Infrastructure NSW

Stadium Australia Redevelopment

Transport Impact Assessment

Rev A | 2 September 2019

JMT Consulting

Document History

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1 Introduction

1.1 Purpose

This report supports a State Significant Development (SSD) Development Application (DA) for the refurbishment of Stadium Australia, which is submitted to the Minister for Planning pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). Infrastructure NSW is the proponent of the SSD DA.

1.2 Background

Stadium Australia opened in 1999 for the 2000 Sydney Olympic and Paralympic Games and, at the time, was the largest Olympic Stadium ever built and the second largest stadium in Australia. In March 2018, the NSW Premier announced plans to refurbish Stadium Australia to address deficiencies with the existing infrastructure and ensure that the stadium retains its status as a premier venue within a network of stadia and events infrastructure in NSW.

The NSW Stadia Strategy 2012 provides a vision for the future of stadia within NSW, prioritising investment to achieve the optimal mix of venues to meet community needs and to ensure a vibrant sports and event environment in NSW. A key action of the strategy includes developing Tier 1 stadia and their precincts covering transport, integrated ticketing, spectator experience, facilities for players, media, corporate and restaurant and entertainment provision. Stadium Australis is one of three Tier 1 stadia within NSW, the others being Sydney Football Stadium and the Sydney Cricket Ground.

In order to qualify for Tier 1 status, a stadium is required to include:

- seating capacity greater than 40,000;
- regularly host international sporting events;
- offer extensive corporate facilities, including suites, open-air corporate boxes and other function/dining facilities; and
- be the home ground for sporting teams playing in national competitions.

The refurbishment of Stadium Australia will address deficiencies in the existing infrastructure and improve facilities to be in line with contemporary Australian venue standards. The works ensure the stadium remains a modern, globally competitive venue that achieves the requirements for a Tier 1 stadium. The refurbishment of Stadium Australia addresses the following project objectives:

- transform the stadium into a 'fan favourite' destination for experiencing and enjoying sports and entertainment events;
- maximise the direct and indirect economic, social and cultural benefits to NSW from the project, including securing major, economically beneficial events within NSW to ensure the economic sustainability of the stadium into the future;
- deliver a multi-use contemporary rectangular venue that meets the needs of patrons, hirers and other users for rugby, football, concerts and other new forms of entertainment, and reaffirms the status of the stadium as Australia's largest purpose-built rectangular venue in Australia;
- improve the facility's sensitivity to the environmental conditions of the site by providing a roof which provides cover to 100% of seats (to the drip line);
- provide new and refurbished corporate areas, members areas and general admission areas to enhance the patron experience;
- promote universal accessibility, safety and security such that the stadium is welcoming, inclusive and safe for all stadium users, including persons requiring universal access;
- promote environmental sustainability and embrace a whole of life approach to operations and maintenance; and
- achieve a high standard of design and reinforce the Stadium's status and identity within the NSW stadia network, and more broadly, nationally and internationally.

1.3 Site description

The site is located at 15 Edwin Flack Avenue within the Sydney Olympic Park. It is bound by Edwin Flack Avenue to the west, Dawn Fraser Avenue to the south, Olympic Boulevard to the east and Qudos Bank Arena to the north. The site is located within the City of Parramatta Local Government Area.

The site is legally described as Lot 4000 in DP 1004512 and part of Lot 4001 in DP 1004512. In 2017, the Minister for Sport assigned Venues NSW as the trustee of Stadium Australia under the *Sporting Venues Authorities Act 2008*.

In a broader context, the site forms part of Sydney Olympic Park which is a sporting and economic centre in metropolitan Sydney that covers 680 hectares. Sydney Olympic Park comprises a range of sports and entertainment venues, parklands, and commercial, retail and residential developments. It benefits from convenient access to Homebush Bay Drive, Parramatta Road and the M4 Western Motorway, as well as Olympic Park railway station. The Parramatta Light Rail Stage 2 and Sydney Metro West will also significantly increase accessibility.

The locational context of the Site is shown in Figure 1 whilst the site boundaries and existing site features are shown in Figure 2**.**

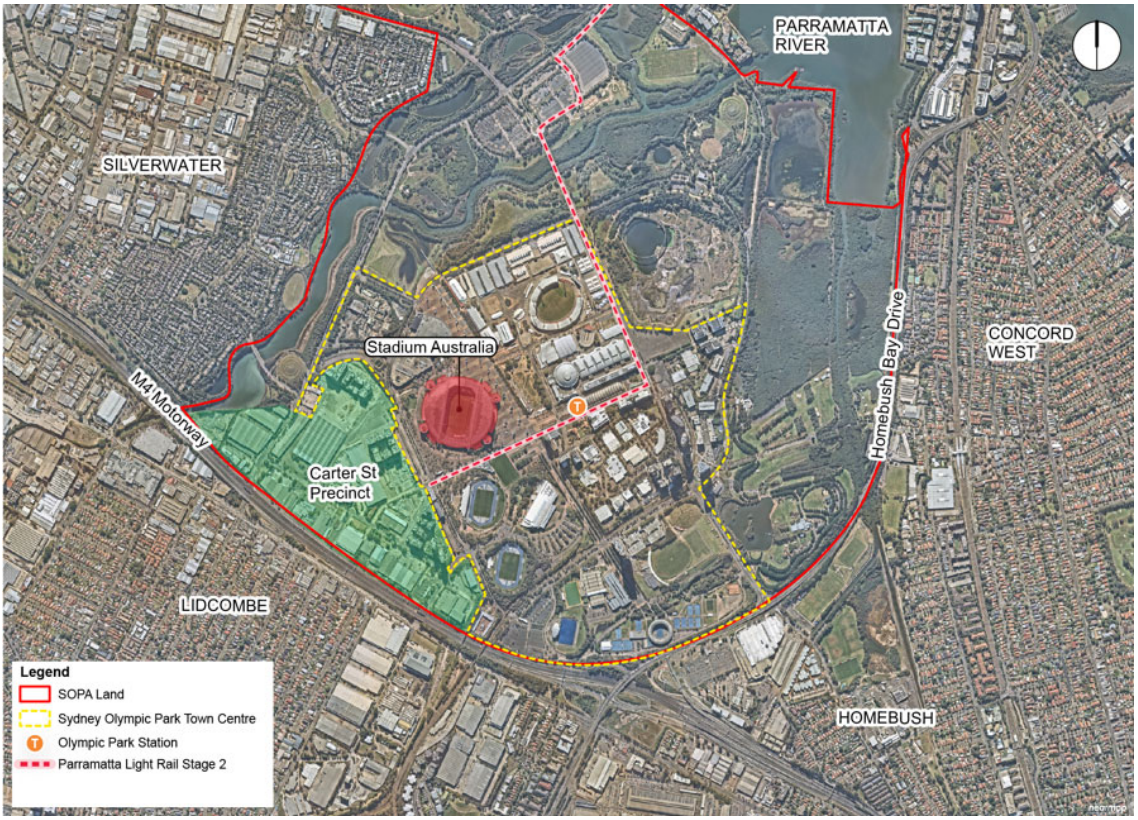

Figure 1 Regional site context

Figure 2 Site area and local context

1.4 Secretary's Environmental Assessment Requirements (SEARs)

The Department of Planning, Industry and Environment (DPIE) issued a list of the Secretary's Environmental Assessment Requirements (SEARs) which inform the Environmental Impact Statement (EIS). Table 1 lists the SEARs that are specific to transport and accessibility.

Table 1 Response to SEARs

SEARs – Transport and Accessibility	Section Discussed
The EIS must include a Transport and Traffic Impact Assessment that provides, but is not limited to, the following	
Construction	
Preparation of a draft Construction Pedestrian and Traffic Management Plan (CPTMP) which shall address, but not limited to the following:	6
assessment of cumulative impacts associated with other construction activities in the vicinity of the site	6.2.7
a construction program detailing the anticipated construction duration and highlighting significant milestone, stages and events during the construction process	6.1.1
an assessment of traffic and transport impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrian, cyclist and public transport services (including special event buses) within the Olympic Park Precinct, including during adjacent events	6.2.1, 6.2.2, 6.2.4
details of construction vehicle routes, peak hour and daily truck movements, hours of operation, access arrangements at all stages of construction and traffic control measures for all works	6.1.2, 6.1.4, 6.1.6, 0, 6.2.9
existing CPTMPs for developments within or around the development site should be referenced in the CPTMP to coordinate work activities to minimise impacts on the transport network and other road users	6.2.7
an assessment of construction impacts on road safety at key intersections and locations subject to heavy vehicle movements and high pedestrian/cyclist activity	6.2.6
details of parking and access arrangements for construction vehicles, workers, emergency services and the provision of safe and efficient access for loading and deliveries	6.2.3, 6.2.5
details of temporary cycling and pedestrian access arrangements during construction	6.2.1
details of any crane locations and road closures	6.1.9
details of a consultation strategy for liaison with surrounding stakeholders.	6.2.11

SEARs – Transport and Accessibility	Section Discussed
Operational	
current and estimated daily and peak hour traffic generation (including point to point transport), public transport, walking and cycling movements, together with cumulative impacts of existing, proposed and approved developments within the vicinity of the proposed development and any transport/ traffic upgrades	3.1, 4.1, 4.3
details of any new or upgraded infrastructure works required	4.1, 4.3
impacts of additional traffic generated by the development on existing and future road, light rail and bus services and pedestrian and cycle networks within the vicinity of the site and identify measures to manage/ mitigate the likely future increased demand for public transport, pedestrian and cycle infrastructure, including any required upgrades	4.1, 4.3
existing/proposed car and bicycle parking provision and pick-up and drop-off facilities for staff and visitors, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards	3.7, 3.9, 4.5
end-of-trip facilities for staff including lockers and showers	4.5.2
assess existing loading and servicing parking capacity in relation to accommodating additional food and beverage concessions	4.6
preparation of a Travel Demand Management Strategy and Travel Plan, that considers the following: • measures to encourage workers and visitors to travel to the site by public transport, walking, cycling and car sharing • integrated ticketing between events and transport providers, • provision of adequate bicycle parking and end of trip facilities and improved connections between the stadium and public transport nodes and pedestrian and bicycle networks.	5
demonstrate that the proposed works and future stadium operation can provide acceptable amenity in major event mode, including any management or mitigation measure to address potential impacts, including, but not limited to: • details of major event buses which will still operate to certain events at Sydney Olympic Park during the redevelopment of Stadium Australia, including during the Royal Easter Show • major event buses will be able to operate from the Northern Bus Terminal on Olympic Boulevard opposite Qudos Bank Arena, during the redevelopment of the stadium.	6.2.2

1.5 Report purpose and scope

The purpose of this Transport Impact Assessment is to outline a strategy for access to the refurbished Stadium Australia. It supports the State Significant Development Application for the project by describing existing transport conditions and assessing the potential impacts of the proposal – both during construction and operation. It includes the following items:

- Travel behaviours of people attending events at Stadium Australia
- Parking environment
- Pedestrian and cycling routes
- Key roads into the precinct
- Public transport availability
- Arrangements for taxis and other point to point services
- Travel demand management measures
- Construction traffic and pedestrian management during demolition and construction of the redeveloped stadium

1.6 Report structure

This report has been structured into the following chapters:

- Chapter 1 provides an introduction an overview of the project
- Chapter 2 provides a description of the proposal and site location;
- Chapter 3 details the existing transport arrangements for people travelling to Stadium Australia
- Chapter 4 provides an operational assessment of the proposed stadium
- Chapter 5 outlines the strategies and monitoring mechanisms to reduce the private vehicle impacts arising from the proposed development
- Chapter 6 includes an assessment of traffic and transport impacts from the demolition and construction phase of the project
- Chapter 7 summaries the key findings of the transport assessment

2 Description of the Proposal

In March 2018 the NSW Government announced its commitment to refurbish the existing Stadium Australia and retain its status as a premier venue within a network of stadia and events infrastructure in NSW comprising the following:

- Reconfiguring the field of play to a permanent rectangular configuration.
- Redeveloping the lower and middle seating bowl to locate seating closer to the field and increase the pitch (steepness) of the seating bowl, which has the effect of reducing the capacity to approximately 70,000 seats (plus an additional 20,000 persons on the field during concerts).
- Providing 100% drip-line roof coverage to all permanent seats by replacing the northern and southern sections of the roof and extending the existing eastern and western sections of the roof.
- Providing a new northern and southern public stadium entrance, including a new stadium facade and double-height concourse
- Renewing the food and beverage concessions, bathrooms, team facilities including new gender neutral changerooms, members and corporate facilities, press and broadcast facilities, and back of house areas.
- Providing new signage, high-definition video replay screens, LED lighting, and other functional improvements.
- Enhancing the public domain within the site boundary, including hard and soft landscaping, to deliver a range of publicly accessible, event and operational areas.

