

Memorandum

ARUP

To Stephanie Ballango (Savills)

Date
28 August 2019

Copies

Reference number

From Scott Hampson

File reference

Subject SFS – Driver Ave Entry Lifts

The Sydney Football Stadium (SFS) is being redeveloped into a modern, world class venue by the NSW Government. As part of the Stage 2 works the design was released for public comment, with the feedback period ending in July 2019. As a result of the consultation and feedback process a question was raised regarding the lift capacity in the outdoor space / entry at Driver Avenue connecting to drop-off areas and the car parks. Arup has been engaged to review the lift service required for the SFS Driver Ave entry and provide our opinion as to the adequacy and appropriateness of the lift service.

In preparation of this report we draw on information contained in the following documents:

1. Stage 2 DA Architectural Design Statement Report
2. Appendix V – DDA Compliance Statement
3. Appendix FF – BCA Statement.

We have been advised of the following information that is relevant to the lift review:

1. The driver Ave entry is expected to service 70% of the Stadium patrons
2. During major events the lifts at the Driver Ave entry would be staffed, to assist patrons in access to the Stadium.
3. Lifts are intended for Persons Requiring Universal Access (PRUA) only.

We note the following data that is relevant to lift services and the Driver Avenue entry to the SFS:

1. There is expected to be up to 45,000 visitors in stadium mode
2. There is expected to be up to 55,000 visitors in concert mode
3. Two lifts are provided adjacent to very wide and open stairs
4. The vertical rise of the stair and the lifts is 6 metres
5. The lift arrangement appears to be “through type”
6. Lifts are stated as being large enough for 2 wheelchairs (33 passengers).

We make the following assumptions in the calculations of the lift service:

1. 2% of the Stadium visitors may be PRUA.
2. PRUA should include persons with limited mobility, families with prams, families with small children and other persons who, for reasons of health/ safety should not use the stairs.
3. Arrival time would be around 2 hours and departure time 30 minutes. Departure is the worst case scenario and would be used in our calculations.

Memorandum

Unlike commercial office buildings, where the lift / access performance is defined by the Property Council of Australia, stadiums and entertainment precincts do not have defined requirements for lift / access performance. In our review we reference an internationally recognised publication – The Vertical Transportation Handbook by George R Strakosch and Robert S Caperale. In this book it is advised that stadium filling and vacating time would normally be 30 minutes. We have used the 30-minute time frame for our review.

The plan below shows the location of the lifts to the west of the Stadium. The plan also shows that alternate entries / exits are provided for people who may wish to enter or leave in other directions. It is anticipated that the Driver Ave entry / exit will be the most used due to its connections with parking and light rail.

Vision

Accessibility

Precinct Context

The proposed design promotes universal accessibility, safety and security such that the Stadium is welcoming, inclusive and safe for all stadium users, including Persons Requiring Universal Access (PRUA).

To demonstrate that the proposed design achieves equity of access with dignified routes for people with a disability an Accessibility Report has been undertaken by Before Compliance.

Provisions for a DDA compliant access to and within the site has been incorporated through the following:

- A Persons Requiring Universal Access (PRUA) drop off area has been located within the vehicle access off Driver Avenue. Vehicles will go around the round-a-bout and the drop off is on their return to Driver Avenue.
- PRUA patrons have compliant access from the drop off area to lifts located within the Moore Park Steps entry plaza with direct access to the stadium concourse level. Two accessible lifts, sized to fit two wheelchairs have been provided.
- Informal drop off areas at the northern and southern ends of Driver Avenue provide additional DDA access.
- Level thresholds between the SFS and Moore Park Road pavement along the majority of the Moore Park Road boundary.
- Compliant circulation paths are provided throughout external concourse with areas to stops and rest to ensure the site remains accessible for those with impairments.

