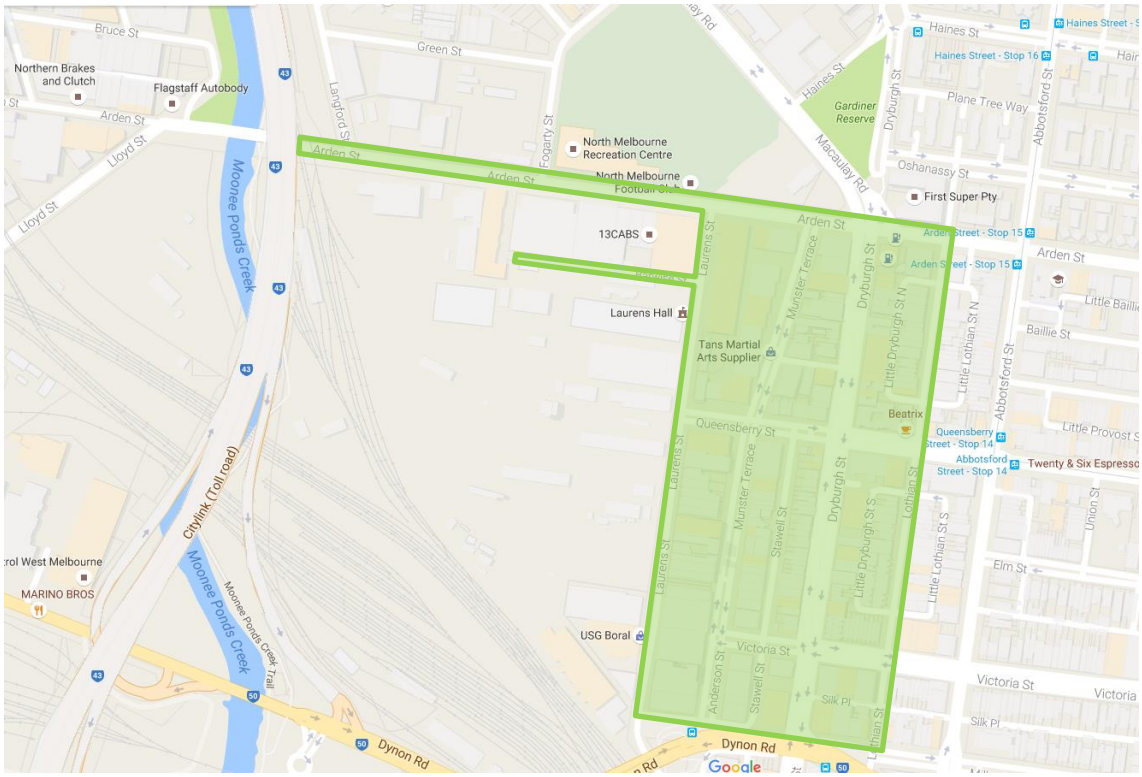
Figure 6.12: PM Peak Period – Observed Queues



6.1.7 On-street Public Car Parking

To determine the existing availability of car parking within the vicinity of the site GTA has undertaken spot car parking demand surveys on Tuesday 2 August at 9:00am and 11:00am. Surveys were informed by a comprehensive car parking inventory prepared for the area bounded generally by Arden Street to the north, Lothian Street to the east, Dynon Road to the south and Laurens Street to the west. The area surveyed is shown in Figure 6.13.

Figure 6.13: Surveyed Parking Area Extents



The inventoried area indicates that on-street car parking is for the most part unrestricted in nature. The existing restrictions respond to needs associated with the land uses currently operating in the area and in particular employee / staff parking requirements which are presently accommodated on individual sites within the precinct.

The results of surveys are summarised in Table 6.3, and indicate that parking demands in short-term (signed) areas are high (73%-83%) whilst demand for long-term car parking in the area is very high (or saturated). Notably, the unrestricted car parking supply surveyed represents 57% of the available supply.

Table 6.3: On-Street Public Car Parking Survey Results

Date	Tuesday 2 August 2016					
Restriction	Short-term [1]		Long-term [2]		Total	
Time	9:00am	11:00am	9:00am	11:00am	9:00am	11:00am
Supply	313	313	411	411	724	724
Demand	230	261	408	408	638	669
Vacancies	83	52	3	3	86	55
Occupancy	73%	83%	99%	99%	88%	92%

[1] Short-term = greater than 1P (e.g. parking suitable for visitors)
[2] Long-term = greater than 8P (e.g. parking suitable for staff)

6.2 Laurens Street Closure

As part of the City of Melbourne's 'West Melbourne parks expansion', Laurens Street south of Millers Street is proposed to be closed to traffic to allow for the creation of a new public park. In this regard Melbourne City Council anticipates the construction works will commence in September 2016. The proposed expansion is shown in Figure 6.14 and Figure 6.15.

The extent to which this network change has been accounted for in the modelling undertaken as part of the EES Transport Impact Assessment is unclear.

Figure 6.14: Extent of Works

Figure 6.15:Park Concept Plan

7. Transport Matters for Consideration

7.1 Preamble

The TIA identifies that traffic disruptions in the Arden Station Precinct would likely arise from:

- *"Truck access and movement to be based on 24-hour operation and site operation to be 7-days per week to support TBM [Tunnel Boring Machine] operations and spoil removal*
- *Potential use of the site for 'truck call forward operations', where trucks are docked at the Arden construction work site until relevant CBD work sites are ready to receive them*
- *To support the construction of the east end of the station box, it is expected that parts of Laurens Street would need to be occupied for the duration of this phase of the construction."*

These are explored further in the following sections to more specifically consider their potential impact on GWF operations, and appropriate mitigating works that are required in order to minimise their impact.

7.2 Construction

7.2.1 Network Capacity & Safety

The Melbourne Metro Rail Project Transport Impact Assessment at Section 8.6.3 (Operational Analysis) notes:

"No modelling has been undertaken for the Arden precinct, as the data or site observations indicate that base volumes are low and modelling is not required to support the assessment. The site already accommodates construction type industries and truck movements. As the Arden station precinct is planned to be one of the major construction activity sites for the construction of Melbourne Metro, it would necessarily generate more truck activity than other sites. Access route options to/from the site have been investigated and a number of options are proposed to minimise the reliance on any particular routes, and thereby minimise the impact on the residents living along those routes. Nevertheless, the activity at this site (for both spoil removal and other construction related activities generated by this site) would extend for a period of around four years with 24-hour, 7-day operations at around 260 truck movements (on average) per day."

It is also noted that peak average daily truck trips will increase to 364 movements per day for a period lasting up to 6 months.