Part of the existing stadium forecourt will be used as a construction compound during the construction phase and reinstated following the completion of works and prior to commencement of stadium operations.

Figure 3 Indicative photomontage of proposed stadium

3 Current Transport Arrangements

3.1 Travel behaviours

JMT Consulting undertook interview surveys to understand the existing travel behaviours of people attending major events at Stadium Australia. The survey was undertaken on Wednesday 10 July 2019 prior to the commencement of the State of Origin match held that evening (between 5.30pm and 8pm). People were interviewed as they approached the stadium entry points and asked their mode of arrival to the venue.

Over 2,200 individual responses were gathered as part of the survey which provided a statistically significant sample size given the overall match day attendance of 82,565. The results of the travel survey are shown in Figure 4.

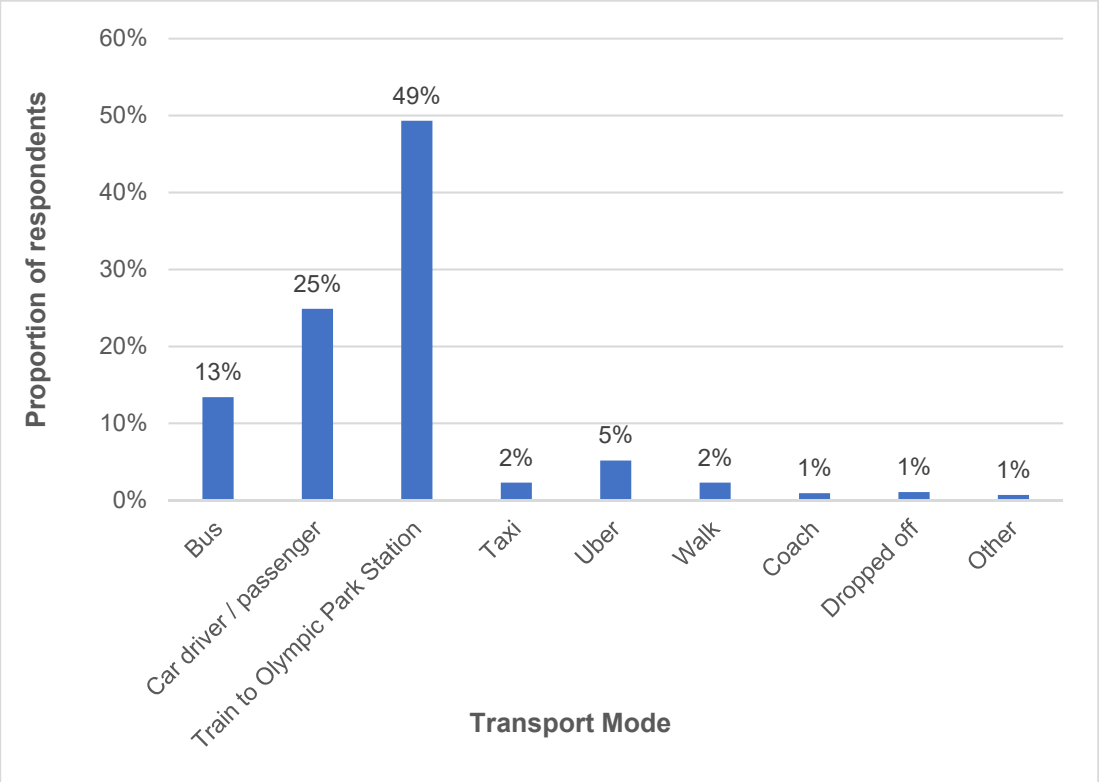

Figure 4 Existing transport mode share

The travel survey demonstrated that the majority of people travel to Stadium Australia by public transport for major events, with train and bus combining for over 60% of journeys to the venue. This mode share is reflective of the range of high capacity public transport options available to spectators, particularly the direct train service to Olympic Park railway station. The surveyed event had integrated ticketing arrangements in place which would have also contributed to the high mode share recorded. 25% of people arrived by private vehicle, while a further 7% arrived by point to point transport (taxi / Uber).

2016 Journey to Work (JTW) Census data was analysed to understand travel patterns of residents and workers of Sydney Olympic Park. This indicates car driver remains the primary mode of transport for both workers and residents of the precinct, however public transport represents approximately one third of all work related trips.

Table 2 Existing journey to work mode share of residents and workers of Sydney Olympic Park

Mode of Travel	Workers	Residents
Car Driver	63%	56%
Car Passenger	3%	2%
Train	25%	30%
Bus	4%	3%
Walk Only	2%	5%
Ferry	1%	2%
Other	2%	2%
Total	**100%**	**100%**

3.2 Public transport network

3.2.1 Rail network

Stadium Australia is directly serviced by Olympic Park Railway Station which is located approximately 350m east of the site. The station is serviced by the T7 Olympic Park Line which acts as a shuttle-service between Lidcombe and Olympic Park stations. This service operates at ten minute intervals throughout the day and is an approximately six minute journey between the two stations.

During major events direct train services to Olympic Park operate from a number of locations across Sydney, including Central, Parramatta, Penrith and Liverpool. These services operate every two-three minutes following the conclusion of major events at Stadium Australia. The station was designed to accommodate large crowds leaving the precinct at any one time – with a capacity to move more than 35,000 people per hour in one direction. Passenger queuing systems are implemented for medium and large events to facilitate safe and efficient loading, whilst maximising passenger comfort

Figure 5 Olympic Park railway station

ANZ Stadium is also served by rail services on the T1 Northern Line that stop at Concord West. A number rail based commuters from the northern suburbs of Sydney choose to travel to SOP via Concord West and walk through Bicentennial Park rather than interchange at Strathfield or Lidcombe Stations. The combined rail/walk trip is competitive with rail transfers at the major stations in terms of travel time and reliability of connections. This route is supported through wayfinding signage and information.

3.2.2 Bus network

Regular bus services

Numerous bus stops support regular bus services to and from Stadium Australia, located on three key roads in the precinct and converging at Olympic Park rail station. Roads containing bus stops include:

- Australia Avenue
- Dawn Fraser Avenue
- Edwin Flack Avenue

The bus stop on Australia Avenue serves as an interchange point with Olympic Park railway station, and is shown in Figure 6

Figure 6 Existing bus stop on Australia Avenue

A summary of the bus routes servicing the precinct are provided in Table 3.

Table 3 Existing bus routes servicing Stadium Australia

Route Number	Peak Frequency	Route description
401	3 per hour	Lidcombe Station to Birnie Avenue
525	6 per hour	Parramatta to Burwood via Sydney Olympic Park
526	2 per hour	Burwood to Sydney Olympic Park Ferry Wharf
533	4 per hour	Chatswood to Sydney Olympic Park

Special event buses

Nine special event bus services operate for major events at Stadium Australia. Services operate from both the Plaza and Aquatic Bus Terminals on Olympic Boulevard, which are located on the northern and southern ends of Olympic Boulevard respectively. These nine bus routes provide direct access for people travelling from across Sydney to Stadium Australia– particularly areas not serviced by heavy rail. Travel surveys undertaken prior to the start of the 2019 State of Origin indicated that approximately 13% of those who attended the event utilised an event bus service. The special event bus routes are listed in Table 4, with the plaza bus terminal shown in Figure 7.

Table 4 Special event bus routes

Route Number	Route Name	Travels via	Terminates at
1A	Warriewood	Chatswood, Frenchs Forest & Dee Why	Aquatic terminal
1B	Warriewood	Macquarie Park, West Pymble & St Ives	Aquatic terminal
2	Glebe Point	Ryde, Hunters Hill & Drummoyne	Aquatic terminal
4	Maroubra Beach	Campsie, Rockdale, Mascot & Eastgardens	Aquatic terminal
5A	Castle Hill	Northmead, Baulkham Hills & Castle Hill	Plaza terminal
5B	Rouse Hill Town Centre	Northmead, Norwest & North-West T-way	Plaza terminal
6	Menai	Bankstown & Bangor	Plaza terminal
7	Cronulla	Roselands, Hurstville & Miranda	Plaza terminal
8	Dural	Carlingford & Cherrybrook	Plaza terminal

Figure 7 Plaza special event bus terminal

3.2.3 Ferry network

Ferry services are operated by Sydney Ferries from the Sydney Olympic Park Ferry Wharf which is located at the end of Hill Road. The ferry service directly links Sydney Olympic Park to Parramatta in the west and Milsons Point and Circular Quay in the east. Stadium Australia is approximately a 40 minute walk from Sydney Olympic Park Wharf. A connecting bus service (route 526) offers a link between the wharf and stadium, with the journey taking approximately 12 minutes.

3.2.4 Public transport overview

An overview of the various forms of public transport currently servicing Stadium Australia is presented in Figure 8 below.

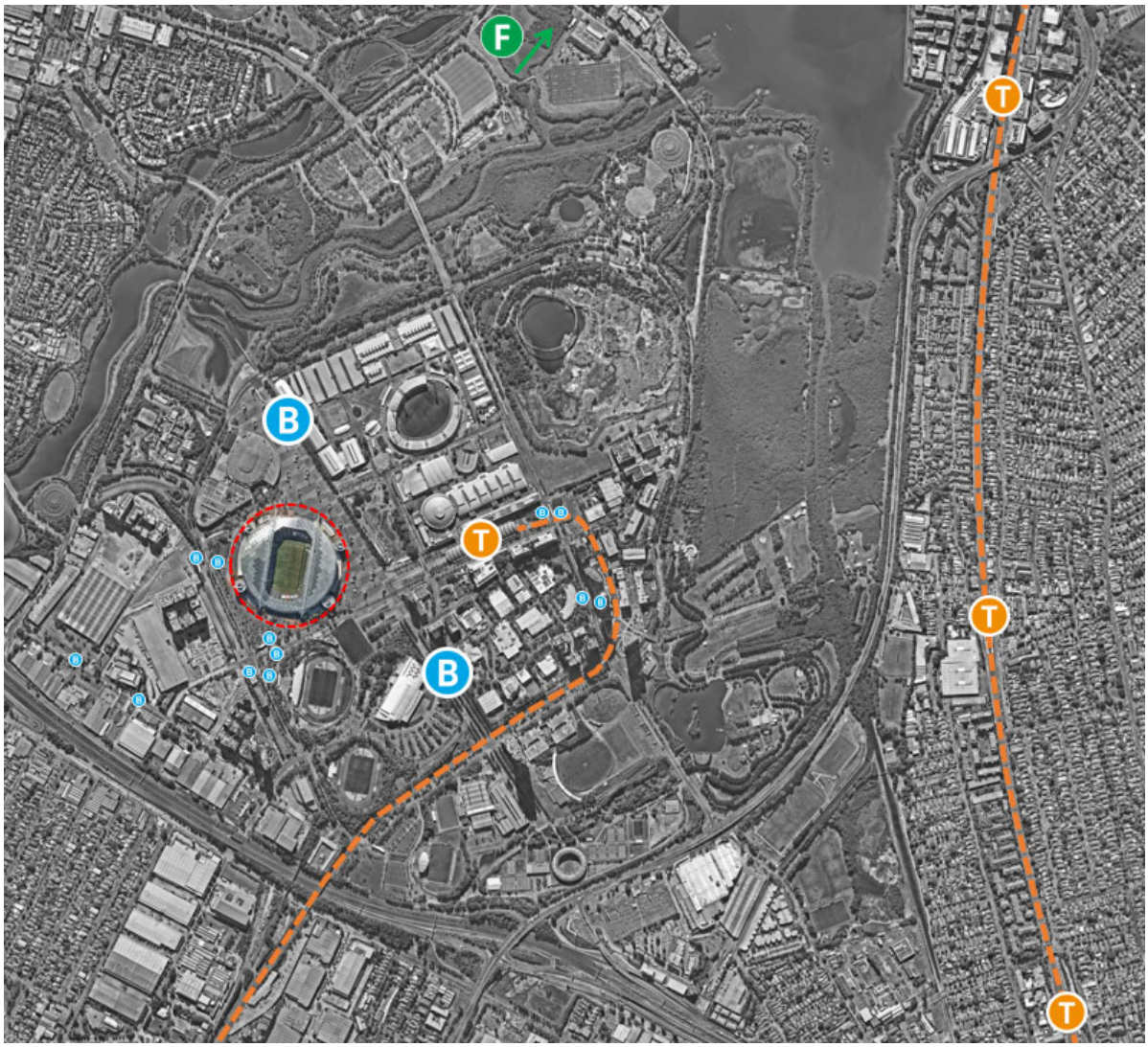

Figure 8 Public transport overview

3.3 Integrated ticketing arrangements

In 2003, integrated ticketing for events at Sydney Olympic Park was introduced. Entry to selected events includes the cost of return public transport to and from the venue. For major events all forms of public transport are covered by integrated ticketing, while for smaller events tickets include travel on rail services only. These arrangements are described in Table 5 below.

