Reference: #16S900100

13 March 2018

Dexus
Level 25 Australia Square
364-378 George Street
Sydney NSW 2000

Attention: Mr. Mark Barrett

Dear Mark

RE: 12 FREDERICK STREET, ST LEONARDS – RESPONSE TO DPE REQUEST FOR ADDITIONAL INFORMATION

Transport Impact Assessments for Tower A and Tower B for the North Shore Health Hub (NSHH) development have been previously submitted as part of SSDA 7543 (Tower A) and SSDA 8499 (Tower B). The Department of Planning and Environment (DPE) has requested for additional information regarding the traffic generation and intersection operation for the road network as well as updates to certain tables in the original Transport Impact Assessments to reflect this additional information.

The relevant transport assessment documentation prepared by GTA to-date for 12 Frederick Street includes (in chronological order):

- Private Hospital East Tower, 12 Frederick Street, St Leonards, Transport Impact Assessment (Issue D, dated 2/03/17)
- Tower B: Hospital, Accommodation and Ancillary Uses, 12 Frederick Street, St Leonards Transport Impact Assessment (Issue B, dated 23/06/17)
- 12 Frederick Street, St Leonards (SSD 7543 and 8499), Response to Transport for NSW and Roads and Maritime Services Submissions (dated 30/11/17)
- 12 Frederick Street, St Leonards (SSD 7543 and 8499), Response to Council Comments (dated 30/11/17)
- 12 Frederick Street, St Leonards - North Shore Health Hub, Environmental Impact Statement, Transport Impact Assessment (Issue A, dated 08/02/18)

Following the East Tower (now Tower A) and Tower B Transport Impact Assessments, in response to both design development and agency comments, there were changes to the Tower A and Tower B proposals which had a material impact on the traffic assessment and parking requirements. As such, the change in project and assessment details do not allow the original reports to be readily updated. The relevant updated assessment elements were documented in the Response to Submission letters prepared above, with further cumulative assessment details provided in the subsequent Tower B Environmental Impact Statement Transport Impact Assessment (dated 8/2/18).

On the basis of the above, this letter provides the requested specific clarifications in lieu of updating the previous reports prepared.

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Confirmation of Existing Traffic Conditions

Traffic volume surveys at various intersections were commissioned in 2016 to understand the existing conditions in the local area. Peak hour traffic volumes for AM and PM peak hours as surveyed for the study area are shown in Figure 1.

The intersection operation within the study area was assessed using SIDRA Intersection 7.0. The results of the existing operation of these intersections are shown in Table 1. This information is relevant to both the Tower A and Tower B proposals (Table 2.2 in each assessment), noting that the Tower A assessment used SIDRA Intersection 6.1, which was current at the time of assessment.