In considering these statements from the Traffic Impact Assessment a number of comments are made:

- As discussed within Section 6.1.6 of this report, congestion was observed along Arden Street in particular during the AM peak period with queuing of eastbound vehicles extending from the Arden Street / Macaulay Street / Dryburgh Street intersection through the Arden Street / Laurens Street intersection. This congestion significantly limited the ability for vehicles to turn right out of Laurens Street into Arden Street.
- No quantification has been provided of the level of traffic that is generated by the current industrial land uses that are located along Laurens Street that will be replaced by the construction site. Further the assessment implies that the movements associated with existing businesses will simply no longer exist. While some movements may be

removed from the site itself, movements such as those to and from the Cockerill Transport facility using the weigh bridge facility would still be required to be undertaken within the general precinct at a relocated weigh bridge facility.

- The Traffic Impact Assessment Report acknowledges that the Arden precinct will generate more truck activity than other sites.
- The discussion focusses on truck movement and does not have regard for additional traffic that will be generated by staff driving to and from the site.
- It is acknowledged in earlier sections of the Traffic Impact Assessment (Section 8.6.3, Truck Movements) that the additional truck movements would cause some disruption.
- While a number of truck routes are proposed on the local network, these local routes (routes 1, 2A and 2B) are consolidated once reaching Dryburgh Street and travelling on Dynon Road to and from CityLink. The addition of right turn truck movements on Dryburgh Street to Dynon Road will be controlled only by a filtered intersection signal control. This is considered to represent a potential safety and capacity issue.
- As discussed earlier within this report at Section 3 it is unclear if the uplift in development associated with the Arden Macaulay Structure Plan and subsequent traffic impacts has been included within the current transport modelling undertaken.
- It is unclear if the implications of the closure of Laurens Street at Millers Street (as discussed earlier at Section 6.2) and the subsequent redistribution of traffic has been considered. This redistribution of traffic is likely to add additional turning movements to the intersection of Victoria Street and Queensberry Street with Dryburgh Street. This may make the use of these intersections for construction traffic less desirable.

The operation of local intersections and the ability to access the surrounding arterial road network is important to the operation of local businesses. In particular the operation of Laurens Street is critical to the operation of the GWF facility being the only approved B-Double access route to and from their site.

On this basis it is considered important that detailed traffic impact modelling be undertaken of key connection points of the local network to the arterial road network, and suitable mitigating measures be put in place, to ensure that the operation of the network is not impacted by the construction activities. Any such modelling must also have regard for the future population and employment growth anticipated by the Arden Macaulay Structure Plan.

In addition, further analysis and review is recommended of the intersection Dryburgh Street and Dynon Road to ensure this intersection operates safely and with suitable capacity.

Recommendation: Detailed traffic modelling be undertaken of key connection points with the arterial road network and suitable mitigating measures be put in place to ensure that the operation of the existing network is not impacted by the construction activities. Modelling must also have regard for the future population and employment growth anticipated by the Arden Macaulay Structure Plan.

Recommendation: Further analysis and review is recommended of the intersection Dryburgh Street and Dynon Road to ensure this intersection operates safely and with suitable capacity.

7.2.2 Laurens Street Loading Operations

Delays & Conflict

Construction Vehicle Route 1 is identified to travel along Laurens Street between Queensberry Street and Miller Street directly past the GWF facility.

As identified within Section 4.2, vehicles accessing the GWF include in the order of 250 vehicles per week or some 35 vehicles per day.[10] While the number of vehicles accessing the site is relatively low in the context of the overall network, the operation of vehicle access is important to be considered.

As described earlier these vehicles are required to reverse into on-site loading bays using Laurens Street and (for B-Double vehicles) the site opposite on the western site of Laurens Street. This site on the opposite side of Laurens Street is understood to be under the control of VicTrack.

Vehicles undertaking these manoeuvres have been recorded to take in the order of 5 minutes per vehicle to suitably manoeuvre into the site.

Vehicle volumes accessing the Arden Station precinct are indicated to be 364 movements per day during the peak period. Dividing this across the 24 hours of operation this would equate to in the order 15 vehicle movements per hour.

At this time no indication has been provided as to which routes will be more frequently utilised in order to access the Arden Station precinct. Assuming an even distribution across 5 potential access routes could result in an additional 3 vehicle movements per hour travelling along each of the 5 primary routes (including Route 1).

While in principle the vehicle volumes do not give rise to significant traffic impacts, having regard to road safety the nature of existing loading vehicle movements accessing the GWF facility, in particular reversing movements across Laurens Street it would be desirable that no additional vehicles be encouraged to utilise Route 1 and travel past the GWF site.

Further from an amenity perspective the use of this route - Laurens Street, Miller Street, Anderson Street and Victoria Street is not considered desirable for a number of reasons including:

- This is the most circuitous access route requiring increased turning movements at unsignalised intersections.
- This route has the steepest gradients increasing the need for vehicle braking and acceleration which could impact on local safety and amenity of residential dwellings along the route.
- As discussed within Section 6.2 works are being undertaken by the City of Melbourne to improve the amenity of the area by creating additional parkland through the closure of Laurens Street, south of Miller Street. The addition of construction vehicles past this park would contradict the improvements being made.

On this basis it is recommended that Route 1 is not used as a construction route to minimise any impact or conflict on GWF operations.

From a capacity perspective, it is recommended that further investigations be undertaken to confirm that these movements proposed to use Route 1 could be accommodated within the other construction routes.

Recommendation: Construction Vehicle Route 1 is not used as a construction route to minimise any impact or conflict on GWF operations.

Weighbridge

VicTrack land immediately west of Laurens Street has historically been leased and relied upon by a number surrounding businesses. In this regard, a weigh bridge has been incorporated within the Cockerill Transport site which is used by GWF and other local companies.

[10] Vehicle numbers exclude staff vehicles

The Construction Concept Design plan prepared by the MMRA (Drawing No MMR-AJM-UGAA-MP-NN-500295 Rev C1, Dated 20 April 2016) illustrates the entire VicTrack site as a temporary construction work site.

Based on this, the Arden Station construction site is indicated to occupy the weighing bridge area currently relied on for GWF operations.

The loss of a weigh bridge facility is understood to have significant impact to the operational and economic performance of GWF with regard to the loss of productivity and loss of accuracy of volumes. It is understood that the implications of a potential weigh bridge site on Footscray Road (some 3km away) could reflect an additional 30 to 40 minutes in additional time to weigh & load. The basis for this not only relates to the time in driving between sites but the doubling up of time in weighing.

It must be acknowledged that desirably a weigh bridge facility would be located within the GWF site to provide a facility entirely under their control.

However, the ability to provide such a facility is difficult, if not impossible, given that the site is built to the boundary and the sites façade is heritage controlled making it difficult to create any form of further access or modifications to the building.

As such it would be desirable if the existing weigh bridge facility would be able to be retained if possible without impacting on the MMRA operations. This would continue to allow a forward in forward out operation from the weigh bridge to Laurens Street maintaining safe operations as far as practicable

Should this not be able to be retained it would be desired that MMRA work with GWF to establish a suitable alternate weigh bridge location. Preferably such a location could be found on Laurens Street and could include parts of the VicTrack land immediately to the south of the Station Construction precinct.