Table 5 Current integrated ticketing arrangements

Major event (e.g. State of Origin)	'Regular' event (e.g. NRL home/away match)
All tickets to the match include entry and travel on public transport to and from the game on: • Sydney Trains • Sydney Metro • Sydney Olympic Park Major Event Buses • Regular Sydney Bus services • Liverpool to Parramatta T-way Bus Services • Sydney Ferries services • Light Rail services.	All tickets to the match include entry and travel on: • Sydney Trains services • Sydney Metro Services to and from the match.

3.4 Walking and cycling

Stadium Australia, and Sydney Olympic Park more broadly, is serviced by an extensive network of over 35km of walking and cycling paths. These paths provide both connectivity to the town centre and also the regional pedestrian and cycleway network and are illustrated in Figure 9.

To complement the network of bicycle routes servicing Sydney Olympic Park, there are approximately 150 bicycle parking spaces in the precinct. A secure area where staff can park their bicycles is available in the basement of the stadium. This secure bicycle parking area is supported by end of trip facilities such as lockers, showers and change rooms. Staff that cycle to the stadium have access to showers and lockers in the event staff change rooms with over 1,500 lockers and 10-12 showers.

Pedestrian footpaths are located on both sides along all streets in Sydney Olympic Park. The footpaths provide a high level of connectivity in the area and links with key transport nodes. Pedestrian crossing points (typically pedestrian refuges) and tactile pavers are generally provided at key intersections in the precinct.

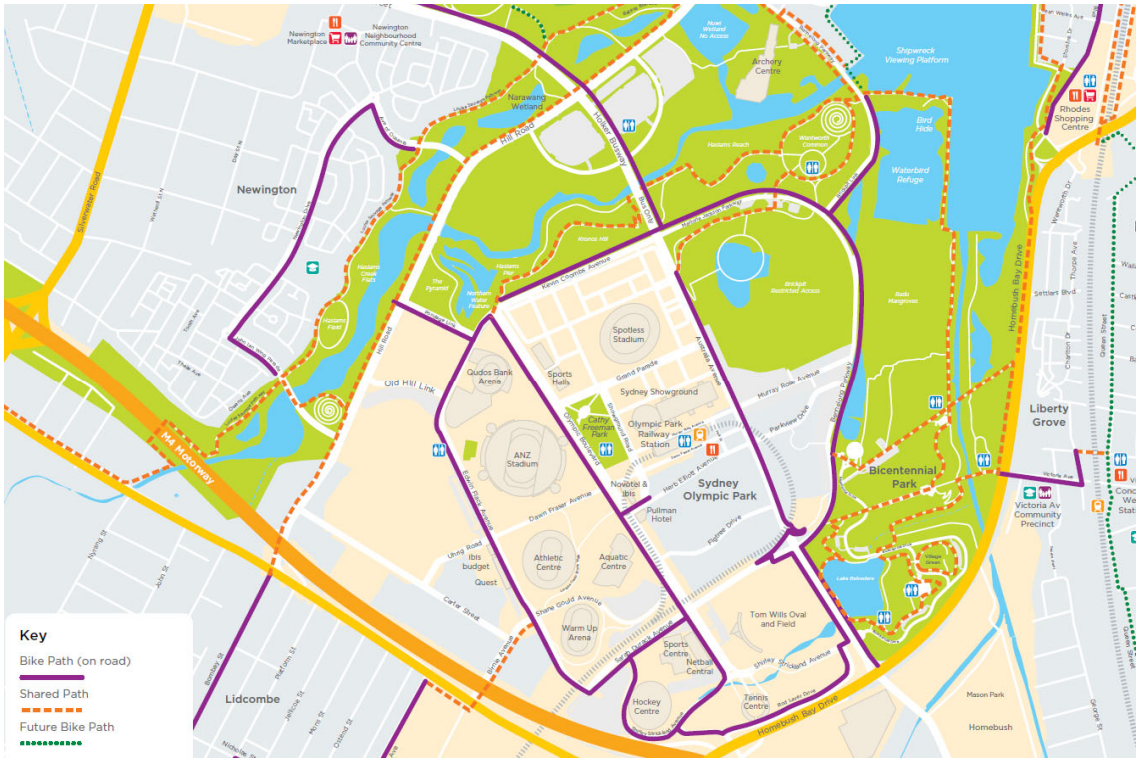

Figure 9 Sydney Olympic Park walking and cycling network

Source: Canada Bay Council (2019)

The stadium itself is accessed via a number of gates on all sides of the stadium. Circular ramps (see Figure 10) provide access for pedestrians accessing the upper levels of the stadium.

Figure 10 Existing pedestrian circulation ramps at Stadium Australia

3.5 Road network

3.5.1 Supporting road network

Stadium Australia is surrounded by a number of local, regional and state roads as shown in Figure 11.

Edwin Flack Avenue is located to the west of the site and provides access to the basement car park. Other surrounding local roads include Dawn Fraser Avenue (to the south) and Olympic Boulevard (to the east). During events at Stadium Australia a number of local road closures are in place which are described further in Section 3.5.2.

The key regional and state roads serving the stadium are as follows:

- Parramatta Road
- M4 Motorway
- Homebush Bay Drive
- Hill Road

The M4 immediately south of the stadium was recently widened from three to four lanes between Parramatta and Homebush as part of the Westconnex project. Traffic flow was further improved in July 2019 with the opening of the new M4 tunnels.

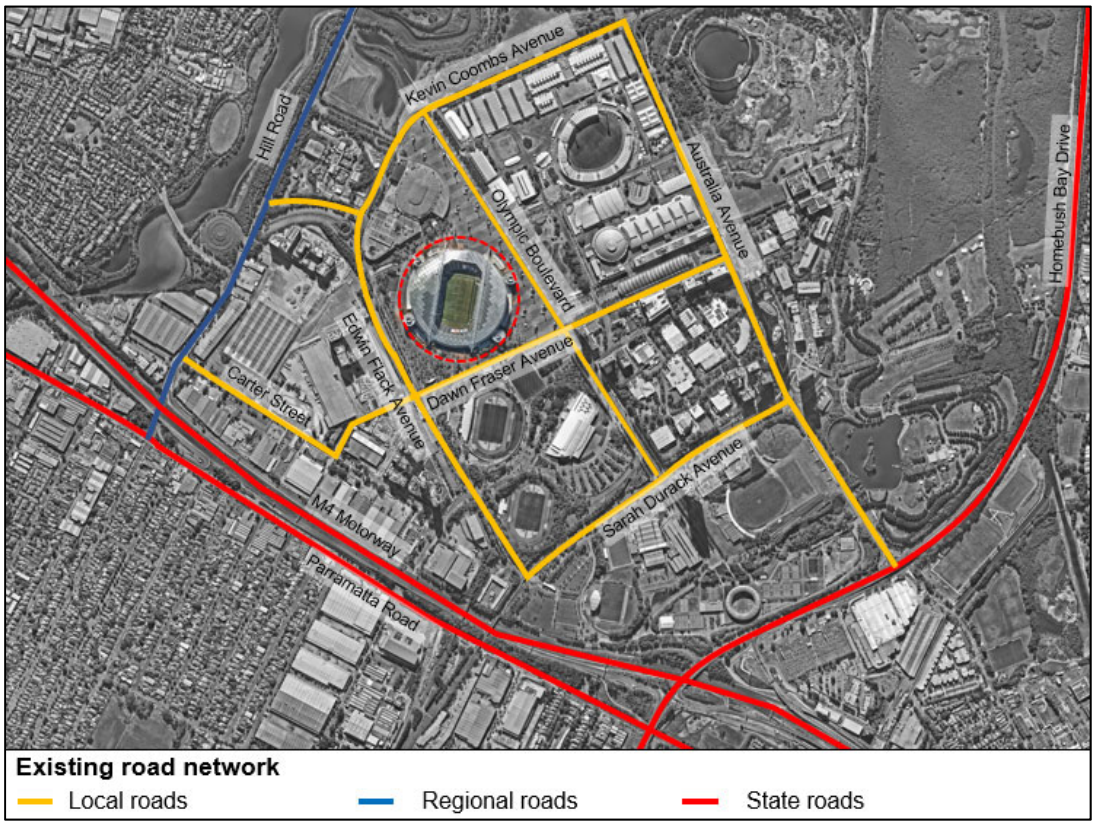

Figure 11 Road network servicing Stadium Australia

3.5.2 Event road closures

Event day road closures are implemented by the Sydney Olympic Park Authority (SOPA) to manage traffic and pedestrian flows and facilitate access to the event bus terminals on Olympic Boulevard. Table 6 summarises the extent of road closures in place during major and regular events at Stadium Australia.

Table 6 Summary of existing event road closures

Major event (e.g. State of Origin)	'Regular' event (e.g. NRL home/away match)
Road closures in place overnight • Olympic Boulevard between Herb Elliot Avenue and northern turning circle • Dawn Fraser Avenue – from Edwin Flack Avenue to western spiral to Showground Road • Showground Road – front of station (Dawn Fraser Avenue – Murray Rose Avenue) Road closures implemented usually 6-8 hours before start of the event. • Around the back of the station on Murray Rose Avenue • Dawn Fraser Avenue to Park Street • Kevin Coombs Avenue, Shirley Strickland Avenue (for major event buses)	Road closures implemented usually 2 hours prior to gates opening: • Front of the station – Showground Road between Dawn Fraser Avenue and Murray Rose Avenue • Olympic Boulevard from Dawn Fraser Avenue to Grand Parade If there is a concurrent event on at Qudos Bank Arena, road closures are also in place at Olympic Boulevard to turning circle or Kevin Coombs Avenue If there is a concurrent event on at Sydney Showground, road closures are also in place at Showground Road to Grand Parade, Murray Rose to gate 15, Grand Parade full length Australia Avenue to Olympic Boulevard

These road closures are shown graphically in Figure 12 and Figure 13 on the following page.