Figure 1: Existing AM/PM peak hour traffic volumes

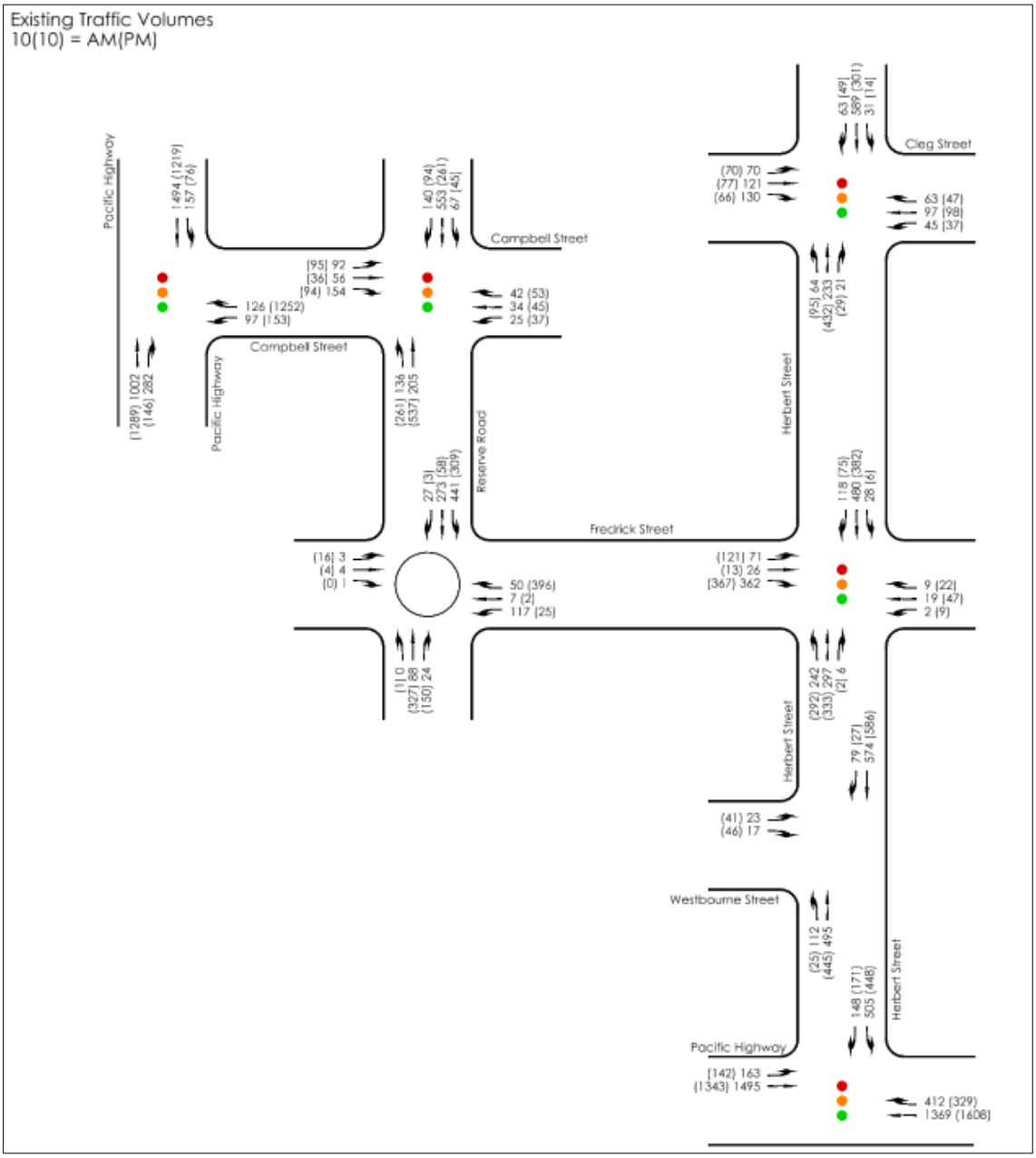

Table 1: Existing intersection operating conditions

Intersection	Priority Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.87	20	165	B
		PM	0.55	16	103	B
Herbert St/ Cleg St	Signalised	AM	0.83	14	74	A
		PM	0.47	11	33	A
Herbert St/ Frederick St	Signalised	AM	0.90	28	136	B
		PM	0.87	24	109	B
Herbert St/ Pacific Hwy	Signalised	AM	0.76	28	198	B
		PM	0.74	27	181	B
Herbert St/ Westbourne St	Give way	AM	0.69	4	79	A
		PM	0.62	3	53	A
Reserve Rd/ Campbell St	Signalised	AM	0.83	23	147	B
		PM	0.9	30	114	C
Reserve Rd/ Frederick St	Roundabout	AM	0.51	7	31	A
		PM	0.53	8	34	A

Future Forecast Traffic Volumes for 2026

To forecast future traffic volumes for the study area, a rate of 0.5 per cent per annum for traffic volumes along Pacific Highway, and two per cent per annum for traffic volumes on local roads was adopted. The future 2026 forecast traffic volumes (+10 years, without development proposal) for the study intersection for the year 2026 are shown in Figure 2 with a summary of associated SIDRA Intersection analysis results shown in Table 2.

As seen in Table 2, certain intersections would be at or above operational capacity in 2026 without the development proposal, given the degree of saturation (DoS) nearing or exceeding 1.0.

