

## **7 Parkview Drive, Homebush. Mixed Use Development.**



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### **Traffic and Transport Accessibility Report**

**November 2009**

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## 1. Executive Summary

This assessment of the transport issues at the proposed Parkview Precinct, has been undertaken with full recognition of the Sydney Olympic Park (SOP) Master Plan 2030 Transport Strategy undertaken by Parsons Brinckerhoff in August 2008. That strategy has detailed a number of transport aspects which impact on this development and which affect its transport environment.

The proposed development has been designed in accordance with the design guidelines and floor areas recommended and adopted for road/transport capacity purposes in the SOP Master Plan 2030. Consequently the capacity of the adjacent road network to accommodate the traffic generated by the development has been designed as per the Master Plan infrastructure recommendations. These have been developed for the park as a whole and are being carefully managed and implemented by Sydney Olympic Park Authority (SOPA). In particular, it is important that the parking proposals be adhered to as achieving the right balance of car parking provision is recognised as a key important feature in the success of the SOP Master Plan 2030 Transport Strategy, August 2008.

The parking proposed in this development is consistent with the recommendations in the SOP Master Plan 2030 Transport Strategy, August 2008 for parking at a ratio of 1 bay per 55m<sup>2</sup>. 231 parking bays are proposed which equates to a ratio of 1 bay per 58m<sup>2</sup>. The SOPA parking requirement was recently changed to 1 bay per 80m<sup>2</sup>. This is the longer term ratio designed to restrain parking after the provision of significant improvements in the public transport services to the Olympic Park. Whilst this reduced parking provision has always been a long term planned option in the Transport Strategy, the public transport improvements and services for commuters identified in the Strategy have not been upgraded sufficiently to justify such a constrained parking allowance at this time.

The proposed Building A and the other buildings proposed for the overall precinct have been designed to promote sustainable transport practises with full provision for cyclists, easy access to walking and cycling tracks, located within 300m of the bus and train services in the Olympic Park and with limited on-site parking. Street parking is proposed for visitors, and Travel Plans will be prepared as tenants are secured for the development, and promoted to encourage alternative travel options.

This Transport and Accessibility Report has been prepared based on the general requirements of the RTA's Guide to Traffic to Traffic Generating Developments and the Director General's Requirements (ref: MP\_08\_0170) as shown in Table 1.1 below.

■ **Table 1-1 Director General’s Requirements, (ref: MP\_07\_0157)**

Transport and Accessibility DGR’s – RTA requirements	Reference
<ul style="list-style-type: none"> <li>■ Provide a Traffic and Transport Study that addresses the following:</li> </ul>	
<ul style="list-style-type: none"> <li>• SOPA’s Access Guidelines</li> <li>• SOPA’s Major Event Impact Assessment Guideline- demonstrate how the proposed development will be constructed and operated during Major Event periods at Sydney Olympic Park</li> <li>• NSW Planning Guidelines for Walking and Cycling</li> <li>• Surrounding Context and how the new commercial building takes into consideration, and contributes to the achievement of, transport objectives contained in the Metropolitan Strategy and other high level NSW Government Strategies, including the NSW State Plan, Urban Transport Statement and West Central Subregional Strategy. With the aim to increase the use of walking, cycling and public transport; appropriately co-locating new urban development with existing and improved transport services and improving the efficiency of the road network</li> <li>• How users of the new commercial building will be able to make travel choices that support the achievement of relevant State Plan targets,</li> <li>• Daily and peak traffic movements generated by proposal and impact on adjacent intersections and need/associated funding for upgrading if required; include intersections of Homebush Bay Drive/Australia Ave and Sarah Durack Ave/ Australia Ave</li> <li>• Proposed accesses and parking compliance with AS.</li> <li>• Details of Service vehicles</li> <li>• Assess implications of the proposed development on non car travel modes; development of a travel plan; provision of facilities for users of non car travel modes including assessment of accessibility of development by public transport.</li> <li>• Staging arrangements in relation to the whole site, including construction vehicular access, new and upgraded roads</li> <li>• Provision, in due course, of traffic management plan</li> </ul>	<ul style="list-style-type: none"> <li>■ Section 3</li> <li>■ Section 8</li>   <li>■ Section 6</li>   <li>■ Sections 3 and 6</li> <li>■ Sections 3 and 6</li>   <li>■ Section 7</li> <li>■ Section 5</li> <li>■ Section 5</li> <li>■ Section 6</li> <li>■ Section 8</li> <li>■ Section 8</li> </ul>

<ul style="list-style-type: none"> <li>▪ Demonstrate sufficient on-site parking;</li>   <li>▪ Compliance with the RTA <i>Guide to Traffic Generating Developments</i>; considering:           <ul style="list-style-type: none"> <li>▪ traffic generation;</li> <li>▪ road/intersection upgrades required;</li> <li>▪ servicing and parking accesses;</li> <li>▪ Compliance with the appropriate parking codes;</li> <li>▪ measures to promote public transport;</li> <li>▪ pedestrian and cycling linkages;</li> <li>▪ implications for non car travel modes;</li> <li>▪ potential for implementing location specific travel plans;</li> <li>▪ facilities to increase non car mode share travel,</li> <li>▪ Site accessibility for public transport</li> <li>▪ management of traffic, accessibility and parking during special events. Operation of site during road closures during special events.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 5</li>   <li>▪ Whole Report</li>   <li>▪ Section 7.3</li> <li>▪ Sections 3 and 7</li> <li>▪ Section 5</li> <li>▪ Section 5</li> <li>▪ Section 6</li> <li>▪ Section 6</li> <li>▪ Section 6</li> <li>▪ Section 6</li> <li>▪ Section 6</li> <li>▪ Section 6</li> <li>▪ Section 6</li> <li>▪ Section 6</li> <li>▪ Section 8</li> </ul>
<p><b>Sydney Olympic Park Authority additional to DGR'S requirements</b></p>	<p><b>Reference</b></p>
<ul style="list-style-type: none"> <li>▪ Staging of vehicular access, roads and infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 5</li> </ul>

## 2. Introduction

### 2.1 Background

Better Transport Futures has been commissioned by Bovis Lend Lease to prepare a Traffic and Transport Access Report for the proposed Parkview Drive mixed use development at 7 Parkview Drive, Homebush Bay, NSW. The site is within the Sydney Olympic Park Precinct at Homebush, NSW. The work is required to support a Part 3A project application to the Department of Planning for the proposed development of commercial Building A.

### 2.2 Scope of Report

The scope of this report is to review the traffic, transport access and parking implications for the proposed development. The site is part of the overall Sydney Olympic Park area which is being developed in accordance with the overall SOP 2030 Master Plan. The Parkview development was identified in the Master Plan and has been taken into consideration in all the planning and design for the Park, the floor area and traffic generation have been included in the overall calculations for the Master Plan. This assessment has taken into account the findings and recommendations made in the recent SOP Master Plan 2030 Transport Strategy, undertaken in August 2008 by Parsons Brinckerhoff Pty Ltd. That Strategy has set the parameters for the future transport development in the Olympic Park, the proposals for 7 Parkview Drive have fully adopted the transport demand management initiatives recommended by the strategy and these have formed the basis of this review.

The Parkview precinct is located on an existing cul de sac which ultimately will be reconstructed as a through link in the overall road network of the area. This report has included a review of the staging of the redevelopment to ensure the road construction and building construction is compatible in terms of transport access.

The report also provides advice on access issues, internal site layout and issues relating to service vehicles. Site plans are shown in **Appendix B**.

### 2.3 Report Structure

This report has been structured to address the Director General's Requirement's and provide a comprehensive Traffic and Transport Access Report for the development of Building A at 7 Parkview Drive as follows:

- Section 3 outlines the Sydney Olympic Park Master Plan 2030 Transport Strategy, August 2008 and how this development is an integral part of the development scenarios adopted;
- Section 4 describes the Existing Road network and its operating characteristics;
- Section 5 describes the details of the proposed development;
- Section 6 describes the Public Transport, walking and cycling aspects of the proposals;
- Section 7 analyses the impact of the development on the surrounding road network;
- Section 8 details the arrangements during Construction and Major Events
- Section 9 summarises the key findings and recommendations of the study

## 2.4 Issues and Objectives of the study

The issues relevant to the proposal are:

- The impact on the arterial and local road network due to the additional traffic flows;
- The access arrangements for the development;
- Review the internal site layout and the car park access arrangements,
- Review the service arrangement for the development;
- Review the public transport, walking and cycling facilities
- Assess any other transport impacts associated with the development, and
- Address the key issues identified by the Director General Requirements (DGR's)

The objective of the report is to document the impacts of the proposed development and provide advice on any infrastructure work required as part of the development.

### **Planning Context**

In preparing this document, the following guides and publications were used:

- RTA Guide to Traffic Generating Developments, Version 2.2 Dated October 2002;
- SOP Master Plan 2030 Transport Strategy, August 2008, prepared by Parsons Brinckerhoff Australia Pty Ltd
- SOPA's Major Event Impact Assessment Guide
- Australian / New Zealand Standard – Parking Facilities Part 1 : off-street car parking (AS2890.1:2004);

### 3. The Sydney Olympic Park Master Plan 2030 Context

This development is one of the remaining development sites in the Olympic Park area. It is being developed in accordance with the principles of the Master Plan 2030 and its associated Transport Strategy, undertaken by Parsons Brinckerhoff in August 2008, as a landmark sustainable development.

**Figure 3-1** below shows the broader Olympic Park area



Source: Sydney Olympic Park Authority (2008)

### ■ Figure 3-1 Current Road Layout

A number of the items specified in the DGR's relate to how this development supports strategic aims and objectives of regional and State policies and Strategies. These strategies have not been reviewed specifically as part of this project however they were an important part of the development of the Master Plan 2030 and its Transport Strategy prepared by Parsons Brinckerhoff in August 2008. Specifically:

- Sydney Metropolitan Strategy; which plans the development of the Metropolitan area for next 25 years;
- Draft West Central Subregional Strategy (2007)
- Urban Transport Plan

In particular, reference to the Transport Strategy document shows the ways in which these State policies have been taken into consideration for the whole of the SOPA area. Consequently, the Parkview Precinct has been developed and progressed within a Master Plan and Transport Strategy that clearly acknowledges and supports those State policies. In particular the Transport Strategy sets the framework for travel demand initiatives being adopted and planned for the overall park. All development within the Park is expected to support these initiatives and actively pursue achieving the goals and travel targets set in the Strategy. Section 6 of this report reviews the options for Building A.

The objectives adopted for the Transport Strategy as part of the overall SOP 2030 Master Plan clearly show the transport framework within which the Park has been developed and which the Parkview Precinct has adopted. Fundamentally the objective is to increase the mode split of non car journey to work trips from the current 15% to 25% initially then to 40% ultimately. The Precinct has been planned to support all the travel demand management initiatives of the Transport Strategy to achieve this, ranging from restricting parking to the provision of bicycle lockers and pedestrian walkways. These initiatives have been fundamental in the planning of the precinct.