While the relocation of a weigh bridge facility is not technically the responsibility of the MMRA to provide, it would be considered to in keeping with the objectives of the EES which indicate the *"Need to manage disruptions and delays for residents, businesses and travellers during the construction of the project."*

A potential location for such a facility could be located opposite the main GWF loading dock facility alongside the cark park lot leased from VicTrack. This land while under the control of VicTrack, is located outside of the identified Station Construction Area. While detailed design investigations of this area have been undertaken it is expected that a weigh bridge could be accommodated without cutting down trees and there would still be suitable space for trucks to pass.

This proposed weigh bridge location is shown in Figure 7.1.

Figure 7.1: Alternate Weigh Bridge Location

This would allow vehicles to enter forward from Laurens Street onto the Weigh bridge. Vehicles would then reverse from the weigh bridge across Laurens Street and into the existing loading docks. A weigh bridge in such a location would also potentially act as a staging area for B-Double movements and may indeed work to reduce vehicle movements within Laurens Street.

I am advised that GWF understands & accepts it will incur costs to prepare the access road as well as any make goods as required.

<u>Recommendation:</u> Maintain the existing weigh bridge facility located on the VicTrack Land on the western side of Laurens Street.

<u>Recommendation:</u> In the absence of the above recommendation not being achieved the MMRA work with GWF to establish a suitable alternate weigh bridge location. Preferably such a location could be found on Laurens Street and could include parts of the VicTrack land immediately to the south of the Station Construction precinct.

<u>Recommendation:</u> GWF be included as a key stakeholder during the detailed assessment of the occupation of land to the west of Laurens Street currently relied upon for day-to-day operations.

Space Allocation

The traffic impact assessment report indicates the following components of construction activities which have the potential to impact the allocation of road space along Laurens Street:

- *"Potential use of the site for 'truck call forward operations', where trucks are docked at the Arden construction work site until relevant CBD work sites are ready to receive them*
- *To support the construction of the east end of the station box, it is expected that parts of Laurens Street would need to be occupied for the duration of this phase of the construction."*

On-street loading bays on Laurens Street have an important role to the operation of GWF. Information provided by GWF indicates that in the order of 90% of arrival vehicles to GWF are required to park within Laurens Street while they wait for a loading bay to become available. An average wait time within the loading bay is understood to be in the order of 10 minutes.

Further the heritage constraints of the site make it difficult for any modifications to site access points.

As such any reallocation of road space along Laurens Street has the potential to impact the operations of the site whether it be through the loss of adjacent parking that has been afforded to the site or in restricting access to the site.

It is unclear from the TIA how each of these elements could impact the provision of kerb space and as such create potential impacts to the GWF site:

- Call Forward
  - Will vehicles be stored within the site or along Laurens Street while waiting to be called to other CBD sites.
- Laurens Street Occupation
  - Will the occupation of Laurens Street impact parking availability and holding of vehicles for GWF in loading zones.
  - Will it reduce the availability of turning space for vehicle access,
  - Will it restrict access (vehicle or pedestrian) to any access point to the site.

Given these uncertainties further details are required to be incorporated within more detailed Construction Traffic Management Plans to be prepared and it be ensured that any call forward operations and occupation of Laurens Street does not impact on the operation of GWF facilities.

Given the potential implications on site operations it is considered relevant that GWF be included as a key stakeholder during the development of the detailed traffic and construction management plans for the area.

<u>Recommendation:</u> Detailed Construction Traffic Management Plans be prepared which ensure that any call forward operations and occupation of Laurens Street does not impact on the operation of GWF facilities.

<u>Recommendation:</u> GWF be included as a key stakeholder during the development of the detailed traffic and construction management plans which impact the operation of Laurens Street.

7.2.3 Managing Parking

As identified within Section 4.3 of this report, GWF North Melbourne has a reliance on in the order of 19 parking spaces within the surrounding on-street network.

Initially it must be acknowledged that drivers do not have a right to on-street parking.

However, a reliance has traditionally occurred and been allowed to occur through Council maintaining unrestricted parking in the area.

In the setting of 'construction management' it would be considered fair and reasonable that priority be afforded to existing staff parking in the area over construction workers. Particularly given the very high utilisation of this parking by staff of the area already.

While schemes such as shuttle services could be set up to limit construction staff driving to the site, in reality if unrestricted parking remains available in the area it is likely that construction staff will seek to utilise this parking. In this instance whereby construction activities will occur 24/7 it would be regularly expected that construction staff would arrive prior to permanent staff of the area.

As such consideration should be given to the development of a staff parking permit scheme and associated on-street restriction to provide priority to existing staff to utilise existing unrestricted parking areas.

It is recognised that such restrictions may not be expected to exist long term in the legacy state, however in considering the construction principles it is relevant that strategies be put in place to protect the parking needs of the existing employees and businesses of the area.

Recommendation: Consideration be given to the development of a staff parking permit scheme and associated on-street restriction to protect the parking needs of existing employees and businesses of the area.

7.3 Post Implementation

7.3.1 Laurens Street Operations/B-Double Routes

As indicated in Section 5.2, and Figure 5.2 the TIA depicts the proposed ultimate design of Laurens Street.

The design treats the north entry to Laurens Street providing kerb side parking and on-street cycle lanes which is consistent with its current operation. The design also introduces a signalised pedestrian crossing approximately 70m south of Arden Street.

It is unclear from the TIA of the level of analysis and consideration that has accompanied the design of this station interface. In this regard the following is noted:

- As identified in Section 6.1.3 Laurens Street forms the approved B-Double route which provides access to the industrial land uses along Laurens Street. This is critical to GWF operations. While there is likely to be a changing dynamic to this overall precinct as the Arden Macaulay Structure Plan is realised it must be ensured that the B-Double route is maintained or re-provided in another form that does not disadvantage the operation of businesses that will remain in this precinct and rely on B-Double access.
- As identified within Section 6.1.5 there is a number of significant traffic movements between Arden Street and Laurens Street. The introduction of the signalised pedestrian crossing creates the potential of queuing of vehicles back toward Arden Street and potentially into Arden Street. It needs to be ensured that appropriate traffic analysis

has been undertaken to ensure network capacity is not compromised by the introduction of the pedestrian operated signals.

Having regard to the above, further detailed analysis and consideration of the design of Laurens Street in its legacy state is required to ensure this does not compromise the functionality of the road network serving for existing businesses.

Recommendation: Further detailed analysis and consideration of the design of Laurens Street in its legacy state is required to ensure this does not compromise the functionality of the road network serving for existing businesses.

7.3.2 Managing Parking

It is recognised that staff parking permit schemes discussed in Section 7.2.3 would not be expected to be retained in the legacy state. In addition, it would further not be expected that the existing unrestricted parking within the area would be retained in the context of a station precinct which could give rise to increased commuter traffic driving to the area to use the rail facilities.

Having further regard to the Arden Macaulay Structure Plan and the development projections for the area, it is considered to be relevant that a parking strategy be prepared to identify the appropriate management of on-street parking resources.

