

**ratio:**

Prepared for:  
Melbourne Grammar School

Prepared by:  
Brett Young  
August 2016

Traffic Expert Evidence  
EES Inquiry  
Melbourne Metro Rail Project

Melbourne Grammar School

**traffic: evidence**

**r:**

**ratio:**consultants

9 Clifton Street  
Richmond VIC 3121  
ABN 93 983 380 225

**Prepared for:**

Melbourne Grammar School  
Our reference 13429 EES-MGS-T rep01

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# 1 Statement of witness:

## **Name**

1.1.1 Brett James Young

## **Position**

1.1.2 Director – Traffic, Ratio Consultants

## **Address**

1.1.3 9 Clifton Street, Richmond, Victoria 3121

## **Qualifications and Experience**

- Bachelor of Engineering (with Honours), University of Canterbury
- Member, Victorian Planning and Environmental Law Association
- Member, Institute of Transportation Engineers – Australian and New Zealand Section

1.1.4 I have approximately eight and a half years of experience in Traffic Engineering, including:

- Two and a half years with Traffic Design Group Ltd (Auckland, New Zealand);
- Six years with Ratio Consultants Pty Ltd.

1.1.5 I have experience and expertise in traffic engineering, road safety planning and development impact assessments of a wide range of land-use developments.

## **Identity of persons contributing works**

1.1.6 Luke Richardson, Traffic Engineer at Ratio Consultants, assisted in the preparation of my Evidence Statement, including the analysis of parking and travel survey data.

## **Summary of my opinions**

1.1.7 The Project will deliver considerable transport benefits to the operation of Melbourne Grammar School, however the construction phase will result in traffic impacts that will reduce the ability for the school to operate as normal.

1.1.8 I anticipate considerable delays in staff and students getting to and from the school due to the closure of Domain Road and the significant reduction in capacity of St Kilda Road, which reduces from three lanes in each direction down to one for at least 18 months.

1.1.9 I have identified some limitations in the traffic modelling results presented by the MMRA which makes it difficult for the school to make a robust decision on the likely impacts on their operation and reduces their ability to plan for and mitigate these impacts. I believe that further traffic modelling should be undertaken by the MMRA to provide more confidence surrounding the traffic impacts which will enable the school to plan appropriately for them.

1.1.10 I believe there some changes and additions required to the Environmental Performance Requirements to ensure that the construction impacts on the operation of the school are minimised.

### **Declaration**

- 1.1.11 I confirm that I have read and that I understand the Planning Panels Victoria's 'Guide to Expert Evidence' and that I comply with the provisions of that guide.
- 1.1.12 I have no relationship with the client other than a business engagement to comment on this matter.
- 1.1.13 I also declare that I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

## 2 Introduction:

- 2.1.1 This is a Traffic Evidence Statement to the Melbourne Metro Rail EES Inquiry and Advisory Committee (IAC) in regard to the traffic, parking and access impacts of the Melbourne Metro Rail Project (the Project) on the Melbourne Grammar School (MGS) campus located at the corner of Domain and St Kilda Roads, South Yarra.
- 2.1.2 In the course of preparing this report I was instructed by Best Hooper Lawyers to determine, to the extent I was able, whether:
- The potential magnitude, likelihood and significance of adverse and beneficial environmental effects of the Project on the MGS campus have been identified correctly and appropriately in the Environmental Effects Statement (EES).
  - What, if any, modifications to the Project and/or environmental management measures proposed in the EES are needed to address likely adverse effects or environmental risks.
  - Whether there are any likely benefits of the Project for MGS and the significance of any likely benefits of the Project for MGS relative to any identified likely adverse effects and environmental risks of the Project to MGS.
  - Whether any mitigation measures or performance requirements contained in the EES need to be modified or added to identify the identified environmental effects on the MGS.
  - Whether the proposed environmental management framework for the works is adequate or appropriate.
  - Whether there are practical engineering options to limit the extent of the proposed Design and Development Overlay impact on the MGS campus.
- 2.1.3 In the course of preparing this report, I have:
- Developed an understanding of existing school operations and requirements of MGS during and after construction of the Melbourne Metro Rail Project, including the following:
    - Undertaken a tour of MGS to gain an understanding of the site geometry, access requirements and travel patterns of staff, students and visitors.
    - Liaised with staff of MGS.
    - Undertaken surveys of the existing parking demand within the MGS car park and surrounding on-street parking areas.
    - Undertaken and analysed travel mode questionnaire surveys of staff and students to determine prevailing travel modes and travel patterns associated with MGS.
  - Reviewed the EES documents and relevant appendices with respect to the impacts to MGS. Particular attention was given to the Transport Impact Assessment (TIA) prepared as a joint venture between Aurecon, Jacobs and Mott MacDonald in association with Grimshaw (AJMJV) and the following sections within the TIA:
    - Appendix 5 - Melbourne Metro Public Transport Customer Demand Forecasts for Business Case, 19 February 2016 – PTV.
    - Risk Assessment in Section 6.4 of the TIA.
    - Construction Activity Assessment for Domain Station Precinct in Section 8.10 of the TIA.
    - Operational Phase Impact Assessment for Domain Station Precinct in Section 9.10 of the TIA.
    - Recommended Environmental Performance Requirements in Section 23.6 of the EES.

### 3 MGS Operation:

#### Introduction

- 3.1.1 Melbourne Grammar School is a large independent school catering for in the order of 1,800 students from Prep to Year 12 across two campuses, located in Caulfield and South Yarra. The South Yarra campus provides single sex education for boys from Years 7-12.
- 3.1.2 The primary component of the South Yarra campus is irregular in shape and is bound by Domain Road to the north, St Kilda Road to the west, Bromby Street to the south and Domain Street to the east, with an approximate area of 62,000 square metres. Some ancillary buildings (including boarding) are located off the main campus on Domain Street, Domain Road and Arnold Street. An underground car park utilised by staff is located within the campus, with access provided via St Kilda Road. The car park comprises 200 car spaces and is fully allocated to cater for staff, suppliers, tradesmen and visitors.
- 3.1.3 An aerial map of Melbourne Grammar School is provided in Figure 3.1, whilst a more detailed map is provided in Appendix A.

**Figure 3.1: Aerial Map of Melbourne Grammar School**



#### School Operation

1. There are approximately 1,150 students at MGS South Yarra campus.
2. There is in the order of 350 staff, of which 271 are core staff (permanent and fixed term full time and part time). The remaining staff are casual and work at various times of the year for various time periods (such as sports coaches once or twice a week for two hours during sports season or exam invigilators during VCE exams).
3. Students and staff travel to and from the school on daily basis.
4. The school operates not only during school hours, with various activities occurring during the evening, on weekends and during school holidays. A summary is provided as follows:
  - Typical weekday school hours during the school term are between 7:30am-5:00pm (which includes core teaching hours between 8:30am-3:40pm and cocurricular activities such as sports training and turnouts and music and drama rehearsals before and after core teaching hours).

- Saturday morning sport is compulsory and sport is played against other APS teams most Saturday mornings on-site during the school term.
  - Administrative staff attend the school as normal during school holidays.
  - Functions are often held in the evening and includes parent teacher interviews, information evenings, plays, concerts and dinners. These are typically attended by staff, students, parents and others. Attendance sizes generally vary from 100-600 people. Attendees typically park on the surrounding streets. More than 100 functions are typically held across the school year.
  - On weekends and school holidays there are weddings in the Chapel of St Peter as well as weekend play rehearsals etc.
5. Buses are regularly organised to take students to external activities/locations.
    - In particular, this typically includes 15-20 trips per week to the school's sporting ground Edwin Flack Park in Port Melbourne for sporting activities.
    - The activities are allocated a certain timeframe only (including travel) and any delays to travel time would reduce the time available for the activity.
    - Buses to Edwin Flack Park typically pick students up in Domain Road and continue via St Kilda Road and Kings Way to CityLink.
  6. In addition to the above, there are also regular trips to the Melbourne Sports and Aquatic Centre (MSAC).
  7. There are a number of emergency access points located around Melbourne Grammar to which emergency vehicles (fire trucks and ambulances) require access to in case of emergency. These are shown in the map in Appendix A.
  8. There are a number of fire boosters and fire panels located around Melbourne Grammar which emergency vehicles require access to in case of fire. These are shown in the map in Appendix A.
  9. There are a number of waste collection points located around Melbourne Grammar requiring direct access by waste collection vehicles. These are detailed in the map in Appendix A.
  10. Exams are an important time for Melbourne Grammar and this includes VCE exams, NAPLAN and Wadhurst exams. No or minimal disruption is essential during these times.
    - VCE exams are typically held in October-November, with some mid-year exams in June and August.
  11. Student supervision is provided by staff at the key tram stops in the vicinity of Melbourne Grammar.
  12. There is a music centre and an art building on the south side of Bromby Street to which students are required to walk to regularly.
  13. Boarding and the P.E. centre is located on the east side of Domain Street.
  14. Students are also required to travel to the Melbourne Grammar Boatshed on the Yarra River and the city on occasion.

### **Prevailing Travel Patterns**

- 3.1.4 In order to quantify travel patterns of students and core staff to Melbourne Grammar, a questionnaire survey was undertaken using Survey Monkey between Monday 6<sup>th</sup> to Friday 10<sup>th</sup> June 2016. An overall response rate of 70% was achieved, including the following:



- 816 out of 1,150 students (71%)
- 177 out of 271 staff (65%).

3.1.5 A summary of the key results relevant to this report is provided below.

**Travel Mode**

- 3.1.6 The travel modes utilised by students and staff are summarised in Table 3.1. The results show the percentage of respondents for each travel mode, with the numbers in brackets subsequently using this percentage to extrapolate and estimate the overall student and staff numbers using each travel mode based on total student and staff numbers (1,150 students and 271 staff).
- 3.1.7 As previously mentioned, there is in the order of 350 staff total at MGS, of which 271 are core staff and the remaining are casual staff. It is noted that the below results are for core staff only. The inclusion of the casual staff would further increase the results.
- 3.1.8 I have assumed that students and staff living within school accommodation walk to school and that 'push scooter' was not included as a response on the staff survey.

**Table 3.1: Travel Mode Results**

Travel Mode	Students		Staff	
	Inbound	Outbound	Inbound	Outbound
Car – driver	1.8% (21 students)*	1.2% (14 students)*	65.1% (176 staff)*	64.5% (175 staff)*
Tram	33.6% (387 students)*	44.6% (513 students)*	5.2% (14 staff)*	6.4% (17 staff)*
Car – dropped off/picked up	24.8% (285 students)*	10.6% (122 students)*	0.6% (2 staff)*	1.2% (3 staff)*
Train and tram	16.7% (192 students)*	20.2% (233 students)*	8.2% (22 staff)*	7.6% (20 staff)*
Walk	17.3% (199 students)*	17.9% (206 students)*	12.8% (35 staff)*	12.8% (35 staff)*
Bicycle	2.7% (31 students)*	2.8% (32 students)*	5.8% (16 staff)*	5.8% (16 staff)*
Train and walk	0.3% (3 students)*	0.3% (3 students)*	2.3% (6 staff)*	1.7% (5 staff)*
Bus	1.7% (20 students)*	1.5% (17 students)*	0%	0%
Push Scooter	0.3% (3 students)*	0.6% (7 students)*	N/A	N/A
Other	0.8% (9 students)*	0.3% (3 students)*	0%	0%

\*Estimated by extrapolating on total student and staff numbers (1,150 students and 271 staff).

- 3.1.9 The above results indicate that amongst students, the dominant travel modes are by tram, followed by being dropped off / picked up, taking the train and tram as a combined trip and walking.
- 3.1.10 Of particular note, 50.3% of students arrive at school by tram in the morning which rises to 64.8% in the afternoon (including combined train and tram trips).
- 3.1.11 The number of students being picked up in the afternoon is considerably less than the number of students being dropped off in the morning, whilst the number of students taking the tram and taking the train and tram as a combined trip increases for the return journey. These results indicate that it may be convenient for parents to drop their children off by car in the morning on the way to work but that it not be convenient to do so with the return journey due to the school finish times not coinciding with the end of the working day.
- 3.1.12 Amongst staff, the dominant travel mode is driving.

