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Dear Kristjan

Crown Sydney: S4.55(2) Transport Study

1. Introduction

This statement has been prepared by Arup on behalf of Crown Resorts Limited ('Crown') to accompany a S4.55(2) Application in support of an increase in off street parking associated with residential component of the approved mixed use development at Barangaroo South.

An assessment of the expected traffic and parking impacts arising from the proposed modifications under the S4.55(2) Application has been undertaken, with the findings of our assessment discussed below.

2. Proposed changes to the residential component of the development under the S4.55(2) Application

A component of S4.55(2) application seeks to amend the approved residential component of the development by increasing the number of units from 66 apartments to 87 apartments with an altered dwelling mix. Table 1 summarises the comparison between the approved number of units and the new proposed plans.

Table 1: Comparison between the approved and the new proposed plans

Dwelling Type	Approved Development	Proposed Development
2 Bedroom	28	21
3 Bedroom	32	51
4 Bedroom	5	14
5 Bedroom	1	0
Duplex Penthouse (6+ Bed)	0	1
Total Dwellings	66	87
Provision of car parking Spaces	110	157

The parking requirements, traffic impacts and changes to the internal car parking design resulting from this S4.55(2) Application are discussed below.

3. On-site parking

The level of parking for residential uses is based on (maximum) car parking rates as outlined in the approved Barangaroo Concept Plan (Modification 8). These parking rates, along with the proposed dwelling mix for the site, are outlined in Table 2.

Table 2: Residential Parking Allocation

Dwelling Type	Number	Maximum Car Parking Rate	Maximum Number of Spaces required*	Number of spaces provided
2 Bedroom	21	1.2 spaces / unit	26	25
3 Bedroom	51	2.0 spaces / unit	102	102
4 Bedroom	14	2.0 spaces / unit	28	28
5 Bedroom	0	2.0 spaces / unit	0	0
Duplex Penthouse (6+ Bed)	1	2.0 spaces / unit	2	2
Total	87		158	157

* rounded up to the nearest whole number

The S4.55(2) application seeks to increase the off-street car parking provision to a total of 157 residential parking spaces provided, which complies with the requirements outlined in the Barangaroo Concept Plan. This is an increase of 47 spaces compared with the original consent (SSD 6957).

Bicycle parking for Crown Sydney residents will be provided in accordance with Green Star and City of Sydney Council's requirements. One secure bicycle space will be provided for each residential dwelling (87 spaces total).

It should be noted that, due to design changes in the basement car park, the number of parking spaces for non-residential uses has decreased slightly when compared with the original consent. These changes are as follows:

- Increase by 21 valet car parking spaces
- Reduction of 37 car self-parking spaces
- Net decrease of 16 non-residential car spaces

4. Traffic Impacts

Traffic generation rates adopted for the residential component of the development are consistent with those utilised for the Barangaroo South precinct, which are as follows:

- AM Peak (8am – 9am): 0.14 vehicle trips / dwelling
- PM Peak (5pm – 6pm): 0.09 vehicle trips / dwelling

These rates were developed based on site specific traffic generation surveys at similar residential developments in the CBD on Sussex Street and Kent Street. Recent Census data indicates that only 5% of residents in the northern CBD area use private vehicles as their primary mode of travel to work. The majority (84%) walked to their office, supporting the low traffic generation rates utilised. Application of these rates to the proposed 21 (additional) units results in an increase of 3 and 2 vehicle trips in the AM and PM peak hour respectively, over and above that already considered for the approved development.

The reduction in the number of non-residential car parking by 16 spaces would however result in a *decrease* in vehicular traffic flows accessing the site. This would more than offset the small increase in traffic generation resulting from the additional residential dwellings. In fact, with the reduction in the number of non-residential parking spaces, the net change in traffic movements during the AM and PM peak hours would be -4 and -16 vehicles respectively. This is outlined in the table below, with the calculations and methodology used consistent with the approach taken in the approved DA documentation.

Approved under SSD 6957 on 28 June 2016						
Use	Dwelling Count	Car Space Count	Traffic generation rate ¹		Traffic Generation	
			AM peak hour	PM peak hour	AM peak hour	PM peak hour
Residential	66	110	0.14 trips / dwelling	0.09 trips / dwelling	9	6
Self park	n/a	250	0.23 trips / space	0.68 trips / space	58	170
Valet	n/a	250	0.08 trips / space	0.34 trips / space	20	85
Total	66	610			87	261

Revised per S4.55(2) Application May 2019						
Use	Dwelling Count	Car Space Count	Traffic generation rate		Traffic Generation	
			AM peak hour	PM peak hour	AM peak hour	PM peak hour
Residential	87	157	0.14 trips / dwelling	0.09 trips / dwelling	12	8
Self park	n/a	213	0.23 trips / space	0.68 trips / space	49	145
Valet	n/a	271	0.08 trips / space	0.34 trips / space	22	92
Total	87	641			83	245

Net traffic impacts per proposed revisions	-4	-16
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¹ The traffic generation rate for the self park and valet components was calculated by dividing the total forecast traffic for these uses (as outlined in the transport assessment supporting the approved DA documentation) by the number of parking spaces originally proposed for each use

Therefore the proposed changes arising from the S4.55(2) application and the changes in the non-residential parking provision will result in a decrease in traffic movements generated by the site when compared with the approved development.

5. Access and internal design

The basement car park has been redesigned with a view to providing the additional number of parking spaces. The design as provided and reviewed by Arup complies with the requirements of AS 2890.1 (2004) Off-street Car Parking.

6. Summary

- A component of the S4.55(2) applications seeks to increase the number of residential apartments from 66 to 87, an increase of 21 from the approved development.
- The development proposes to provide 157 off-street residential parking spaces, which is consistent with the requirements of the Barangaroo Concept Plan.
- The primary generator of traffic from the Crown Sydney site relates to the parking proposed hotel and gaming uses within the site, which will be reduced by 16 spaces when compared with the original consent.
- The proposed 21 (additional) residential units results in a minor increase of 3 and 2 vehicle trips in the AM and PM peak hour respectively
- The reduction in the number of non-residential car parking by 16 spaces will result in a decrease in traffic movements generated by the site when compared with the approved development – even when considering the increased number of residential dwellings
- The proposed changes arising from the S4.55(2) application will therefore result in reduced traffic impacts when compared with the approved development

Yours sincerely



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