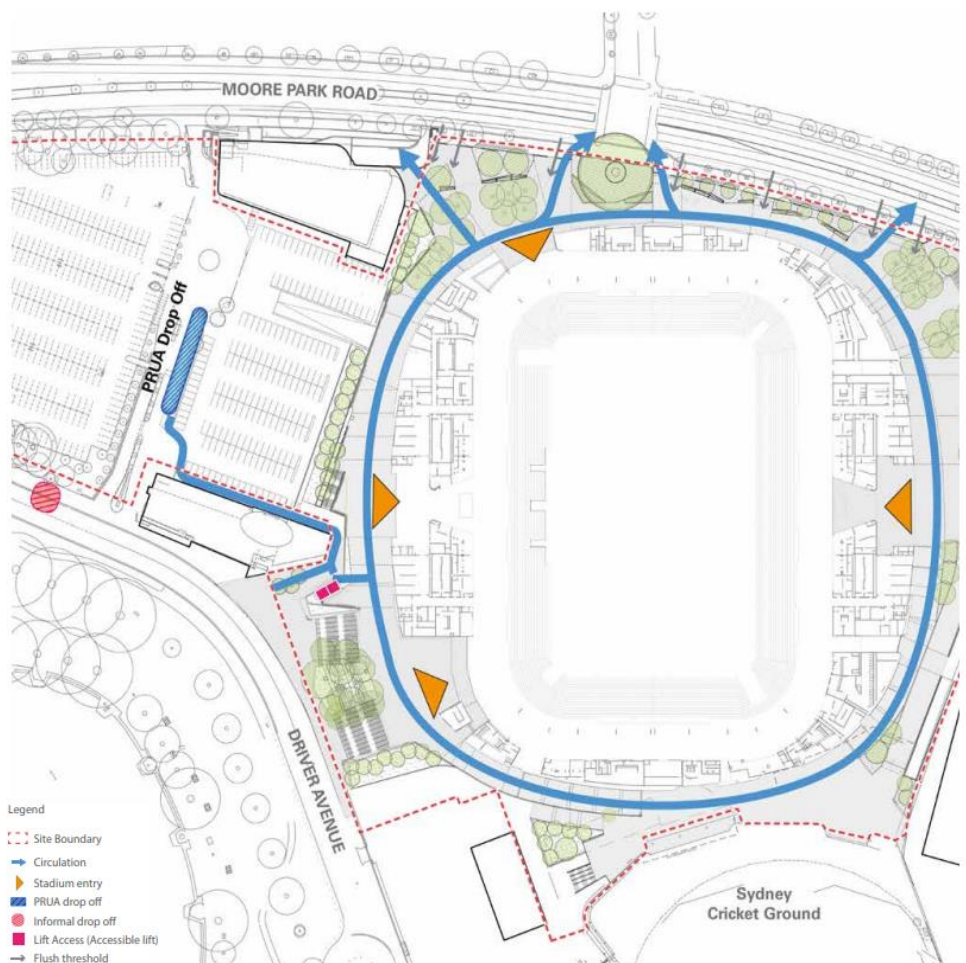


Figure 42: Accessibility of Precinct Context

Memorandum

The table below shows the number of seats that have been allocated for DDA uses (wheelchairs and others).

LEVEL	LIFT ACCESS	ACCESSIBLE TOILET	CHANGING PLACE	DDA SEATING		
				WHEELCHAIR	COMPANION	EAS
L0 Basement	4	11				
L1 Concourse	6	12	1	140	140	48
L1 Mezzanine	4	1				
L2 Club	4	9		64	64	16
L3 Suites	4	10				
L4 Concourse	4	4		68	68	40

Method of review

We have conducted lift reviews based on 2 methods, being:

1. A round trip time calculation using lift speed, acceleration, door times and transfer time to calculate the number of people transferred per minute.
2. A simulation using internationally recognised vertical transportation software (Elevate). The outputs of the software are average waiting times and queue lengths etc.

Lift details and capacity – results of the review

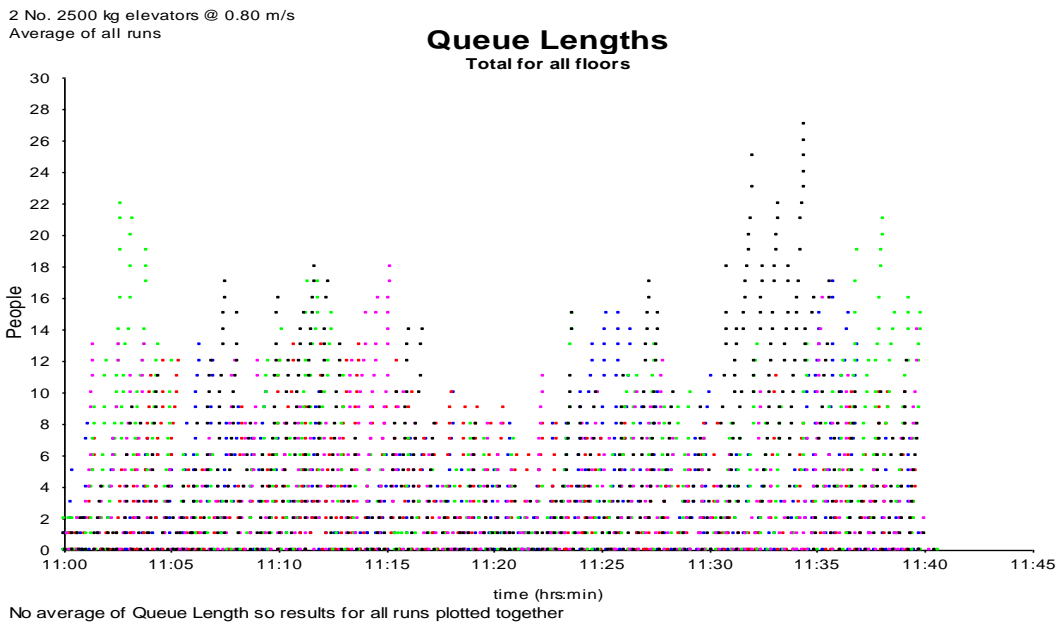
The table below shows our results and preferred lift details.