#### **Car Parking Locations**

- 3.1.13 The locations where staff and students park their cars is summarised in Table 3.2. The results show the percentage of respondents for each location, with the numbers in brackets subsequently using this percentage to extrapolate and estimate the overall student and staff numbers parking in each location based on the estimated number of students and staff who drive to school in the morning (21 students and 176 staff).

**Table 3.2: Car Park Location Results**

Location	Students	Staff
Underground Car Park	0%	97.3% (171 staff)*
Domain Road	58.3% (12 students)*	0.9% (2 staff)*
Birdwood Avenue	16.7% (3 students)*	0%
Domain Street	8.3% (2 students)*	1.8% (3 staff)*
Dallas Brooks Drive	8.3% (2 students)*	0%
Other	8.3% (2 students)*	0%

\*Estimated by extrapolating on the estimated number of students and staff who drive to school in the morning (21 students and 176 staff).

- 3.1.14 The above results indicate that the majority of students park within Domain Road, whilst the majority of staff park within the underground car park.

**Student Drop off and Pick Up**

- 3.1.15 The locations where students are dropped off and picked up is summarised in Table 3.3. The results show the percentage of respondents for each location, with the numbers in brackets subsequently using this percentage to extrapolate and estimate the overall students being dropped off and picked up in each location based on the estimated number of students who are dropped off in the morning and picked up in the afternoon (285 dropped off in the morning and 122 picked up in the afternoon).

**Table 3.3: Student Drop Off/Pick Up Location Results**

Location		Morning Drop Off	Afternoon Pick Up
Domain Road	Wadhurst Entrance	39.2% (112 students)*	36.2% (44 students)*
	Ross Gates	31.3% (89 students)*	21.7% (27 students)*
	CLL Entrance	3.7% (11 students)*	13.1% (16 students)*
Domain Street pedestrian gate		9.8% (28 students)*	13.1% (16 students)*
St Kilda Road pedestrian gate		4.3% (12 students)*	5.8% (7 students)*
Underground car park		2.5% (7 students)*	5.8% (7 students)*
Bromby Street entrance		4.9% (14 students)*	0%
Main driveway (Barrett Gates)		1.8% (5 students)*	0%
Other		2.5% (7 students)*	4.3% (5 students)*

\*Estimated by extrapolating on the estimated number of students who are dropped off in the morning and picked up in the afternoon (285 dropped off in the morning and 122 picked up in the afternoon).

- 3.1.16 The above results indicate that the majority of students are picked up and dropped off in Domain Road, with 74.2% of morning drop offs occurring in Domain Road and 71% of afternoon pick ups occurring in Domain Road.

### **Tram Stops**

- 3.1.17 The tram stop locations which students and staff utilise is summarised in Table 3.4. The results show the percentage of respondents for each tram stop, with the numbers in brackets subsequently using this percentage to extrapolate and estimate the overall student and staff numbers getting on or off at each tram stop based on the estimated number of students and staff who use the tram to get to or from school (579 students in the morning, 746 students in the afternoon, 36 staff in the morning and 37 staff in the afternoon).
- 3.1.18 I note that the results include those who take the train and tram as a combined trip.

**Table 3.4: Tram Stop Location Results**

Location		Students		Staff	
		Inbound	Outbound	Inbound	Outbound
St Kilda Road	Near pedestrian gate	29.5% (171 students)*	31.2% (233 students)*	34.8% (12 staff)*	25.0% (9 staff)*
	Domain Interchange	9.3% (54 students)*	17.6% (131 students)*	17.4% (6 staff)*	29.2% (11 staff)*
	Near Toorak Road	16.0% (93 students)*	17.6% (131 students)*	4.3% (2 staff)*	8.3% (3 staff)*
Domain Road	Outside Wadhurst Entrance	22.0% (127 students)*	16.4% (123 students)*	13.1% (5 staff)*	8.3% (3 staff)*
	Outside Ross Gates	21.1% (122 students)*	15.3% (114 students)*	21.7% (8 staff)*	20.9% (8 staff)*
Other		2.1% (12 students)*	1.9% (14 students)*	8.7% (3 staff)*	8.3% (3 staff)*

\*Estimated by extrapolating on the estimated number of students and staff who use the tram to get to or from school (579 students in the morning, 746 students in the afternoon, 36 staff in the morning and 37 staff in the afternoon).

- 3.1.19 The above results indicate that the majority of students and staff get on or off the tram on St Kilda Road, particularly at the stop adjacent to the pedestrian gate into the school.

## 4 Project Benefits:

- 4.1.1 The EES sets out a number of significant benefits of the Project resulting from the new inner-city route that is created and the additional capacity that is released across the entire rail network from the removal of the Cranbourne/Pakenham and Sunbury services from the City Loop.
- 4.1.2 The Project will increase the accessibility of MGS to rail services for staff and students. Some students and staff currently coming to and from school by tram will find it less crowded and quicker to come by train, with the new Sunbury-Cranbourne line being accessible by every other metropolitan rail line via an interchange at the new CBD-North or CBD-South railway stations.
- 4.1.3 The shift from tram to train will also free up some capacity on existing tram services servicing the Domain interchange.
- 4.1.4 Students who currently travel by train then tram via Flinders Street Station are likely to use the train instead of the tram as it is likely to be quicker. Based on the survey results, this would benefit an estimated 49 students in the morning and 66 students in the afternoon.
- 4.1.5 Those students living near the new Sunbury-Cranbourne line may find it more convenient to travel to and from school by train. For example, 106 of the student respondents to the survey live in the suburbs near to Caulfield Railway Station<sup>1</sup>, which equates to 13.0% of respondents and extrapolates to an estimated 150 students based on total student numbers.
- 4.1.6 For MGS students, the increased connectivity to train services is likely to lead to a mode shift from tram and car to train that is likely to result in shorter travel times to and from school for both students and staff, lesser crowded tram services for students and a lesser reliance on parents picking up and dropping off.

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<sup>1</sup> Suburbs of Caulfield North, Caulfield/Caulfield East, Glen Huntly/Carnegie, Malvern East and Malvern.

## 5.1 Risk Assessment

### Introduction

- 5.1.1 Section 6.4 of the TIA contains the Risk Assessment undertaken by AJMJV. The risk assessment undertaken endeavours to assess the effectiveness the Environmental Performance Requirements to be assessed for their effectiveness at reducing the level of risk associated with the Project.
- 5.1.2 The assessment identifies risks for each precinct and assigns a risk rating derived from a matrix of the likelihood of the risk occurring and the consequence of the risk occurring. The risk matrix is reproduced in Table 5.1, whilst the likelihood rating criteria and consequence rating criteria are reproduced in Table 5.2 and Table 5.3.
- 5.1.3 The assessment of risk has informed the proposed level of action required to manage an impact, with a higher level of risk requiring a greater level of action.

**Table 5.1: Risk Matrix (Source: TIA prepared by AJMJV)**

		Consequence rating				
		Negligible	Minor	Moderate	Major	Severe
Likelihood rating	Rare	Very Low	Very Low	Low	Medium	Medium
	Unlikely	Very Low	Low	Low	Medium	High
	Possible	Low	Low	Medium	High	High
	Likely	Low	Medium	Medium	High	Very High
	Almost Certain	Low	Medium	High	Very High	Very High

**Table 5.2: Likelihood Rating Criteria (Source: TIA prepared by AJMJV)**

Level	Description
Rare	The event is very unlikely to occur but may occur in exceptional circumstances.
Unlikely	The event may occur under unusual circumstances but is not expected.
Possible	The event may occur once within a 5 year timeframe.
Likely	The event is likely to occur several times within a 5 year timeframe.
Almost Certain	The event is almost certain to occur one or more times a year.

**Table 5.3: Consequence Rating Criteria (Source: TIA prepared by AJMJV)**

Level of Consequence	Consequence criteria
Negligible	No detectable change in a local transport operational setting.
Minor	Short term, reversible changes in a local transport operational setting.
Moderate	Long term but limited changes to transport operational setting that are able to be managed.
Major	Long term, significant changes resulting in risks to human health and/or the functioning of the transport network beyond the project area.
Severe	Irreversible, significant changes resulting in widespread risks to human health and/or the functioning of the transport network at a regional scale.

- 5.1.4 The assessment identifies an initial risk and a residual risk, with the following definitions provided:
  - **Initial risk:** Describes the potential risk associated with the Project if tailored, project-specific mitigation and Environmental Performance Requirements are not deployed.

- **Residual risk:** The post-mitigation risk rating, assuming the achievement of the Environmental Performance Requirements (EPR).

5.1.5 Section 6.2 of the TIA explains the context adopted for the assessment of the likelihood and consequence of a risk as follows, noting that I have added underlining emphasis at the context adopted with respect to congestion on the arterial roads:

*The Melbourne Metro alignment between Kensington and South Yarra is at the hub of the heavy rail and tramway systems of metropolitan Melbourne and within a dense urban area containing all categories of roads from freeways to laneways, an extensive on-road and off-road bicycle network and pedestrian paths. The railways, tramways and arterial roads within inner Melbourne are all congested during weekday morning and PM peak periods.*

5.1.6 The TIA then goes on to state that this context is important, as it provides the basis for the evaluation of the likelihood and consequence of a risk. Workshops were reportedly held to discuss the risk assessments.

5.1.7 It is not clear to me as to the extent that the context of an existing congested road network had on identifying the likelihood and consequence of the identified risks.

### **Risks Identified in the TIA Prepared by AJMJV**

The risks identified in the TIA prepared by AJMJV for the Domain Station Precinct are listed below.

#### Risk No. T005

Construction activities impeding traffic flow - Increased congestion and reduced connectivity for transport modes within the vicinity of Melbourne Metro.

- **Initial risk:** 'High' (based on 'Major' consequence and 'Likely' likelihood)
- **Residual risk:** 'Medium' (based on 'Moderate' consequence and 'Likely' likelihood)

#### Risk No. T006

Trucks removing tunnel spoil increase in congestion levels in key parts of the network – Increased levels of heavy trucks on city streets across day and night would affect amenity and traffic operations – across all precincts where spoil is to be removed.

- **Initial risk:** 'Medium' (based on 'Moderate' consequence and 'Possible' likelihood)
- **Residual risk:** 'Medium' (based on 'Moderate' consequence and 'Possible' likelihood)

#### Risk No. T0010

Legacy transport network outcomes reduce network connectivity or increase congestion – Increased congestion and reduced connectivity for transport modes within the vicinity of Melbourne Metro and across the broader transport network.

- **Initial risk:** 'Medium' (based on 'Moderate' consequence and 'Possible' likelihood)



- **Residual risk:** 'Low' (based on 'Minor' consequence and 'Possible' likelihood)

### **Review of Risk Assessment**

- 5.1.8 I have reviewed the above risks in the context of the operation of MGS. Each of the three risks are relevant to MGS, with increased congestion, reduced connectivity and affected traffic operations likely to impact on travel times and access routes for staff, students, visitors and other vehicles requiring access to and from the school.
- 5.1.9 The identified risks are high level and are worded broadly, with the use of the term 'transport modes' encompassing all relevant transport modes, including car, public transport, cycling and walking.
- 5.1.10 I consider the risk level determined for Risk T005 and T006 to have been potentially understated, particularly with respect to the likelihood rating assessment.
- 5.1.11 The assessment of the initial and residual risk associated with Risk T005 for example assumes that the construction activities will impede traffic flow several times within a 5 year timeframe. For Risk T006, the construction trucks were assessed to impact on traffic congestion once within a 5 year timeframe. This presents as an unrealistically low level of likelihood for both risks in my opinion. Adopting a lesser level of risk is likely to lead to a lower level of action taken to manage that risk.
- 5.1.12 There is insufficient information in the TIA for me to make my own judgement on the likelihood of these risks as only one set of modelling results are presented. As discussed in Section 3.8.1.2 of the Transport Modelling Summary, only the outputs of the median 'seed'<sup>2</sup> were used for reporting purposes. The modelling outputs of the other seed runs were not available and therefore I was not able to undertake my own assessment of the likelihood or frequency of the identified risks as they relate to traffic congestion impacts.
- 5.1.13 Whilst the risk assessment undertaken by AJMJV has identified risks of the project in relation to increased congestion and reduced connectivity for all transport modes, there has been no consideration of the risks associated with a reduction in the availability of parking or property access being impeded.
- 5.1.14 I consider the following additional risks to be relevant to Melbourne Grammar:
  - 1. Access to properties by pedestrians, cyclists and vehicles restricted by construction activities and road closures.
  - 2. The availability of parking within the vicinity of MGS being reduced as a result of reduced supply from construction activities and road closures and increased demand from construction workers.
  - 3. The availability of parking within the vicinity of Melbourne Metro being reduced post construction as a result of reduced supply from amended road cross sections.