Section 2.3 of the Transport Strategy stated the Transport Objectives:

*“The transport objectives for this strategy that have influenced Master Plan 2030 include:*

- *Targeting an initial journey to work non-car mode share split of 25% in line with other specialised activity centres in the metropolitan area*
- *Adopting a stretch target journey to work non-car mode share of 40% with the introduction of a major public transport initiative such as metro rail in conjunction with increasing the level of commercial development*
- *Monitoring and if necessary, adjusting the quantity of high traffic generating land uses to match road and public transport capacities*
- *Strategically locating commercial and retail land uses around Olympic Park Station and close to local bus service corridors*
- *Maintaining sufficient road capacity to support all levels of events, particularly during weekday commuter peak periods*
- *Improving road connections to surrounding areas such as Newington and Bay West*
- *Limiting the provision of parking spaces for new developments to encourage public transport use*
- *Continuing the operation of high quality public transport services to sustain existing high public transport mode shares*
- *Maintaining regular public transport services, road access and parking supply sufficiently during major events*

- *Designing a street network that supports bicycles, vehicles and pedestrian use*
- *Building more efficient metropolitan and inter-city rail and bus connections*
- *Integrating transport service planning with adjacent suburbs, specially to reduce the reliance on private vehicle use for trips under 5km*
- *Spreading the commuter peak hours and promoting public and shared private commuter transport as alternatives to private motor cars*
- *Meeting accessibility needs across the entire local transport and street network*
- *Provide for new streets within development sites to facilitate vehicle access.”*

The Transport Strategy undertook surveys and research into the existing journey to work characteristics of the Olympic Park. This indicated approximately 15% of the Sydney Olympic Park (SOP) workforce and students use public transport every day. This compares to 80% in Sydney CBD and 35-50% at other sub-regional centres such as Parramatta and Chatswood. The Transport Strategy has been developed with the long term goals of 25% non car based trips rising to 40% as public transport facilities and services are improved. The Strategy states “*Attainment of higher mode share will require major public transport investment and successful travel demand management measures.*”

The surveys undertaken included comments on the existing public transport network at the Park as shown below. These comments identified a number of deficiencies in the public transport timetables, routes, and reliability. These have formed a basis for the ongoing improvement of services to the Olympic Park area.

The Parkview development has been developed within the framework of the SOPA Transport Strategy and will provide support for the incentives and initiatives planned to encourage the use of alternative modes of transport and reduce the reliance on the private car for the journey to work.

The development has adopted the following initiatives:

- Parking at 1bay per 58m<sup>2</sup> for staff;
- No on- site parking provided for visitors; in accordance with the rest of the Precinct , no dedicated visitors off street parking has been provided other than on street;
- 105 bicycle racks, showers, lockers and other facilities have been provided in a very prominent position on the ground floor;
- The building is located along side the Bicentennial Park cycle and walking track;
- The building is located within easy walking distance of the Olympic Park Station, and bus stops;
- A travel plan will be prepared by each leasee of the building, and these will be revived each year during the Royal Easter Show when the closest parking to the building will not be available for 6 weeks.

The RTA have requested that the capacity of the intersections of Homebush Bay Drive/Australia Ave, and Sarah Durack Avenue /Australia Drive be analysed as part of this study. These intersections are on the periphery of the Park and are affected by all the development sites in the Park. These intersections were modelled in the SOP Transport Strategy based on the longer term development in the area. The Parkview Precinct, including this development for 7 Parkview Drive site was included in those growth scenarios; both intersections were identified as requiring upgrades in the future as development continues. These have now been programmed by SOPA in conjunction with RTA and will be upgraded as development requires.

## 4. Existing Situation

### 4.1 Site Description and Proposed Activity

The SOPA Master Plan for 7 Parkview Drive, Sydney Olympic Park project include approximately 37,800 m<sup>2</sup> GFA of commercial floor space located in three buildings and 18,500 m<sup>2</sup> of residential development. The site development is being considered as an overall precinct with the first stage of the development comprising Building A, together with the construction of Murray Rose Avenue from Australia Avenue to Building A and a temporary connection to Parkview Drive in this first stage. Later stages will see this road continued through to Bennelong Road, Dawn Fraser Avenue constructed and Parkview Drive diverted to join Murray Rose Ave. This is in accordance with the overall road network adopted by the SOP Master Plan.

The site is a key development node of the Sydney Olympic Park Master Plan 2030. It is currently occupied by an old warehouse and adjoining office building. The warehouse will be demolished at the commencement of construction of Building A. Access is currently available to the site via the cul de sac head of Parkview Drive.

The broader location of the site is shown below in **Figure 4-1**



■ **Figure 4-1 Broader Homebush Area.**

## 4.2 Existing Traffic Conditions

### 4.2.1 Local Road System

#### **Homebush Bay Drive**

Homebush Bay Drive is a major arterial road in the Sydney metropolitan road network. It is part of Metroad 3 which connects the northern beaches area of Sydney through Homebush Bay and on to the southern suburbs of Sydney. It is a dual carriageway road with high standard access controls along the section in the vicinity of Sydney Olympic Park. It's junction with Australia Avenue is a grade separated interchange which forms the major road access for the Sydney Olympic Park. The posted speed limit is 80 km/h and there are no footpaths on either side of the road. To the south of Australia Avenue it connects to the M4 Western Motorway via another grade separated interchange controlled by traffic signals.

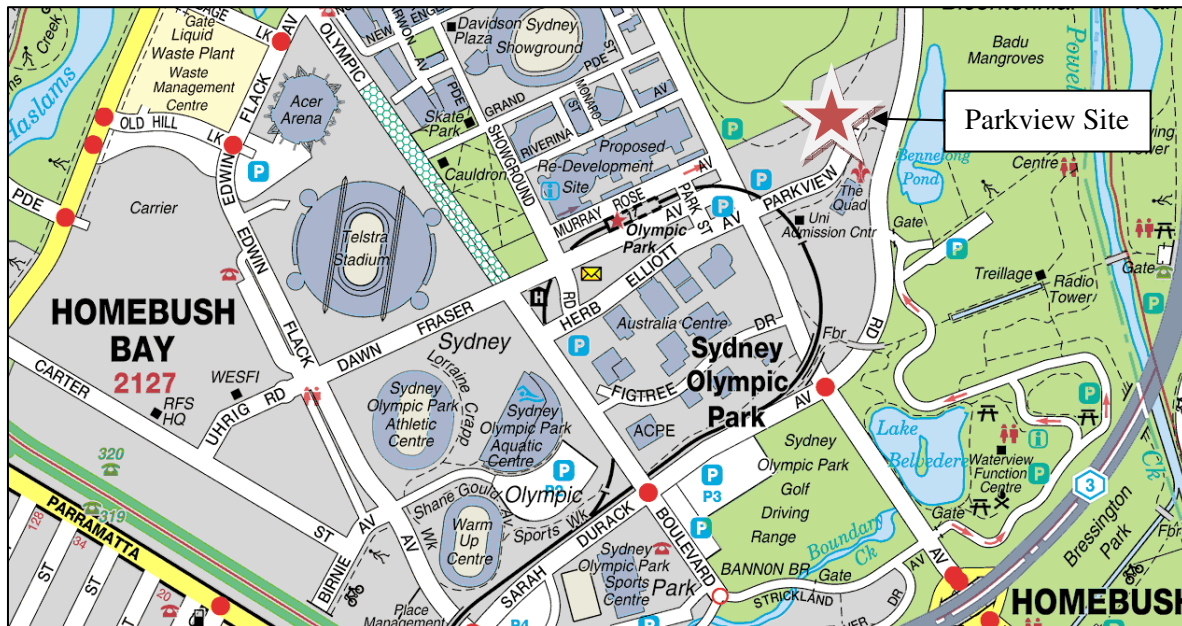
Junctions along the route are generally controlled by traffic signals which are operated by the RTA using the SCATS coordination system.

#### **Australia Avenue**

Australia Avenue is a 4 lane divided carriageway serving as a sub-arterial road and the major road access to the Sydney Olympic Park. It provides an important traffic function at sub-arterial level linking to the major arterial road system at Homebush Bay Drive (Metroad 3). Its posted speed limit varies from 60 km/h at its eastern end to 50 km/h at its western end within the Sydney Olympic Park Precinct. It varies in width from a single lane of travel in each direction west of Bennelong Road to a divided four lane carriageway east of Bennelong Road to Homebush Bay Drive. .



- **Photo 1 Showing the existing intersection at Australia Avenue/Parkview Drive.**



Source: Mark Waugh Pty Ltd. Map reproduced with permission of UBD. Copyright Universal Publishers Pty. Ltd. DG 11/05

■ **Figure 4-2 Site Location**

**Bennelong Road**

Bennelong Road is a 2 lane 2 way collector road within the Sydney Olympic Park Road network. It connects with Marjorie Jackson Parkway and Hill Road to provide an alternate access to the northern precincts of Sydney Olympic Park, and via the western sections of Australia Avenue through to Silverwater Road and the regional road network for western access into the precinct. At present it does not provide any direct frontage access to development activity in the vicinity of the subject site.

One of the road’s key features is an off road dual use path which forms part of an extensive network of footway/cycleways around the Sydney Olympic Park Precinct.

Bennelong Road provides access to the Brickpit and Bicentennial Park open space areas, and has a number of parking areas available for patrons of these facilities along its length.

The junction of Bennelong Road with Australia Avenue is controlled by traffic signals, with Sarah Durack Avenue forming the fourth leg of this junction.

**Herb Elliot Avenue, Dawn Fraser Avenue, Murray Rose Avenue**

Herb Elliot Avenue, Dawn Fraser Avenue and Murray Rose Avenue to the west of the site provide local access to sites within the Sydney Olympic Park. Dawn Fraser Avenue and Murray Rose Avenue are the main accesses to the Sydney Olympic Park Railway station which is within easy walking distance (350m) of Parkview. The roads provide a single lane of travel in both directions. The standard urban speed limit of 50 km/h applies in the area.

**Parkview Drive**

To the south of the site is Parkview Drive, from which the development site draws its name. Parkview Drive in its existing form is a cul de sac with its only road connection at Australia

Avenue via a four way junction with Herb Elliot Avenue. This intersection has recently been upgraded to traffic signal control. It provides access to a number of existing commercial sites.

## 4.3 Traffic Volumes

### 4.3.1 Traffic Survey

Traffic volume data has been collected most recently during 2007 surveys of traffic movements at the key intersections of Australia Avenue with Bennelong Road, Parkview Drive and Dawn Fraser Avenue. These surveys were completed in September 2007. Further surveys were carried out in October 2009 at the intersection of Parkview Drive with Australia Avenue.