While such a strategy is not required to be prepared as a matter of urgency, a plan at least in conceptual terms should be considered to allow longer term planning by employees of the area. Such a plan would also clarify any expectations that may be set should an employee permit scheme be introduced that such a scheme would not be expected to be ongoing.

Recommendation: A car parking strategy be prepared for the Arden Precinct to appropriately manage on-street parking resources in the legacy state.

8. Summary of Opinion & Other Statements

8.1 Summary of Opinion

Based on the analysis and discussions presented within this report, it is my opinion that further detailed analysis and considerations are required to ensure that existing precinct users are not inappropriately impacted by the construction activities and legacy state of the Melbourne Metro Rail Project.

Specifically, the following recommendations are provided:

i Detailed traffic modelling be undertaken of key connection points with the arterial road network and suitable mitigating measures be put in place to ensure that the operation of the existing network is not impacted by the construction activities. Modelling must also have regard for the future population and employment growth anticipated by the Arden Macaulay Structure Plan.

ii Further analysis and review is recommended of the intersection Dryburgh Street and Dynon Road to ensure this intersection operates safely and with suitable capacity.

iii Construction Vehicle Route 1 is not used as a construction route to minimise any impact or conflict on GWF operations.

iv Maintain the existing weigh bridge facility located on the VicTrack Land on the western side of Laurens Street.

v In the absence of the above recommendation not being achieved the MMRA work with GWF to establish a suitable alternate weigh bridge location. Preferably such a location could be found on Laurens Street and could include parts of the VicTrack land immediately to the south of the Station Construction precinct.

vi GWF be included as a key stakeholder during the detailed assessment of the occupation of land to the west of Laurens Street currently relied upon for day-to-day operations.

vii Detailed Construction Traffic Management Plans be prepared which ensure that any call forward operations and occupation of Laurens Street does not impact on the operation (vehicular / pedestrian) of GWF facilities.

viii GWF be included as a key stakeholder during the development of the detailed traffic and construction management plans which impact the operation of Laurens Street.

ix Consideration be given to the development of a staff parking permit scheme and associated on-street restriction to protect the parking needs of existing employees and businesses of the area.

x Further detailed analysis and consideration of the design of Laurens Street in its legacy state is required to ensure this does not compromise the functionality of the road network serving for existing businesses.

xi A car parking strategy be prepared for the Arden Precinct to appropriately manage on-street parking resources in the legacy state.

8.2 Other Statements

i No opinion provided in this evidence is provisional.

ii No questions or statements outside of my expertise have been addressed in this evidence.

iii This evidence is not incomplete or inaccurate.

Declaration

I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Committee.

Chris Coath
Director

12 August 2016

Appendix A

Chris Coath – Curriculum Vitae

Chris Coath

Director -Traffic & Transport

GTAconsultants
transportation planning, design and delivery

Chris completed his Civil Engineering degree with Honours at Monash University prior to joining GTA Consultants in 2002. Chris has over 13 years' experience in traffic and transport planning, traffic including parking strategy / policy, master plan development, traffic engineering impact assessments, car parking layout and access design, intersection and subdivision design, car parking management and travel green plans and complex data collection and analysis.

His experience includes managing projects in Victoria, New South Wales, Queensland Australian Capital Territory and Tasmania.

Chris also presents expert testimony on traffic and parking matters before the Victorian Civil and Administrative Tribunal and Planning Panels.

Specialist Skills

— Traffic and Transport Planning

— Car Parking Strategy and Management

— Master Planning and Structure Planning

Office

Melbourne

Qualifications

BE(Honours)(Civil)
Monash University

Memberships and Affiliations

Engineers Australia
Chartered Professional Engineer (MIEAust CPEng)
Victorian Planning and Environmental Law Association (VPELA)
Transport Australia society

Industry Roles

Member of Transport Australia society, Victorian Committee

Recent Papers and Presentations

PIA, PLANET Course 2012-2015: "Traffic and Parking Assessments"
AITPM National Conference 2011: "Parking: A Basis or Burden to Liveable and Accessible Communities"
AITPM Technical Seminar, July 2012: "Parking Overlay – Setting a New Base"
RMIT, Integrated Transport Planning Lecture 2014: "Car Parking Strategy"
VPELA Young Professionals Development Series 2015: "Expert Reports, What to Look For"

Project Experience

Traffic and Transport Planning

Melbourne Convention Centre Development
South Wharf Development
Melbourne Theatre Company theatre and Melbourne Recital Centre
Shrine of Remembrance Redevelopment
Mercy Hospital Redevelopment, East Melb
Providence Residential Subdivision, Greenvale
Mount Scopus Memorial College, St Kilda East & Burwood
Frankston Private Hospital Expansion
Crown Casino Porte Cochere redevelopments

Car Parking Strategy and Management

Bendigo CBD Parking Precinct Plan
Dandenong CAD Parking Strategy
Bangkok Intelligent Parking System Study
Doncaster Hill Parking Precinct Plan
Melbourne City Council Fee Parking Strategy

Master Planning and Structure Planning

Keystone Business Park, Armstrong Creek
Richmond Precinct Redevelopment
Victoria Street East and Doonside Street Precinct, Priority Development Panel Input
Bacchus Marsh Structure Plan
Swan Street Structure Plan

Expert Evidence

Manningham Civic Precinct and Community Hub – Ministers Hearing
Greenvale West R3 Precinct Structure Plan – Panel Hearing
601 Victoria Street, High Density Mixed Use Development – VCAT Hearing

Professional Background

2001 – Present: GTA Consultants

Chris has extensive experience in managing a variety of large projects throughout Australia for both the public and private business sector. This includes a wide variety of land use types including (but not limited to) low medium and high density residential, shopping centres, aged care, retail, office, restaurant and community / entertainment facilities.

Chris has been responsible for a number of significant design and traffic and parking impact assessment projects such as the Melbourne Convention Centre and South Wharf developments, the Southbank Cultural Precinct and the Melbourne Theatre Company theatre and Melbourne Recital Centre.

Chris has also expert knowledge of parking strategy and policy, preparing many large car parking strategies with experience including Bangkok, Dandenong, Doncaster Hill, City of Liverpool, and Fyshwick.

In addition Chris has prepared a number of significant masterplanning and traffic strategy documents including Keystone Business Park (Armstrong Creek North East Industrial Precinct) and Shepparton Freight Logistics Centre and has undertaken investigations culminating the preparation of a number of research documents including Guidelines for Fire and Emergency Vehicle Access and Car Parking Research for Bunning Building Supplies.