## **5.2 Impact Assessment**

- 5.2.1 Section 8 of the TIA prepared by AJMJV provides an assessment of the traffic impacts of construction activity, whilst Section 9 of the report provides an assessment of the traffic impacts of the operational phase.

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<sup>2</sup> A seed represents the starting conditions of a particular run of the VISSIM model

5.2.2 Both assessments identify the key traffic issues for each precinct based on the risks identified in the risk assessment, along with a detailed assessment of the key traffic issues which are identified.

5.2.3 In consultation with MGS, I have identified the key traffic issues as they relate to the school and undertaken a review of the level of consideration given to these issues in the TIA prepared by AJMJV.

1. The impacts of construction vehicles in the vicinity of the school.
2. The impacts of the closure of Domain Road on access routes to and from Melbourne Grammar.
3. The impacts on travel times to and from Melbourne Grammar as a result of:
  - The reduction in capacity on St Kilda Road;
  - Traffic being rerouted from Domain Road; and
  - Additional traffic associated with trucks and construction workers on travel times to and from the school.
4. The impacts of the construction zones and congestion on travel times to and from Melbourne Grammar by public transport.
5. The accessibility of Melbourne Grammar by public transport.
6. Retention of pedestrian access to all Melbourne Grammar entrances, particularly those in the vicinity of the construction zone.
7. Retention of pedestrian footpaths along St Kilda Road and Domain Road.
8. Retention of cycling infrastructure along St Kilda Road.
9. Provision of appropriate pedestrian links across the construction zone without having to circumnavigate the entire construction area.
10. Retention of vehicle access to underground car park.
11. Retention of access to all waste collection points by waste collection vehicles.
12. Retention of access to all fire boosters, fire panels and emergency access points by emergency vehicles.
13. The availability of on-street parking in the vicinity of Melbourne Grammar.

5.2.4 The key traffic issues as they relate to MGS are listed in **bold**. My assessment of these issues against the TIA prepared by AJMJV follows, with a conclusion and my suggested action items provided in *italics*.

**1. The impacts of construction vehicles in the vicinity of the school**

Assessment

The TIA shows proposed truck routes, which includes both St Kilda Road and Domain Road along Melbourne Grammar's frontage.

Construction vehicles associated with the construction of Domain Station may result in congestion and impact on the availability of parking in the vicinity of Melbourne Grammar.

There has been no consideration in the TIA of where trucks will stop/prop/stage prior to being utilised. Further, there has also not been any recourse provided for stakeholders such as MGS in the event that operational issues arise during construction.

### Conclusions

- *To limit the impact of trucks within Domain Road, it is recommended that trucks are restricted from stopping, propping and/or staging along the Melbourne Grammar school frontages. It is recommended this be included as an Environmental Performance Requirement.*
- *To ensure that all contractors and subcontractors are aware of access requirements, it is recommended that contractors and subcontractors are required to be briefed on all access requirements. It is recommended this be included as an Environmental Performance Requirement.*
- *It is recommended that Melbourne Grammar be provided with a contact from both the contractor and the MMRA to respond to any operational issues that arise during construction. It is recommended this be included as an Environmental Performance Requirement.*
- *It is recommended that the contractor be required to provide an on-site liaison officer for the first three months at key pick up and drop off points to provide assistance to school representatives. It is recommended this be included as an Environmental Performance Requirement.*

## **2. The impacts of the closure of Domain Road on access routes to and from Melbourne Grammar.**

### Assessment

The closure of Domain Road affects access routes to and from Melbourne Grammar for staff, parents, students, visitors, emergency vehicles, service vehicles and buses to and from Flack Park and other external locations.

Of particular note, a number of parents currently drop students off in Domain Road before continuing onto St Kilda Road and vice versa when picking students up (in the order of 212 drop offs in the morning and 87 pick ups in the afternoon/evening). Similarly, buses currently pick students up in Domain Road before continuing via St Kilda Road and Kings Way to CityLink towards Flack Park (in the order of 15-20 bus trips to Flack Park per week during term time). The closure of Domain Road will also restrict the access routes available to emergency vehicles.

The TIA does not provide any analysis of likely diversion routes associated with the closure of Domain Road and the expected change in travel times associated with these diversions.

It is noted that the TIA indicates that use of Birdwood Avenue past the Shrine should be minimised during daytime hours when Birdwood Avenue is regularly used for bus drop offs and pick-ups for school groups visiting the shrine. This would further impact on available alternative routes for Melbourne Grammar.

### Conclusions

- *To assess the travel time impacts of taking the proposed diversions, I recommend that analysis should be required with respect to the likely diversions associated with the closure of Domain Road and the expected change in travel times associated with these diversions.*
- *I recommended that particular consideration be given to student drop off and pick up, bus routes to and from Flack Park and emergency vehicle access to assess the impacts of the proposed diversion routes on the school operation.*

- *To ensure appropriate bus access to the school is maintained, it is recommended that alternate arrangements be provided for bus pick-ups and drop offs in consultation with Melbourne Grammar, such as a bus bay on Bromby Street (with through access available to St Kilda Road) and/or a bus bay on Melbourne Grammar's St Kilda Road frontage. It is recommended this be included as an Environmental Performance Requirement.*
- *To help inform students, staff and parents on potential diversions, it is recommended that during construction, a map which details potential diversion options around the Domain Road closure and which includes other relevant road closures be provided to MGS for distribution to the relevant parties. It is recommended this be included as an Environmental Performance Requirement.*
- *To maximise the retention of parking along the MGS Domain Road frontage, it is recommended that Domain Road remains open up to the construction entrance to Edmund Herring Oval. It is recommended this be included as an Environmental Performance Requirement.*
- *It is recommended that during construction, a turnaround area be provided at the western end of the Domain Road closure to ensure cars, buses, service vehicles and emergency vehicles are able to turn around at the Domain road closure point. It is recommended this be included as an Environmental Performance Requirement.*

### **3. The impacts on travel times to and from Melbourne Grammar as a result of:**

- **The reduction in capacity on St Kilda Road;**
- **Traffic being rerouted from Domain Road; and**
- **Additional traffic associated with trucks and construction workers on travel times to and from the school.**

#### Assessment

The impacts on travel times to and from Melbourne Grammar will affect staff, parents, students, visitors, emergency vehicles (fire truck and ambulance), service vehicles and buses to and from Flack Park and other external locations.

It is of particular consequence with respect to the following:

- During VCE exam times which are typically held in October-November, with some mid year exams in June and August.
- During Wadhurst exam times.
- Significantly increased travel times to and from Flack Park and MSAC could potentially result in the sporting program at Flack Park and MSAC being unable to operate due to time constraints.
- Emergency vehicles must be able to attend in a timely manner in the event they are required.

St Kilda Road is proposed to be narrowed to one lane in each direction, from three lanes in each direction currently, for a period of approximately 18 months. This will result in a significant reduction in capacity. Compared to the 2021 Base Case, the modelling predicts the northbound traffic volumes on St Kilda

Road to be reduced by 1,000vph; from 2,065vph in the 2021 Base Case to 1,095vph in the 2021 Construction Scenario<sup>3</sup>.

The model generally concludes that due to the reduced capacity of St Kilda Road, a number of trips will be diverted and that whilst some additional delays can be expected along St Kilda Road, they are generally reported to be minor (less than 3 minutes).

As discussed in the Peer Review Report prepared as part of the TIA, the VISSIM model has redistributed this traffic to account for the capacity constraint introduced on St Kilda Road during the construction phase, which was assessed by the peer reviewer to be an overly optimistic outcome. The Peer Review Report then goes on to recommend that the VISSIM model be run through a series of sensitivity tests to determine the delays and travel times that would result if less than 1,000 vehicles were to be redistributed. I have not been made aware of any additional modelling undertaken to test these scenarios.

I concur with the peer reviewer's recommendation for sensitivity analysis to be undertaken for the Domain Precinct. MGS needs to fully understand the potential travel time impacts for staff, parents and students travelling to and from the school if they are to plan to address these impacts to the extent that is possible.

- I consider the traffic model to be overly optimistic in its assumptions and relies on traffic being distributed and diverted perfectly in accordance with the model. A sensitivity analysis to test the following assumptions does not appear to have been undertaken or presented regarding:
  - Trip diversions
  - Travel mode shift
  - Peak spreading
- The extents of the area modelled by microsimulation and the associated travel time delays are not clear, however it appears to be generally limited to St Kilda Road within the Domain Station precinct. Assessment of the delays associated with the wider road network leading into the Domain Station precinct is limited to a broad scale model.
- There has been little consideration with respect to the capacity of the potential diversion routes to accommodate the additional traffic, other than a broad scale model and to note that investigations are under way to increase the capacity of Kings Way. Options provided in the TIA include:
  - Additional CCTV and additional detection at a number of intersections.
  - Reconfiguration of Queens Road/Kings Way including additional southbound left slip to improve capacity, reduce lost time and improve operation.
  - Provision of median on Kings Way between Queens Road and St Kilda Road to reduce link disruption caused by Queens Lane traffic.
  - Improved lane signing and road marking for northbound traffic from Albert Road through to York Street.
  - Changes to service lane access on Albert Road and Kings Way to reduce blocking at Albert Road and Kings Way near Park Street.

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<sup>3</sup> Derived from Table 5-16 in the Transport Modelling Summary, noting that the reported volumes are two-hourly traffic volumes and have been halved to determine the hourly volumes.

- Permanent right turn bans on Kings Way into Sturt Street, and from Sturt Street onto Kings Way with alternative turn provision.
- Rationalisation of Sturt Street/Coventry Street intersection to improve throughput and reduce conflict.
- Changed lane markings and improved designation north of Sturt Street to provide two clear lanes to the West Gate Freeway and two to the CBD.
- Intersection improvements at York Street and City Link intersections to reduce lost time and pedestrian crossing times.
- New layout southbound on offslip to City Link to remove blocking of southbound Kings Way movements.
- There has been no consideration of the capacity of public transport to accommodate a potential mode shift.
- There has not been any assessment undertaken of the time implications associated with taking a diversion.

With respect to the additional traffic expected to be generated by the trucks (estimated by the TIA to be an average of 170 trucks per day), this has been written off as negligible. Notwithstanding this, I consider that truck movements should have been incorporated into the microsimulation model. Truck routes identified by the TIA which are in the vicinity of the site include Domain Road, St Kilda Road and Dallas Brooks Drive.

No consideration has been undertaken of the additional traffic generated by construction workers, which if arriving during the peak hours, would be expected to further impact on the operation of the road network in the vicinity of the site. This should also be incorporated into the microsimulation model.

### Conclusions

- *I recommended that additional analysis be required to be undertaken by the MMRA to provide a more robust assessment of expected travel time delays (including for public transport), incorporating the following:*
  - *Undertake a sensitivity analysis in the event that diversions do not occur perfectly in accordance with the model.*
  - *Extend the microsimulation model to include the key approaches into the Domain Station precinct (i.e. Toorak Road, Kings Way, Albert Road and Park Street) and provide expected travel times for all possible routes.*
  - *Undertake more detailed microsimulation analysis of the capacity of the likely diversion routes to accommodate the additional diverted traffic and the time implications associated with taking a diversion.*
  - *Include the traffic anticipated to be generated by trucks and construction workers in the microsimulation model.*
- *It is recommended that analysis be required to be undertaken of the capacity for the public transport network to accommodate a potential mode shift towards public transport.*
- *In the event that there is not sufficient public transport capacity to accommodate a mode shift to public transport, it is recommended that additional public transport services be provided in consultation with PTV to accommodate the mode shift. It is recommended this be included as an Environmental Performance Requirement.*

- *It is recommended that during construction, real time travel time information through areas affected by the construction for both car and public transport travel be provided to stakeholders (including Melbourne Grammar) to assist in determining which route/travel mode to use. It is recommended this be included as an Environmental Performance Requirement.*

#### **4. The impacts of the construction zones and congestion on travel times to and from Melbourne Grammar by public transport.**

##### Assessment

The impacts on travel times to and from Melbourne Grammar by public transport affects staff, students and visitors. It is of particular consequence during VCE exam times which are typically held in October-November, with some mid-year exams in June and August.

