Traffic Impact Assessment

Wyong Hospital World Class End of Life (WCEoL) Facility

Prepared for Capital Insight Pty Limited

27 February 2024

231810

TTW (NSW) Pty Ltd (ACN 649 974 112)
(ABN 74 649 974 112) I Consulting Engineers
Level 6, 73 Miller Street, North Sydney NSW 2060

Your Partner in Engineering

Revision Register

Rev	Date	Prepared by	Reviewed by	Approved by	Remarks
P1	08/12/23	E. Cowdery	M. Babbage	M. Babbage	Issued as draft
P2	19/01/24	E. Cowdery	M. Babbage	M. Babbage	Issued as draft
1	**27/02/24**	**E. Cowdery**	**M. Babbage**	**M. Babbage**	**Issue for REF**

Document Control

Internal reference	231810
File path	P:\2023\2318\231810\Reports\TTW\Traffic\240119 Wyong Hospital World Class End of Life (WCEoL) Traffic Impact Assessment Rev 1.docx

Introduction

TTW has been engaged to review and assess the traffic and transport impacts of the proposed World Class End of Life (WCEoL) facility at Wyong Hospital. This report has been prepared in support of a Review of Environmental Factors (REF) for the project.

The new facility includes a refurbishment of an existing building, which will result in a total of 12 palliative care beds.

Existing Conditions

The project is located as outlined in Figure 1, with the Educational Centre located to the east, Hydrotherapy to the north and Podiatry to the south. Currently, this building includes a bed store, 6 overnight GMO rooms, a lounge area and offices. Staff and public parking are available to the north and southeast of the facility. Service and loading vehicle access is available to the east of the facility, and ambulance access to the southeast. Vehicle access to the facility will be provided via the main hospital entry on the Pacific Highway, as shown in Figure 1. Currently, the hospital contains a total of 8 – 9 palliative care beds, which are located within the existing hospital across the various wards.

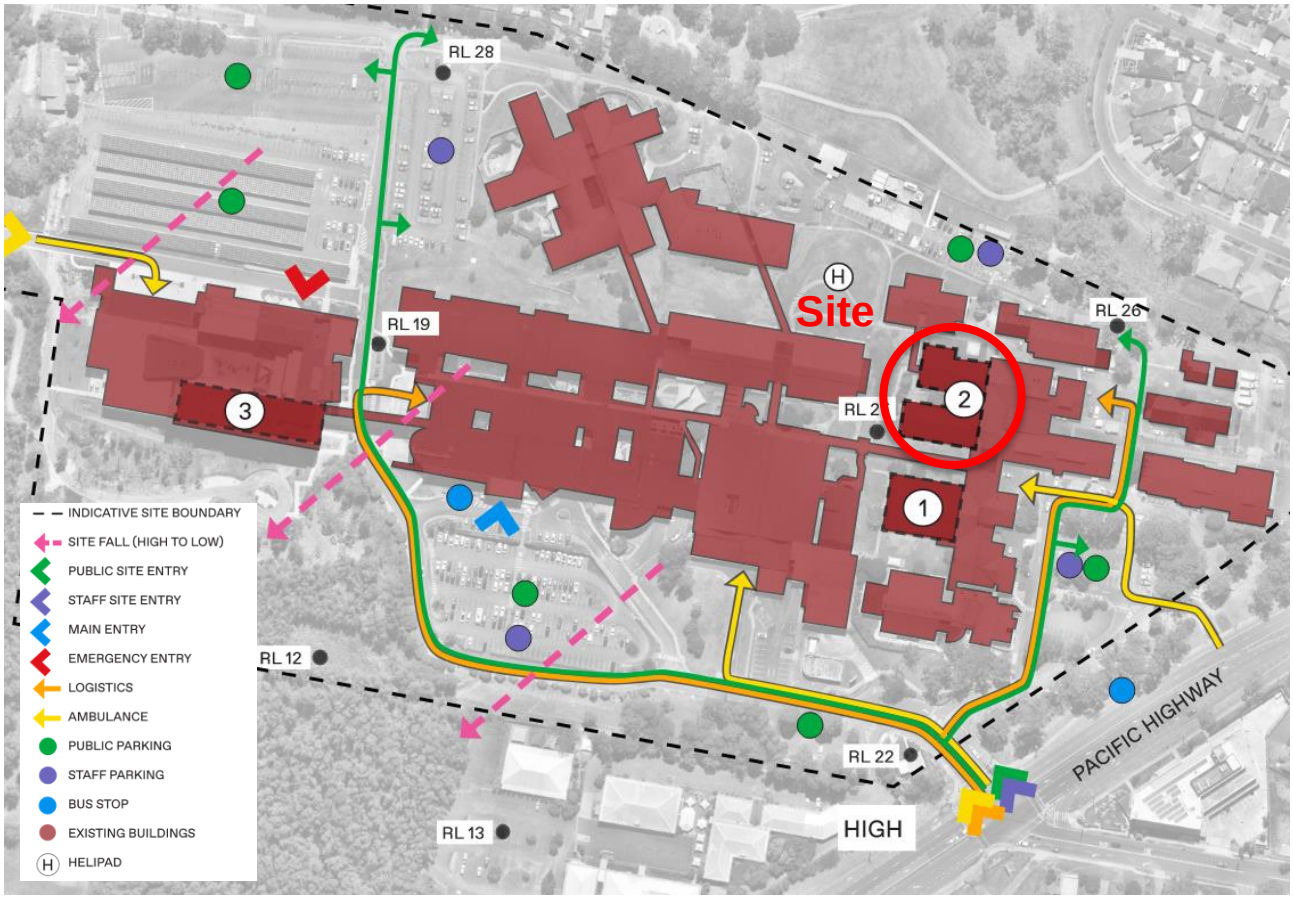

Figure 1: Site Location & Access

Source: BVN Wyong Master Plan Report (Rev 02, 21/08/23)