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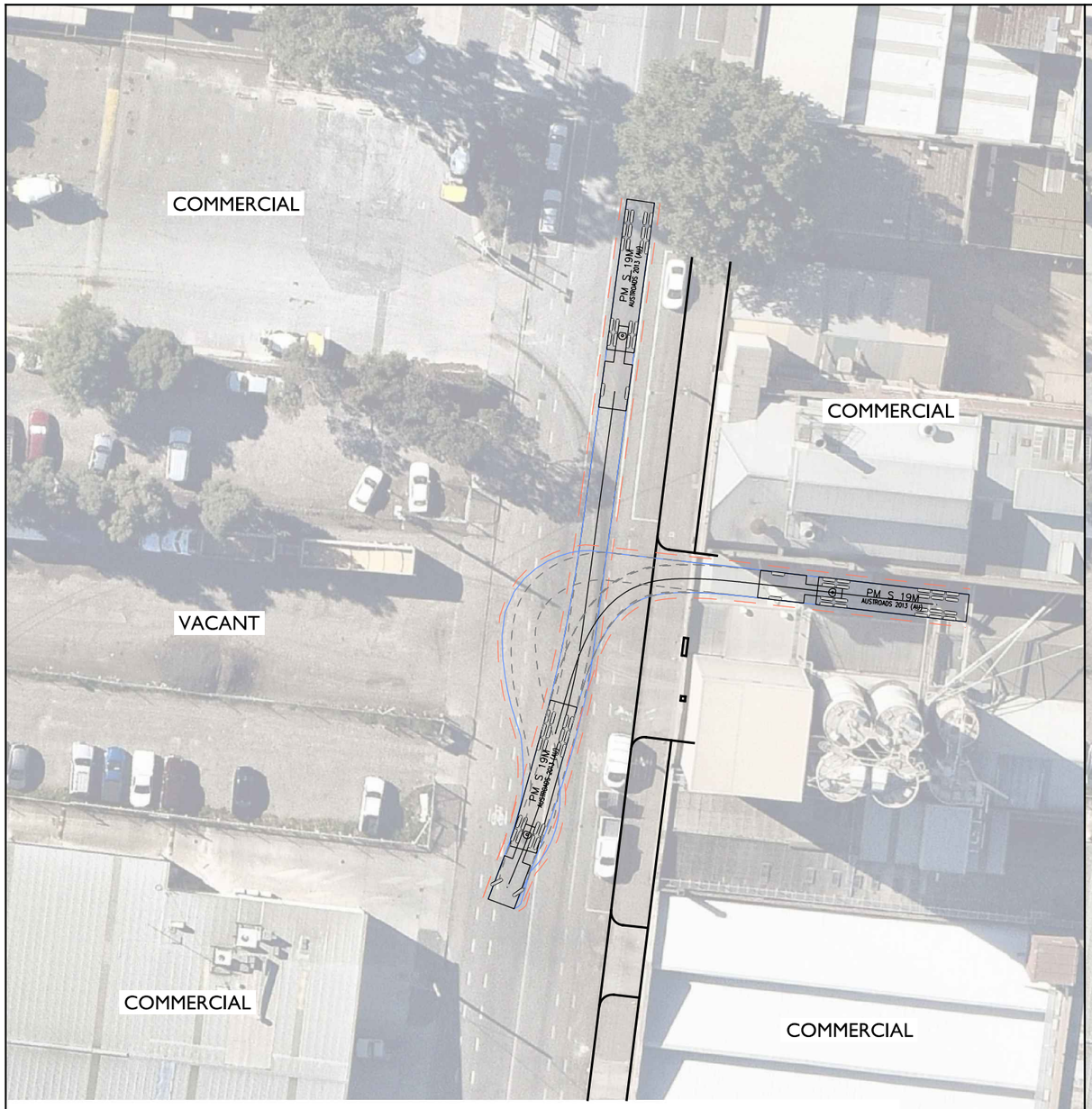
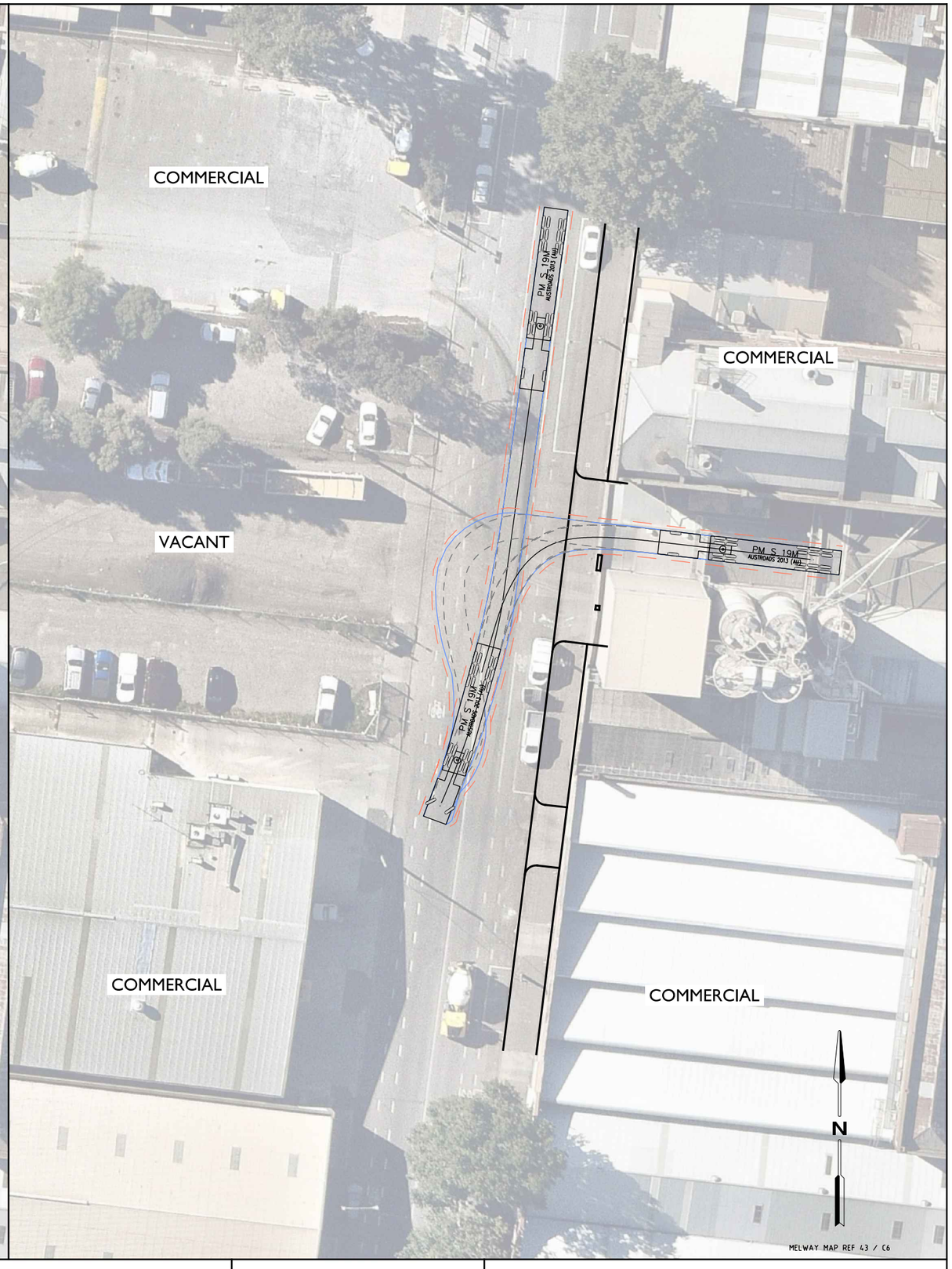
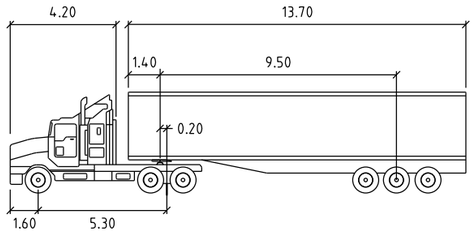
Appendix B