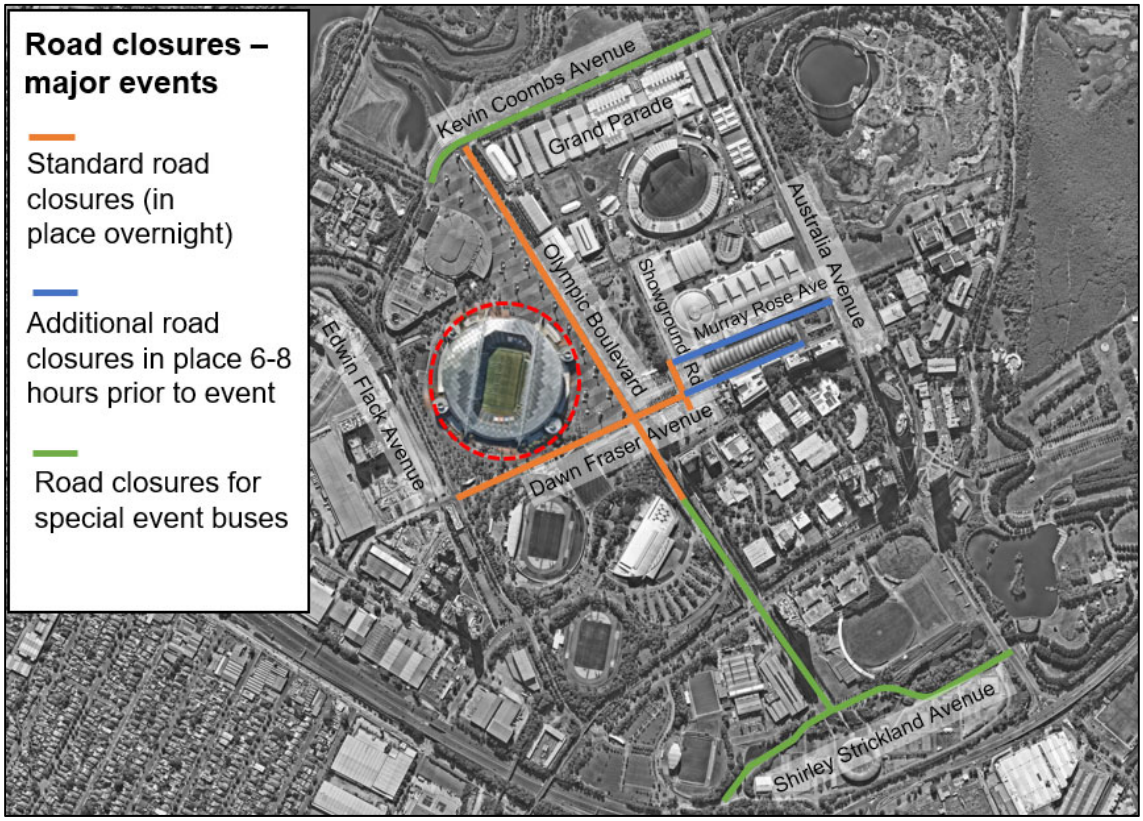

Figure 12 Road closures – major events

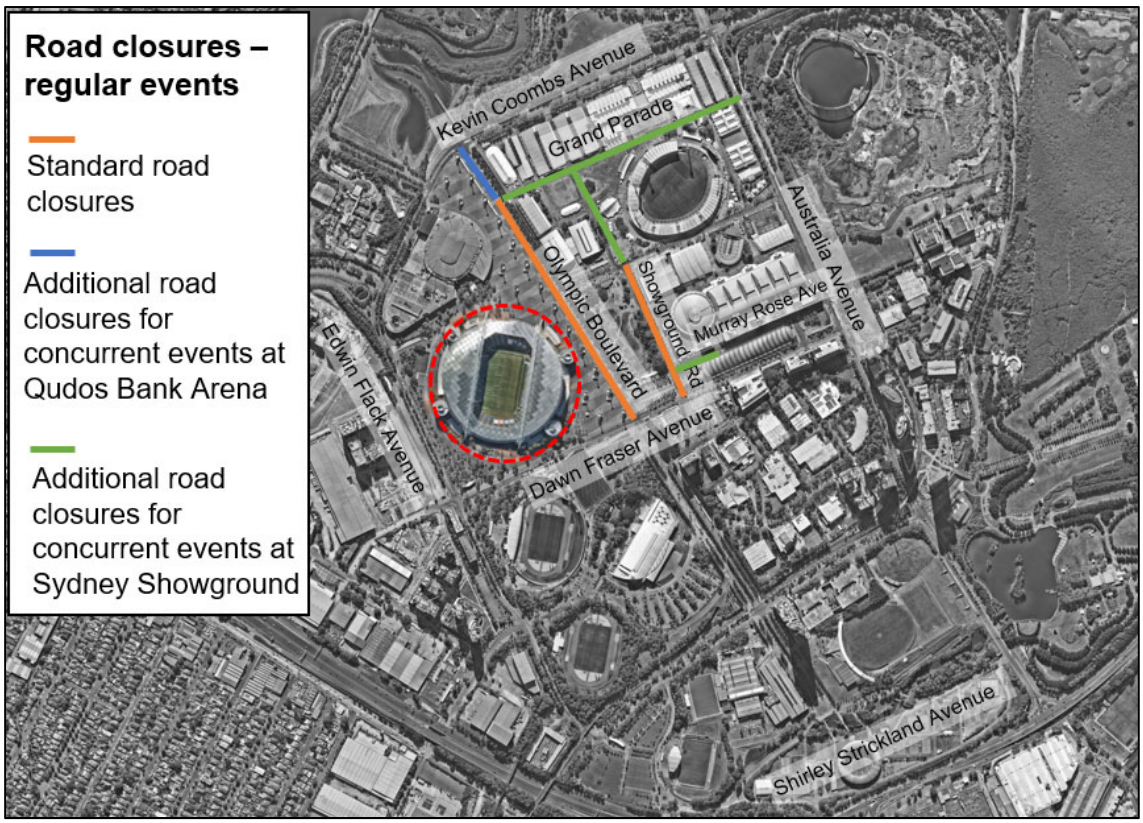

Figure 13 Road closures – regular events

3.6 Site access and servicing

Vehicular access to the stadium is provided via a driveway located off Edwin Flack Avenue at the north-western end of the stadium (see Figure 14). This driveway provides access for accredited vehicles including players / officials, VIPs and media. Access for vehicles to the basement is generally via Hill Road.

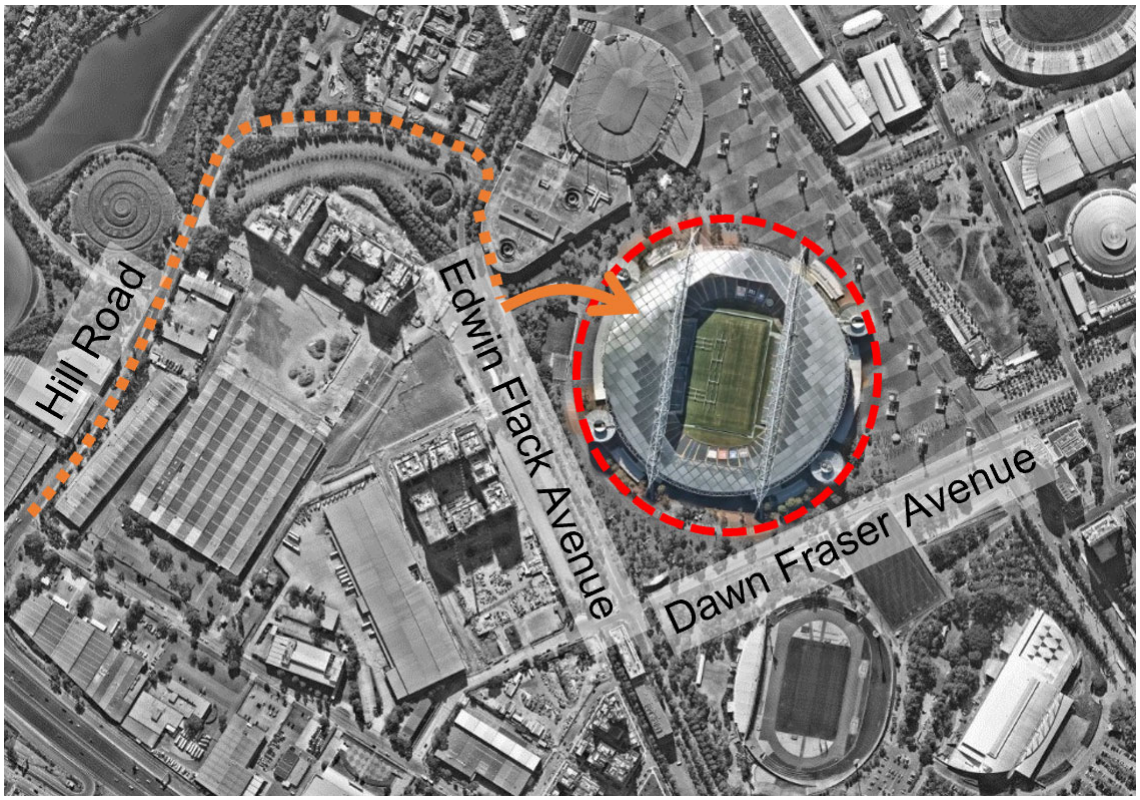

Figure 14 Existing vehicle access to Stadium Australia

Currently all servicing of the stadium takes place within the basement of the venue. Access for service vehicles is provided via the car park ramp located off Edwin Flack Avenue at the north-western end of the stadium. 4.5m height clearance is provided for large vehicle to enter the basement and circulate around the internal ring road – see Figure 15. Approximately 15 spaces are dedicated for service vehicles in this area.

Figure 15 Internal basement ring road

3.7 Car parking

3.7.1 Stadium Australia

Within the basement of Stadium Australia there are approximately 150 car parking spaces. These spaces are reserved for players / officials, VIPs and accredited staff / media, and are not available to the general public.

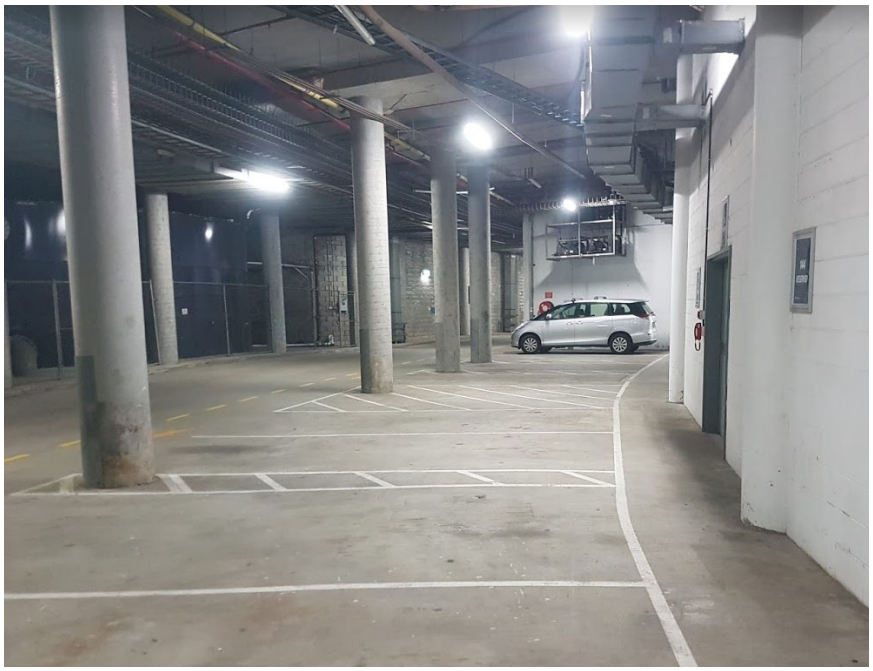

Figure 16 Existing car parking in Stadium Australia basement

3.7.2 Precinct car parking

Currently there are in the order of 9,500 spaces at Sydney Olympic Park provided in off-street car parking areas which are available for use during events. On non-event days a further 700-800 spaces are available on streets within the town centre and on Olympic Boulevard. A summary of the public car parks available for events at Stadium Australia, including the main vehicular approach route, is provided in Table 7. This is shown graphically in Figure 17.

Table 7 Existing off-street car parks servicing Stadium Australia

Car Park	Capacity	Main vehicle approach route
P1	3,200	Hill Road / Edwin Flack Avenue
P2	470	Birnie Avenue / Australia Avenue
P3	1,480	Australia Avenue
P4	980	Birnie Avenue / Australia Avenue
P5A	2,515	Hill Road / Holker Street
P6	637	Australia Avenue
P8	212	Australia Avenue
Total	**9,494**	**-**

The P1 car park is typically used as the primary car park by people attending events at Stadium Australia given it is located less than 200m from the venue. This car park can accommodate approximately 3,200 vehicles at any one time.

For major events held at Stadium Australia pre-booked parking ($25) is available at all Sydney Olympic Park car parks. Casual parking is available ($5 per hour, max $25) at all precinct car parks for smaller events such as regular season NRL matches.

Shuttle buses operate to transport people from some event car parks to Stadium Australia. These are as follows:

- P3 & P4 carpark shuttle buses drop off at Edwin Flack Avenue
- P5 carpark shuttle buses drop off at Olympic Boulevard

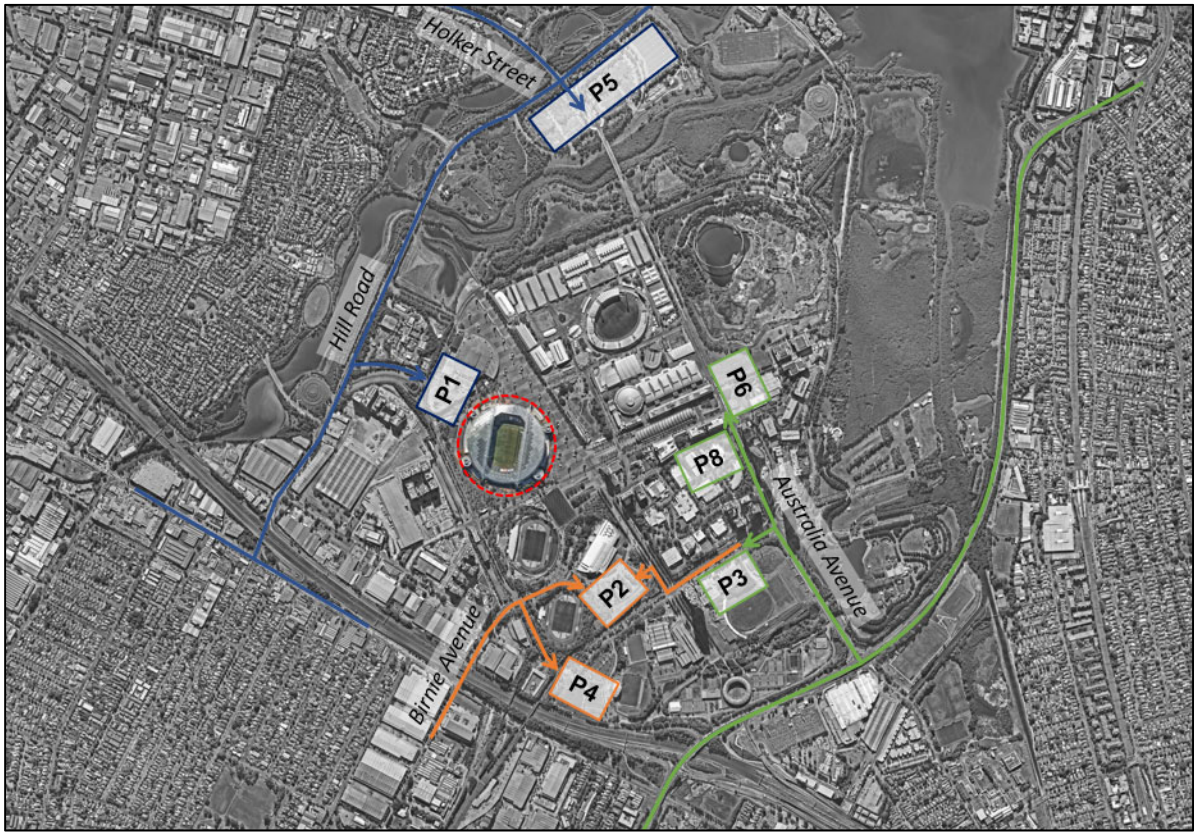

Figure 17 Existing off-street car parks servicing Stadium Australia

In addition to the off-street structured car parking, there are approximately 750 car parking spaces located on streets within Sydney Olympic Park, including spaces on streets such as Olympic Boulevard and Dawn Fraser Avenue which are closed when events are held at Stadium Australia.