Item	Details / Outcomes	Comments
Number of Lifts	Two (2)	
Size of Lifts	2500 kg 33 passengers	These lifts are as currently designed for the SFS
Rise (travel) of Lifts	6 m	
Speed of Lifts	0.8 m/s	
Lift arrangement	Through car	Doors are front and rear and permit passengers to travel through the lift rather than turning around to exit.
Door width	1800 mm	
Maximum designed lift filling capacity	50%	Allows for wheelchair, walking frame, pram space etc.
Persons transferred per minute	39	Based on a round trip time calculation
Persons transferred per 30 minutes	1170	Based on a round trip time calculation
Persons transferred per 30 minutes	750	Based on a simulation using Elevate software
Lift redundancy	There is no allowance for redundancy. As an alternative 3 lifts could be provided instead of 2.	

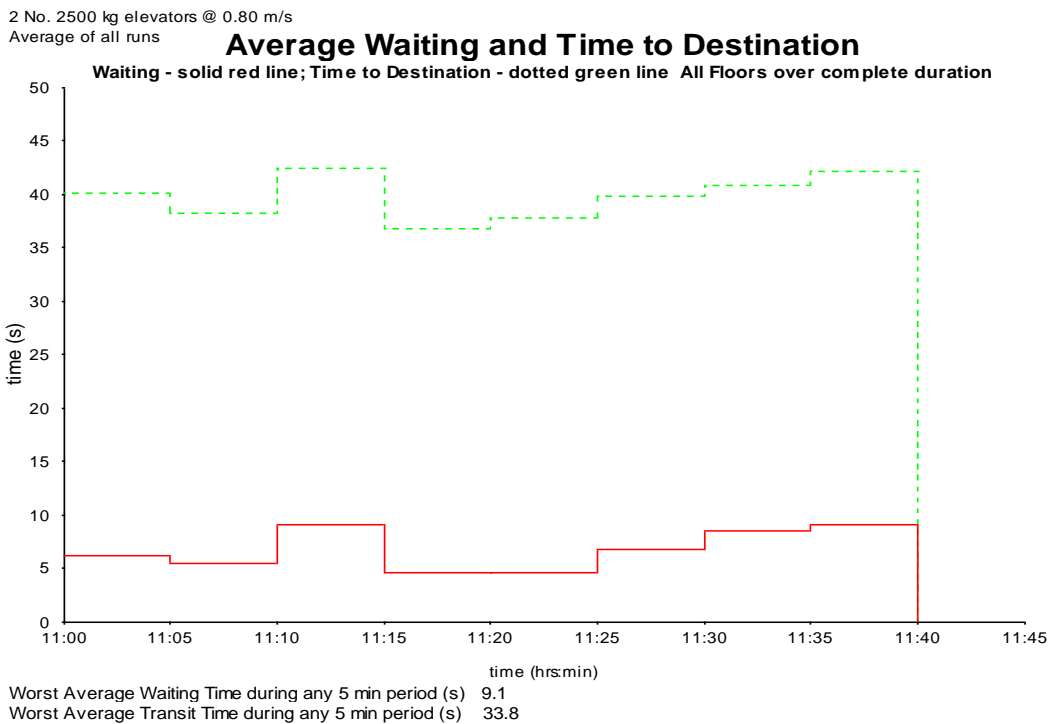
Elevate Graphical Results

Memorandum

The graphs below are the output results from Elevate.



Note the colours in the chart have no relevance.



Memorandum

Conclusion

A significant number of persons may choose to enter or exit the Stadium via the Diver Avenue (West) side of the Stadium and a portion of these people may not be able or willing to use the stairs that are provided adjacent to the lifts. Our review shows that two lifts (of 33 passenger capacity) planned for this location will deliver adequate capacity for the anticipated number of lift-passengers. We note that lifts must have wide doors to make loading quick and easy.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'S. Hampson', written in a cursive style.

Scott Hampson
Associate - Vertical Transportation