The results from the traffic survey indicate that during the surveyed morning peak period (7.00 to 8.00 AM) the two-way traffic flow along Australia Avenue was in the order of 960 vehicles between the two traffic signals at Bennelong Road and Homebush Bay Drive. The majority of vehicles were light vehicles, with limited heavy goods vehicles observed. The corresponding afternoon traffic survey showed that the two way flow was higher, with some 1050 vehicles two-way per hour. Again, the majority were light vehicles.

The results of the survey are summarised in **Table 4-1** below.

■ **Table 4-1 Traffic Volumes**

Road	Direction	Peak flow (1)	Mid-Block Road Capacity (2)	Volume / Capacity ratio
Australia Avenue (at Bennelong)	Southbound	447 (AM)	900 (two-way)	0.497(AM peak)
		560 (PM)		0.622(PM peak)
Australia Avenue (at Bennelong)	Northbound	511 (AM)	900 (two-way)	0.568(AM peak)
		486 (PM)		0.540(PM peak)
Bennelong Road	Eastbound	182 (AM)	900 (two-way)	0.202 (AM peak)
		166 (PM)		0.184 (PM peak)
Bennelong Road	Westbound	124 (AM)	900 (two-way)	0.138 (AM peak)
		234 (PM)		0.260 (PM peak)
Parkview Drive	Eastbound	131 (AM)	900 (two-way)	0.145 (AM peak)
		152 (PM)		0.169 (PM peak)
Parkview Drive	Westbound	66 (AM)	900 (two-way)	0.073 (AM peak)
		219 (PM)		0.243 (PM peak)
Herb Elliot Ave (At Australia)	Eastbound	477 (AM)	900 (two-way)	0.53(AM peak)
		585 (PM)		0.65(PM peak)
Herb Elliot Ave (At Australia)	Westbound	452 (AM)	900 (two-way)	0.502(AM peak)
		531 (PM)		0.59 (PM peak)

Notes: 1. Peak flow from July and August 2007 traffic survey results by Better Transport Futures  
 2. RTA 2002, Urban Road Conditions Level of Service D

**Table 4-1** demonstrates that the road network in the general vicinity of the site is currently operating well within its technical and functional capacity levels as a main road in an urban area.

For the local roads surrounding the proposed development, it can be seen that the level of service is currently very good. Parkview Drive is currently operating at a level of service of A in both directions during both peak periods.

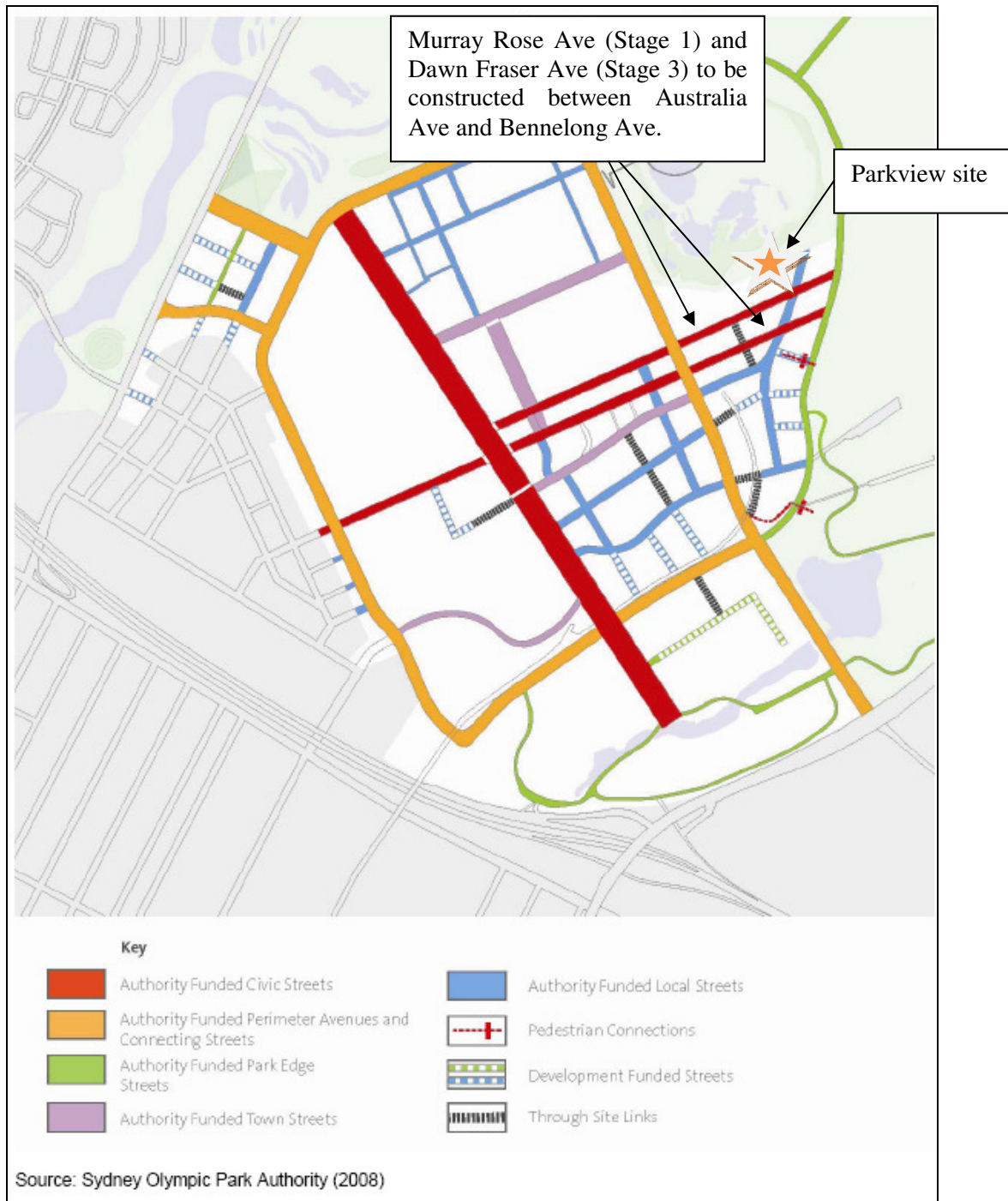
#### 4.4 Road Network Improvements

As part of the development of this part of the Park it is proposed that Dawn Fraser Avenue and Murray Rose Avenue be extended by SOPA from their current intersections with Australia Avenue to intersect with Bennelong Road. The existing cul de sac head of Parkview Drive will also be extended by SOPA and realigned to form a grid pattern, intersecting with Dawn Fraser Avenue and Murray Rose Avenue.

The two key existing intersections in the vicinity of the site are the junction of Parkview Drive and Bennelong Roads with Australia Avenue. Traffic signal control has recently been installed at the intersection of Herb Elliot Avenue and Australia Avenue (Parkview Drive) and it is expected traffic signals will be installed at either the intersection of Murray Rose Avenue and Australia Avenue or Dawn Fraser Avenue and Australia Ave. This decision has not yet been made by SOPA.

These roads will be constructed progressively by SOPA as the precinct is developed with Murray Rose Avenue being constructed through to Building A in Stage 1, and through to Bennelong Road when Building B is constructed as shown in **Figure 4-3**.

The extension of Dawn Fraser Drive will be constructed progressively by SOPA in line with future stages of the development of 7 Parkview Drive.



■ **Figure 4-3 New roads to be constructed by SOPA**

## 4.5 Traffic Safety and Accident History

SOPA information indicates there are no significant safety issues to be addressed in the study area.

## 4.6 Parking Supply and Demand

### 4.6.1 On-street Parking Provision

This is a new precinct so there is little on street parking currently provided. The existing section of Parkview Drive does have short term on-street parking which is popular with visitors to the existing developments in the area.

### 4.6.2 Off-Street Parking Provision

There are 4 SOPA public car parks in this area.

Car Park 6f- 638 bays

Car Park 6a – 61 bays

Car Park 6d – 93 bays

Car Park 6e – 100 bays

Sites 6a, d and e are all development sites and will ultimately be used for other purposes. Car Park 6f is the site which closes down for 6 weeks over the Royal Show. At the same time Australia Ave is closed from Dawn Fraser Ave northwards.

All four are popular parking locations for both workers and visitors to the Park area.

The existing off street parking policy is set in the SOP Transport Strategy, August 2008 which states

*“Striking the right balance of car parking is an important feature of the Master Plan 2030 Transport Strategy, which aims to attract developers to the site whilst also balancing the amount of traffic generated by developments. With the planning approval and management of public parking in the control of SOPA, a suitable level of car parking can be provided that would not impact the achievement of mode share targets or impact the viability of businesses and venues at Sydney Olympic Park.”*

The SOP Master Plan indicates there are 10,000 public parking spaces in the area to service the events requirements. This is considered the level of parking provision that will maintain the viability of the commercial developments, service the Major Events and encourage the use of public transport.

### 4.6.3 Parking Demand and Utilisation

There is a strong demand for parking both long and short stay in this existing area with Car Park 6d often approaching full.

### 4.6.4 Set down or pick up areas

There are currently no set down/pick areas in the vicinity.

## 4.7 Other Developments

There is still a number of development sites within the SOP area to be progressed however this precinct is the main commercial project to be constructed within this part of the overall Park in the near future.

## 5. Proposed Development

### 5.1 The Development

The Master Plan for 7 Parkview Drive, Sydney Olympic Park project includes approximately 37,800 m<sup>2</sup> GLA of commercial floor space located in three buildings and 18,500 m<sup>2</sup> of residential development with approximately 5000 m<sup>2</sup> of mixed-use. The site development is being considered as an overall precinct with a first stage of the development comprising Building A.

The staging of the site development has taken into account the possibility that parts of the road network may be closed during major events and alternative access has to be maintained. At this stage the following staging is proposed:

#### Stage 1:

- Building A constructed,
- the section of Murray Rose Avenue from Australia Avenue to just east of Building A constructed,
- a temporary link road from the existing Parkview Drive cul de sac head through to Murray Rose Avenue constructed.
- During Major Events it is anticipated the section of Murray Rose Avenue from the intersection with Australia Avenue to west of Building A will be closed. All access to Building A will be via the temporary link road to the existing Parkview Drive through to Australia Avenue.

#### Stage 2:

- Building B constructed,
- the section of Murray Rose Avenue from Building A eastwards to Bennelong Road is constructed.
- Access will then be available via Bennelong Road to Murray Rose Avenue and Parkview Drive.
- During major events access to Australia Avenue via Murray Rose Ave will not be available but will be via the temporary link road to the existing Parkview Drive, and to Bennelong Road ,

#### Stage 3:

- Building C constructed,
- the section of Dawn Fraser Avenue is constructed from Australia Avenue to Bennelong Road,
- the temporary link to Parkview Drive is removed and the permanent link to the west of Building C is constructed.
- Buildings D and E constructed.
- During major events access to Bennelong Road will be available from both Murray Rose Avenue and Dawn Fraser Avenue together with access to Australia Avenue via Parkview Drive. The road construction in this stage completes the road network in the area.