3.8 Coaches

Stadium Australia is well serviced by coach parking areas in close proximity to the stadium entrance. Coaches are typically used by groups of travelling supporters or those arriving from outside of the Sydney Metropolitan Area. Given the precinct was designed for the 2000 Olympic Games, the existing coach facilities are of a high standard and are sufficient to accommodate the travel demands generated by events.

Pods B and C (directly opposite ANZ Stadium on Edwin Flack Avenue) are available for pre-booked parking for coaches and buses. These pods have a combined capacity for approximately 130 coaches at any one time.

Coach parking is also available within the existing Stadium Australia basement for players, officials and VIPs.

3.9 Point to point transport

A number of taxi ranks are located in Sydney Olympic Park which are used by people travelling to and from events. Ranks are located on Herb Elliot Avenue and Showground Road outside the Novotel Hotel.

During major events a dedicated 'ride share' pick up zone operates from the P6 car park for Uber, Pre-booked Taxis, Hire Car, Ola, Taxify or other rideshare service providers. Existing car parking spaces are cordoned off prior to the start of the event, with the space then used following the conclusion of the event for ride-share users. People are directed to this area via the respective apps.

Parking is also available for hire cars (for a fee) along Dawn Fraser Avenue from Edwin Flack Avenue. For vehicles over 5m (and any overflow from Dawn Fraser Avenue) parking is available on the western side of Edwin Flack Avenue (north of Dawn Fraser Avenue).

A drop off area (designated as 'no parking') is provided for private vehicles on Edwin Flack Avenue for use prior to the start of events at Stadium Australia.

The existing arrangements for point to point vehicles are shown in Figure 18.

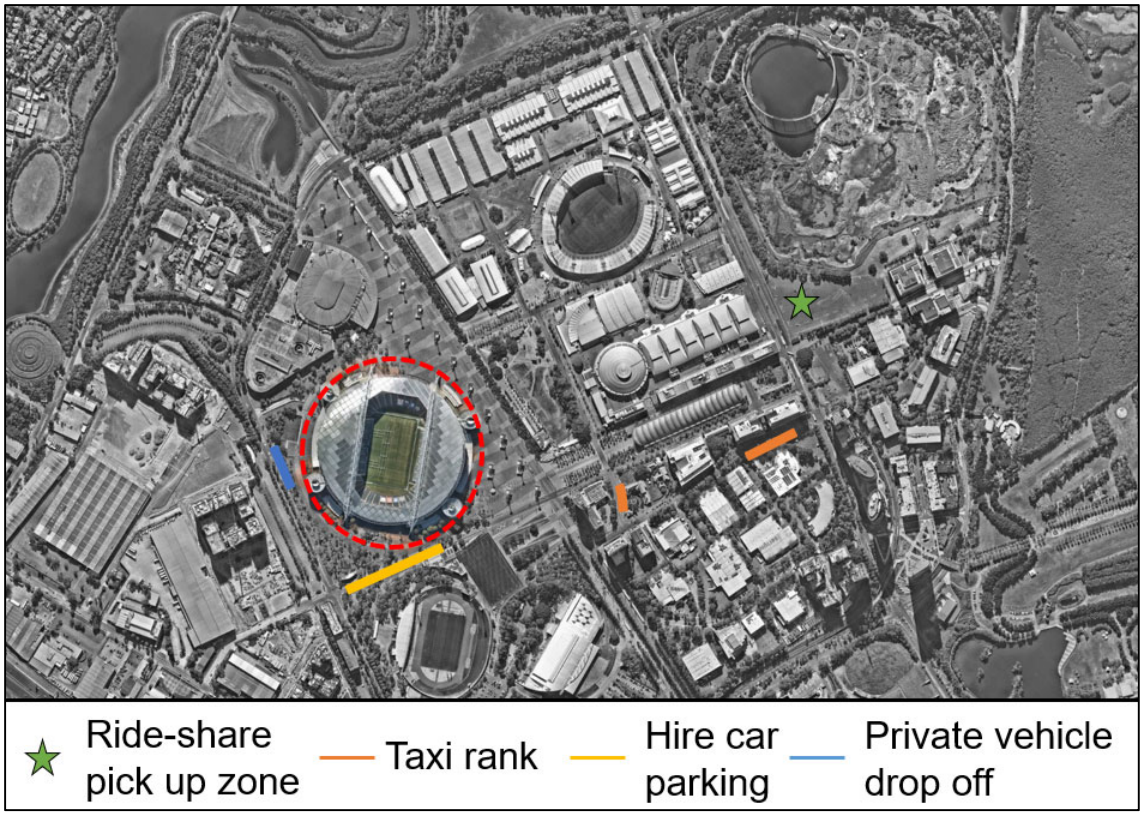

Figure 18 Existing point to point transport arrangements

4 Transport Impact Assessment

4.1 Travel demand

Based on the findings of the travel behaviour surveys undertaken for this study (see section 3.1), as well as the likely change in transport modes associated with future transport infrastructure (e.g. Parramatta Light Rail Stage 2), future year mode share and associated travel demands to Stadium Australia have been estimated. This has been completed for the following scenarios:

- Regular event (25,000 attendance)
- Major event (70,000 attendance)
- Concert mode (up to 90,000 attendance)

It should be noted that the transport mode share for events can vary based on a number of factors, including the type of event, start time, weather, opposition team location etc. Patrons will actively shift their mode and time of travel based on these factors.

Table 9 presents the travel demand associated with each of the event scenarios considered. Due to the reduction in stadium capacity from 83,000 to 70,000, the overall travel demand for major events is forecast to reduce when compared to current levels. In particular the number of people driving to the venue for a major event is forecast to reduce by approximately 19%. This reduction in travel demand for a major event at Stadium Australia will result in an improvement to the operation of the surrounding transport network.

It is expected that, despite the improved food and beverage offer and better corporate facilities being provided as part of the project, the number of event day staff will either remain the same or reduce compared to current levels. This is a result of the reduction in stadium capacity. Therefore staff travel movements will not increase (likely decrease) as a result of the proposal.

The travel demand analysis has concluded that the future transport network has the capacity to accommodate the expected travel demand to Stadium Australia under a range of different scenarios. The reduction in overall trips generated by the site will result in an improvement to the operation of the surrounding transport network, with no upgrades considered required.

Table 8 Forecast travel demand to Stadium Australia

Travel Demand	Event Scenario	Existing Stadium						Proposed Stadium					
		Regular Event		Peak Event		Concert		Regular Event		Peak Event		Concert	
	Attendance	25,000		83,000		98,000		25,000		70,000		90,000	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Mode Choice	Driver / passenger	48%	12,000	26%	21,580	26%	25,480	47%	11,750	25%	17,500	25%	22,500
	Dropped off in private vehicle	1%	250	1%	830	2%	1,960	1%	250	1%	700	2%	1,800
	Taxi/Uber	7%	1,750	7%	5,810	7%	6,860	7%	1,750	7%	4,900	7%	6,300
	Train	40%	10,000	50%	41,500	50%	49,000	36%	9,000	46%	32,200	46%	41,400
	Special event Bus	0%	-	12%	9,960	12%	11,760	0%	-	10%	7,000	12%	10,800
	Light Rail*	0%	-	0%	-	0%	-	5%	1,250	7%	4,900	5%	4,500
	Walk / cycle	2%	500	2%	1,660	1%	980	2%	500	2%	1,400	1%	900
	Bus/ coach	2%	500	2%	1,660	2%	1,960	2%	500	2%	1,400	2%	1,800
Total		**100.0%**	**25,000**	**100%**	**83,000**	**100%**	**98,000**	**100%**	**25,000**	**100%**	**70,000**	**100%**	**100%**

* Subject to approval of final business case for Parramatta Light Rail Stage 2 project

4.2 Stadium access and circulation

No changes are proposed to the existing vehicular or pedestrian access arrangements. Access will remain via the single driveway ramp on Edwin Flack Avenue at the north-western end of the stadium.

4.3 Road network impacts

The proposal involves a reduction in the overall seated capacity of Stadium Australia from 83,000 to 70,000 people. The travel demand analysis has forecast a reduction in the number of people arriving to the venue by private vehicle by approximately 19% compared to current conditions – equivalent to approximately 1,500 vehicles taken off the road network prior to the start of a major event.

No additional car parking is proposed as part of the project which will further contribute to managing the transport impacts of the proposal. Vehicle access to the car park and loading dock will remain on Edwin Flack Avenue – unchanged from the current situation.

It should also be noted that the NSW Government is progressing investigations to improve access to Sydney Olympic Park by building a westbound off-ramp from the M4 Motorway onto Parramatta Road. The proposed works would include the following (illustrated in Figure 19):

- Building an off ramp on the southern side of the M4 Motorway to allow traffic to exit the motorway onto Parramatta Road
- Modifying Parramatta Road and Hill Road intersection to provide a new left turn slip lane onto Hill Road
- Modifying the footpaths along Parramatta Road and Hill Road within the area of the proposed modification
- Widening the M4 Motorway eastbound off ramp to two lanes and providing traffic signals at the offramp intersection with Hill Road
- Widening of Hill Road to allow for improvements at the intersection of Hill Road and John Ian Wing Parade

This project would provide for enhanced connectivity and capacity for people driving to Stadium Australia – particularly given Hill Road currently acts as the main approach route for the 3,200 space P1 car park.

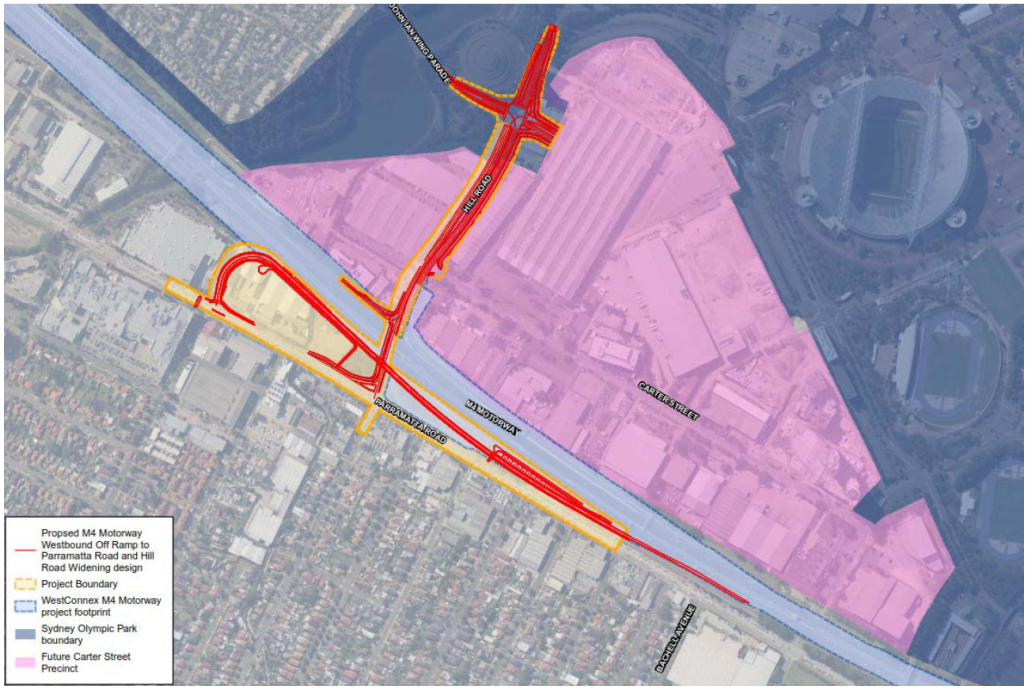

Figure 19 Proposed Hill Road off-ramp works

Source: Roads and Maritime Services (2019)

Therefore in the above context the proposal will result in a reduction in the number of private vehicles on the road network during major events. No amendments to the road network are required to support the proposal.