GWF Site Access Swept Path Assessments







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

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 500mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 10km/h

N

MELWAY MAP REF 43 / C6

PLOTTED BY : Tom.Napiorkowski ON 10/08/2016 AT 2:59:08 PM

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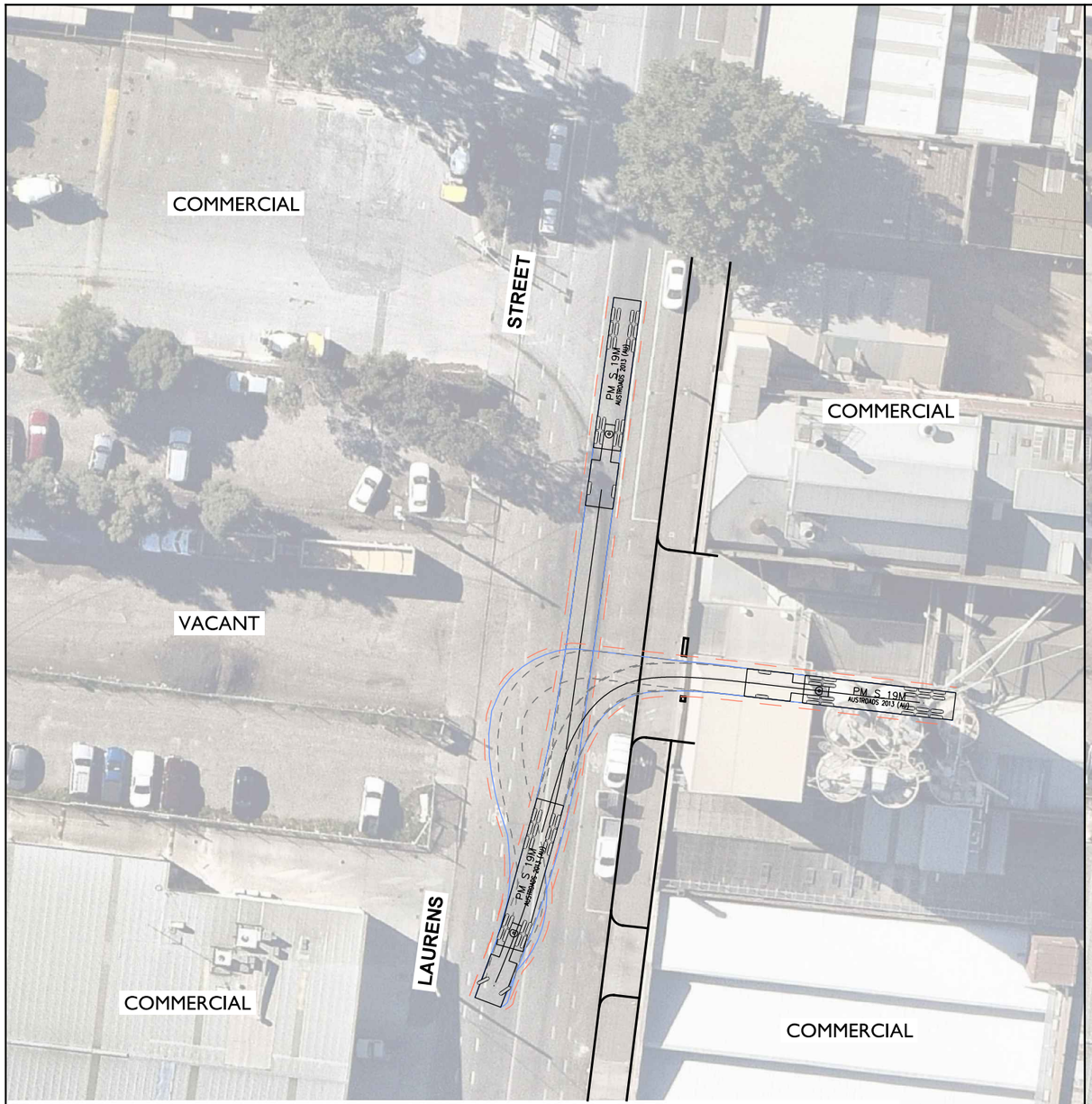
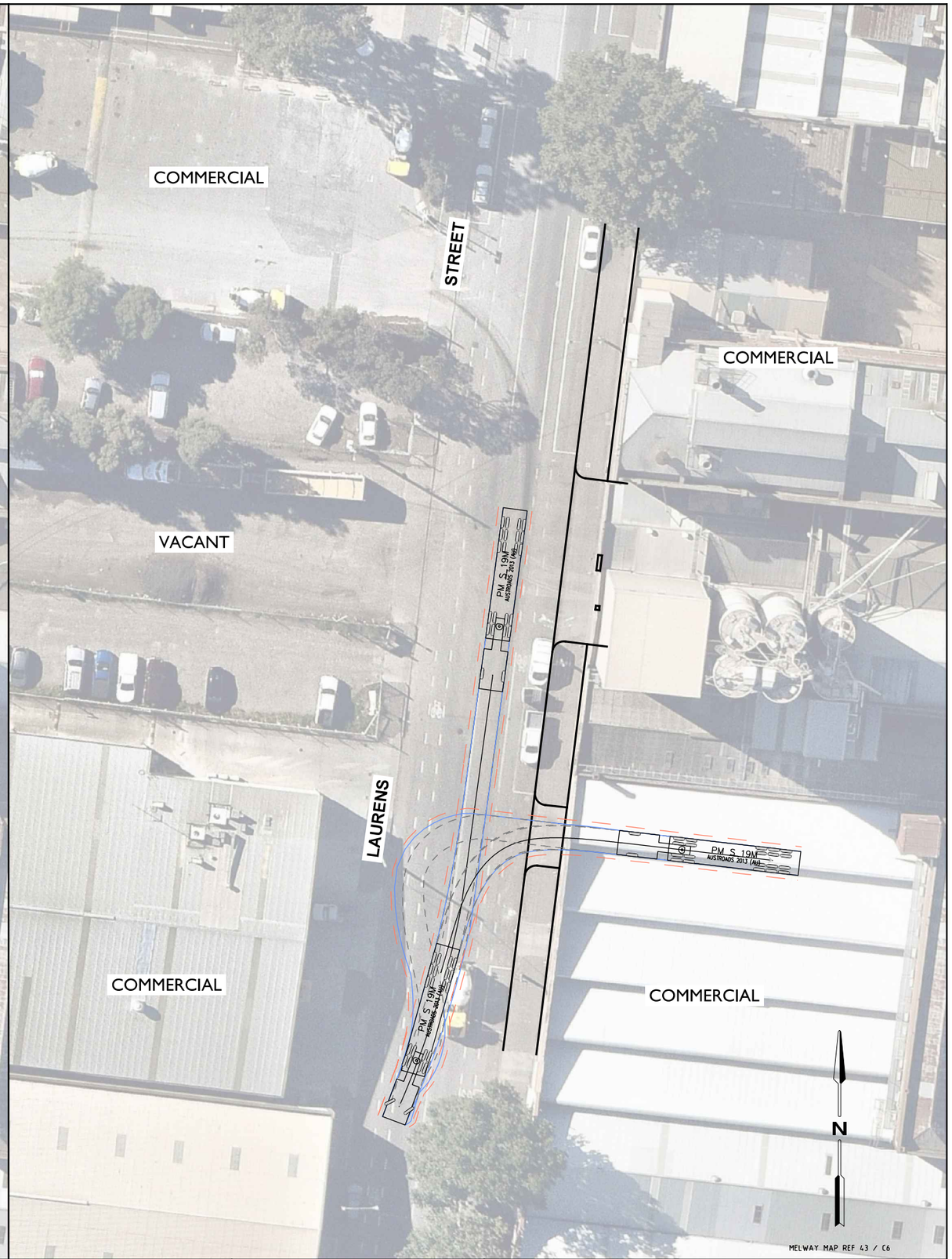
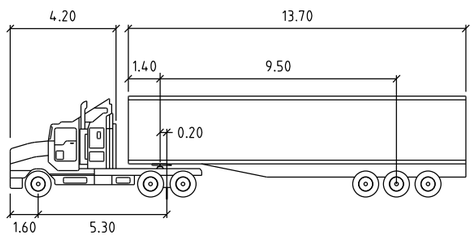
DESIGNED	T. NAPIORKOWSKI
DESIGN CHECK	N/A
APPROVED BY	C. COATH
DATE ISSUED	10 AUGUST 2016
SCALE	A3 — 0 5 10 — 1:500
CAD FILE NO.	V103510-01-P1.dgn