This construction staging ensures that access to the Precinct is always available via Parkview Drive from Australia Avenue, and, in later stages, from Bennelong Road.

Key design features of the building and overall precinct include environmental sustainability and a sense of place making to provide work-lifestyle facilities, linking into the current and future traffic

systems as defined in the SOP Master Plan. Overall the proposed buildings will create an external plaza enclosed by a 'village' of five buildings. This plaza will allow for traffic calmed movement of vehicles and also for on street parking. The buildings will be integrated with the adjacent Bicentennial Park where pedestrian and cyclist networks have been developed. It is proposed to develop Parkview in three stages over approximately five to seven years.

## **5.2 Access**

### **5.2.1 Driveway Location**

The driveway to the parking area in Building A is located on the Murray Rose Avenue frontage adjacent to the main building entrance and lobby. The current proposed layout provides a single lane of access into and out of the building.

The access driveway to the loading dock is a combined pedestrian service vehicle entrance located at the western end of the Murray Rose frontage, adjacent to Car Park No 6.

Full turning movements will be available at both the driveways. No protection is provided for right turning vehicles consequently any vehicles waiting to turn right into or out of the building will delay following vehicles. This is an accepted feature of the precinct which will contribute to slowing vehicle speeds and discouraging short cutting and unnecessary through traffic movements.

### **5.2.2 Sight Distances**

Murray Rose Avenue is a straight alignment with a 5m verge, verge tree planting and a kerbside parking lane. Consequently, adequate visibility from both the service lane driveway and the car park access can be achieved.

### **5.2.3 Service Vehicle Access**

All service vehicle access will use the combined service vehicle and pedestrian link to the loading area provided on the western edge of the building with access to the loading dock. This has been designed to accommodate a medium rigid truck. The service lane is approximately 12m wide, and has been designed to operate as a low speed pedestrian environment where the service vehicles give way to pedestrians. The number of service vehicles using the lane will vary from day to day but is not expected to exceed the 5 - 12 vehicles a day range.

The only tenant that will require regular food deliveries, probably on a 2-3 times daily basis, is the cafe. These deliveries are likely to occur outside of typical building hours. It is expected all other tenants will be commercial offices generating low numbers of deliveries such as stationary, water, and furniture supplies.

Garbage trucks will be the most regular users with all rubbish being stored in 240litre bins. These can be emptied by a range of sized garbage trucks dependant on which contractor is employed by the building management. The new driveway will be designed in accordance with normal Council/SOPA requirements. All service vehicles (medium sized) will be able to enter and exit the site in a forward direction.

The commercial building can expect to have a number of couriers each day, these will be required to use on street parking facilities, and discussions will be held with SOPA with the aim of designating a bay outside the lobby entrance for short term parking specifically for couriers use.

## 5.2.4 Road width

In accordance with the SOP Master Plan, SOPA will construct Murray Rose Avenue with two 5.5m lanes to accommodate on street parking. Dawn Fraser Avenue will be constructed with two 7m lanes to accommodate cycle lanes and parking. In the longer term Parkview Drive will be realigned and upgraded to provide two 5.3m carriageways with a landscaped median.

## 5.3 Parking

### 5.3.1 Proposed Supply

Building A has been designed to allow parking for 1 vehicle per 58 m<sup>2</sup> GFA, providing 231 parking bays. The SOPA guidelines have been based on a ratio of 1 bay per 55m<sup>2</sup> of GFA until recently when they have been changed to the longer term ratio of 1 bay per 80m<sup>2</sup>.

The reduction to 1 bay per 80m<sup>2</sup> is in accordance with the SOP 2030 Transport Strategy for the Park aimed at restraining parking demand in the longer term as a travel demand management tool. The Transport Strategy is based on the introduction of a range of major public transport improvements to support the level of commercial, education and residential development planned in the SOP 2030 Master Plan whilst limiting the number of parking bays and maintaining adequate levels of service on the surrounding road system. However, these major public transport improvements will not be operational until after the completion of this stage of the development.

It is, therefore, fundamental to the growth of SOP that the ratio of 1:55 be retained until such time as the public transport system is improved. This view is supported by the SOP Master Plan 2030 Transport Strategy undertaken as recently as August 2008, which listed amongst its key findings:

- *“Decrease the provision of commercial private parking from 1 space /55m<sup>2</sup> to 1 space /80m<sup>2</sup> over time linked to major public transport improvements”*

The Strategy identifies a range of projects that, combined, will support this reduction in the parking ratio. Surveys have shown currently only 15% of workers use Public transport. The Strategy targets the achievement of an initial mode share of 25%, increasing to 41% with the introduction of the West Metro. The implementation of these projects is still being planned. As yet, there has been no “major” public transport improvement within the SOP over recent years to justify or support the reduction in the parking ratio at this time.

The parking requirements adopted for the precinct development had been based on those set in Section 6.2 of the SOP Transport Strategy, August 2008 as follows:

- Commercial, - 1 space/55m<sup>2</sup> GFA, reducing to 1 space/80m<sup>2</sup> in longer term,
- Retail - 1 space/50m<sup>2</sup>
- Residential- 1 space /dwelling – 1 bed  
1.2 space/dwelling- 2 bed  
1.5 space/dwelling- 3 bed

As stated previously, the longer term parking ratio is intended to be introduced when the public transport services have substantially improved to the stage they offer a viable alternative to the private car for many of the workers in the overall Park.

It is not considered this stage has been reached. The provision of 1 bay per 80m<sup>2</sup> would require only 164 parking bays on the site. Given there could be up to 1200 staff accommodated in the

building this level of parking combined with limited capacity on the public transport system could result in an under provision of transport capacity.

Whilst constrained parking conditions are an accepted part of operating in the Olympic Park area the provision of 1 bay per 80m<sup>2</sup> is too restrictive at this time. It is not expected there will be a significant change in the overall level of public transport provision in the foreseeable future. The Parkview development is expect to be constructed within 2 years of approval and would be disadvantaged to have to operate with such restricted parking until such time as investment in public transport is committed and constructed.

### **5.3.2 Parking Layout and circulation**

The proposed layout of the building accommodates 231 parking spaces on a series of split level basement floors. The basement floors show the following parking provisions, 231 car parking spaces of which:

- 44 are small parking bays, these measure 5m x 2.1m;
- 7 are accessible bays, measuring 5.4m x 3.5m , these are located close to the lift; and
- 17 motorcycle bays.

All spaces, aisles and ramps are designed in accordance with AS 2890.1.2004 as follows:

- Car park spaces are 2.4m x 5.4m, except the 22 small bays and 7 accessible bays;
- Aisle widths are 6.2m
- All bays adjacent to walls are widened by 300mm;
- All blind aisles have an additional 1m area at the end;
- The entrance/exit area is level;
- All vehicles will be able to enter and exit the site in a forward direction.
- The driveway access lanes are 3m wide;
- Pedestrian visibility is provided in accordance with AS 2890.1.2004
- Visibility of oncoming traffic is provided but due to on street parking the point the visibility is measured from is on the verge.

### **5.3.3 Car Park Access**

AS 2890.1.2004 specifies a queuing length of 5 vehicles should be provided on the approach to the entry to the car park. This cannot be achieved, 3 vehicles can be accommodated inside the building and on the verge plus a further car in the kerbside lane, providing a queue of 4 vehicles in total. The car park control is proposed to be by a remote electronic key fob controlled system similar to domestic garages. The commercial versions of these systems open the rollers/gates in approximately 10 seconds providing an entry capacity of approximately 5 vehicles per minute or up to 250 vehicles per hour. This indicates the entry has a theoretical capacity to allow entry to the entire car park in any one hour. This is unlikely to occur as 45% of the traffic is expected to arrive at the building outside of the peak hour, with only 55% arriving in the peak hour. This equates to 124 vehicles arriving in the peak hour. Whilst there will be some peak arrivals which will result in temporary queuing across the footpath, the footpath and verge are 5m wide allowing pedestrians to walk around any queuing vehicle.

The car park circulation is a simple legible series of car park ramps that provide direct access to each floor of parking.

### **5.3.4 Parking Demand**

This building has been designed to provide a restricted supply of parking, similar to that supplied throughout the Park over the last 10 years. SOPA have actively restricted the supply of parking

over the development of the park to positively encourage the use of alternative modes of transport. Positive measures will be undertaken to constrain demand for parking and providing viable travel alternatives for the occupants of the building. It is expected demand will exceed supply and that the parking will have to be strictly managed to ensure efficient and effective use.

### **5.3.5 Pedestrian and Bicycle Facilities**

The Precinct has been designed as a pedestrian/cycling environment. Bicycle parking has been provided in accordance with the Transport Strategy which requires:

- Workers 1 space /200m<sup>2</sup> GFA = 68 spaces (91 provided)
- Visitors 1 space/750m<sup>2</sup> GFA = 18 spaces (14 provided)
- Total required 86 spaces, 105 spaces have been provided

The bicycle storage area has been placed in a prominent position overlooking Murray Rose Avenue where it is easily seen.

## 6. Public Transport, Pedestrians and Cyclists

The Sydney Olympic Park area was planned to operate with excellent public transport facilities and consequently parking provision has been restricted to prevent private parking offering commuters with a more convenient journey to work. The public transport facilities are being provided gradually as demand justifies their construction or provision. To date, not all the transport facilities and services originally planned have been provided. Consequently it is widely considered and accepted that the public transport provisions, particularly rail, do not adequately meet the needs of the current daily population of the Park. The proposals for the Parkview precinct will result in a significant increase in the workforce and residents in the area, putting further demands on the current public transport network.

### 4.2 Public Transport

Sydney Olympic Park Railway station is within 330m easy walking distance of the Parkview area, however, direct services are restricted to an hourly service during the day. The Olympic Sprint service to Lidcombe runs on a 20 minute schedule all day but generally requires commuters to change trains or to buses at least once each journey.

The four bus routes servicing Olympic Park are:

- 401- to Lidcombe running on a 20minute service in the peak hour, dropping to a 30minute service off peak
- 450 – to Hurstville, running on a 15minute service during the peak hour
- 533 – to Chatswood, running on a 15 minute service during the peak hours
- 525 – Burwood to Parramatta via Olympic Park, running on a 10 minute service during peak hours.

These provide commuters with a reasonable service during peak hours but any travel outside these peak hours can result in long waits. Comments from commuters have included the problems with having to change trains, unreliable services and inconvenient schedules.