4.4 Public transport services

As demonstrated in the travel surveys undertaken for this study, public transport is already heavily utilised by people attending major events at Stadium Australia. The surveys indicated train, bus and ferry already contributes to over 60% of journeys to the venue for major events. The combination of heavy rail services to Olympic Park station, regular bus services and nine special event bus routes provide a high level of accessibility and capacity by public transport.

Integrated ticketing arrangements are in place for all events at Stadium Australia, with the extent of public transport services offered dependent on the event size. Integrated ticketing has proven to be a successful method of encouraging people to use public transport and these arrangements will continue following the redevelopment of the stadium.

The NSW Government is currently planning for two major public transport projects which will directly benefit Stadium Australia and Sydney Olympic Park more broadly. These projects will increase the already strong public transport accessibility to Stadium Australia and benefit the overall transport network.

A description of these new public transport projects and their implication for the Stadium Australia redevelopment project are described in the sections below.

Parramatta Light Rail Stage 2

Parramatta Light Rail (PLR) is a major NSW Government infrastructure project connecting Westmead, Parramatta, Camellia, Carlingford and Sydney Olympic Park. Stage 1 includes 16 stops from Westmead to Carlingford via Parramatta CBD and Camellia.

Stage 2 of the project is currently in planning with the preferred route (see Figure 20) connecting to Stage 1 and running north of the Parramatta River through Ermington, Melrose Park, Wentworth Point, Sydney Olympic Park, and terminating at Carter Street. Stage 2 will have a 9 kilometre two-way track and approximately 10-12 stops, with travel times of around 25 minutes from Olympic Park to Camellia, and a further 8 minutes to Parramatta CBD.

PLR Stage 2 will significantly improve access to Stadium Australia for residents living in Parramatta and areas north of the Parramatta River, with two stops to be located within easy walking distance of the venue. The delivery of the project is subject to a final business case currently being prepared by the NSW Government.

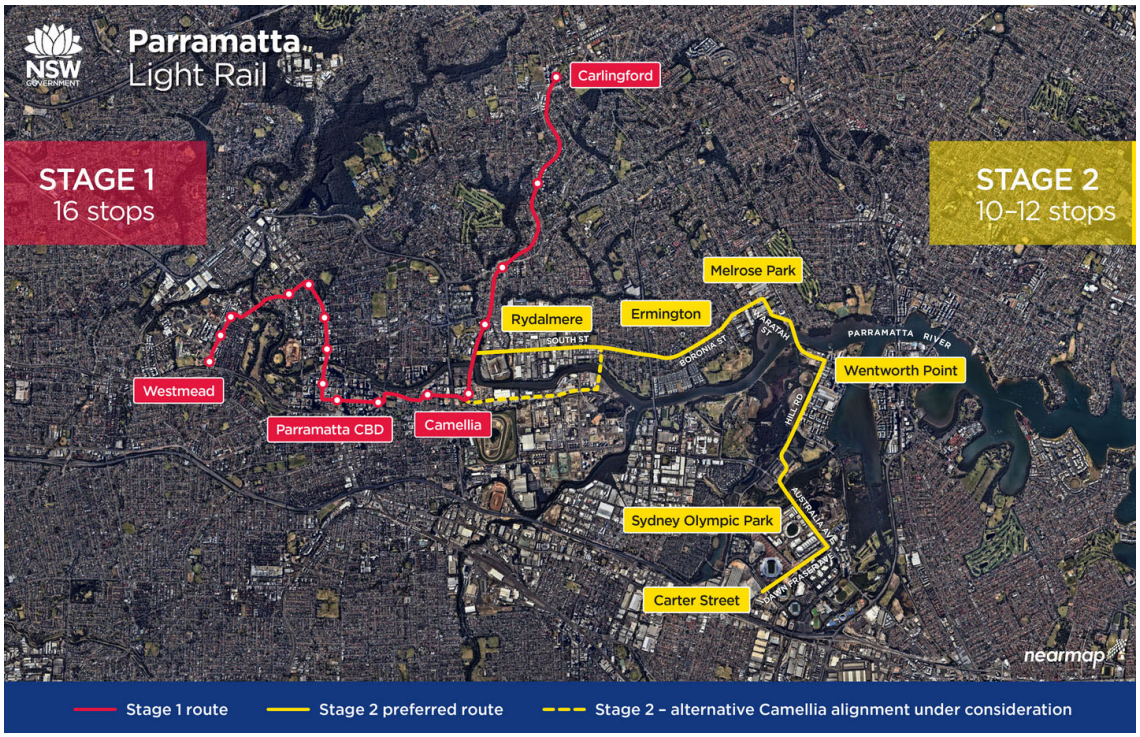

Figure 20 Parramatta Light Rail preferred route

Source: Transport for NSW

Sydney Metro West

Sydney Metro West is an underground metro railway that will link the Parramatta and Sydney CBDs, linking communities along the way that have not been previously serviced by rail and unlocking housing supply and employment growth between the two major CBDs. New metro rail will become the fastest, easiest and most reliable journey between the Sydney and Parramatta CBDs.

New stations are envisaged Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays Precinct and the City as shown in Figure 21. The proposed station at Sydney Olympic Park would directly service people travelling to Stadium Australia and offer capacity relief to the existing heavy rail line. The delivery of the project is subject to a final business case currently being prepared by the NSW Government.

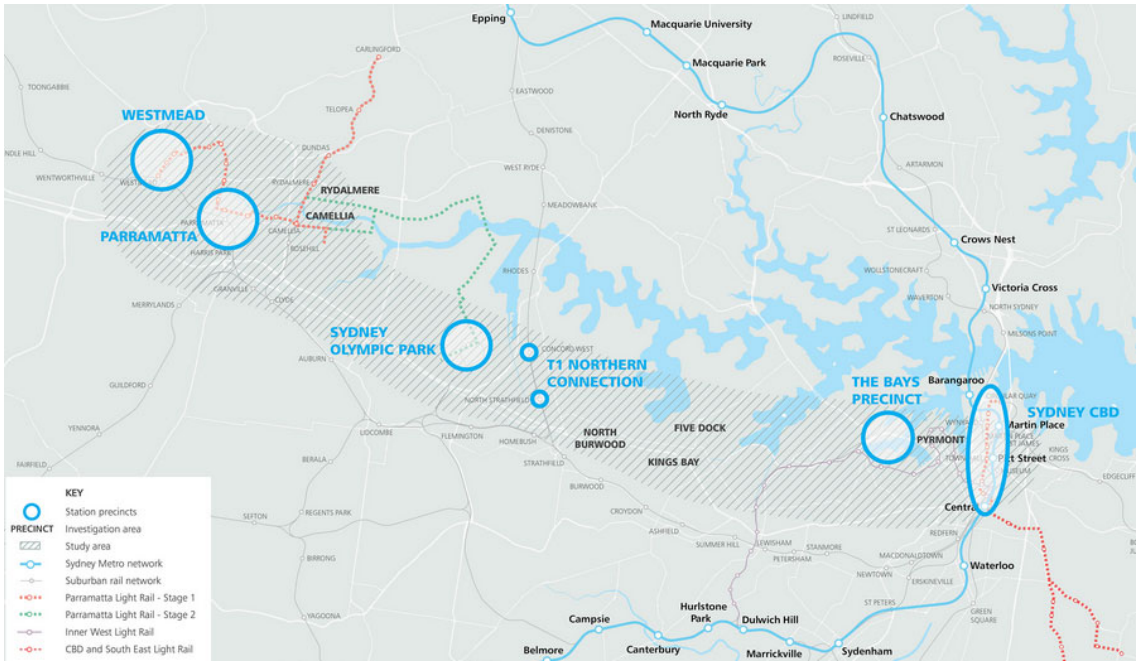

Figure 21 Sydney Metro West map

Source: Transport for NSW

In the context of:

- The already strong public transport network servicing Stadium Australia as evidenced by the high modal share for major events;
- The reduction in forecast travel demand on public transport services due to the reduction in stadium capacity; and
- The future public transport projects currently being planned by the NSW Government

No further enhancements to the public transport network are considered necessary to support the proposed Stadium Australia redevelopment project.

4.5 Parking

4.5.1 Car parking

Currently there are in the order of 150 car parking spaces in the basement of Stadium Australia, with vehicle access provided via a driveway ramp off Edwin Flack Avenue. These spaces are reserved for players / officials, VIPs and accredited staff, and are not available to the general public. The project does not propose any changes to these existing car parking arrangements within the stadium.

The stadium is already serviced by approximately 9,500 off-street public car parking spaces located within Sydney Olympic Park which are available during event mode. In addition there are approximately 750 on-street parking spaces located in the precinct. It is not proposed to alter this number of car parking bays as part of the Stadium Australia redevelopment project. The overall reduction in travel demand associated with the drop in seated capacity does not trigger the need for any additional car parking spaces in the precinct.

4.5.2 Bicycle parking

While sufficient space is currently available within the basement of Stadium Australia for staff to park their bicycles, no formal (secure) bicycle parking currently exists. As part of the project it is proposed to provide, as a minimum, secure bicycle parking for 5% of permanent staff at Stadium Australia. This will equate to a minimum of 10 spaces based on the 200 permanent staff at the venue. Given the high number of end of trip facilities already located in the stadium (more than 1,000 lockers and 10-12 showers) no additional facilities are proposed as part of this project.

The location of these spaces will be confirmed during the detailed design phase of the project however it is envisaged they would be within the existing basement of the stadium. This will assist in encouraging staff to travel to the site by sustainable travel modes.

A number of visitor bicycle parking spaces are located in the public domain around Stadium Australia and are considered suitable to continue to service the venue.

4.6 Loading and servicing

There are currently 15 dedicated parking bays for loading and servicing vehicles at Stadium Australia. Following discussions with the stadium operator, it is understood this loading provision is adequate to accommodate the existing demand generated by the venue. The current basement and loading dock can accommodate a range of vehicles including semi-trailers which are used for bump in and bump out of major concerts held at the venue. Other vehicles that may be accommodated in the basement include:

- 14.5m coaches
- 12.5m Heavy Rigid Vehicles (HRVs)
- 8.8m Medium Rigid Vehicles (MRVs)
- 6.5m Small Rigid Vehicles (SRVs)

Although the proposed redevelopment project includes enhanced food and beverage offering and better corporate facilities which will increase the servicing task, this is expected to be entirely offset by the reduction in demand associated with the revised stadium capacity of 70,000 (currently 83,000). Therefore the current provision for servicing / loading vehicles in the basement of Stadium Australia is considered sufficient to accommodate the future needs of the venue.

5 Travel Demand Management

5.1 Overview and objectives

The redevelopment of Stadium Australia provides an opportunity to heavily promote the use of sustainable modes of transport as a means of accessing the venue and encourage travel behaviour change. This section outlines the strategies and monitoring mechanisms to reduce the private vehicle impacts arising from the proposed development. These strategies will be further refined as the project progresses.

The main objectives of these measures are to reduce the reliance of private vehicles as a means of accessing Stadium Australia and promoting sustainable means of transport. The more specific objectives include:

- High modal share for public transport, cycling and walking journeys for both staff and spectators
- To ensure adequate facilities are provided at the site to enable users to travel by sustainable transport modes
- To raise awareness of sustainable transport amongst users

It should be recognised that public transport, walking and cycling already contributes to nearly two thirds of all trips made to major events at Stadium Australia. Therefore existing infrastructure and policies in place are already having an effective impact in encouraging people to travel to the venue by modes other than private vehicle.

5.2 Potential measures

An overview of the measures proposed are described in the following sections:

Infrastructure measures

- No increase in the number of on-site car parking spaces compared to current levels
- Formalisation of staff bicycle parking area within the basement
- Secure bike parking and end of trip facilities (including showers and change rooms) for at least 5% of permanent staff.
- Working with Transport for NSW and other key agencies to deliver improvements to the public transport network servicing Sydney Olympic Park, including:
    - Parramatta Light Rail stage 2
    - Sydney Metro West

Educational and promotional measures

There are a number of tools available in encouraging behaviour change and communicating travel options that are available to all stadium users – including staff and visitors. These are summarised below, and are recommended to be developed by the completion of the redevelopment of the stadium.