The assessment indicates that travel times on trams within the St Kilda Road corridor are expected to slightly decrease due to there being less stops.

On St Kilda Road, the tram tracks are separated from traffic and as such, are not expected to be significantly affected by traffic congestion. It therefore is expected that travel times will decrease as a result of a reduced number of stops, provided there are no delays when travelling through the construction zone.

For the Route 8 tram, the assessment indicates that travel times are expected to slightly increase due to new phasing at the Toorak Road / St Kilda Road intersection.

The assessment indicates that bus travel times are expected to be similar to general traffic, with some minor delays expected.

As discussed above, additional analysis should also be undertaken to provide a more robust assessment of expected travel time delays (including for public transport).

There has been no discussion on impacts to train services. It is assumed that trains will run as usual, however it is recommended that confirmation be provided by MMRA.

##### Conclusions

- *It is recommended that additional analysis be required to be undertaken to provide a more robust assessment of expected travel time delays to and from MGS (including for public transport).*
- *It is recommended that confirmation or otherwise be provided that there will be no impacts to train services.*
- *It is recommended that no impacts to train services be included as a performance requirement to ensure train access is maintained.*

## 5. The accessibility of Melbourne Grammar by public transport needs.

### Assessment

Preserving public transport access to Melbourne Grammar is critical for staff, students and visitors currently using public transport. It is of particular consequence during exam times.

As a minimum, it is considered that public transport operations should be maintained during school times, noting that in the order of 746 students and 37 staff currently arrive at/depart from school by tram each day.

The proposed relocation of tram stops is also an important consideration for Melbourne Grammar with respect to proximity to the school and the ability for students to be supervised while getting on or off a tram.

The TIA states that there would need to be an objective of minimising disruptions to tram services along St Kilda Road and that construction planning would need to minimise any tram shut down periods and maintain tram service frequency and reliability.

There is no assessment of the adequacy of the proposed tram stop relocations with respect to the school and there is no discussion of bus or train services.

There is also no discussion provided as to whether the Route 8 tram will return to Domain Road post construction.

### Conclusions

- *It is recommended that maintaining tram services along the St Kilda Road corridor be included as a performance requirement to ensure that tram access to the school is maintained.*
- *It is recommended that confirmation be provided on whether bus services and stops will be maintained throughout the construction period.*
- *It is recommended that confirmation or otherwise be provided that there will be no impacts to train services.*
- *It is recommended that no impacts to train services be included as a performance requirement to ensure train access is maintained.*
- *To ensure MGS remains readily accessible by tram, it is recommended that the temporary tram stop on St Kilda Road be required to be within 100 metres of the Melbourne Grammar frontage and be supervised. It is recommended that this be included as a performance requirement.*
- *To minimise impacts on tram access to MGS, it is recommended that any disruptions to tram services and tram shut down periods be required to be outside of core school times (i.e. school holidays). It is recommended that this be included as a performance requirement.*
- *It is recommended that Melbourne Grammar be required to be consulted in relation to whether the tram route 8 returns to Domain Road post construction. It is recommended that this be included as a performance requirement.*



**6. Retention of pedestrian access to all Melbourne Grammar entrances, particularly those in the vicinity of the construction zone.**

Assessment

It is important to ensure that pedestrian access to Melbourne Grammar is maintained.

The TIA indicates that pedestrian footpaths will be maintained on both sides of St Kilda Road and Domain Road throughout the construction period.

Conclusions

- *It is recommended that the retention of pedestrian access with appropriate lighting to all Melbourne Grammar entrances be included as a performance requirement to retain adequate pedestrian access to MGS.*

**7. Retention of pedestrian footpaths along St Kilda Road and Domain Road.**

Assessment

As above, it is important to ensure that pedestrian access to Melbourne Grammar is maintained.

The TIA indicates that pedestrian footpaths will be maintained on both sides of St Kilda Road and Domain Road throughout the construction period.

Conclusions

- *It is recommended that the retention of pedestrian access along St Kilda Road and Domain Road throughout construction period be included as a performance requirement to retain adequate pedestrian access to MGS.*

**8. Retention of cycling infrastructure along St Kilda Road.**

Assessment

As above, it is important to ensure that cyclist access to Melbourne Grammar is maintained.

The TIA indicates that a dedicated cycle lane should be maintained in each direction on St Kilda Road throughout the construction period.

Conclusions

- *It is recommended that the retention of cyclist access along St Kilda Road be included as a performance requirement to maintain adequate cyclist access to MGS.*

**9. Provision of appropriate pedestrian links across the construction zone without having to circumnavigate the entire construction area.**

Assessment

It is considered that pedestrian access across the St Kilda Road construction zone should be provided without pedestrians being required to circumnavigate the entire construction area and this should be either along the Melbourne Grammar frontage or in close proximity to the Melbourne Grammar frontage.

The TIA indicates that a mid-block/works crossing would be provided in the vicinity of the temporary tram stop.

### Conclusions

- *It is recommended that the provision of a traffic controller supervised mid-block/works crossing across St Kilda Road within 100 metres of the Melbourne Grammar frontage be included as a performance requirement to retain adequate pedestrian access to MGS.*

## **10. Retention of vehicle access to underground car park.**

### Assessment

Access to the Melbourne Grammar underground car park should be maintained, noting that it comprises 200 spaces utilised by staff, suppliers, tradesmen and visitors. There is no discussion of this in the TIA.

### Conclusions

- *It is recommended that the retention of access to the Melbourne Grammar underground car park be included as a performance requirement.*
- *It is recommended that works which restrict access to Melbourne Grammar are required to be undertaken outside of core school times (i.e. school holidays). It is recommended that this be included as a performance requirement.*

## **11. Retention of access to all waste collection points by waste collection vehicles.**

### Assessment

Access to all waste collection points within Melbourne Grammar by waste collection vehicles should be maintained, with particular consideration given to the waste collection points in the vicinity of the construction zones (including the waste collection point on the St Kilda Road frontage). There is no discussion of this in the TIA.

### Conclusions

- *It is recommended that the retention of access to all waste collection points within Melbourne Grammar by waste collection vehicles be included as a performance requirement.*
- *It is recommended that works which restrict access to Melbourne Grammar be undertaken outside of core school times (i.e. school holidays). It is recommended that this be included as a performance requirement.*

## **12. Retention of access to all fire boosters, fire panels and emergency access points by emergency vehicles.**

### Assessment

Access to fire boosters, fire panels and emergency access points within Melbourne Grammar by emergency vehicles should be maintained, with particular consideration given to the fire boosters and fire panels in the vicinity of the construction zones (including the fire booster and fire panel on the St Kilda Road frontage and the western fire booster and fire panel on the Domain Road frontage). There is no discussion of this in the TIA.

### Conclusions

- *It is recommended that the retention of direct access to all fire boosters, fire panels and emergency access points within Melbourne Grammar by emergency vehicles be included as a performance requirement.*

- *It is recommended that works which restrict access to Melbourne Grammar be undertaken outside of core school times (i.e. school holidays). It is recommended that this be included as a performance requirement.*

### **13. The availability of on-street parking in the vicinity of Melbourne Grammar.**

#### Assessment

The availability of on-street parking in the vicinity of Melbourne Grammar is important for staff, students, parents dropping off and picking up students and visitors. On-street parking is also required for bus pick-ups and drop offs.

This is important both during school hours and during after-hours functions.

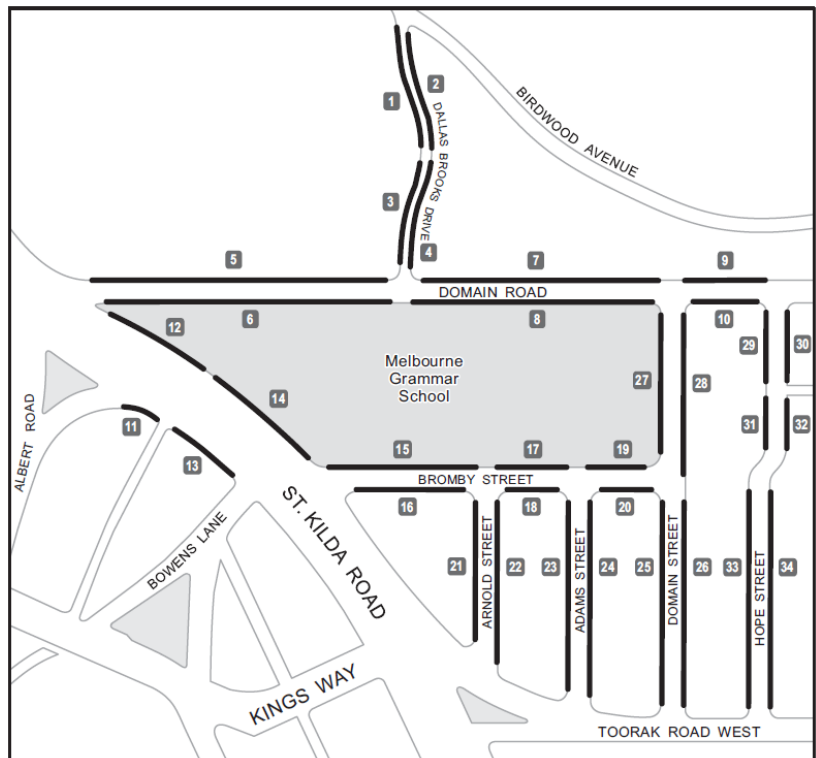
The availability of parking is not discussed in the TIA, however there will be a reduction as a result of reduced parking supply due to construction zones and increased parking demands associated with construction workers. I estimate that in the order of 42-76 spaces in the immediate vicinity of the school will be unavailable during construction, as follows:

- On Domain Road, in the order of 18 spaces will be unavailable during construction if the road closure ends at the western end of Edmund Herring Oval and in the order of 52 spaces will be unavailable during construction if the road closure ends at Dallas Brooks Drive. There may be some additional parking on Domain Road which is unavailable during construction, depending on the ultimate design of any turnaround area provided.
- On St Kilda Road between Domain Road and Bromby Street, in the order of 24 spaces will be unavailable during construction.

Ratio Consultants commissioned car park occupancy surveys on Wednesday 27<sup>th</sup> and Thursday 28<sup>th</sup> July 2016 between 7:00am-5:00pm of the on-street parking in the vicinity of Melbourne Grammar School.

The surveys were undertaken at hourly intervals and included on-street parking within an approximate 400 metre walk of Melbourne Grammar School. The extent of the survey area is shown in Figure 5.1 and detailed survey results are presented in Appendix B.

**Figure 5.1: Car Parking Survey Area**



During business hours, parking in the survey area is primarily a mixture of time restricted parking, time restricted ticket parking, all-day ticket parking and 'Permit Zones'. Time restrictions vary and include P 5 minute, 1/2P, 1P, 2P, 3P and 4P. In reviewing the results, the following restrictions were excluded from the assessment, as they are not suitable for general parking:

- 'No Stopping'
- 'No Parking'
- 'Mail Zone'
- Motorbike parking
- 'Permit Zone'
- 'Bus Zone'

It is noted that under the Road Rules, vehicles may prop within 'No Parking' areas for a set time limit (2 minutes default or as otherwise specified on the sign), however the driver must remain within 3 metres of the vehicle. This is suitable for the drop off and pick up of students, however is not suitable for general parking, hence the exclusion from the results.

Overall, the surveys identified a varying supply of 375-493 spaces, with the variation in supply a result of a number of 'No Parking' restrictions and 'Permit Zones' which are only into effect between 7:30am-11:00pm and a 'Bus Zone' which is only in effect between 3:00pm-4:00pm.