The existing facilities provided for pedestrians and cyclists are also extensive in the general vicinity of the site. These have been provided as part of the legacy of the Sydney Olympics, and serve primarily as recreational facilities accessing the nearby Bicentennial Park, the Brickpit and onto the Parramatta River foreshore. There are 16km of on road cycle lanes and in the order of 24km of pedestrian paths and cycleways within the Park linking various attractions, residential areas and parks. The path network also links to the regional cycleway network, and as such provides a high quality alternate transport access for the area, as an alternative to car based travel. Pedestrians are also able to make use of this network.

In summary the current opportunities for alternative transport mode use are:

- Metropolitan Train services within 330m walk to Olympic Park Station, 15 minute walk to Concord West Station or 25 minute walk to Lidcombe Station.
- Four metropolitan bus services within 350m walk
- Local cycle/walking track within 230m which connects to regional cycling facilities at Homebush Drive.

The SOP Master Plan 2030 Transport Strategy, August 2008 has recognised the current level of public transport service is not adequate to provide a significant incentive to change from driving to public transport for a large number of workers. Significant investment and commitment are

required to provide the level of improvement to the services that would deliver a viable transport system servicing the Olympic Park area and it is expected these improvements will take some time years to deliver. The Transport Strategy summarises the required transport incentives into 27 items that could result in the mode share targets being achieved. The options include more frequent and direct bus, rail and ferry services, improving bus services and routes including regional connections and cross town services, a Park shuttle bus service, more restrictive parking, improved cycle and pedestrian access, and improved transport information.

The building proposed at 7 Parkview Drive has the potential to accommodate up to 1200 staff. In order to provide adequate transport options for this number of people a range of modes of transport have to be available. Whilst SOP offers an extensive range of public transport options and services, it is questionable if there is adequate capacity on the existing weekday public transport services to transport this number of staff over a peak hour. The four bus routes which service Olympic Park have limited spare capacity in the peak hours, the trains run every 20 minutes from Lidcombe, there is limited spare capacity in the car parks adjacent to the building at some times of the year and there are 115 bicycle racks to provide an alternative option for the journey to work.

As part of the ongoing planning for, and operation of, the office development, it will be the responsibility of each leasee in the overall Parkview Precinct to prepare and manage a Travel Access Guide / Workplace Travel Plan appropriate for their circumstances and business. This should be prepared in accordance with the SOPA Travel Planning Opportunities Travel Plan Guidelines. It should include transport incentives and measures such as:

- All staff to receive full information regarding the public transport options, maps, guidance for its use, fares, timetables etc, this needs to include alternatives when Major Events occur;
- Review of bus/train timetables to ensure they are appropriate for any shift requirements, have adequate capacity and identify any routes/destinations not adequately catered for, discussions with operators regarding any identified inadequacies;
- Review the opportunity for a workplace based car pooling scheme to maximise the car occupancy of vehicles arriving at the precinct;
- Review opportunities to introduce flexible work hours and work practises as appropriate;
- Full information on the walking and cycling facilities on the approaches to, and around the building;
- The travel issues should be the responsibility of one person, such as a transport co-ordinator. Their ongoing responsibility will be to ensure the information reaches all employees, is kept up to date, transport issues are actioned, and that all opportunities to reduce car use are investigated.

The site cannot be looked at in isolation in terms of Public Transport; any improvement in the services will benefit the entire Park area and the numerous users. Consequently, incentives to encourage public transport use and reduce the reliance on the private car for travel to the overall precinct should continue to be explored by SOPA, in accordance with those outlined in the recent SOP Master Plan 2030 Transport Strategy undertaken in August 2008.

## 7. Impact of Proposed Development

### 7.1 Traffic Generation

#### 7.1.1 Daily and Seasonal Factors

The nature of the development will lead to typical morning and afternoon peak traffic generation.

It is considered that there will be minimal seasonal variation factors.

The level of traffic generated by the proposed development has been determined using the same generation rates adopted in the Master Plan Transport Strategy. Section 5.4.1 of that document specifies:

- *“Commercial trip generation rate of 1.66 peak hour vehicle trips per 100m<sup>2</sup> GFA based on RTA rates for Office Commercial”*

For Stage 1 Building A, based on 13,700m<sup>2</sup> GFA, this equates to 227 vehicle trips generated by the building per peak hour, although not all these trips will park on site. This will result in a daily flow of approximately 1370 vehicle trips per day. However, for the purposes of this capacity assessment it has been assumed all this traffic will use the Australia Avenue/ Parkview Drive intersection. This allows for the major event situations when Murray Rose Ave may not be available for access.

### 7.2 Traffic Distribution and Assignments

#### 7.2.1 Origin / destinations assignment

At this stage, for the purposes of this assessment the same turning proportions observed at the intersection of Australia Avenue and Herb Elliot Avenue/Parkview Drive have been applied to the traffic generated by the construction of Building A.

### 7.3 Peak Hour Impacts on Intersections

To assess the impact of the development upon this intersection, the computer program Sidra has been used. Sidra is a traffic analysis tool developed originally by the Australian Road Research Board. It calculates the amount of delay to vehicles using an intersection, and gives a level of service rating which indicates the relative performance of the nominated intersection treatment. Levels of Service of A to C are considered to be satisfactory, a level of service of D is acceptable, and levels of E and F are considered unsatisfactory. Sidra also calculates the degree of saturation, which indicates the amount of spare capacity available.

A traffic count for the intersection between Australia Avenue and Herb Elliot Avenue was conducted in October 2009 and has been used for the basis of this analysis.

The operation of the traffic signal controlled intersection of Australia Avenue and Herb Elliot Avenue has been assessed and then the impact of the additional peak hour traffic flows associated with the development has been assessed. For the purposes of this analysis it has been assumed all traffic generated by Building A will use Parkview Drive for access to represent the worst case scenario of

Murray Rose Avenue being closed to traffic for a peak event. A summary of the results from the Sidra analysis is presented below:

■ **Table 7-1 Sidra Analysis for Existing Situation –Australia Ave/Parkview Drive, AM / PM peak 2009**

Approach AM/PM	LoS	Delay sec	95 <sup>th</sup> percentile queue metres
<b>Parkview Dr</b>	B/B	18/17	9/26
<b>Australia Ave North</b>	B/B	15/16	25/9
<b>Australia Ave South</b>	B/B	19/17	60/43

The above results confirm the site observations that there are little delays for through movements and minimal delays and queues for traffic on the side road.

The same analysis was completed for the morning and afternoon peak periods, with the additional development flows added. The results for this analysis are presented in **Table 7-2** below.

■ **Table 7-2 Sidra Analysis for Future Situation with Construction of Building A – Australia Ave/Parkview Drive - 2009 base plus development**

Approach AM/PM	LoS	Delay sec	95 <sup>th</sup> percentile queue metres
<b>Parkview Dr</b>	B/B	24/17	14/46
<b>Australia Ave West</b>	B/B	14/18	34/22
<b>Australia Ave East</b>	B/B	21/19	97/46

The above results confirm that the additional traffic flows associated with the construction of Building A can be accommodated at the intersections of Australia Avenue and Parkview Drive and Australia Avenue /Murray Rose Avenue prior to the construction of Murray Rose Avenue through to Bennelong Road. All traffic movements will operate well with minimal delays and congestion for traffic during both the morning and afternoon peak periods.

## 8. Operation of site during special events

The Park is regularly used for premier events that require the closure of key roads in the area, including the Royal Sydney Easter Show and the V8 Super Car Racing in December each year. These events, along with others close Australia Avenue north of Murray Rose Avenue for a number of weeks each year. Other events involve other closures for days or weeks at a time. There are regular events at weekends which close specific links throughout the park.

The development site is located on the periphery of the “Event Operations Zone” and will be impacted by some of the events and associated road closures. It is adjacent to the car park site (Car Park 6f) shown in **Figure 8-1** below, used for part of the Royal Sydney Easter Show, and it is anticipated the new section of Murray Rose Avenue will be closed for a month during this event each year. Discussions with SOPA have indicated Australia Avenue is always maintained open south of Dawn Frazer Ave to retain access to the commercial areas. Parkview Drive will also always remain open, consequently access to the Parkview precinct will always be maintained. It is proposed that the existing warehouse on the site is demolished in the first stage, with the construction of the extension of Parkview Drive following that. This will ensure vehicle access is maintained to the building site of Building A at all times, as follows:

Stage 1 – Access for construction traffic will be available via Australia Ave from the south, turn right into Parkview Drive, when Stage 1 is completed the same route will be available for commercial traffic to Building A. The route from Australia Ave south is likely to be a regular route for construction traffic whether the road closures are in place or not.

Stage 2 - Access via Australia Ave and Parkview Drive will be available during construction and, on completion, via Bennelong Drive to the east. Similar access will be available during road closures.

Stage 3 – Access as in Stage 2 above will be available during the construction of the last 3 buildings in the precinct.

The staging of construction of the Parkview Precinct identified in Section 5.1 has taken this into account to ensure adequate vehicle access is available for the successful operation of both the event and the building during road closures. In the short term, alternative access via Parkview Drive to Australia Avenue will always be available. Closures of Australia Avenue south of Dawn Fraser Avenue are not generally permitted, the intersection of Parkview Drive and Herb Elliot Avenue provide access for the major commercial developments during major events and extended road closures.

There will, however, be an impact on the pedestrian access if Herb Elliot Avenue is totally closed between Australia Avenue and Building A during the Royal Sydney Easter Show. The pedestrian route to the bus stops and railway station will be blocked and discussions with SOPA will be required to ensure either a safe pedestrian link is maintained along this route or a viable alternative is provided that does not extend the pedestrian distance excessively.

A review of the road closure information provided by SOPA indicates the closures are generally unlikely to significantly impact on the operation of the building. Access will still be available in the next few years via Parkview Drive, and ultimately to Bennelong Drive. The building proposals are unlikely to impact on any of the key event facilities such as bus or coach routes, parking capacity or location, rail station access, pedestrian links and crowd access routes. The building is

not located directly on a route where the daily arrivals and departures of the building will impact on a major event operation.

The biggest impact on the operation of the building is likely to be the reduction in public parking available when Car Park 6 is used for other purposes. This will require users to find alternative methods of transport or parking facilities. In these situations the opportunity to transfer some commuters to public transport should be taken and the Travel Plans circulated to inform workers of the transport options available. As stated previously it is important a safe pedestrian route to the Station and bus stops is maintained.