- Improved travel information on the Stadium Australia, particularly around public transport and walking / cycling routes. The recently opened Optus Stadium in Perth provides a good example of displaying appropriate travel information, with travel by public and active transport promoted and use of private vehicles discouraged. This is shown in Figure 22.

Figure 22 Example of travel information – Optus Stadium Perth

- Working with ticketing agencies to provide customers with travel information after they purchase their tickets online. Key information could be provided such as suitable public transport opportunities, walking routes and bicycle parking locations.
- Making staff aware of available bicycle parking and end of trip facilities at the venue as part of their induction process.

Integrated ticketing

Integrated ticketing arrangements are in place for all events at Stadium Australia, with the extent of public transport services offered dependent on the event size. Integrated ticketing has proven to be a successful method of encouraging people to use public transport and these arrangements will continue following the redevelopment of the stadium.

5.3 Monitoring mechanisms

The monitoring measures could include:

- Collecting data on employee travel patterns for journeys to work (through surveys or analysing journey to work or Opal data)
- Visitor travel patterns via interview surveys conducted prior the start of events.
- Review the demand for on-site car parking for different events held at Stadium Australia
- Review the number of people using public transport in the area through a review of Opal patronage data and counts at the major event bus terminals
- Demand for bicycle parking facilities in the precinct.

6 Construction Pedestrian and Traffic Management Plan

This section details a preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) for the construction of the redeveloped Stadium Australia. The purpose of the CPTMP is to assess the proposed access and operation of construction traffic associated with the proposed development with respect to safety and capacity. The Contractor will prepare a more detailed CPTMP with Traffic Control Plans prior to the commencement of works, detailing specific methods of safely managing construction and pedestrian traffic within the surrounding area.

6.1 Description of construction activities

6.1.1 Construction programme

It is currently envisaged construction works will commence in July 2020 and take approximately two and half years to complete. The various stages of construction is noted in Table 9 below. As the project is in its preliminary stages, the following timeframes are approximate and may vary once further details are known.

Table 9 Preliminary construction programme

Activity	Start date	End date
Procurement and Establishment	July 2020	August 2020
Demolition	October 2020	March 2021
Construction	March 2021	January 2023

6.1.2 Working hours

Work associated with the development will be carried out between the following hours of construction:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 1pm
- Sunday / public holiday: No work

The appointed contractor will be responsible for instructing and controlling all subcontractors regarding the hours of work. Any work outside the approved construction hours would be subject to specific prior approval.

6.1.3 Construction site boundary

The proposed site boundary for the construction works is illustrated in Figure 23 below, and encompasses the entire perimeter of the existing stadium. Fencing and hoarding will be installed by the contractor to establish this boundary and ensure appropriate separation of construction works with other users of the precinct.

Figure 23 Construction site boundary

Site accommodation will be established within the existing basement of Stadium Australia to minimise the construction footprint at ground level.

6.1.4 Construction vehicle site access

Three vehicular site access points are proposed to facilitate the construction works as shown in Figure 24. These proposed access points, including vehicle turning movement restrictions, are described in Table 10. Traffic controllers will be present at the vehicle crossover points to manage interactions with pedestrians.

Table 10 Description of proposed site access points

Frontage road	Location	Vehicle turning movements
Dawn Fraser Avenue	East of Edwin Flack Avenue	All turning movements permitted
Edwin Flack Avenue	North of Dawn Fraser Avenue	Left in / left out only
Edwin Flack Avenue	At existing basement car park / loading dock entry point	Left in / left out only

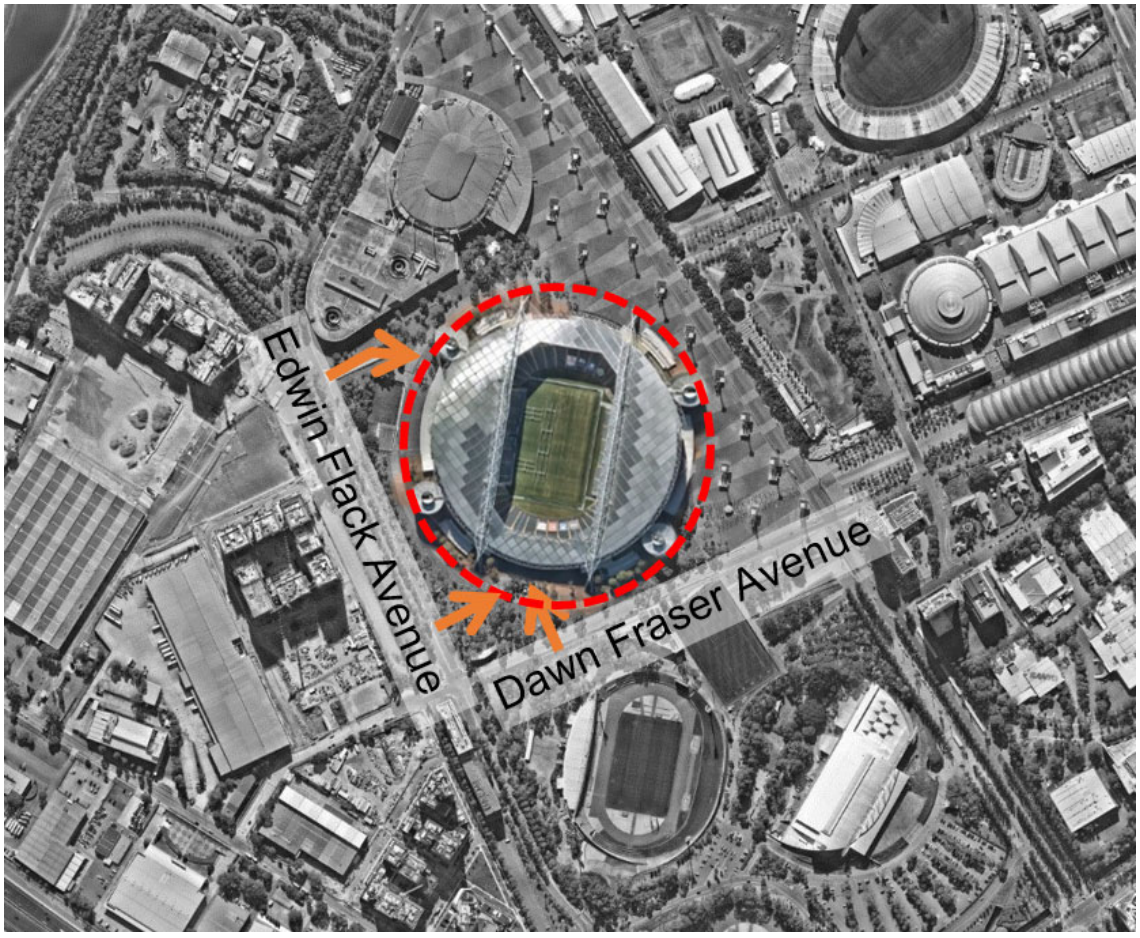

Figure 24 Construction site access points

6.1.5 Construction vehicle types

Vehicles that will access the site during construction will likely mainly comprise of heavy vehicles including Articulated Vehicles (AV) such as precast delivery trucks and Heavy Rigid (HR) such as concrete trucks are expected to access the site. These different types of vehicles may access the site at the same time. Other heavy machinery plants such as cranes will have to be delivered to site in the preliminary stage. All heavy goods such as girders or machinery plants are likely to be delivered outside of peak traffic hours.

6.1.6 Construction vehicle routes

The main construction access routes will be via the state road network including the M4 Motorway, Parramatta Road and Homebush Bay Drive. It is expected that the vast majority of construction vehicles will access the site via Parramatta Road / M4 Motorway and Hill Road, with a small number arriving via Homebush Bay Drive. All vehicles will utilise Hill Road to enter one of the three site access points located on Edwin Flack Avenue and Dawn Fraser Avenue.

Egress for vehicles will generally be via Uhrig Road, Carter Street and Hill Road. Those vehicles travelling back to Homebush Bay Drive will utilise Edwin Flack Avenue, Sarah Durack Avenue and Australia Avenue.

The inbound and outbound construction vehicle routes are illustrated in Figure 25 and Figure 26 respectively.

It should be noted that Olympic Boulevard will not be used for construction vehicle access or egress so as not to impact other activities in Sydney Olympic Park such as the Royal Easter Show or events at Qudos Bank Arena.

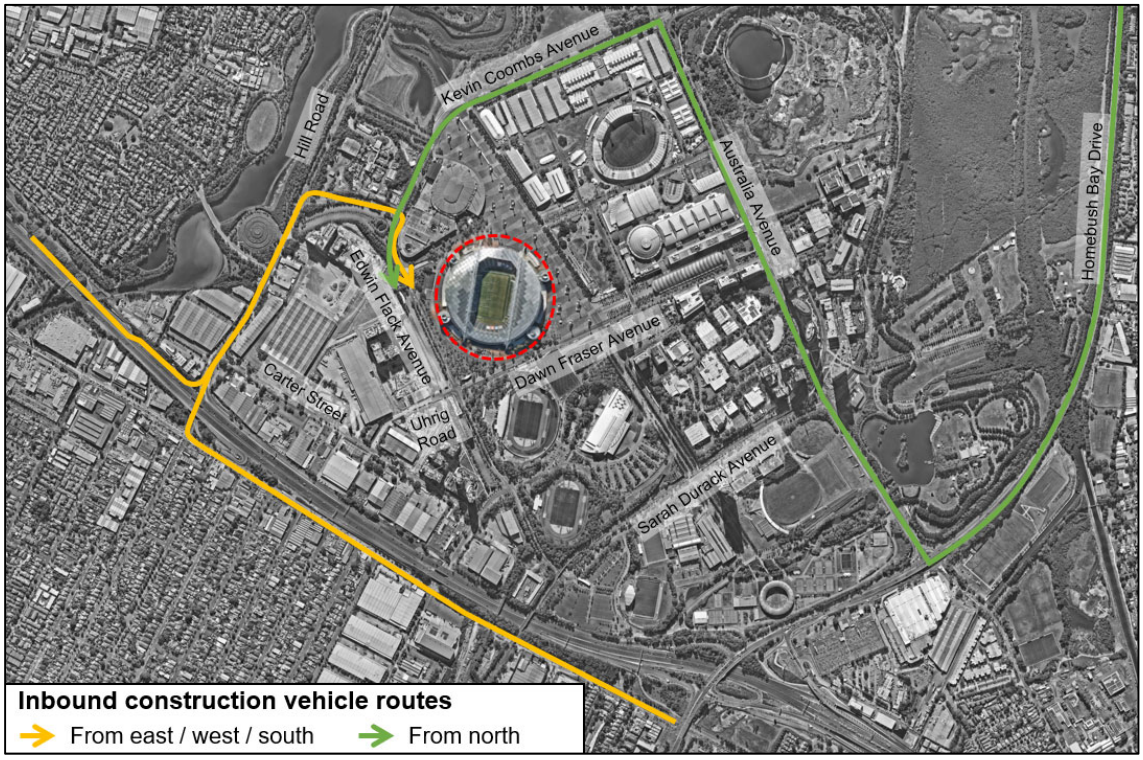

Figure 25 Inbound construction vehicle routes

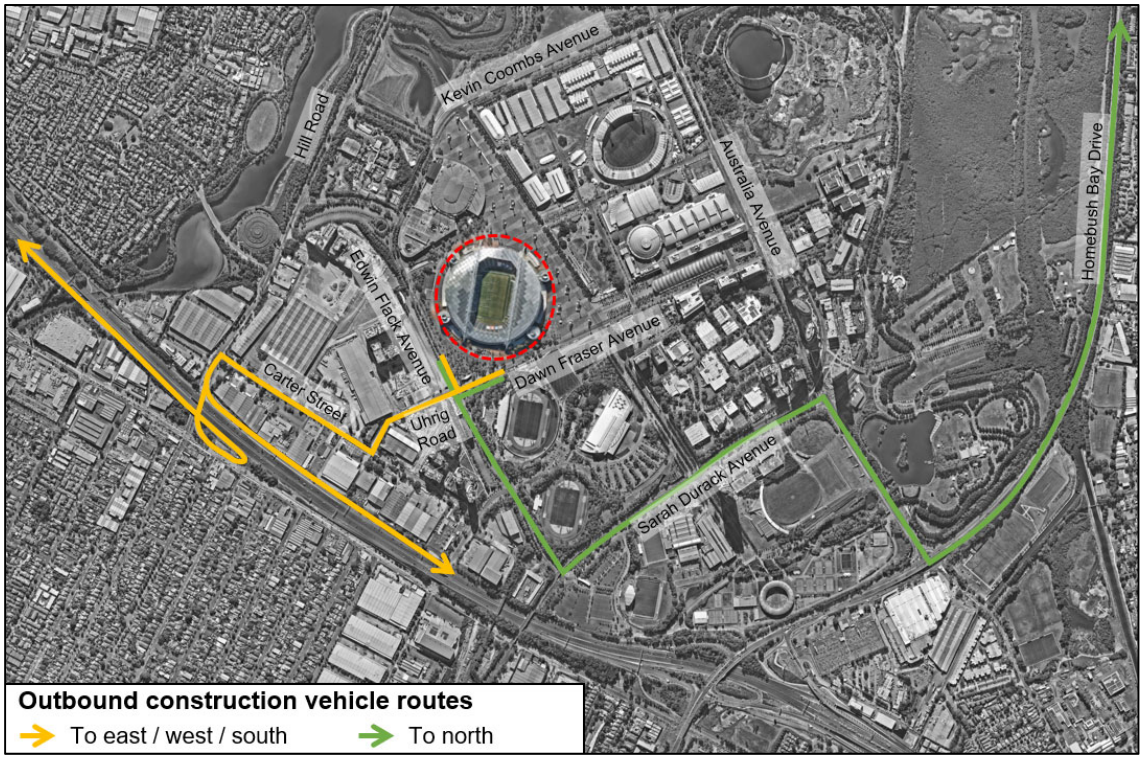

Figure 26 Outbound construction vehicle routes

6.1.7 Construction vehicle volumes

Heavy vehicles

The number of daily heavy vehicles accessing the site is forecast to vary from between 40-50 vehicles per day during the demolition phase and 40-60 per day during the peak construction period. This is summarised in the table below.