Figure 2: Forecast 2026 base AM/PM peak traffic volumes

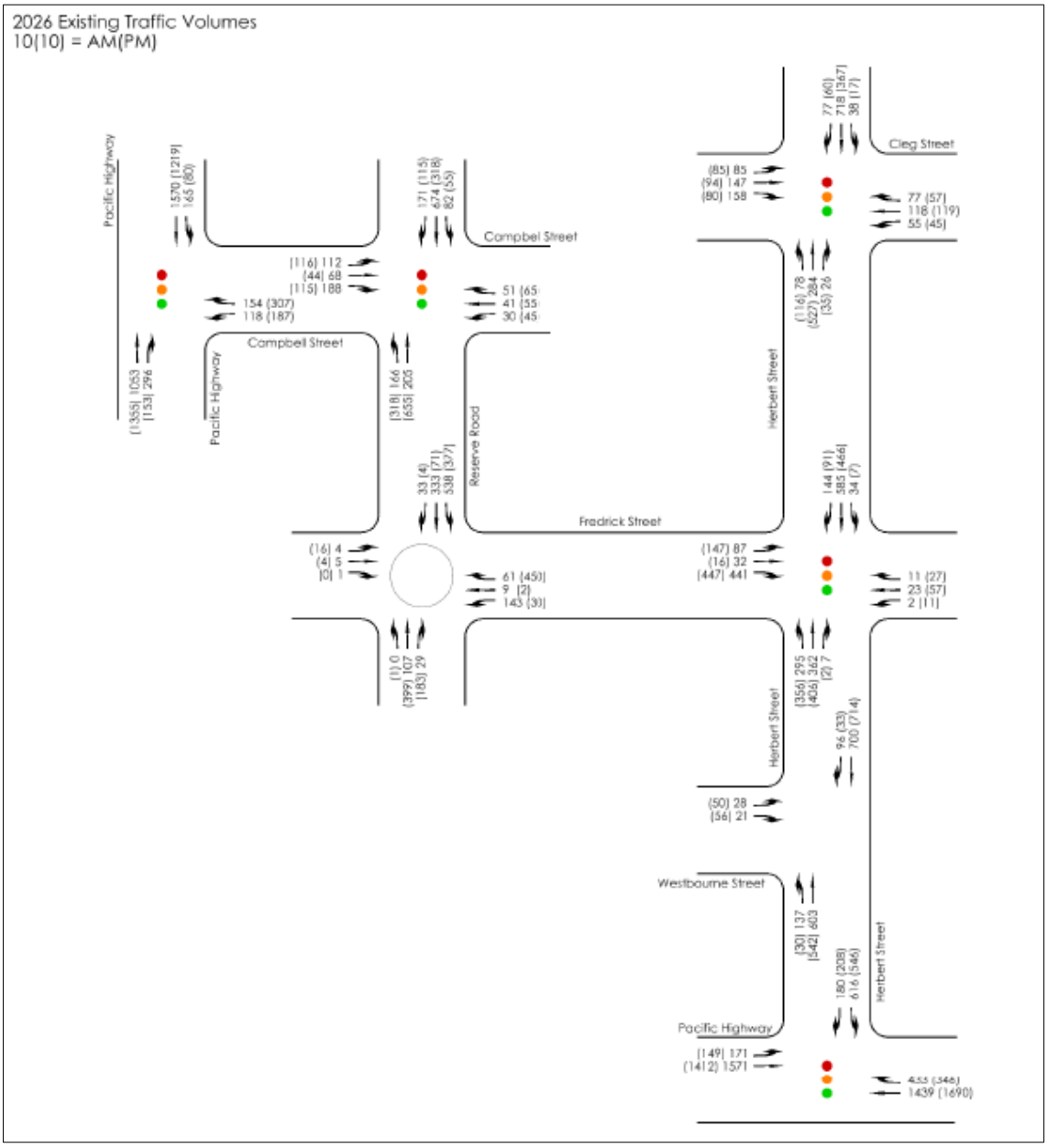

Table 2: 2026 base intersection operating conditions

Intersection	Priority Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.94	23	203	B
		PM	0.75	17	110	B
Herbert St/ Cleg St	Signalised	AM	1.14	35	185	C
		PM	0.59	11	46	A
Herbert St/ Frederick St	Signalised	AM	1.19	85	414	F
		PM	1.05	41	240	C
Herbert St/ Pacific Hwy	Signalised	AM	0.92	32	320	C
		PM	0.9	29	232	C
Herbert St/ Westbourne St	Priority controlled	AM	0.86	29	179	C
		PM	0.51	23	9	B
Reserve Rd/ Campbell St	Signalised	AM	1.04	47	337	D
		PM	0.87	29	130	C
Reserve Rd/ Frederick St	Roundabout	AM	0.63	6	45	A
		PM	0.68	10	67	A

Traffic Generation and Distribution

Traffic generation estimates for the North Shore Health Hub proposal have been based on available traffic data for hospitals and medical centres, being the closest classification of building uses from a traffic and parking perspective. Vehicle trips generated by Tower A and Tower B for each land use is shown in Table 3.

Table 3: Traffic generation estimates

Proposal	Indicative land use classification and quantity	Morning peak vehicle trips	Evening peak vehicle trips
Tower A	○ 82 medical consulting rooms ○ 46 hospital beds and 37 staff members	141	170
Tower B	○ 76 medical consulting rooms	105	131
	Total	**246**	**301**

As seen above, Tower A would produce 141 trips and 170 trips in the AM and PM peak, respectively. Tower B would generate 105 trips and 131 trips in the AM and PM peaks, respectively.