## 8.1 Construction Traffic

Whilst the full Construction Management plan for Building A has not been prepared yet the following is appropriate:

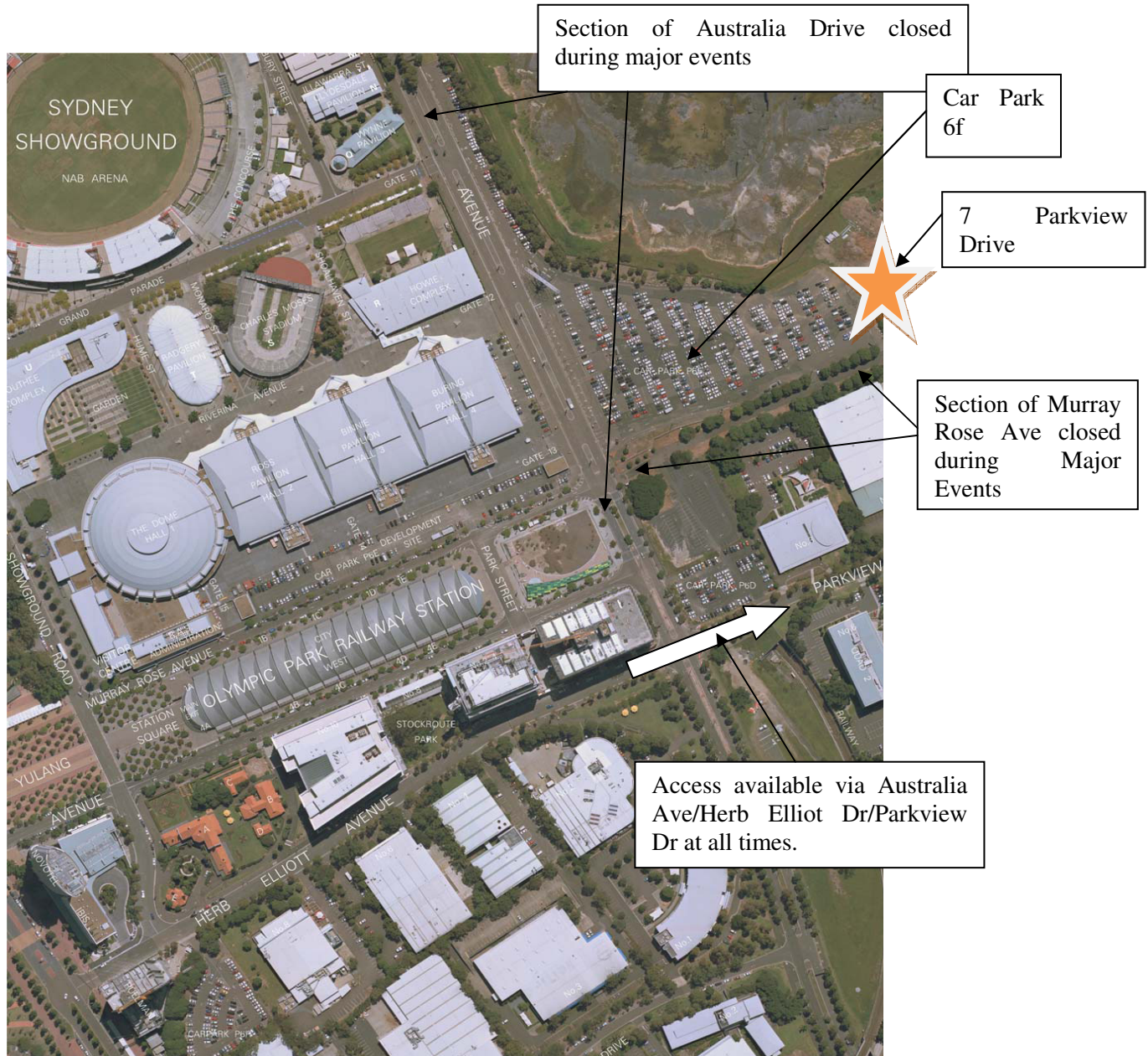
- All vehicles will enter/exit via Australia Ave, and will use Parkview Drive during construction;
- A Class B hoarding or loading zone is not required on Parkview Drive, a construction zone and Class A hoarding will be required.
- Once the truck route is known it will be forwarded to the RTA. All construction traffic will be co ordinate through BLL;
- Demolition works will last approximately 2 months;
- Overall construction is 15-16 months inclusive of excavation, but exclusive of demolition;
- Construction of Murray Rose Ave will be concurrent with construction of Building A.
- BLL have experience in building in the Olympic Park environment and are aware of the constraints the events can place on construction.

A Construction Traffic Management Plan will be prepared as part of satisfying the conditions of consent. The construction traffic for this project will be required to use Parkview Drive as Murray Rose Avenue may not be completed before the Building is commenced and to enable construction to continue during any events which close Australia Avenue north of Dawn Fraser Avenue.

The construction work typically commences with an early start and then finishes prior to the traditional peak periods. During intense works e.g. concrete pour, there could be a larger impact, but these generally occur over a number of separate days and are not a continual process.

A construction management plan will be produced with staging details to ensure adequate access is maintained at all times.

All works on site will be governed by the relevant authority rules and as stipulated within any development consent granted by SOPA including hours of work.



Source: SOPA website.

■ **Figure 8-1 Showing Car Park 6 and road closures during major events.**

## 9. Conclusions

The following conclusions are drawn from the investigations into the development of 7 Parkview Drive, Homebush:

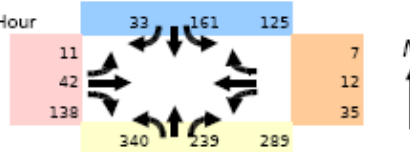
1. The Parkview Precinct development has been designed acknowledging the Travel Demand Management principles adopted by the recent SOP Master Plan 2030 Transport Strategy undertaken by Parsons Brinckerhoff in August 2008. The building location will offer the up to 1200 staff a range of travel options including buses and trains within 350m, extensive cycling facilities, walking tracks adjacent to the building, easy access to the metropolitan road network and restricted parking facilities
2. Building A has been designed to accommodate 231 parking bays. This is in excess of the 164 bays required by SOPA under the new ratio of 1 bay per 80m<sup>2</sup> commercial floor space. Until recently 1 bay per 55m<sup>2</sup> was required, this proposal equates to 1 bay per 58m<sup>2</sup>. It is considered the public transport services have not been improved to a level where such restricted parking can be justified or supported. A parking ratio of 1 bay per 55m<sup>2</sup> is supported by the SOP Transport Strategy, and that any reduction in this should be linked to the introduction of major improvements in public transport. These major improvements have not been introduced at this stage.
3. It is proposed the car parking ratio for future stages at 7 Parkview Drive can be reviewed in line with substantial improvements in public transport services to SOP.
4. Construction of the overall precinct will be staged to ensure adequate access is available year round and during major events in the Olympic Park. Australia Avenue, south of Dawn Frazer Avenue and Parkview Drive are expected to remain open during all major events. Consequently both construction workers' traffic and general commercial traffic will be able to access Building A during major events.
5. The intersection of Australia Avenue and Herb Elliot Dr/Parkview Drive has the capacity to accommodate the traffic generated by Building A before Murray Rose Avenue is connected to Bennelong Road. This will be necessary during the Royal Sydney Easter Show when the section of Murray Rose Avenue east of Australia Avenue will be closed.
6. The performances of the key intersections more remote from the site have not been assessed as part of this review. They have been analysed as part of the SOPA Master Plan 2030 Transport Strategy.
7. The pedestrian link to public transport may be closed during some major events if Murray Rose Avenue is closed between Australia Avenue and Building A. Discussions should be held with SOPA to maintain a viable safe pedestrian route to bus stops and Rail Station.
8. A Construction Traffic Management Plan can be prepared as a condition of consent,
9. A Travel Plan will be prepared by each tenant that leases space within the building.

The overall conclusion from the investigations is that traffic and access arrangements for the development proposal are satisfactory, subject to detailed design and approval.

# Appendix A Traffic Survey results

**Curtis Traffic Surveys**

**Turning movement count**  
 Job: 090903bt  
 Day, date: Thu 1 Oct 09  
 Location: Australia Av, Parkview Dr & H Elliot Av  
 Weather: Fine  
 Client: Better Transport Futures  
 All motor vehicles



Time Period	From Australia Av north			From Herb Elliot Av			From Australia Av south			From Parkview Av			Total vehicle movements
	left	through	right	left	through	right	left	through	right	left	through	right	
07:00 to 07:15	17	49	7	2	3	25	19	38	28	3	1	0	132
07:15 to 07:30	14	61	5	2	9	37	55	43	34	4	1	0	265
07:30 to 07:45	21	62	9	1	7	35	69	63	45	9	4	2	327
07:45 to 08:00	25	52	12	4	4	34	92	63	67	13	5	0	371 Peak
08:00 to 08:15	26	41	7	4	10	43	82	71	58	7	1	2	352
08:15 to 08:30	40	31	10	1	15	21	91	42	83	12	4	2	352
08:30 to 08:45	34	37	4	2	13	40	75	63	81	3	2	3	357
08:45 to 09:00	26	35	9	4	10	32	50	46	23	3	2	2	242
<b>Totals</b>	<b>203</b>	<b>368</b>	<b>63</b>	<b>20</b>	<b>71</b>	<b>267</b>	<b>533</b>	<b>429</b>	<b>419</b>	<b>54</b>	<b>20</b>	<b>11</b>	
07:00 to 08:00	77	224	33	9	23	131	235	207	174	29	11	2	1155
07:15 to 08:15	86	216	33	11	30	149	298	240	204	33	11	4	1315
07:30 to 08:30	112	186	38	10	36	133	334	239	253	41	14	6	1402
07:45 to 08:45	125	161	33	11	42	138	340	239	289	35	12	7	1432 Peak
08:00 to 09:00	126	144	30	11	48	136	298	222	245	25	9	9	1303

**Curtis Traffic Surveys**

**Turning movement count**  
 Job: 090903bt  
 Day, date: Thu 1 Oct 09  
 Location: Australia Av, Parkview Dr & H Elliot Av  
 Weather: Fine  
 Client: Better Transport Futures  
 All motor vehicles