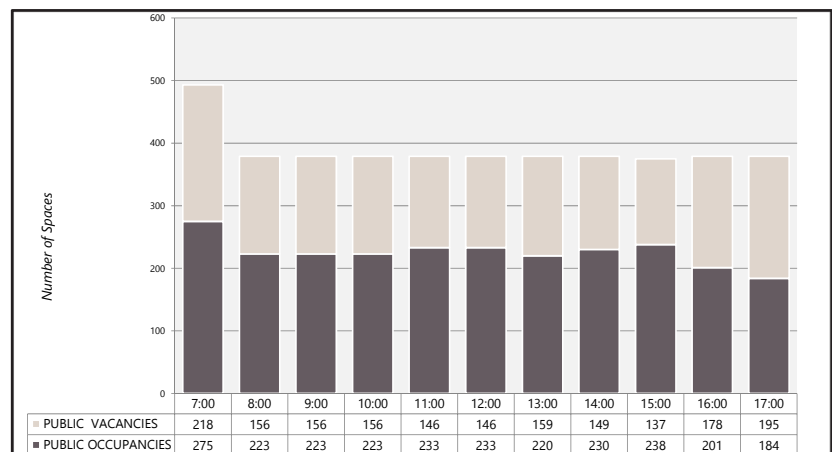
In summary, the survey results showed:

### Wednesday 27 July 2016

- The overall peak parking demand occurred at 3:00pm when 238 out of 375 spaces were occupied (63% occupancy). At this time, 137 spaces were vacant.
- Along the frontage of the school in Domain Road (Zones 5-8), the surveys identified a varying supply of 109-118 spaces. The peak in these zones occurred at 3:00pm when 58 out of 109 spaces were occupied (53% occupancy). At this time, 51 spaces were vacant in these zones.
- Along the frontage of the school in St Kilda Road (Zones 11-14), the surveys identified a supply of 24 spaces. The peak in these zones occurred at 8:00am when 16 out of 24 spaces were occupied (67% occupancy). At this time, 8 spaces were vacant in these zones.
- Along the frontage of the school in Bromby Street (Zones 15-20), the surveys identified a varying supply of 37-76 spaces. The peak in these zones occurred at 2:00pm when 19 out of 37 spaces were occupied (51% occupancy). At this time, 18 spaces were vacant in these zones.
- Along the frontage of the school in Domain Street (Zones 27-28), the surveys identified a varying supply of 26-43 spaces. The peak in these zones occurred at 5:00pm when 24 out of 26 spaces were occupied (92% occupancy). At this time, 2 spaces were vacant in these zones.
- Along the frontage of the school in all of Domain Road, St Kilda Road, Bromby Street and Domain Street (Zones 5-8, 11-14, 15-20 and 27-28), the surveys identified a varying supply of 196-261 spaces. The peak in these zones occurred at 3:00pm when 108 out of 196 spaces were occupied (55% occupancy). At this time, 88 spaces were vacant in these zones.

Figure 5.2 provides a graphical representation of the Wednesday parking demands across the survey area.

**Figure 5.2: Parking Demand Survey Results – Wednesday 27 July 2016**



### Thursday 28 July 2016

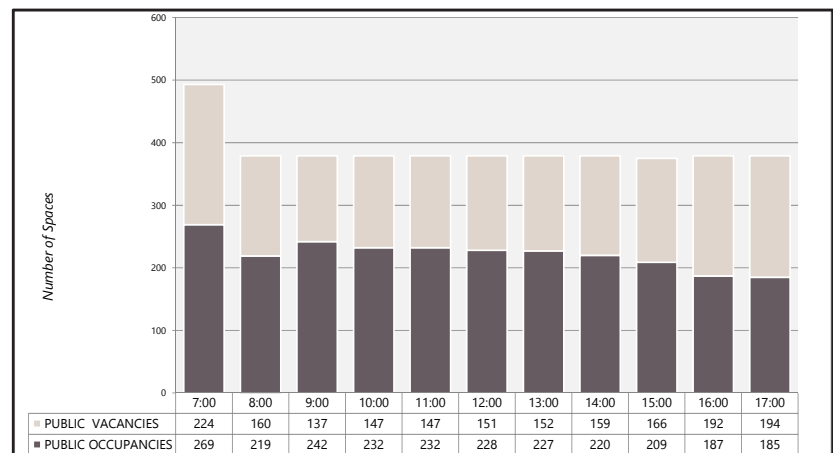
- The overall peak parking demand occurred at 9:00am when 242 out of 379 spaces were occupied (64% occupancy). At this time, 137 spaces were vacant.
- Along the frontage of the school in Domain Road (Zones 5-8), the surveys identified a varying supply of 109-118 spaces. The

peak in these zones occurred at 9:00am when 61 out of 113 spaces were occupied (54% occupancy). At this time, 52 spaces were vacant in these zones.

- Along the frontage of the school in St Kilda Road (Zones 11-14), the surveys identified a supply of 24 spaces. The peak in these zones occurred at 9:00am when 17 out of 24 spaces were occupied (71% occupancy). At this time, 87spaces were vacant in these zones.
- Along the frontage of the school in Bromby Street (Zones 15-20), the surveys identified a varying supply of 37-76 spaces. The peak in these zones occurred at 9:00am when 18 out of 37 spaces were occupied (49% occupancy). At this time, 19 spaces were vacant in these zones.
- Along the frontage of the school in Domain Street (Zones 27-28), the surveys identified a varying supply of 26-43 spaces. The peak in these zones occurred at 9:00am when 22 out of 26 spaces were occupied (85% occupancy). At this time, 4 spaces were vacant in these zones.
- Along the frontage of the school in all of Domain Road, St Kilda Road, Bromby Street and Domain Street (Zones 5-8, 11-14, 15-20 and 27-28), the surveys identified a varying supply of 196-261 spaces. The peak in these zones occurred at 9:00am when 118 out of 200 spaces were occupied (59% occupancy). At this time, 82 spaces were vacant in these zones.

Figure 5.3 provides a graphical representation of the Thursday parking demands across the survey area.

**Figure 5.3: Parking Demand Survey Results - Thursday 28 July 2016**



Overall, the parking surveys show a similar level of occupancy across the day, with parking demands fairly constant between 8:00am-3:00pm, before reducing into the evening.

On-street parking along Melbourne Grammar’s St Kilda Road frontage should be maintained for pick up and drop off both during construction and during the operational phase, whilst parking along the Domain Road frontage should be maintained as much as possible during construction and restored thereafter.

It is recommended that measures be put in place to discourage construction workers driving, such as the provision of on-site tool storage and the preparation of a Green Travel Plan for distribution to construction workers.

Construction workers should be discouraged from parking on-street, with alternative arrangements provided, such as leasing a car park nearby, park and ride to a remote car park and/or the preparation of an enforceable parking management plan for construction workers. These requirements should also extend to night time to ensure that on-street parking is available for guests of evening functions held at MGS.

#### Conclusions

- *To maximise parking for MGS, it is recommended that the retention of parking along the school's St Kilda Road frontage during construction be included as a performance requirement.*
- *It is recommended that the retention of parking along the school's St Kilda Road frontage which is not subject to Clearways during peak hours during the operational phase for drop off and pick up should be included as a performance requirement.*
- *To maximise parking for MGS, it is recommended that the retention of parking on Domain Road up to the western end of Edmund Herring Oval be included as a performance requirement.*
- *To reduce the reliance of construction workers on private vehicles, it is recommended that on-site tool storage be included as a performance requirement.*
- *It is recommended that the preparation of a Green Travel Plan to discourage construction workers from driving to the worksite be included as a performance requirement.*
- *It is recommended that the provision of alternative parking arrangements for construction workers be included as a performance requirement to minimise the impact on the availability of on-street parking in the area.*

### **5.3 Environmental Performance Requirements**

- 5.3.1 Chapter 23 of the EES prepared by the MMRA presents the Environmental Management Framework that has been developed for Melbourne Metro. Included in this chapter are recommended Environmental Performance Requirements (EPR) which define the project-wide environmental outcomes that must be achieved during design, construction and operation of Melbourne Metro.
- 5.3.2 The recommended transport EPRs are detailed and assessed against the requirements of Melbourne Grammar in Table 5.4.
- 5.3.3 For future reference, each of the additional EPRs I have recommended have been labelled as MGT 1,2,3 etc (i.e. Melbourne Grammar Traffic).