Tower A Traffic Impact

The local network traffic volumes following the development of Tower A is shown in Figure 3, with a summary of the intersection operating conditions in Table 4. The results shown in Table 4 update Table 5.2 as reported in the original Tower A assessment. The nominated intersections within the study area would continue to operate at satisfactory levels of service with the addition of Tower A traffic.

In addition to this analysis, Tower A traffic was also analysed for a future year scenario to understand the cumulative effect of background growth on the road network. The relevant traffic volumes and associated SIDRA Intersection analysis are shown in Figure 4 and Table 5.

Figure 3: 2016 traffic volumes with Tower A

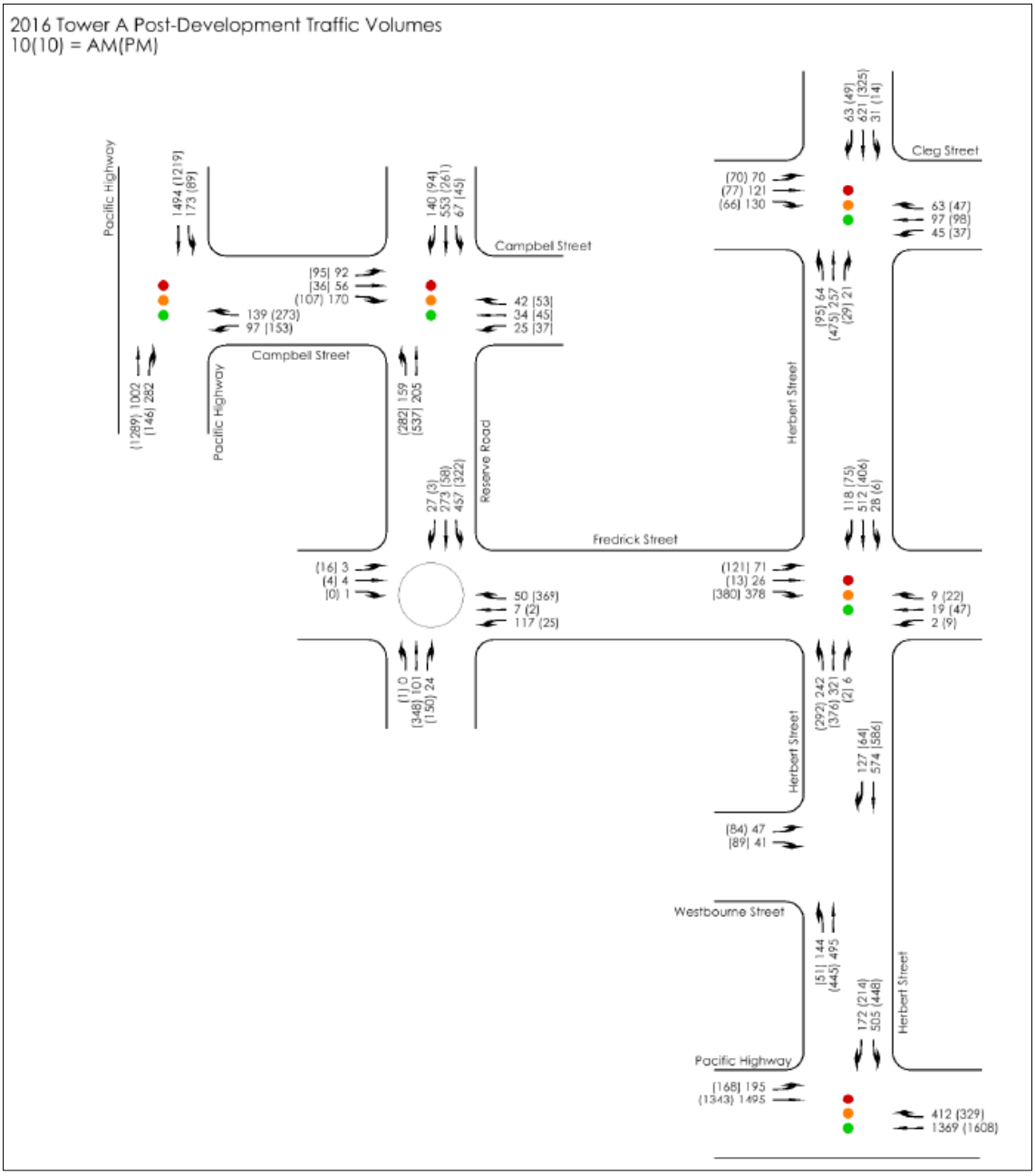

Figure 4: 2026 traffic volumes with Tower A development

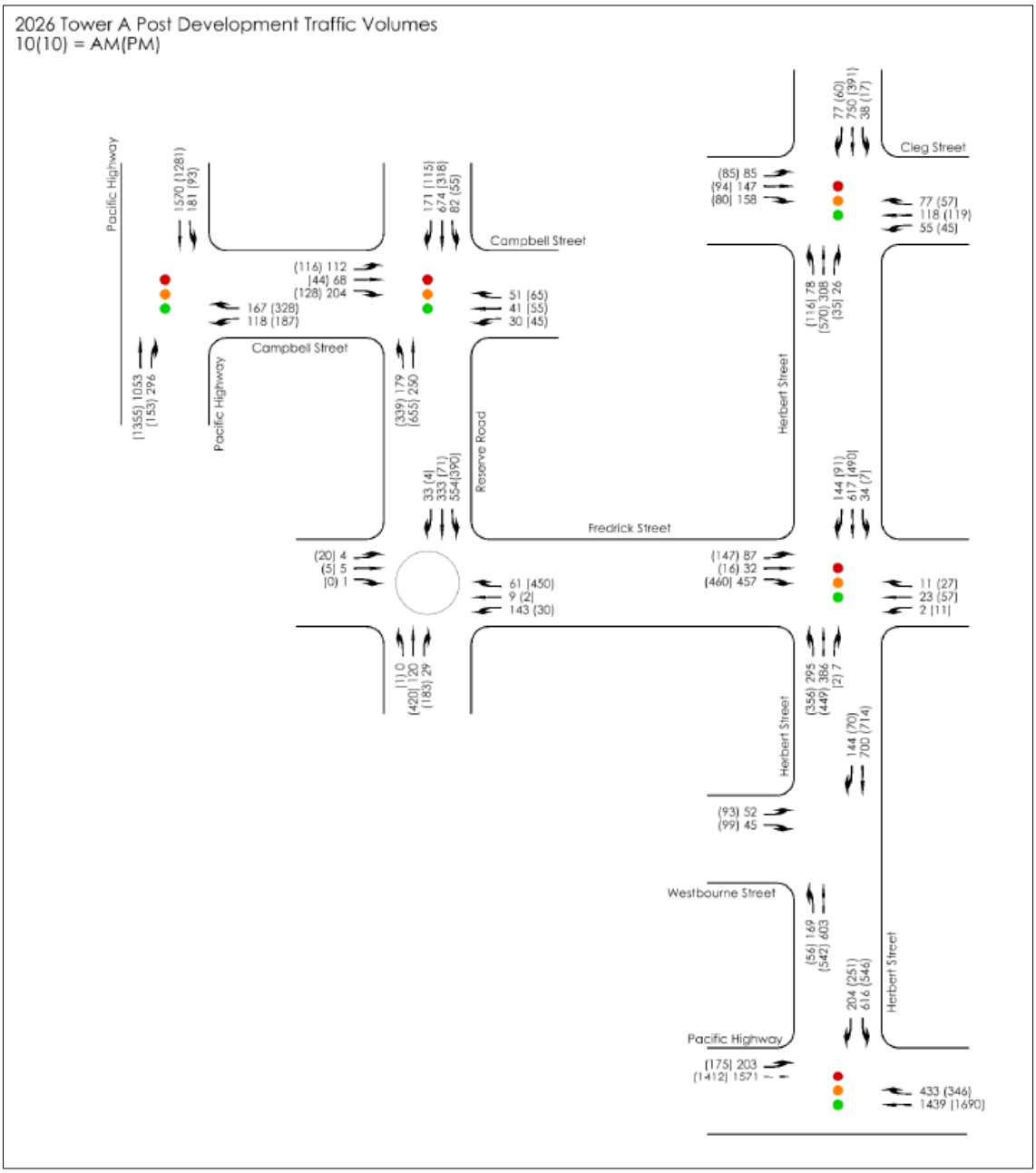

Table 4: 2016 intersection operating conditions with Tower A traffic

Intersection	Priority Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.88	20	167	B
		PM	0.48	22	148	B
Herbert St/ Cleg St	Signalised	AM	0.83	14	79	A
		PM	0.49	11	38	A
Herbert St/ Frederick St	Signalised	AM	0.786	31	131	C
		PM	0.77	21	85	B
Herbert St/ Pacific Hwy	Signalised	AM	0.63	28	173	B
		PM	0.67	29	191	C
Herbert St/ Westbourne St	Priority controlled	AM	0.49	12	25	A
		PM	0.69	23	16	B
Reserve Rd/ Campbell St	Signalised	AM	0.94	25	98	B
		PM	0.83	30	120	C
Reserve Rd/ Frederick St	Roundabout	AM	0.522	9	30	A
		PM	0.54	8	35	A