GEORGE WESTON FOODS LIMITED
19m SEMI-TRAILER SWEPT PATH
LAURENS ST,
NORTH MELBOURNE

DRAWING NO. V103510-01-03 SHEET 03 OF 05 ISSUE P1







PM S 19M

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

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 500mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 10km/h

PLOTTED BY : Tom.Napiorkowski ON 10/08/2016 AT 2:58:11 PM

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WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

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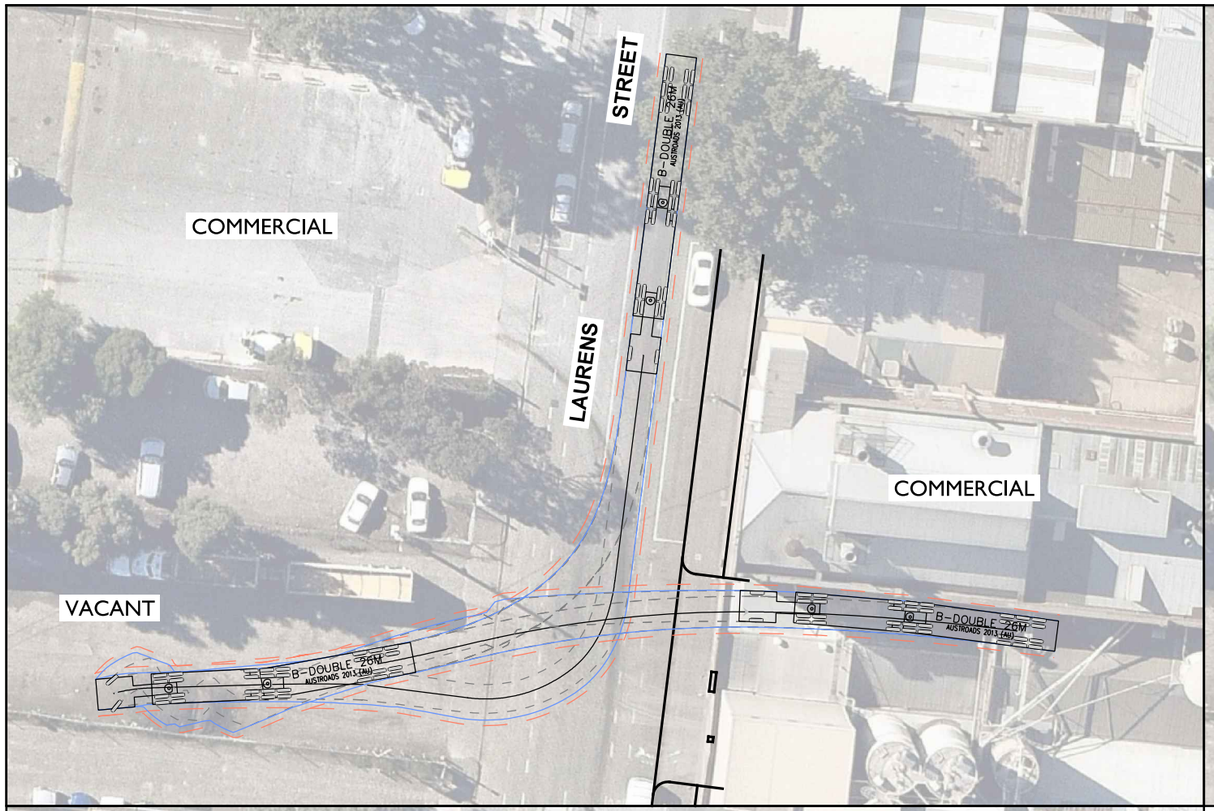
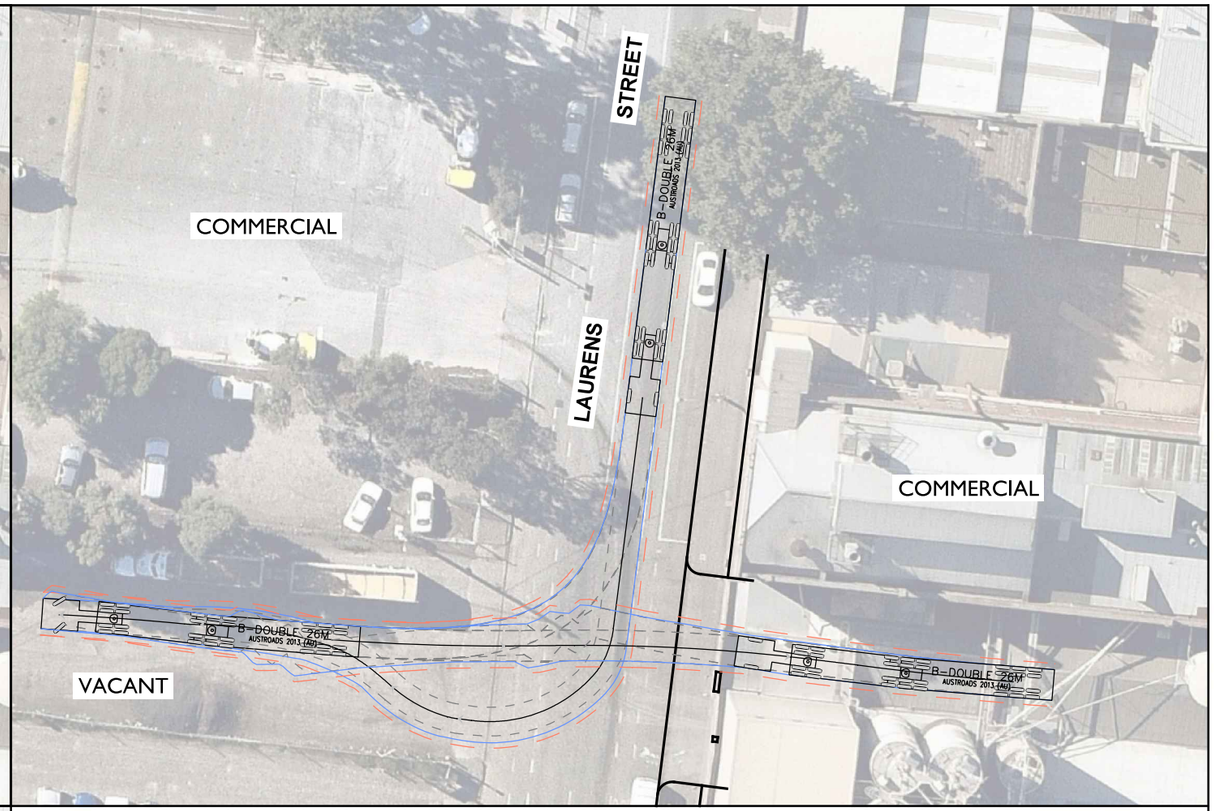
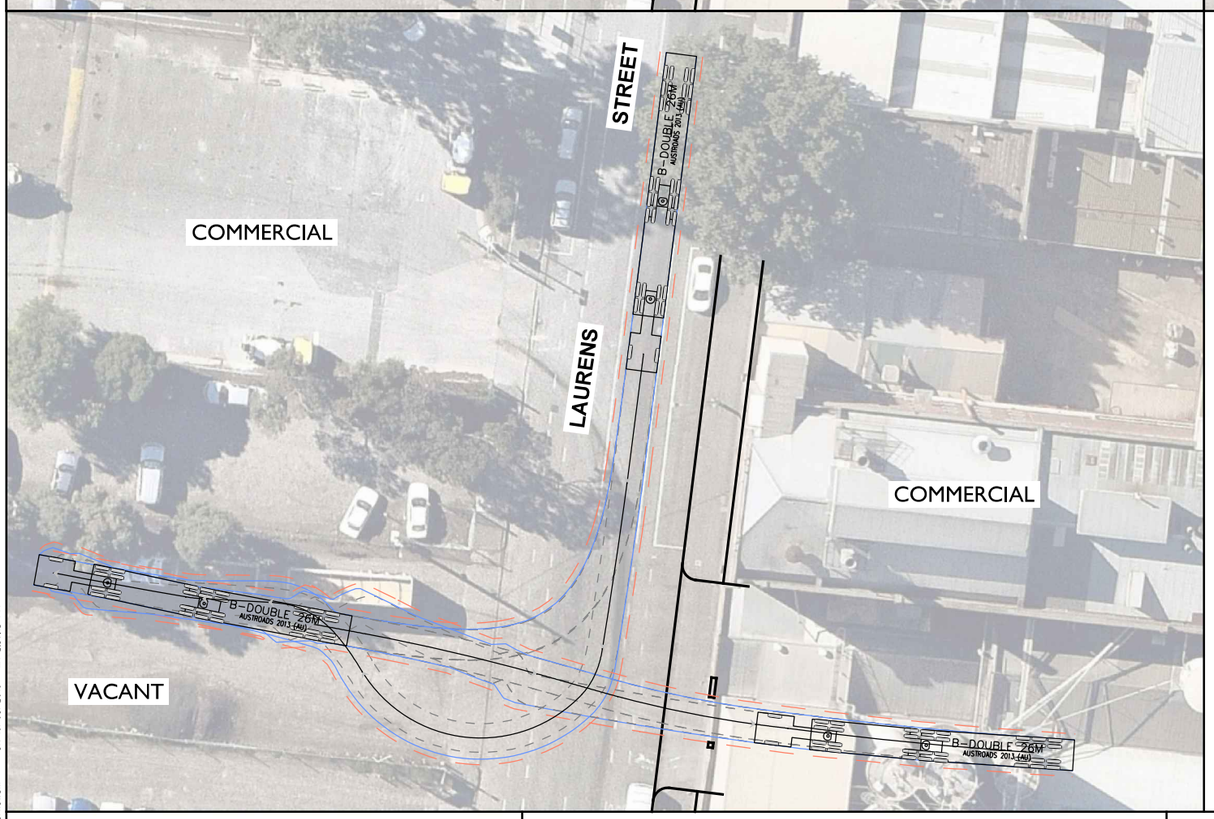
APPROVED BY	C. COATH
DATE ISSUED	10 AUGUST 2016
SCALE	A3 — 0 5 10 — 1:500
CAD FILE NO.	V103510-01-P1.dgn

GEORGE WESTON FOODS LIMITED
19m SEMI-TRAILER SWEPT PATH
LAURENS ST, NORTH MELBOURNE

DRAWING NO. V103510-01-04 SHEET 04 OF 05 ISSUE P1



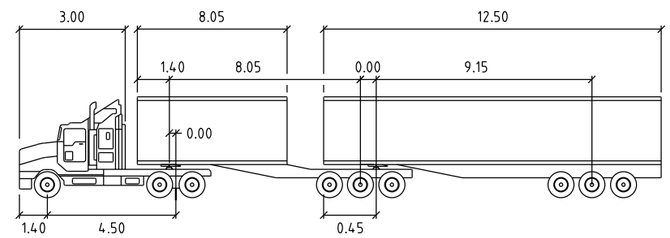




SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 500mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 10km/h



B-DOUBLE 26M — metres

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Trailer Track	: 2.50		

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MELWAY MAP REF 43 / C6

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DESIGN CHECK	N/A
APPROVED BY	C. COATH
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CAD FILE NO.	V103510-01-P1.dgn

GEORGE WESTON FOODS LIMITED
26m B-DOUBLE SWEPT PATH
LAURENS ST, NORTH MELBOURNE

DRAWING NO. V103510-01-05 SHEET 05 OF 05 ISSUE P1

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