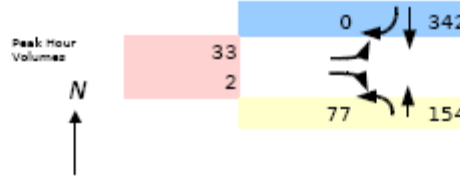


Time Period	From Australia Av north			From Herb Elliot Av			From Australia Av south			From Parkview Av			Total vehicle movements
	left	through	right	left	through	right	left	through	right	left	through	right	
16:00 to 16:15	4	42	2	2	5	57	22	87	11	33	7	29	301
16:15 to 16:30	2	25	7	4	4	36	12	72	6	24	3	13	208
16:30 to 16:45	1	41	4	5	3	84	10	87	4	34	2	14	289
16:45 to 17:00	8	37	7	7	2	87	24	85	10	23	6	10	306
17:00 to 17:15	6	59	13	5	5	130	23	112	10	59	8	37	467 Peak
17:15 to 17:30	3	28	4	5	4	86	14	87	5	30	5	36	307
17:30 to 17:45	1	53	6	9	2	76	31	72	8	27	4	18	307
17:45 to 18:00	4	36	5	6	3	86	26	75	5	22	5	19	292
<b>Totals</b>	<b>29</b>	<b>321</b>	<b>48</b>	<b>43</b>	<b>28</b>	<b>642</b>	<b>162</b>	<b>677</b>	<b>59</b>	<b>252</b>	<b>40</b>	<b>176</b>	
16:00 to 17:00	15	145	20	18	14	264	68	331	31	114	18	66	1104
16:15 to 17:15	17	162	31	21	14	337	69	356	30	140	19	74	1270
16:30 to 17:30	18	165	28	22	14	387	71	371	29	146	21	97	1369
16:45 to 17:45	18	177	30	26	13	379	92	356	33	139	23	101	1387 Peak
17:00 to 18:00	14	176	28	25	14	378	94	346	28	138	22	110	1375

**Curtis Traffic Surveys**

**Turning movement count**

Job: 090903bt  
 Day, date: Thu 1 Oct 09  
 Location: Australia Ave & D Fraser Av  
 Weather: Fine  
 Client: Better Transport Futures

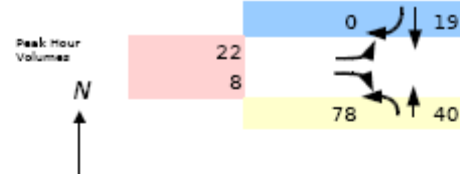


Time Period	From Australia Av north		From Dawn Fraser Av		From Australia Av south		Total vehicle movements
	Through	Right	Left	Right	Left	Through	
07:00 to 07:15	61	0	6	0	15	23	105
07:15 to 07:30	82	0	8	0	14	29	133
07:30 to 07:45	96	0	8	0	18	42	164 Peak
07:45 to 08:00	87	0	10	0	19	35	151
08:00 to 08:15	82	0	6	0	25	40	153
08:15 to 08:30	77	0	9	2	15	37	140
08:30 to 08:45	74	0	12	1	8	54	149
08:45 to 09:00	68	0	7	4	12	55	146
Hourly Summary	627	0	66	7	126	315	
07:00 to 08:00	326	0	32	0	66	129	553
07:15 to 08:15	347	0	32	0	76	146	601
07:30 to 08:30	342	0	33	2	77	154	608 Peak Hour
07:45 to 08:45	320	0	37	3	67	166	553
08:00 to 09:00	301	0	34	7	60	186	588

**Curtis Traffic Surveys**

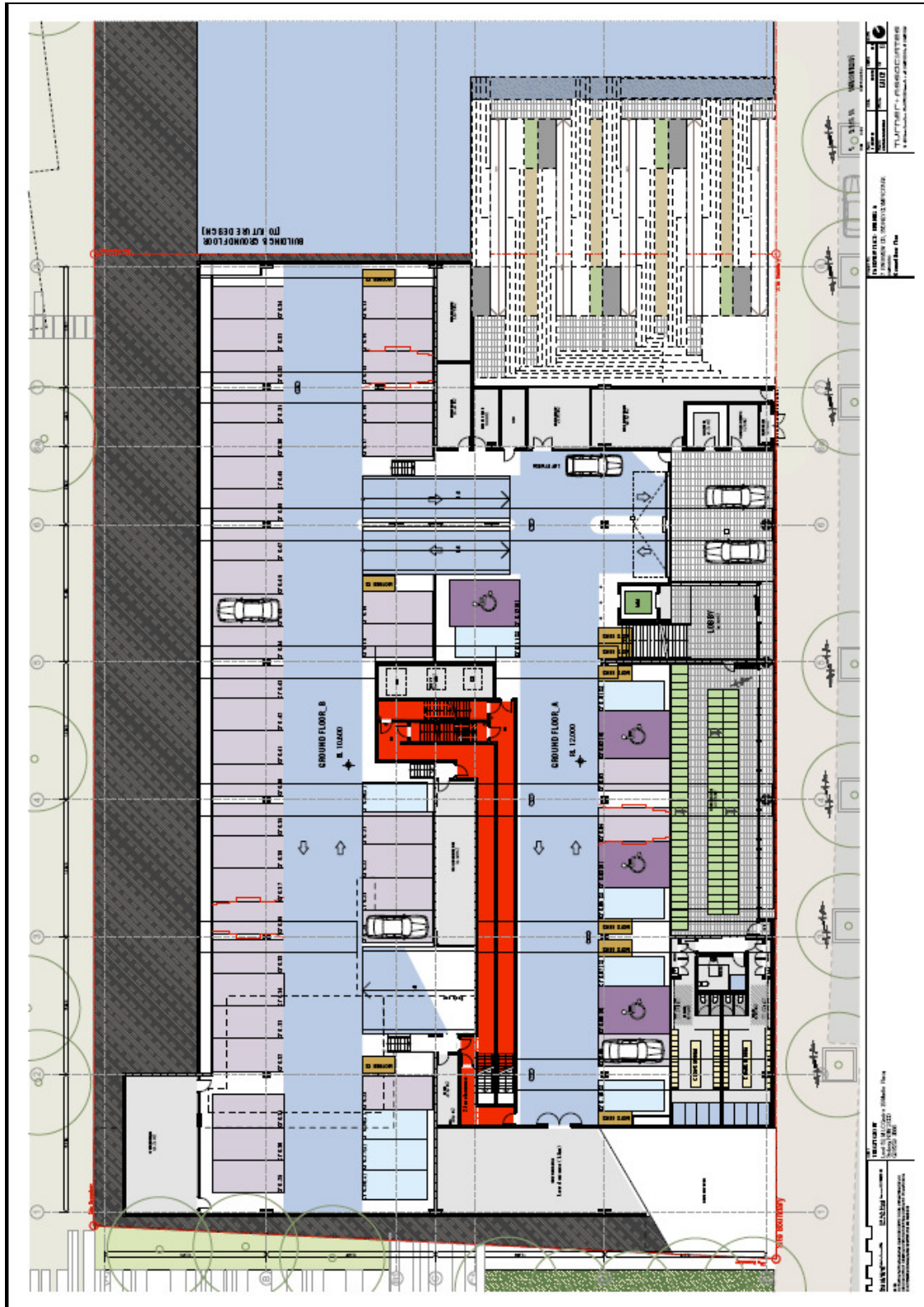
**Turning movement count**

Job: 090903bt  
 Day, date: Thu 1 Oct 09  
 Location: Australia Ave & D Fraser Av  
 Weather: Fine  
 Client: Better Transport Futures



Time Period	From Australia Av north		From Dawn Fraser Av		From Australia Av south		Total vehicle movements
	Through	Right	Left	Right	Left	Through	
16:00 to 16:15	40	0	8	3	22	84	157
16:15 to 16:30	31	0	6	3	12	70	122
16:30 to 16:45	36	0	10	9	9	76	140
16:45 to 17:00	43	0	5	2	20	75	145
17:00 to 17:15	60	0	7	2	31	107	207 Peak
17:15 to 17:30	43	0	4	2	17	110	176
17:30 to 17:45	55	0	5	3	15	90	168
17:45 to 18:00	39	0	6	1	15	93	154
Hourly Summary	347	0	51	25	141	705	
16:00 to 17:00	150	0	29	17	63	305	564
16:15 to 17:15	170	0	28	16	72	328	614
16:30 to 17:30	182	0	26	15	77	368	668
16:45 to 17:45	201	0	21	9	83	382	695
17:00 to 18:00	197	0	22	8	78	400	705 Peak Hour

## Appendix B Site Plans



## Appendix C Sidra Results

### SIDRA INTERSECTION

## Movement Summary

### P0428A Australia Ave-Parkview PM EX plus dev2009

#### Existing situation plus dev

Signalised - Fixed time      Cycle Time = 50 seconds

#### Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
<b>Australia Ave South</b>										
1	L	95	0.0	0.442	24.7	LOS B	45	0.87	0.81	35.7
2	T	375	0.0	0.442	16.6	LOS B	46	0.87	0.72	41.2
3	R	53	0.0	0.149	25.1	LOS B	11	0.82	0.74	35.5
<b>Approach</b>		<b>523</b>	<b>0.0</b>	<b>0.442</b>	<b>18.9</b>	<b>LOS B</b>	<b>46</b>	<b>0.86</b>	<b>0.74</b>	<b>39.5</b>
<b>Parkview East</b>										
4	L	274	0.0	0.358	17.1	LOS B	46	0.67	0.79	40.8
5	T	47	0.0	0.357	8.9	LOS A	46	0.67	0.57	48.2
6	R	211	0.0	0.452	17.6	LOS B	32	0.67	0.77	40.4
<b>Approach</b>		<b>532</b>	<b>0.0</b>	<b>0.452</b>	<b>16.6</b>	<b>LOS B</b>	<b>46</b>	<b>0.67</b>	<b>0.76</b>	<b>41.2</b>
<b>Australia Ave North</b>										
7	L	37	0.0	0.206	23.5	LOS B	22	0.80	0.77	36.4
8	T	186	0.0	0.206	15.3	LOS B	22	0.80	0.63	42.3
9	R	32	0.0	0.123	27.8	LOS B	8	0.87	0.73	34.0
<b>Approach</b>		<b>255</b>	<b>0.0</b>	<b>0.206</b>	<b>18.0</b>	<b>LOS B</b>	<b>22</b>	<b>0.81</b>	<b>0.66</b>	<b>40.1</b>
<b>Herb Elliot Ave</b>										
10	L	27	0.0	0.457	18.0	LOS B	38	0.71	0.80	40.1
11	T	26	0.0	0.459	9.8	LOS A	38	0.71	0.61	47.3
12	R	399	0.0	0.458	19.1	LOS B	39	0.72	0.78	39.4
<b>Approach</b>		<b>452</b>	<b>0.0</b>	<b>0.458</b>	<b>18.5</b>	<b>LOS B</b>	<b>39</b>	<b>0.72</b>	<b>0.78</b>	<b>39.8</b>
<b>All Vehicles</b>		<b>1762</b>	<b>0.0</b>	<b>0.459</b>	<b>18.0</b>	<b>LOS B</b>	<b>46</b>	<b>0.76</b>	<b>0.74</b>	<b>40.2</b>

## Pedestrian Movements

Mov ID	Dem Flow (ped/h)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate
P1	53	13.7	LOS B	0	0.74	0.74
P3	53	17.6	LOS B	0	0.84	0.84
P5	53	14.4	LOS B	0	0.76	0.76
P7	53	19.4	LOS B	0	0.88	0.88
<b>All Peds</b>	<b>212</b>	<b>16.3</b>	<b>LOS B</b>	<b>0</b>	<b>0.81</b>	<b>0.81</b>