Table 5: 2026 intersection operating conditions with Tower A traffic

Intersection	Priority Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.95	23	205	B
		PM	0.52	25	170	B
Herbert St/ Cleg St	Signalised	AM	0.99	35	268	C
		PM	0.59	11	52	A
Herbert St/ Frederick St	Signalised	AM	0.99	54	241	D
		PM	0.95	30	149	C
Herbert St/ Pacific Hwy	Signalised	AM	0.75	28	213	C
		PM	0.72	30	213	C
Herbert St/ Westbourne St	Priority controlled	AM	0.77	56	15	D
		PM	1.15	189	149	F
Reserve Rd/ Campbell St	Signalised	AM	0.90	37	212	C
		PM	0.91	28	132	B
Reserve Rd/ Frederick St	Roundabout	AM	0.64	6	47	A
		PM	0.71	11	74	A

As previously seen in Table 2, certain intersections would be at or above operational capacity in 2026 without any development traffic from the NSHH site, given the degree of saturation (DoS) nearing or exceeding 1.0 (and associated delays/ queues). Comparison of the results in Table 2 and Table 5 show overall intersection performance for most intersections would be generally similar between the base 2026 scenario and the 2026 post-development scenario. The analysis includes

minor changes made to post-development signalised intersections to optimise signal phasing and timing (which have not been applied to the base 2026 scenario).

However, it is noted that traffic volumes at the Herbert Street/ Westbourne Street intersection would exceed the capacity of the existing layout (priority controlled (give-way) intersection) in the 2026 post-development scenario (for Tower A only). Design of an appropriate intersection treatment is required to mitigate the development traffic impact with future traffic growth at this intersection. An interim 2021 scenario was prepared to better understand the likely timing requirement of any intersection upgrade, which indicates a level of service of C in the 2021 AM peak period and D in the PM peak period. As such, should only the Tower A component of the development proposal proceed, the Herbert Street/ Westbourne Street intersection upgrade would likely be required between 2021 and 2026.

Cumulative Tower A and Tower B Impact

Understanding that Tower A and Tower B would most likely be developed concurrently, a cumulative assessment of the full development was conducted using the same modelled years.

The local network traffic volumes following the development of Tower A and Tower B is shown in Figure 5 and Figure 6, with a summary of the intersection operating conditions in Table 6 and Table 7 for 2016 and 2026 respectively. These results update Table 5.2 as reported in the original Tower B assessment and Table 5 of the Response to Submissions respectively.