**Table 5.4: Review of Relevant Environmental Performance Requirements**

EPR No.	Impact	Environmental Performance Requirement	Timing	Comments
T1	<p>This EPR is relevant to a number of the impacts related to Melbourne Grammar, including:</p> <ul style="list-style-type: none"> <li>— Domain Road closure on travel routes</li> <li>— Travel time impacts by road</li> <li>— Retention of vehicle access to Melbourne Grammar underground car park</li> <li>— Retention of access for waste collection vehicles to Melbourne Grammar</li> <li>— Retention of access for emergency vehicles to Melbourne Grammar</li> <li>— Availability of on-street parking</li> </ul>	<p><b>Road Transport (Construction Phase)</b></p> <p>Develop and implement a transport management plan(s) in consultation with the relevant road management authorities to minimise disruption to traffic, car parking, pedestrian and bicycle movements during construction, including but not limited to:</p> <ul style="list-style-type: none"> <li>— Management of any temporary or permanent full or partial closure of traffic lanes including (but not limited to): <ul style="list-style-type: none"> <li>• Childers Street, Kensington</li> <li>• Royal Parade, Grattan Street and Barry Street, Parkville</li> <li>• Franklin Street, A'Beckett Street and Little La Trobe Street at CBD North</li> <li>• Flinders Street and Flinders Lane at CBD South</li> <li>• Linlithgow Avenue, Melbourne</li> <li>• St Kilda Road, Domain Road, Albert Road at Domain</li> <li>• Toorak Road at Fawkner Park</li> <li>• Osborne Street, William Street in South Yarra</li> </ul> </li> <li>— Monitoring of travel behaviour changes caused by construction works, including pre-construction baseline data and periodic reporting on behaviour change. Use this data as an input to the design of transport networks following construction</li> <li>— Traffic management plan(s) must be developed recognising other projects operating concurrently, where relevant</li> <li>— Provision for a minimum of one lane of traffic in each direction on St Kilda Road to be maintained throughout the construction within the Domain Station Precinct.</li> <li>— Potential routes for construction vehicles travelling to and from all Melbourne Metro construction work sites, recognising sensitive receptors.</li> <li>— Provision of suitable routes for vehicles to maintain connectivity for road users to JJ Holland Park, South Kensington station and to the medical and education facilities adjacent to the Parkville construction work site</li> <li>— Provision of alternative routes for trucks accessing the 50 Lloyd Street Business Estate, Kensington</li> <li>— Provision of alternate parking where possible to replace parking lost from Childers Street, Laurens Street, Grattan Street, Domain Road, St Kilda Road and Albert Road during construction and preventing parking at undesignated locations on local roads</li> <li>— Provision of car parking for construction workers where possible</li> <li>— Provision of suitable routes for cyclists and pedestrians to maintain connectivity and safety for roads and shared paths to provide continued access, including (but not limited to): Childers Street, JJ Holland Park, South Kensington Station, Laurens Street, Grattan Street, Swanston Street, Franklin Street, Flinders Street, St Kilda Road, Albert Road, Domain Road, Toorak Road and Fawkner Park</li> <li>— Provision of complementary improvements to Kings Way, Canterbury Road and other roads to accommodate additional traffic that may use these roads and to assist traffic flow in St Kilda Road for the duration of the works</li> <li>— In consultation with emergency services, develop suitable measures to ensure emergency service access is not inhibited as a result of Melbourne Metro construction worksites</li> <li>— Special arrangements for delivery or removal of large roads</li> </ul>	Construction	<p><u>Traffic Modelling</u></p> <p>The EPR requires monitoring of travel behaviour changes caused by construction works, however additional analysis should be undertaken to provide a more robust assessment of expected travel time delays as follows:</p> <ul style="list-style-type: none"> <li>— <b>MGT1: Additional analysis to be undertaken to provide a more robust assessment of expected travel time delays, incorporating the following:</b> <ul style="list-style-type: none"> <li>• Sensitivity analysis in the event that diversions do not occur perfectly in accordance with the model.</li> <li>• Extend the microsimulation model to include the key approaches into the Domain Station precinct (i.e. Toorak Road, Kings Way, Albert Road and Park Street) and provide expected travel times for all possible routes.</li> <li>• Undertake more detailed microsimulation analysis of the capacity of the likely diversion routes to accommodate the additional diverted traffic and the time implications associated with taking a diversion.</li> <li>• Include the traffic anticipated to be generated by trucks and construction workers in the microsimulation model.</li> <li>• Undertake analysis of the capacity for the public transport network to accommodate a potential mode shift.</li> </ul> </li> </ul> <p><u>Closure of Domain Road</u></p> <p>The EPR states that the transport management plan should include management of any road closures, including Domain Road however does not specify anything further. This should be more specific and include the following requirements in relation to the closure of Domain Road:</p> <ul style="list-style-type: none"> <li>— <b>MGT2: Prepare a map which details potential diversion options around the Domain Road closure and which includes other relevant road closures. This is to be provided to the school for distribution to the relevant parties.</b></li> <li>— <b>MGT3: Domain Road to remain open up to the construction entrance to Edmund Herring Oval in order to maximise the retention of Melbourne Grammar's frontage and availability of parking.</b></li> <li>— <b>MGT4: A turnaround area to be provided at the Domain Road closure to accommodate for cars, buses, service vehicles and emergency vehicles.</b></li> <li>— <b>MGT5: Alternate arrangements to be made for bus pick-ups and drop offs in consultation with Melbourne Grammar, such as a bus bay on Bromby Street (with through access available to St Kilda Road) and/or a bus bay on Melbourne Grammar's St Kilda Road frontage.</b></li> </ul> <p><u>Partial Closure of St Kilda Road</u></p> <p>The EPR states that there should be a minimum of one lane of traffic in each direction to be maintained throughout construction within the Domain Station Precinct. This is considered acceptable.</p> <p><u>On-Street Car Parking</u></p> <p>The EPR states that alternate parking should be provided where possible to replace lost parking. There should be a stronger requirement for maintaining on-street parking in the vicinity of the school, including the following requirements:</p> <ul style="list-style-type: none"> <li>— <b>MGT6: Parking along Melbourne Grammar's St Kilda Road frontage to be retained throughout the construction period.</b></li> <li>— <b>MGT7: Parking on Domain Road to be retained up to the western end of Edmund Herring Oval (with the exception of the turnaround area).</b></li> </ul> <p><u>Construction Worker Parking</u></p> <p>The EPR states that there should be the provision of car parking for construction workers where possible. This requirement should be stronger and more specific, with the following requirements:</p> <ul style="list-style-type: none"> <li>— <b>MGT8: Off-street car parking for construction workers must be provided, with potential options being leasing a car park nearby, park and ride to a remote car park and/or preparation of an enforceable parking management plan for construction workers. This is to be extended to night time.</b></li> <li>— <b>MGT9: On-site tool storage to be provided to reduce the number of construction workers driving to the worksite.</b></li> <li>— <b>MGT10: Prepare a Green Travel Plan to discourage construction workers from driving to the worksite.</b></li> </ul> <p><u>Accessibility</u></p> <p>The EPR states that suitable measures should be taken to ensure emergency services access is not inhibited. There is no mention however of maintaining accessibility for waste collection vehicles or for cars into Melbourne Grammar's underground car park. These should be included as follows:</p> <ul style="list-style-type: none"> <li>— <b>MGT11: Access to the Melbourne Grammar underground car park is to be retained.</b></li> <li>— <b>MGT12: All Melbourne Grammar waste collection points are to remain accessible by waste collection vehicles, particularly the point in close proximity to the construction zone on St Kilda Road.</b></li> <li>— <b>MGT13: Works which restrict access to Melbourne Grammar (such as the tram track relocation works on St Kilda Road) to be undertaken outside of core school times (i.e. school holidays).</b></li> </ul>



				<p><u>Stakeholder Engagement</u></p> <p>Whilst the EPR states that the traffic management plan be prepared in consultation with the relevant authorities, there should also be engagement with the relevant stakeholders as follows:</p> <ul style="list-style-type: none"> <li>— <b>MGT14: Relevant stakeholders (including Melbourne Grammar) to be consulted during the preparation of the traffic management plan</b></li> </ul> <p><u>Construction Vehicles</u></p> <p>The EPR notes that the construction routes must recognise sensitive receptors but does not specify the sensitive receptors in any detail. There has also not been any recourse provided for stakeholders in the event any operational issues arise during construction. It is recommended that the following requirements be provided:</p> <ul style="list-style-type: none"> <li>— <b>MGT15: Trucks must not stop, prop and/or stage along the Melbourne Grammar school frontages.</b></li> <li>— <b>MGT16: Contractors and subcontractors must be briefed on all access requirements.</b></li> <li>— <b>MGT17: Melbourne Grammar must be provided with a contact from both the contractor and the MMRA to respond to any operational issues that arise during construction.</b></li> <li>— <b>MGT18: The contractor must provide an on-site liaison officer for the first three months at key pick up and drop off points to provide assistance to school representatives.</b></li> </ul>
T2	<p>This EPR is relevant to a number of the impacts related to Melbourne Grammar, including:</p> <ul style="list-style-type: none"> <li>— Travel time impacts by public transport</li> <li>— Maintaining public transport accessibility</li> </ul>	<p><b>Public Transport (Construction Phase)</b></p> <ul style="list-style-type: none"> <li>— Develop and implement a plan for occupying railway land and tracks at the western portal, eastern portal and western turnback that minimises the disruption to railway services during construction. Plan to be developed to the satisfaction of VicTrack and MTM</li> <li>— Provide suitable routes for pedestrians to maintain connectivity, including DDA access, for users of South Kensington station, Melbourne Central station, Flinders Street Station and around all construction sites generally</li> <li>— Develop and implement measures to minimise disruption to the tram and bus networks resulting from the construction of Melbourne Metro in consultation with the relevant road management authorities and to the satisfaction of PTV, including (but not limited to): <ul style="list-style-type: none"> <li>• Options to divert the 401, 402, 403, 505 and 546 bus services</li> <li>• Tram routes on La Trobe Street and Swanston Street</li> <li>• Tram routes on Flinders Street and Swanston Street</li> <li>• Tram operations on Toorak Road and the diversion of the No. 8 tram route</li> <li>• Periodic closures of Royal Parade tram route</li> <li>• Tram routes on St Kilda Road</li> <li>• Disruption to other tram routes through Domain tram stop</li> <li>• Bus replacement services for disrupted rail customers.</li> </ul> </li> </ul>	Construction	<p><u>Public Transport Capacity</u></p> <p>There is no consideration of the capacity of public transport services to accommodate a potential mode mode shift during construction. As such, the following requirement should be provided:</p> <ul style="list-style-type: none"> <li>— <b>MGT19: Monitor the increase in public transport use as a result of the construction activities, with a plan prepared for the provision of additional or replacement services in consultation with PTV where capacity is being exceeded.</b></li> </ul> <p><u>Train Services</u></p> <p>There is no mention of train services in the EPR. As such, the following requirement should be provided:</p> <ul style="list-style-type: none"> <li>— <b>MGT20: There is to be no impact to existing train services.</b></li> </ul> <p><u>Tram and Bus Services</u></p> <p>The EPR states that there should be measures to minimise disruption to the tram and bus networks (including tram operations on Toorak Road and St. Kilda Road) but does not provide confirmation that trams and buses will continue to run as normal at all times. This needs to be clarified through the EPRs, with the following requirements:</p> <ul style="list-style-type: none"> <li>— <b>MGT21: A single tram track in each direction must be maintained along St. Kilda Road throughout construction.</b></li> <li>— <b>MGT22: Any disruptions to tram and bus services and tram shut down periods are to be outside of core school times (i.e. school holidays).</b></li> <li>— <b>MGT23: The temporary tram stop on St Kilda Road is to be located within 100 metres of the Melbourne Grammar frontage and should be supervised.</b></li> </ul>
T3	<p>This EPR is relevant to a number of the impacts related to Melbourne Grammar, including:</p> <ul style="list-style-type: none"> <li>— Retention of pedestrian access to Melbourne Grammar</li> <li>— Retention of cyclist access to Melbourne Grammar</li> <li>— Provision of appropriate pedestrian links across the construction zone</li> </ul>	<p><b>Active Transport (Construction Phase)</b></p> <ul style="list-style-type: none"> <li>— Develop and implement transport management measures in consultation with relevant authorities for cyclists and pedestrians to maintain connectivity throughout construction for road and shared path users including (but not limited to): JJ Holland Park, South Kensington station, Laurens Street, Grattan Street, Franklin Street (including RMIT facilities), Swanston Street, Flinders Street, St Kilda Road, Domain Road, Domain Parklands, Albert Road, Toorak Road, Fawkner Park, Osborne Street, William Street and Chapel Street</li> <li>— Implement active control at construction work site access points to maintain safety by avoiding potential conflicts between trucks, pedestrians and cyclists</li> <li>— In consultation with the City of Melbourne, provide suitable routes for cyclists and pedestrians throughout construction to and maintain connectivity for road and shared path users around JJ Holland Park and South Kensington station.</li> </ul>	Construction	<p><u>Pedestrian Access</u></p> <p>The EPR states that pedestrian connectivity should be maintained but does not provide specifics. The requirements should be more specific as follows:</p> <ul style="list-style-type: none"> <li>— <b>MGT24: Pedestrian access to all school entrances is to be maintained.</b></li> <li>— <b>MGT25: Footpaths along both sides of St Kilda Road and Domain Road are to be maintained with appropriate lighting throughout construction.</b></li> <li>— <b>MGT26: Provide a traffic controller supervised mid-block/works crossing across St Kilda Road within 100 metres of the Melbourne Grammar frontage.</b></li> </ul> <p><u>Bicycle Access</u></p> <p>The EPR states that bicycle connectivity should be maintained but does not provide specifics. The requirements should be more specific as follows:</p> <ul style="list-style-type: none"> <li>— <b>MGT27: A single bicycle lane to be provided in each direction along St Kilda Road throughout construction.</b></li> </ul>

T4	This EPR is primarily relevant to the expected travel time impacts and route/travel mode choice during construction.	<p><b>Travel Demand Strategy</b></p> <ul style="list-style-type: none"> <li>— In advance of construction works, MMRA to develop and implement a travel demand management strategy and appropriate tools to promote specific transport behaviour changes in response to road, bicycle and pedestrian paths closures/modifications and to reduce traffic congestion around construction sites, particularly in the vicinity of the Parkville and Domain precincts where road closures and restrictions are proposed. The strategy must be consistent with the MMRA Community and Stakeholder Engagement Plan.</li> </ul>	Construction	<p>This EPR is generally acceptable, however as part of this there should be additional information provided to help inform route and travel mode choice as follows:</p> <ul style="list-style-type: none"> <li>— <b>MGT28: Provide real time travel time information through areas affected by the construction for both car and public transport travel to assist in determining which route/travel mode to use.</b></li> </ul>
T5	This EPR is primarily relevant to the operation of the roads which were affected during construction after the completion of the project.	<p><b>Road Transport (Operational Phase)</b></p> <ul style="list-style-type: none"> <li>— Design all roadworks and shared path works to relevant design standards to maintain safety of movement in consultation with the relevant road management authorities as required</li> <li>— Develop and implement a plan to reinstate car parking on Childers Street, Kensington and Laurens Street, North Melbourne in consultation with the relevant road management authorities that: <ul style="list-style-type: none"> <li>• Minimises the permanent loss of parking where possible</li> <li>• Ensures re-instated car parking does not encroach on JJ Holland Park</li> <li>• Considers opportunities for replacement of any net loss of parking at nearby locations</li> <li>• Reduces the risk of overflow parking in local streets from South Kensington station and activities at JJ Holland Park</li> <li>• Replaces loading zones to service the needs of the existing businesses in the precinct where disrupted during construction</li> </ul> </li> <li>— Develop and implement a plan for the reinstatement of Grattan Street, Parkville in consultation with the relevant road management authorities that includes: <ul style="list-style-type: none"> <li>• Optimal replacement of car parking spaces along Grattan Street to service the needs of the hospitals and the university, including the retention or replacement of specific short-term and DDA compliant parking</li> <li>• Optimal design of the road network around Grattan Street associated with the changed demands and network changes on Grattan Street and Royal Parade/Elizabeth Street</li> </ul> </li> <li>— Develop and implement a plan for the future use of the Franklin Street road reserve in consultation with the relevant road management authorities that includes: <ul style="list-style-type: none"> <li>• Optimising the design of the road network following the closure of Franklin Street between Swanston Street and Bowen Street</li> <li>• Monitoring the change in travel patterns around the area associated with the closure of Franklin Street</li> </ul> </li> <li>— Optimise the design of the reinstated St Kilda Road and apply the road users hierarchy in consultation with the relevant road management authorities to: <ul style="list-style-type: none"> <li>• Reduce delays and congestion</li> <li>• Maintain safe operations through the precinct</li> <li>• Determine the optimal parking provision in the area and replace any lost parking where possible.</li> </ul> </li> </ul>	Operation	<p><u>On-Street Parking</u></p> <p>The EPR states that the design of the reinstated St Kilda Road should determine the optimal parking provision in the area and replace any lost parking where possible. There needs to be more specific requirements for the retention of on-street parking in the vicinity of the school as follows:</p> <ul style="list-style-type: none"> <li>— <b>MGT29: Parking along the school's St Kilda Road frontage which is not subject to Clearways during peak hours is to be provided post construction.</b></li> </ul>