Symbols which may appear in this table:

Following # x = 1.00 for Degree Short Lane with of resulting Excess Saturation  
 \* x = 1.00 due to minimum Flow capacity

Following # - Based on density for continuous LOS movements

Following # - Density for continuous movement Queue



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Site: P0428A- Australia Ave- Parkview PM 2009 plus devexisting  
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SIDRA  
 INTERSECTION

# Movement Summary

## P0428A Australia Ave-Parkview AM EX PLUS DEV2009

### Existing situation PLUS DEVL

Signalised - Fixed time      Cycle Time = 60 seconds

### Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
<b>Australia Ave South</b>										
1	L	358	0.0	0.392	18.3	LOS B	58	0.66	0.80	39.9
2	T	252	0.0	0.262	9.3	LOS A	40	0.61	0.51	47.7
3	R	400	0.0	0.800	30.5	LOS C	97	0.92	1.00	32.6
<b>Approach</b>		<b>1010</b>	<b>0.0</b>	<b>0.800</b>	<b>20.9</b>	<b>LOS B</b>	<b>97</b>	<b>0.75</b>	<b>0.81</b>	<b>38.1</b>
<b>Parkview East</b>										
4	L	47	0.0	0.112	24.8	LOS B	14	0.76	0.74	35.6
5	T	16	0.0	0.112	16.6	LOS B	14	0.76	0.58	41.2
6	R	21	0.0	0.063	26.1	LOS B	5	0.77	0.71	34.9
<b>Approach</b>		<b>84</b>	<b>0.0</b>	<b>0.112</b>	<b>23.6</b>	<b>LOS B</b>	<b>14</b>	<b>0.76</b>	<b>0.70</b>	<b>36.4</b>
<b>Australia Ave North</b>										
7	L	211	0.0	0.227	17.3	LOS B	34	0.60	0.77	40.6
8	T	169	0.0	0.173	8.8	LOS A	27	0.58	0.48	48.3
9	R	35	0.0	0.094	21.4	LOS B	7	0.67	0.73	37.8
<b>Approach</b>		<b>415</b>	<b>0.0</b>	<b>0.227</b>	<b>14.2</b>	<b>LOS A</b>	<b>34</b>	<b>0.60</b>	<b>0.65</b>	<b>43.1</b>
<b>Herb Elliot Ave</b>										
10	L	12	0.0	0.238	25.7	LOS B	27	0.79	0.77	35.1
11	T	67	0.0	0.238	17.5	LOS B	27	0.79	0.64	40.5
12	R	145	0.0	0.238	26.1	LOS B	27	0.80	0.77	34.9
<b>Approach</b>		<b>224</b>	<b>0.0</b>	<b>0.238</b>	<b>23.5</b>	<b>LOS B</b>	<b>27</b>	<b>0.80</b>	<b>0.73</b>	<b>36.4</b>
<b>All Vehicles</b>		<b>1733</b>	<b>0.0</b>	<b>0.800</b>	<b>19.8</b>	<b>LOS B</b>	<b>97</b>	<b>0.72</b>	<b>0.75</b>	<b>38.9</b>

## Pedestrian Movements

Mov ID	Dem Flow (ped/h)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate
P1	53	23.4	LOS C	0	0.88	0.88
P3	53	10.8	LOS B	0	0.60	0.60
P5	53	24.3	LOS C	0	0.90	0.90
P7	53	12.0	LOS B	0	0.63	0.63
<b>All Peds</b>	<b>212</b>	<b>17.6</b>	<b>LOS B</b>	<b>0</b>	<b>0.75</b>	<b>0.75</b>

Symbols which may appear in this table:

Following # x = 1.00 Degree for Short Lane with of resulting Excess Saturation  
 \* x = 1.00 due to minimum Flow capacity

Following # - Based on density for continuous LOS movements

Following # - Density for continuous movement Queue



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Site: P0428A- Australia Ave- Parkview AM 2009+DEV  
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# Movement Summary

## P0428A Australia Ave-Parkview PM EX 2009

### Existing situation

Signalised - Fixed time      Cycle Time = 50 seconds

### Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
<b>Australia Ave South</b>										
1	L	95	0.0	0.387	22.9	LOS B	42	0.82	0.80	36.8
2	T	375	0.0	0.386	14.7	LOS B	43	0.82	0.68	42.8
3	R	35	0.0	0.085	22.2	LOS B	7	0.75	0.73	37.2
<b>Approach</b>		<b>505</b>	<b>0.0</b>	<b>0.386</b>	<b>16.7</b>	<b>LOS B</b>	<b>43</b>	<b>0.82</b>	<b>0.71</b>	<b>41.1</b>
<b>Parkview East</b>										
4	L	146	0.0	0.207	17.6	LOS B	26	0.65	0.77	40.4
5	T	24	0.0	0.207	9.4	LOS A	26	0.65	0.53	47.7
6	R	106	0.0	0.235	18.1	LOS B	17	0.66	0.75	40.1
<b>Approach</b>		<b>276</b>	<b>0.0</b>	<b>0.235</b>	<b>17.1</b>	<b>LOS B</b>	<b>26</b>	<b>0.65</b>	<b>0.74</b>	<b>40.8</b>
<b>Australia Ave North</b>										
7	L	19	0.0	0.165	21.6	LOS B	19	0.75	0.76	37.6
8	T	186	0.0	0.165	13.4	LOS A	19	0.75	0.59	43.8
9	R	32	0.0	0.107	25.0	LOS B	7	0.81	0.73	35.5
<b>Approach</b>		<b>237</b>	<b>0.0</b>	<b>0.165</b>	<b>15.7</b>	<b>LOS B</b>	<b>19</b>	<b>0.76</b>	<b>0.62</b>	<b>41.9</b>
<b>Herb Elliot Ave</b>										
10	L	27	0.0	0.396	18.8	LOS B	37	0.72	0.79	39.5
11	T	14	0.0	0.398	10.6	LOS A	37	0.72	0.61	46.4
12	R	399	0.0	0.396	19.0	LOS B	37	0.72	0.78	39.4
<b>Approach</b>		<b>440</b>	<b>0.0</b>	<b>0.396</b>	<b>18.8</b>	<b>LOS B</b>	<b>37</b>	<b>0.72</b>	<b>0.78</b>	<b>39.6</b>
<b>All Vehicles</b>		<b>1458</b>	<b>0.0</b>	<b>0.398</b>	<b>17.2</b>	<b>LOS B</b>	<b>43</b>	<b>0.75</b>	<b>0.72</b>	<b>40.7</b>

## Pedestrian Movements

Mov ID	Dem Flow (ped/h)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate
P1	53	15.2	LOS B	0	0.78	0.78
P3	53	16.0	LOS B	0	0.80	0.80
P5	53	16.0	LOS B	0	0.80	0.80
P7	53	17.6	LOS B	0	0.84	0.84
<b>All Peds</b>	<b>212</b>	<b>16.2</b>	<b>LOS B</b>	<b>0</b>	<b>0.81</b>	<b>0.81</b>

Symbols which may appear in this table:

Following # x = 1.00 for Degree of Short Lane with resulting Excess Flow capacity  
 \* x = 1.00 due to minimum

Following # - Based on density for continuous movements LOS

Following # - Density for continuous movement Queue



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Site: P0428A- Australia Ave- Parkview PM 2009 existing  
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## Movement Summary

### P0428A Australia Ave-Parkview AM EX 2009

#### Existing situation

Signalised - Fixed time      Cycle Time = 50 seconds

#### Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
<b>Australia Ave South</b>										
1	L	358	0.0	0.490	20.6	LOS B	59	0.79	0.82	38.3
2	T	252	0.0	0.328	11.4	LOS A	41	0.73	0.61	45.7
3	R	304	0.0	0.664	24.5	LOS B	60	0.89	0.88	35.8
<b>Approach</b>		<b>914</b>	<b>0.0</b>	<b>0.664</b>	<b>19.4</b>	<b>LOS B</b>	<b>60</b>	<b>0.81</b>	<b>0.78</b>	<b>39.1</b>
<b>Parkview East</b>										
4	L	37	0.0	0.074	19.7	LOS B	9	0.69	0.73	38.9
5	T	13	0.0	0.074	11.5	LOS A	9	0.69	0.52	45.6
6	R	7	0.0	0.017	20.0	LOS B	1	0.68	0.67	38.7
<b>Approach</b>		<b>57</b>	<b>0.0</b>	<b>0.074</b>	<b>17.8</b>	<b>LOS B</b>	<b>9</b>	<b>0.68</b>	<b>0.67</b>	<b>40.2</b>
<b>Australia Ave North</b>										
7	L	132	0.0	0.197	18.9	LOS B	24	0.69	0.77	39.4
8	T	169	0.0	0.197	10.7	LOS A	25	0.69	0.56	46.4
9	R	35	0.0	0.116	24.2	LOS B	7	0.79	0.73	36.0
<b>Approach</b>		<b>336</b>	<b>0.0</b>	<b>0.197</b>	<b>15.3</b>	<b>LOS B</b>	<b>25</b>	<b>0.70</b>	<b>0.66</b>	<b>42.2</b>
<b>Herb Elliot Ave</b>										
10	L	12	0.0	0.178	20.3	LOS B	19	0.72	0.76	38.5
11	T	44	0.0	0.179	12.1	LOS A	19	0.72	0.57	45.0
12	R	145	0.0	0.179	20.1	LOS B	18	0.72	0.75	38.6
<b>Approach</b>		<b>201</b>	<b>0.0</b>	<b>0.179</b>	<b>18.4</b>	<b>LOS B</b>	<b>19</b>	<b>0.72</b>	<b>0.71</b>	<b>39.8</b>
<b>All Vehicles</b>		<b>1508</b>	<b>0.0</b>	<b>0.664</b>	<b>18.3</b>	<b>LOS B</b>	<b>60</b>	<b>0.77</b>	<b>0.74</b>	<b>39.9</b>

## Pedestrian Movements

Mov ID	Dem Flow (ped/h)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate
P1	53	18.5	LOS B	0	0.86	0.86
P3	53	13.0	LOS B	0	0.72	0.72
P5	53	19.4	LOS B	0	0.88	0.88
P7	53	14.4	LOS B	0	0.76	0.76
<b>All Peds</b>	<b>212</b>	<b>16.3</b>	<b>LOS B</b>	<b>0</b>	<b>0.81</b>	<b>0.81</b>

Symbols which may appear in this table:

Following # x = 1.00 Degree for Short Lane with of resulting Excess Saturation  
 \* x = 1.00 due to minimum Flow capacity

Following # - Based on density for continuous LOS movements

Following # - Density for continuous movement Queue



Site: P0428A- Australia Ave- Parkview AM 2009 existing  
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