Figure 5: Existing (2016) traffic volumes with Tower A and Tower B traffic

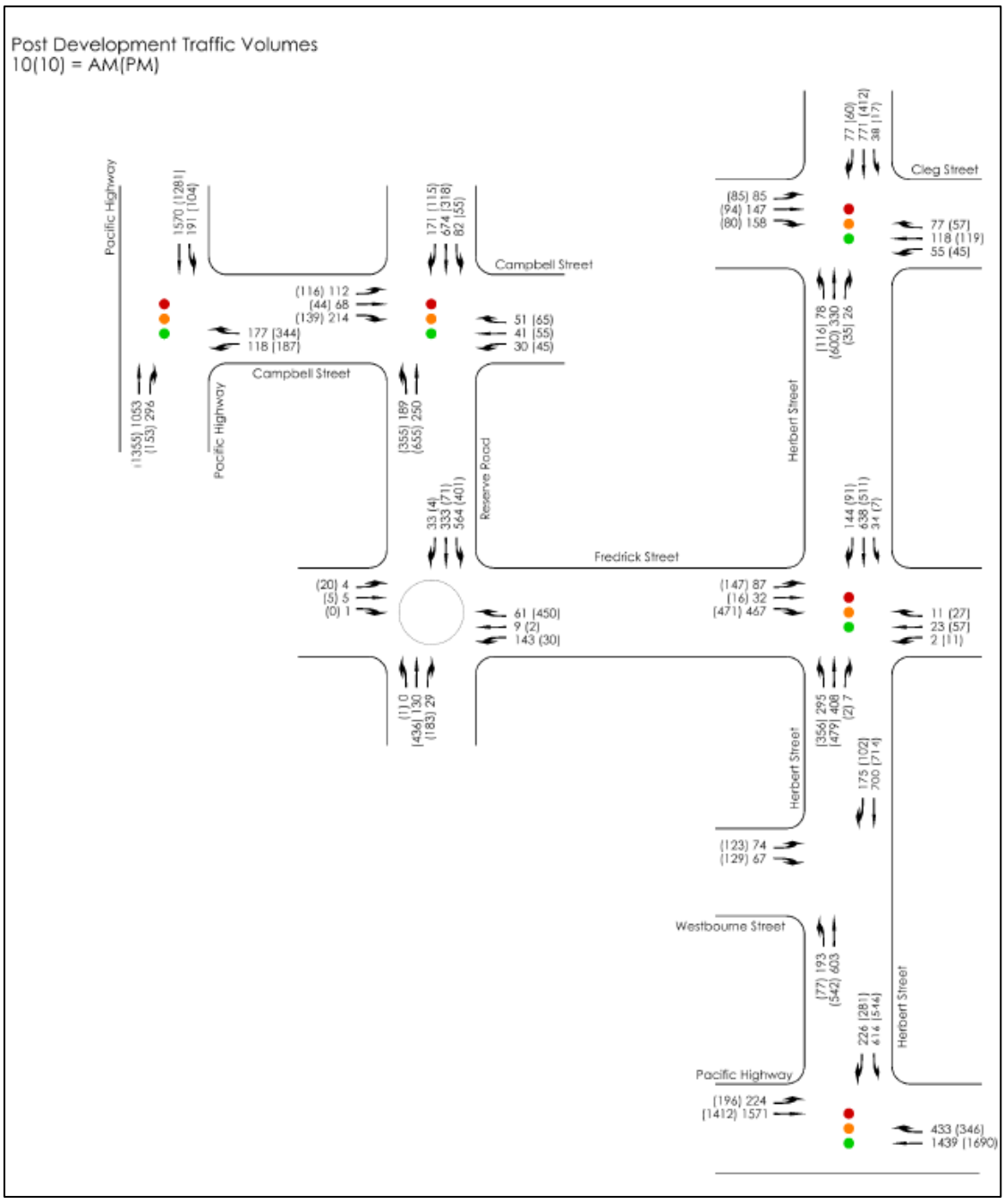

Figure 6: 2026 traffic volumes with Tower A and Tower B traffic

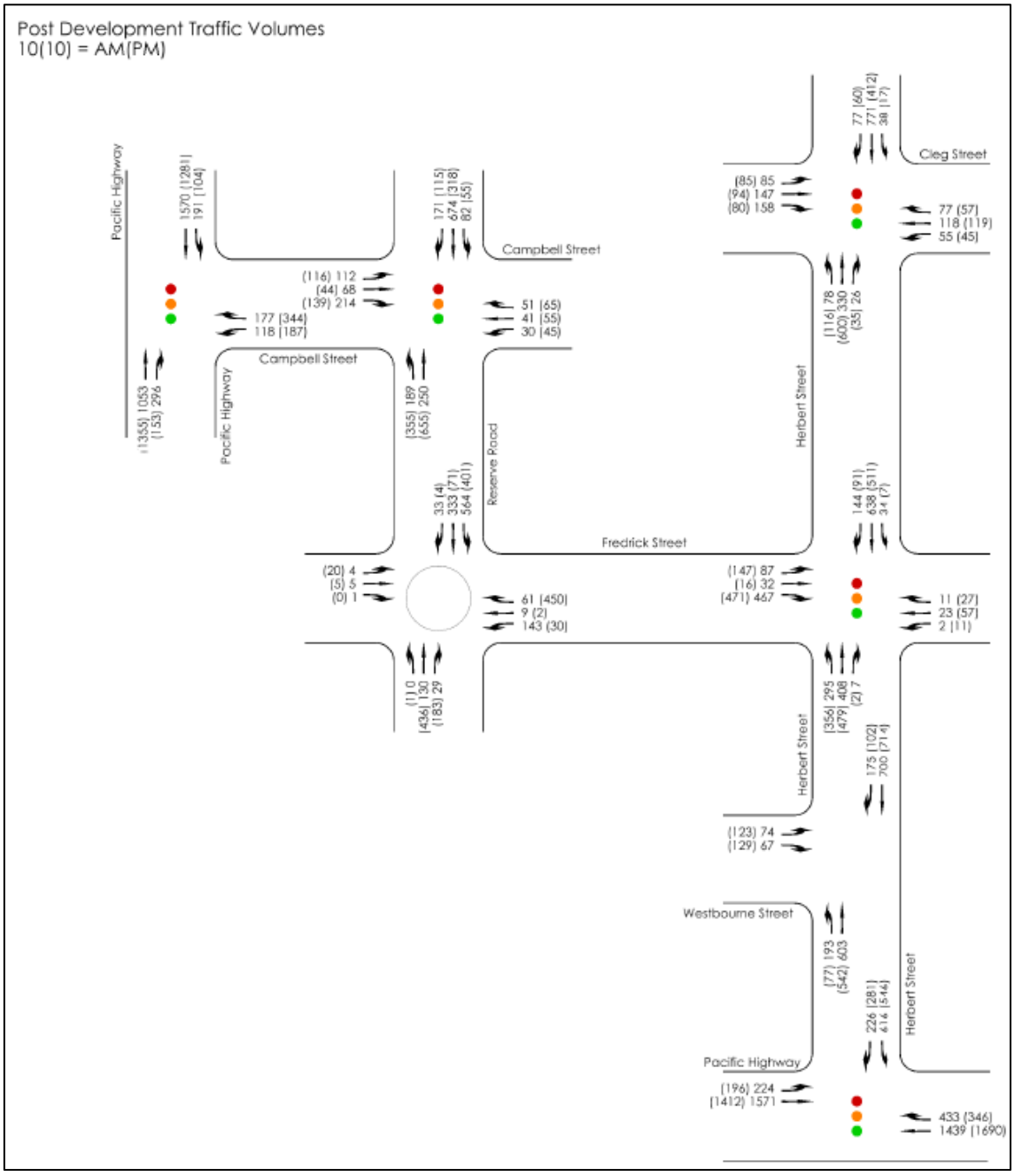

Table 6: 2016 intersection operating conditions with Tower A and Tower B traffic

Intersection	Control Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.88	21	168	B
		PM	0.49	22	152	B
Herbert St/ Cleg St	Signalised	AM	0.68	14	98	A
		PM	0.51	10	41	A
Herbert St/ Frederick St	Signalised	AM	1.03	41	202	C
		PM	0.80	21	13	B
Herbert St/ Pacific Hwy	Signalised	AM	0.64	29	180	C
		PM	0.69	30	198	C
Herbert St/ Westbourne St	Priority controlled	AM	0.70	33	14	C
		PM	0.99	70	68	E
Reserve Rd/ Campbell St	Signalised	AM	0.84	25	113	B
		PM	0.73	22	82	B
Reserve Rd/ Frederick St	Roundabout	AM	0.53	6	31	A
		PM	0.56	8	37	A

Table 7: 2026 intersection operating conditions with Tower A and Tower B traffic

Intersection	Control Type	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Campbell St/ Pacific Hwy	Signalised	AM	0.95	24	207	B
		PM	0.53	25	173	B
Herbert St/ Cleg St	Signalised	AM	0.96	30	243	C
		PM	0.62	11	61	A
Herbert St/ Frederick St	Signalised	AM	1.03	59	276	E
		PM	0.98	35	180	C
Herbert St/ Pacific Hwy	Signalised	AM	0.76	35	235	C
		PM	0.73	33	234	C
Herbert St/ Westbourne St	Priority Controlled	AM	1.25	296	158	F
		PM	1.63	600	479	F
Reserve Rd/ Campbell St	Signalised	AM	1.01	43	302	D
		PM	0.92	34	162	C
Reserve Rd/ Frederick St	Roundabout	AM	0.64	6	49	A
		PM	0.73	11	80	A

Comparison of the results in Table 2 and Table 7 show overall intersection performance for most intersections would be generally similar between the base 2026 scenario and the 2026 post-development scenario, with only minor differences between the Tower A only and cumulative results. The Herbert Street/ Westbourne Street intersection would be under further pressure with the cumulative future traffic and requires upgrade, as previously discussed.

Parking

GTA confirms that the proposal includes a minimum of 340 basement car parking spaces for Tower A and Tower B, which would be delivered a part of the Tower A and podium works. In-line with the revised parking assessment documented in the Response to Submissions, the allocation of these spaces would be

- Tower A – 181 parking spaces (combination of tenant and publicly accessible parking)
- Tower B – 135 parking spaces (combination of tenant and publicly accessible parking)
- Replacement publicly accessible parking – 24 spaces (offsetting on-street parking loss resulting from the introduction of driveway accesses)

Being replacement on-street parking spaces, the above 24 spaces are not allocated to either tower, however would be delivered as part of the Tower A construction works (and were included within the original Tower A proposal for 220 parking spaces).

I trust the above clarifies the queries raised. Naturally, should you have any questions or require any further information, please do not hesitate to contact me in our Sydney office on (02) 8448 1800.

Yours sincerely

GTA CONSULTANTS

Brett Maynard
Director