T6	This EPR is primarily relevant to the operation of the public transport network after the completion of the project.	<p><b>Public Transport (Operational Phase)</b></p> <ul style="list-style-type: none"> <li>— Review, with PTV, the bus services in the areas around Arden, Parkville, CBD North, CBD South and Domain stations including a review of the route 401 bus frequency that will have reduced demand following implementation of Melbourne Metro</li> <li>— Optimise the design of Melbourne Metro stations to ensure integration with existing and planned future uses and so that they will provide connections: <ul style="list-style-type: none"> <li>• Between the new Parkville station and the new tram stop on Royal Parade</li> <li>• For interchange between the new CBD North station and the existing tram and bus services along La Trobe Street and Swanston Street</li> <li>• For interchange between the new CBD South station and the existing tram services along Flinders Street and Swanston Street</li> <li>• Between the new Domain station and the new island platform trams stop in the centre of St Kilda Road and connections to the tram services along Domain Road</li> </ul> </li> <li>— Review, with PTV and Yarra Trams, the bus and tram services in the area to optimise the functionality of the CBD North and South stations and to reduce the reliance on the Swanston Street tram corridor.</li> </ul>	Operation	<p><u>Tram Route 8</u></p> <p>The EPR does not specify the ultimate location of the route 8 tram post construction. Melbourne Grammar should be included in the decision making process for this as follows:</p> <ul style="list-style-type: none"> <li>— <b><u>MGT30</u>: Melbourne Grammar must be consulted in relation to whether the tram route 8 returns to Domain Road post construction.</b></li> </ul>
T7	This EPR is primarily relevant to the operation of the pedestrian and bicycle network after the completion of the project.	<p><b>Active Transport (Operational phase)</b></p> <ul style="list-style-type: none"> <li>— Develop and implement a permanent shared use path along the northern side of Childers Street, Kensington in conjunction with the relevant road management authority and the land manager prior to the removal of the shared use path on the southern side</li> <li>— Where practicable to do so, re-instate on-road bicycle lanes and bicycle parking provisions removed during construction in cooperation with the relevant road management authority and the local council</li> <li>— Review the provision of safe and effective bicycle lanes in and around the Melbourne Metro station sites in cooperation with the road authority and the local council</li> <li>— Provide wayfinding information to enhance connectivity for pedestrians and public transport users including (but not limited to) the following locations: <ul style="list-style-type: none"> <li>• Between Melbourne Central station and the new CBD North station</li> <li>• The underground connection between Flinders Street Station and the new CBD South station.</li> </ul> </li> </ul>	Operation	This EPR is considered acceptable.

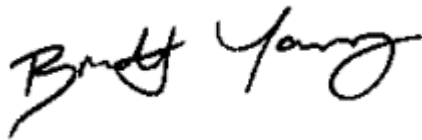
## 6 Conclusions:

- 6.1.1 The new Domain Station associated with the Project will deliver considerable transport benefits to travel times to and from MGS for students and staff, however the construction phase will result in traffic impacts that will reduce the ability for the school to operate as normal.
- 6.1.2 I anticipate considerable delays in staff and students getting to and from the school due to the closure of Domain Road and the significant reduction in capacity of St Kilda Road, which reduces from three lanes in each direction down to one for at least 18 months.
- 6.1.3 I have identified some limitations in the traffic modelling results presented by the MMRA which makes it difficult for the school to make a robust decision on the likely impacts on their operation and reduces their ability to plan for and mitigate these impacts. I believe that further traffic modelling should be undertaken by the MMRA to provide more confidence surrounding the traffic impacts which will enable the school to plan appropriately for them.
- 6.1.4 I believe there some changes and additions required to the Environmental Performance Requirements to ensure that the construction impacts on the operation of the school are minimised.
- 6.1.5 Based on the foregoing analysis, I would recommend that the following additional Environmental Performance Requirements be included to ensure Melbourne Grammar can continue to operate to a satisfactory standard:
- MGT1: Additional analysis to be undertaken to provide a more robust assessment of expected travel time delays, incorporating the following:
    - Sensitivity analysis in the event that diversions do not occur perfectly in accordance with the model.
    - Extend the microsimulation model to include the key approaches into the Domain Station precinct (i.e. Toorak Road, Kings Way, Albert Road and Park Street) and provide expected travel times for all possible routes.
    - Undertake more detailed microsimulation analysis of the capacity of the likely diversion routes to accommodate the additional diverted traffic and the time implications associated with taking a diversion.
    - Include the traffic anticipated to be generated by trucks and construction workers in the microsimulation model.
    - Undertake analysis of the capacity for the public transport network to accommodate a potential mode shift.
  - MGT2: Prepare a map which details potential diversion options around the Domain Road closure and which includes other relevant road closures. This is to be provided to the school for distribution to the relevant parties.
  - MGT3: Domain Road to remain open up to the construction entrance to Edmund Herring Oval in order to maximise the retention of Melbourne Grammar's frontage and availability of parking.
  - MGT4: A turnaround area to be provided at the Domain Road closure to accommodate for cars, buses, service vehicles and emergency vehicles.
  - MGT5: Alternate arrangements to be made for bus pick-ups and drop offs in consultation with Melbourne Grammar, such as a bus bay on Bromby Street (with through access available to St Kilda Road) and/or a bus bay on Melbourne Grammar's St Kilda Road frontage.

- MGT6: Parking along Melbourne Grammar’s St Kilda Road frontage to be retained throughout the construction period.
- MGT7: Parking on Domain Road to be retained up to the western end of Edmund Herring Oval (with the exception of the turnaround area).
- MGT8: Off-street car parking for construction workers must be provided, with potential options being leasing a car park nearby, park and ride to a remote car park and/or preparation of an enforceable parking management plan for construction workers. This is to be extended to night time.
- MGT9: On-site tool storage to be provided to reduce the number of construction workers driving to the worksite.
- MGT10: Prepare a Green Travel Plan to discourage construction workers from driving to the worksite.
- MGT11: Access to the Melbourne Grammar underground car park is to be retained.
- MGT12: All Melbourne Grammar waste collection points are to remain accessible by waste collection vehicles, particularly the point in close proximity to the construction zone on St Kilda Road.
- MGT13: Works which restrict access to Melbourne Grammar (such as the tram track relocation works on St Kilda Road) to be undertaken outside of core school times (i.e. school holidays).
- MGT14: Relevant stakeholders (including Melbourne Grammar) to be consulted during the preparation of the traffic management plan
- MGT15: Trucks must not stop, prop and/or stage along the Melbourne Grammar school frontages.
- MGT16: Contractors and subcontractors must be briefed on all access requirements.
- MGT17: Melbourne Grammar must be provided with a contact from both the contractor and the MMRA to respond to any operational issues that arise during construction.
- MGT18: The contractor must provide an on-site liaison officer for the first three months at key pick up and drop off points to provide assistance to school representatives.
- MGT19: Monitor the increase in public transport use as a result of the construction activities, with a plan prepared for the provision of additional or replacement services in consultation with PTV where capacity is being exceeded.
- MGT20: There is to be no impact to existing train services.
- MGT21: A single tram track in each direction must be maintained along St. Kilda Road throughout construction.
- MGT22: Any disruptions to tram and bus services and tram shut down periods are to be outside of core school times (i.e. school holidays).
- MGT23: The temporary tram stop on St Kilda Road is to be located within 100 metres of the Melbourne Grammar frontage and should be supervised.
- MGT24: Pedestrian access to all school entrances is to be maintained.
- MGT25: Footpaths along both sides of St Kilda Road and Domain Road are to be maintained with appropriate lighting throughout construction.
- MGT26: Provide a traffic controller supervised mid-block/works crossing across St Kilda Road within 100 metres of the Melbourne Grammar frontage.
- MGT27: A single bicycle lane to be provided in each direction along St Kilda Road throughout construction.

- MGT28: Provide real time travel time information through areas affected by the construction for both car and public transport travel to assist in determining which route/travel mode to use.
- MGT29: Parking along the school's St Kilda Road frontage which is not subject to Clearways during peak hours is to be provided post construction.
- MGT30: Melbourne Grammar must be consulted in relation to whether the tram route 8 returns to Domain Road post construction.

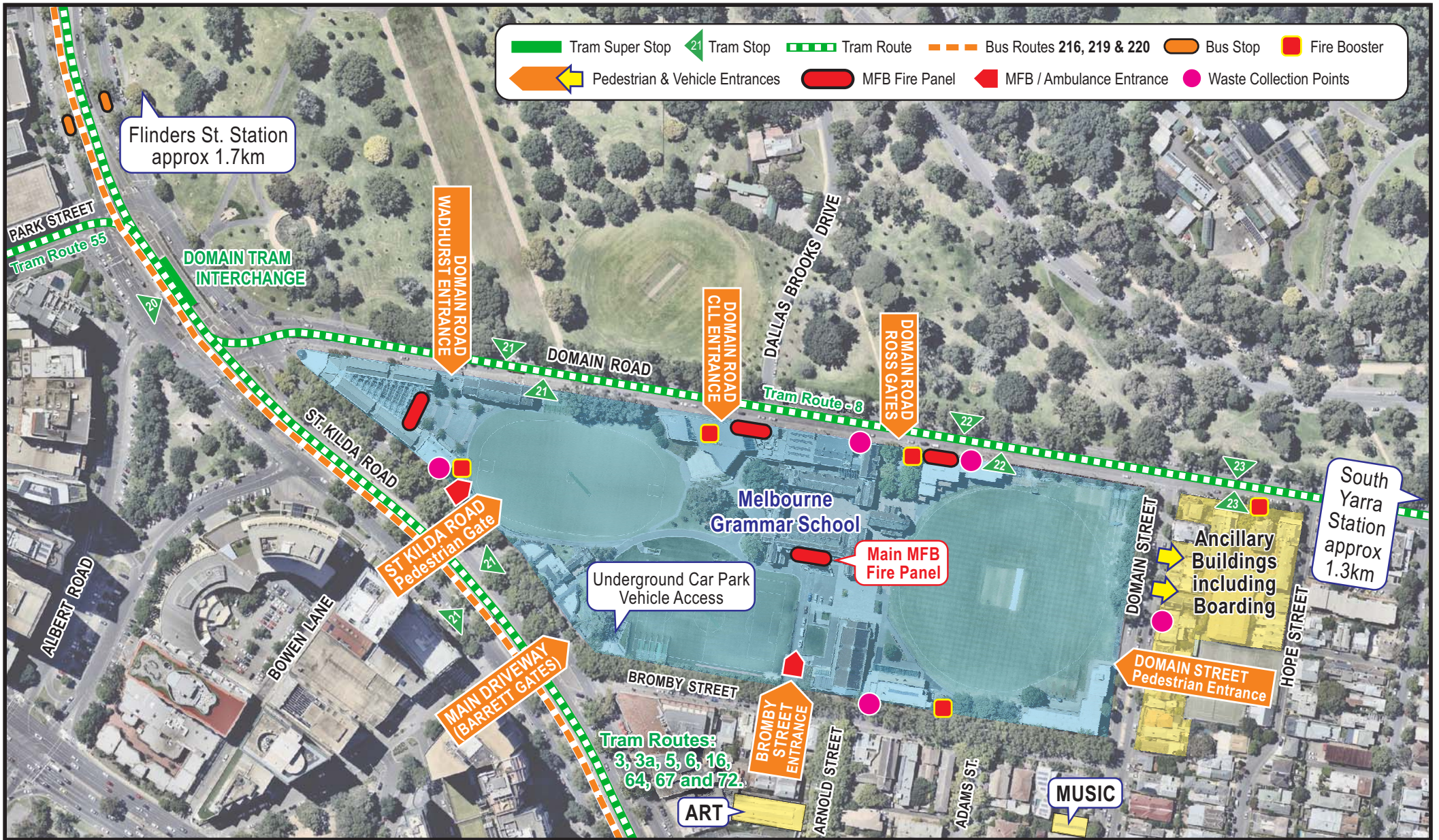
6.1.6 I declare that I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.