Table 11 Estimated construction vehicle volumes

Activity	Forecast duration	Average weekday traffic generation	Maximum hourly traffic generation
Procurement and Establishment	30 days	15 vehicles	3 vehicles
Demolition	240 days	40-50 vehicles	6-7 vehicles
Construction	720 days	40–60 vehicles	6-7 vehicles

Light vehicles

Workers will generate some additional traffic to the site. Typically, the demolition phase will have a workforce of 50 people, with up to 300 people on site during the construction phase. Typically construction workers have a high vehicle occupancy of between 2-3 people per vehicle, however a conservative vehicle occupancy of 1.5 people / car has been assumed for this project. This would generate 33 vehicles during the demolition phase and 200 vehicles during the construction phase. This level of activity is commensurate with that currently generated by non-event day staff associated with Stadium Australia. Further, construction workers generally start earlier and finish earlier than the commuter peak periods, and would likely not coincide with the peak periods of the adjacent road network.

6.1.8 Work zones

It is not expected that on-street work zones will need to be established to facilitate the construction works. Instead all construction vehicles and materials will be held within the site boundary

6.1.9 Road closures and crane locations

No road closures are expected to be necessary to facilitate construction, ensuring people driving in the streets around Sydney Olympic Park are not impacted by the proposed works.

It is anticipated mobile cranes will be used during the project and would be located entirely within the site boundary.

6.2 Assessment of construction activities

6.2.1 Pedestrians and cyclists

Pedestrian movements will be maintained through the provision of a mixture of construction site fencing and hoardings along the perimeter of the site. Pedestrian and cyclist movements are not expected to be impacted along the site frontage. Traffic controllers with appropriate accreditation will hold construction vehicles at cross-over points and allow pedestrians to cross these work areas.

The newly created vehicle cross-over points on Edwin Flack Avenue and Dawn Fraser Avenue will be provided temporarily and then the existing public domain treatments will be reinstated prior to the opening of the redeveloped stadium.

At this stage it is not envisaged that any footpath closures will be required to facilitate the construction project as the proposed construction compound boundary is entirely within the public domain surrounding the stadium, and does not extend onto the surrounding footpath or road frontage.

6.2.2 Events in Sydney Olympic Park

This construction pedestrian traffic management plan has been developed with specific consideration of ensuring events in Sydney Olympic Park will remain unaffected by the proposed works. Measures to be adopted include:

- Establishing a construction site boundary which does not impact pedestrian movements to/from Qudos Bank Arena and more generally along Olympic Boulevard
- No construction vehicles to be permitted on Olympic Boulevard at any time to allow the Plaza and Aquatic bus terminals to remain open during the Royal Easter Show. All major event buses that currently access Sydney Olympic Park will still have the ability to do so during the construction works.
- Proposed construction site access points not impacting the existing service vehicle access into Qudos Bank Arena (currently located on Edwin Flack Avenue)
- The appointed contractor to be in close consultation with SOPA and other key agencies to manage construction activities in the context of broader activities occurring in the precinct

6.2.3 Car parking

No on-site car parking is proposed for construction staff. Instead construction workers would have access to numerous car parking options available within Sydney Olympic Park, including the 3,200 space capacity P1 car park located immediately opposite the site. In the context of the approximately 10,000 publicly available parking spaces in the precinct, the additional parking demand generated by the project (approximately 200 cars) is considered negligible.

6.2.4 Public transport

It is not expected that public transport services would be affected by the works. The existing bus stops on Dawn Fraser Avenue and Edwin Flack Avenue should be maintained and unimpacted by the works. No bus services would be impacted by construction traffic as the work is confined to off street works.

As no construction vehicles will be using Olympic Boulevard to access the site, the existing event bus terminals (plaza and aquatic centre) will be unaffected by the proposed works.

The relatively close proximity of public transport servicing the site via heavy rail and the adjacent bus network will enable construction personnel to easily access the site via public transport, minimising the road traffic impact around the site.

6.2.5 Emergency vehicles

If required, emergency vehicles will be able to access the site via the proposed construction vehicle access points.

6.2.6 Road safety

The construction works are not anticipated to impact road user safety for the following reasons:

- The vehicle site access points will be under the control and management of accredited traffic controllers, who will prevent vehicles from leaving the site until it is safe to do so;
- Construction vehicle routes have been selected so as not to coincide with major pedestrian activity areas – specifically away from Olympic Boulevard;
- Vehicle access into the site on Edwin Flack Drive will be restricted to left in – left out movements;
- Although right turns into and out of the site access point on Dawn Fraser Avenue is proposed, traffic flows on this street are low (less than 5,000 per day) and likelihood of conflicts are low;
- The key egress route for vehicles is via the Dawn Fraser Avenue / Edwin Flack Drive which is controlled by traffic lights which has the capacity to safely manage the movement of vehicles through this location;
- Construction traffic vehicle flows are relatively low – in the order of 30-60 per day throughout the construction project. This is considered minimal in the context of existing traffic movements in the precinct and therefore would not impact road user safety; and
- All footpaths and bicycle paths will remain open and unaffected during the construction period.

6.2.7 Cumulative construction traffic

There are a number of ongoing construction related activities located in the Carter Street precinct which is adjacent to the Stadium Australia redevelopment site. These primarily relate to the development of the neighbouring Carter Street precinct from existing light industrial to primarily residential uses.

Construction vehicles accessing the Carter Street precinct will primarily utilise Hill Road, consistent with the approach routes for Stadium Australia. However construction vehicles would then turn right from Hill Road into Carter Street, while Stadium Australia vehicles continue through along Hill Road to access the construction site. In this respect the construction access routes do not overlap which reduces the overall impacts on the road network. Further, the number of construction vehicles generated by the Stadium Australia redevelopment project is relatively low (up to 60 per day) which in the context of existing traffic volumes on Hill Road would result in negligible impacts.

The appointed contractor will need to engage in ongoing consultation with key agencies including City of Parramatta Council, Transport for NSW and SOPA during the construction period to ensure any cumulative impacts with other projects (particularly the Carter Street precinct development) are managed appropriately.

6.2.8 Site induction

All staff employed on the site would be required to undergo a site induction. The induction would include permitted access routes to and from the construction site for site staff and delivery vehicles, limited parking arrangements, as well as standard environmental, workplace health and safety, driver protocols and emergency procedures. The approved work hours must be included as part of this induction.

6.2.9 Mitigation measures

Mitigation measures would be adopted during the construction phase to ensure traffic movements have minimal impact on surrounding land uses and the community in general, and would include the following:

- Truck loads would be covered during transportation off-site for sensitive loads
- Establishment and enforcement of appropriate on-site vehicle speed limits (20km/h), which would be reviewed depending on weather conditions or safety requirements
- Neighbouring properties would be notified of construction works and timing
- Materials would be delivered during standard construction hours
- Avoid idling trucks alongside sensitive receivers
- Deliveries would be planned to ensure a consistent and minimal number of trucks arriving at site at any one time
- No on-site parking to be provided to encourage the use of public transport to the construction site
- No queuing or marshalling of trucks will be permitted on public roads
- Traffic controllers not to stop traffic on public roads to allow trucks to enter or leave the site

6.2.10 Detailed construction traffic and pedestrian management plan

The Contractor (once appointed) will prepare a more detailed CPTMP prior to the commencement of works on the site. This plan will contain additional information to that presented in this document such as:

- Site compound locations
- Driver facility areas
- Vehicle turning paths within the site
- Traffic control plans

6.2.11 Consultation

Should temporary road closures be required at any stage of the construction period, these would be obtained separately through the normal approvals process.

Ongoing consultation will be conducted by the appointed contractor with relevant stakeholders to ensure everyone is kept up to date on the progress of the construction works and any potential disturbances.

7 Summary and Key Findings

This transport assessment supports a State Significant Development (SSD) Development Application (DA) for the refurbishment of Stadium Australia in Sydney Olympic Park. The assessment considers existing and future transport arrangements for Stadium Australia and outlines the potential impacts of the project – both during construction and operation. Key findings of the assessment are summarised in the table below:

Table 12 Summary of key findings

Item	Key Findings
Mode share / travel demand	• Travel surveys have demonstrated that the majority of people travel to Stadium Australia by public transport for major events – with train and bus combining for over 60% of journeys to the venue. This is reflective of the range of high capacity public transport options available to spectators, particularly the direct train service to Olympic Park railway station. • Due to the reduction in stadium capacity from 83,000 to 70,000, the overall travel demand for major events is forecast to reduce when compared to current levels.
Integrated ticketing	• Integrated ticketing (where the cost of public transport is included in the price of admission to the venue) is provided for both major and regular events at Stadium Australia – with these arrangements to continue following the proposed refurbishment.
Public transport	• The combination of heavy rail services to Olympic Park station, regular bus services and nine special event bus routes provide a high level of accessibility and capacity by public transport. • The NSW Government is currently planning for two major public transport projects which will directly benefit Stadium Australia and Sydney Olympic Park more broadly – those being Sydney Metro West and Parramatta Light Rail Stage 2. Both projects are subject to final approval following completion of final business cases.
Walking and cycling	• Stadium Australia is serviced by an extensive network of over 35km of walking and cycling paths. Bicycle parking is provided for visitors in the precinct. • The refurbishment project proposes to enhance the existing bicycle parking area within the stadium by providing secure bicycle parking for 5% of permanent staff at Stadium Australia.

Item	Key Findings
Car parking	• Currently there are in the order of 9,500 spaces at Sydney Olympic Park provided in off-street car parking areas which are available for use during events. • Approximately 150 car parking spaces are provided within the basement of Stadium Australia and are reserved for players / officials, VIPs and accredited staff / media. • No changes to existing car parking arrangements or numbers are proposed as part of the project
Road network	• Stadium Australia is serviced by a range of State, regional and local roads. • Event day road closures are implemented SOPA to manage traffic and pedestrian flows and facilitate access to the event bus terminals on Olympic Boulevard. • Due to the reduction in stadium capacity, the travel demand analysis has forecast a reduction in the number of people arriving to the venue by private vehicle by approximately 19% compared to current conditions – equivalent to approximately 1,500 vehicles taken off the road network prior to the start of a major event. • No additional car parking is proposed as part of the project which will further contribute to managing the transport impacts of the proposal.
Construction management	• Management measures are to be in place to minimise the impact of construction works, including: ○ Establishing a construction site boundary which does not impact pedestrian movements to/from Qudos Bank Arena and more generally along Olympic Boulevard ○ No construction vehicles to be permitted on Olympic Boulevard at any time to allow the Plaza and Aquatic bus terminals to remain open during the Royal Easter Show. ○ Proposed construction site access points not impacting the movement of pedestrians or cyclists ○ No road closures or on-street works zones to be implemented during the construction period ○ Vehicle site access points to be under the control and management of accredited traffic controllers ○ The appointed contractor to be in close consultation with SOPA and other key agencies to manage construction activities in the context of broader activities occurring in the precinct • The extent of these management measures will be confirmed by the appointed contractor who will also develop a detailed Construction Pedestrian Traffic Management Plan.