**Brett Young**  
**Director – Traffic**  
**Ratio Consultants**

# Appendix A School Map

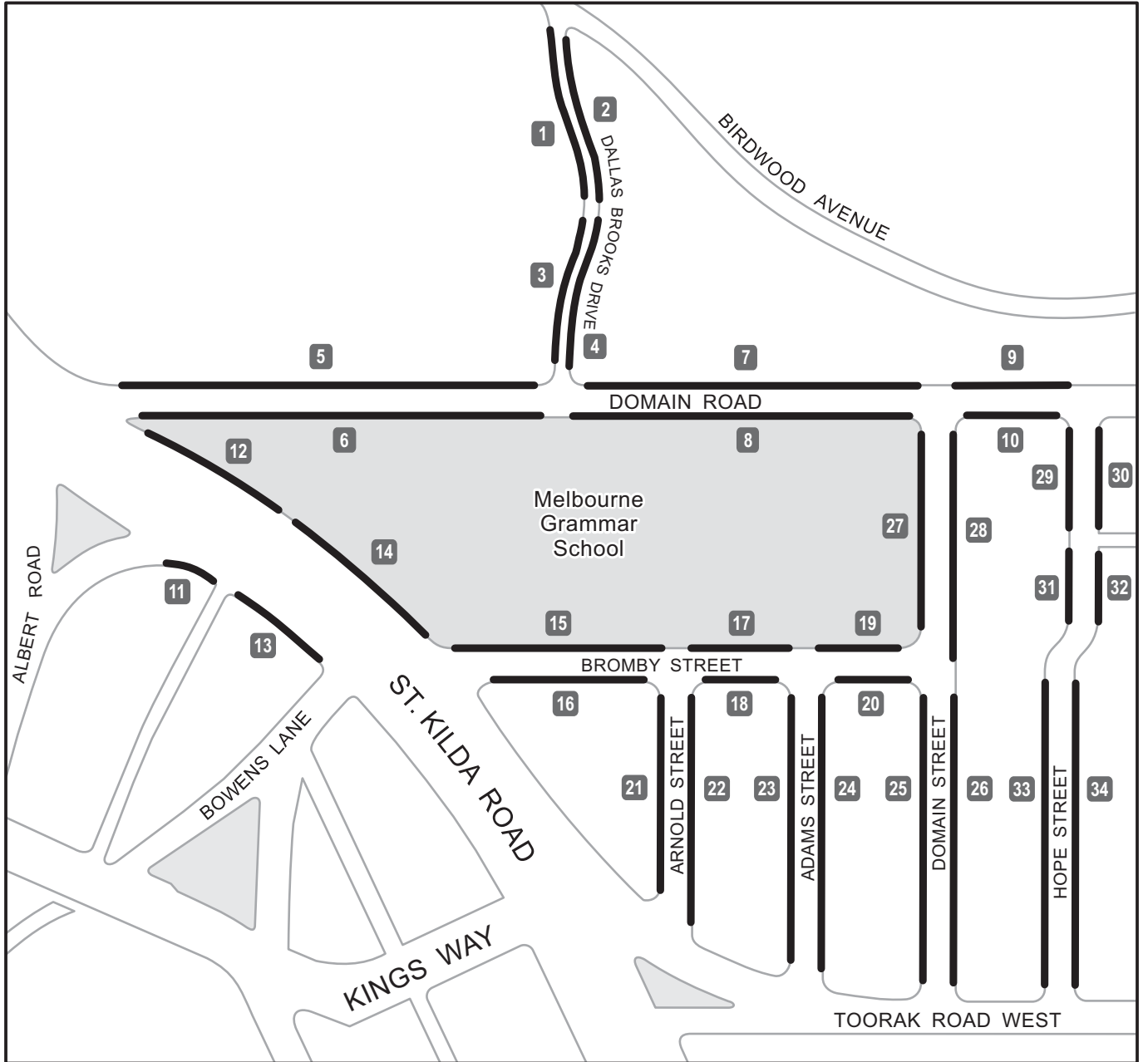






# Appendix B Parking Survey Results










Car Park Occupancy Survey Results - Wednesday 27 July 2016

Public Parking (1/0)	Map Ref	Street	Section	Side	Restriction	Capacity	Parking Occupancy										
							7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	8	7	7	6	6	6	6	6	6	5	5	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	3	3	3	3	3	3	3	3	3	3	3	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	25	Domain St	Toorak Rd - Bromby St	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-11pm Area 1A Resident Permit Excepted	13	11	11	11	12	12	10	10	10	12	11	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-11pm Area 1A Resident Permit Excepted	2	2	2	2	2	2	2	2	2	2	2	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-11pm Area 1A Resident Permit Excepted	8	6	6	6	5	5	5	5	7	6	6	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	26	Domain St	Bromby St to Toorak Rd	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	25	17	17	17	21	21	17	17	15	15	15	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1			Bromby St to Toorak Rd Centre Lane Parking		2P 7:30am-6:30pm Mon-Sun	11	11	11	11	11	11	10	11	11	11	10	
0	27	Domain St	Bromby St - Domain Rd	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-6:30pm Mon-Fri 7:30am-12:30pm Sat Area 1A Resident Permit Excepted	10	6	6	4	3	3	3	3	7	7	8	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-6:30pm Mon-Fri 7:30am-12:30pm Sat Area 1A Resident Permit Excepted	7	6	6	4	4	4	4	5	5	5	6	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	28	Domain St	Domain Rd to Bromby St	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	5	4	4	4	4	4	4	4	4	4	3	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	12	11	11	9	9	9	10	10	12	12	12	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1			Domain Rd to Bromby St Centre Lane Parking		2P 7:30am-6:30pm Mon-Sun	9	9	9	9	9	8	9	9	9	9	9	
0	29	Hope St	Domain Rd to Toorak Rd	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	30	Hope St	Domain Rd to Toorak Rd	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	31	Hope St	Domain Rd to Toorak Rd	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	32	Hope St	Domain Rd to Toorak Rd	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1	33	Hope St	Domain Rd to Toorak Rd	W	1P 7:30am-11pm Area 1A Resident Permit Excepted	30	20	20	18	18	17	17	15	15	15	14	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1	34	Hope St	Domain Rd to Toorak Rd	E	Permit Zone Area 1A Resident	30	22	22	18	18	16	16	16	16	16	16	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
<b>PUBLIC CAPACITY</b>							<b>493</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	
<b>PUBLIC OCCUPANCIES</b>							<b>275</b>	<b>223</b>	<b>223</b>	<b>223</b>	<b>233</b>	<b>233</b>	<b>220</b>	<b>230</b>	<b>238</b>	<b>201</b>	<b>184</b>
<b>PUBLIC VACANCIES</b>							<b>218</b>	<b>156</b>	<b>156</b>	<b>156</b>	<b>146</b>	<b>146</b>	<b>159</b>	<b>149</b>	<b>137</b>	<b>178</b>	<b>195</b>
<b>PUBLIC % OCCUPANCIES</b>							<b>56%</b>	<b>59%</b>	<b>59%</b>	<b>59%</b>	<b>61%</b>	<b>61%</b>	<b>58%</b>	<b>61%</b>	<b>63%</b>	<b>53%</b>	<b>49%</b>


 not available for public parking





Car Park Occupancy Survey Results - Thursday 28 July 2016

Public Parking (1/0)	Map Ref	Street	Section	Side	Restriction	Capacity	Parking Occupancy										
							7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	8	7	7	6	6	6	6	6	6	5	3	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	3	2	2	2	3	3	3	3	2	2	2	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	25	Domain St	Toorak Rd - Bromby St	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-11pm Area 1A Resident Permit Excepted	13	8	9	12	12	13	10	13	11	13	11	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-11pm Area 1A Resident Permit Excepted	2	2	2	2	2	2	2	2	1	2	2	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-11pm Area 1A Resident Permit Excepted	8	7	7	8	5	5	5	7	7	6	6	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	26	Domain St	Bromby St to Toorak Rd	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	25	17	17	21	21	19	17	15	11	12	15	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1			Bromby St to Toorak Rd Centre Lane Parking		2P 7:30am-6:30pm Mon-Sun	11	9	10	11	11	11	10	10	11	11	8	
0	27	Domain St	Bromby St - Domain Rd	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-6:30pm Mon-Fri 7:30am-12:30pm Sat Area 1A Resident Permit Excepted	10	6	6	6	3	3	3	3	4	4	5	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					1P 7:30am-6:30pm Mon-Fri 7:30am-12:30pm Sat Area 1A Resident Permit Excepted	7	4	4	7	4	4	4	4	4	4	6	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	28	Domain St	Domain Rd to Bromby St	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	5	3	3	3	4	4	4	4	3	3	3	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1					Permit Zone 7:30am-11pm Area 1A Resident Permit Excepted	12	10	10	10	9	9	10	10	10	10	9	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1			Domain Rd to Bromby St Centre Lane Parking		2P 7:30am-6:30pm Mon-Sun	9	7	9	9	9	8	9	9	8	9	7	
0	29	Hope St	Domain Rd to Toorak Rd	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	30	Hope St	Domain Rd to Toorak Rd	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	31	Hope St	Domain Rd to Toorak Rd	W	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
0	32	Hope St	Domain Rd to Toorak Rd	E	No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1	33	Hope St	Domain Rd to Toorak Rd	W	1P 7:30am-11pm Area 1A Resident Permit Excepted	30	19	19	17	17	17	17	17	16	11	11	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
1	34	Hope St	Domain Rd to Toorak Rd	E	Permit Zone Area 1A Resident	30	18	18	18	16	16	16	16	12	14	14	
0					No Stopping	0	0	0	0	0	0	0	0	0	0	0	
<b>PUBLIC CAPACITY</b>							<b>493</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>379</b>	<b>375</b>	<b>379</b>	<b>379</b>
<b>PUBLIC OCCUPANCIES</b>							<b>269</b>	<b>219</b>	<b>242</b>	<b>232</b>	<b>232</b>	<b>228</b>	<b>227</b>	<b>220</b>	<b>209</b>	<b>187</b>	<b>185</b>
<b>PUBLIC VACANCIES</b>							<b>224</b>	<b>160</b>	<b>137</b>	<b>147</b>	<b>147</b>	<b>151</b>	<b>152</b>	<b>159</b>	<b>166</b>	<b>192</b>	<b>194</b>
<b>PUBLIC % OCCUPANCIES</b>							<b>55%</b>	<b>58%</b>	<b>64%</b>	<b>61%</b>	<b>61%</b>	<b>60%</b>	<b>60%</b>	<b>58%</b>	<b>56%</b>	<b>49%</b>	<b>49%</b>

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