Proposed Works

The WCEoL project will involve consolidating the palliative care beds to one location and increasing the number of beds to 12. The existing palliative care beds will be repurposed within the wards for other usages. Therefore, the proposed 12 beds will be additional to current hospital operations. The proposed refurbishment works are shown in Figure 2 below, which provides the locations of all the functional areas. In addition, 2 parking spaces to the north of the facility will be relocated elsewhere on the hospital campus due to proposed landscaping works, as demonstrated in Figure 2.

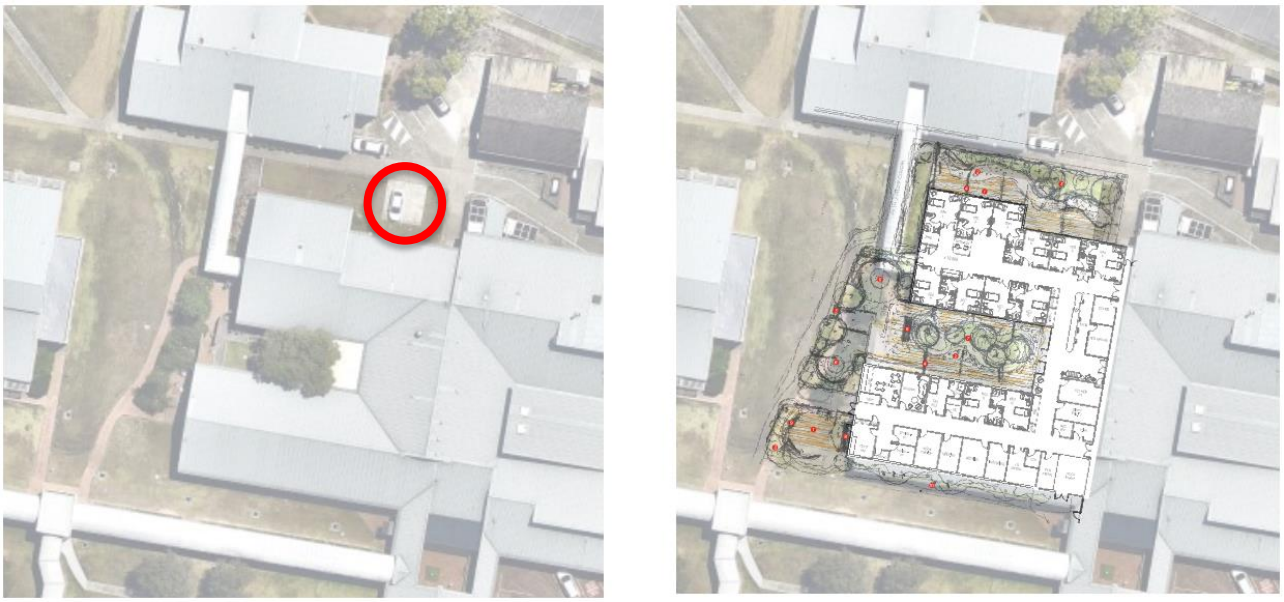

Figure 2: Proposed Refurbishment Works & Landscaping
Source: BVN Wyong Concept Design Workshop 2 (11/09/23)

The proposed access to the site is outlined in Figure 3 and illustrates the connection between the WCEoL facility and the other hospital functions.

Figure 3: Proposed Site Access
Source: BVN Wyong Concept Design Workshop 2 (11/09/23)

Furthermore, the existing usage of the proposed WCEoL building will continue to operate, but the existing functions will be relocated to different locations on the hospital campus, with no change in overall staffing numbers and therefore no change to parking demand.

Traffic Impact

From a traffic perspective, the WCEoL facility will be generating additional parking demand associated with the increase of 12 palliative care beds and associated staff. According to the Central Coast Council's Development Control Plan (DCP) requirements for hospital developments, as shown in Table 1 below, this project requires 15 spaces.

Table 1: DCP Parking Requirements

Category	Rate	Proposed Development	DCP Requirement
Hospital	1 space per 2 beds	12 beds	6 spaces
	1 space per 2 employees	17 peak on-site employees	9 spaces

Whilst acknowledging the DCP requirements, it is noted that the WCEoL facility is not a standalone development, but rather a minor component of the broader Wyong Hospital campus. Therefore, direct application of the DCP parking rates in this way is not entirely reflective of the WCEoL facility's needs and parking requirements. For example, some services such as administration or maintenance, would already be in place as part of the broader hospital. So, applying the DCP rates to the WCEoL facility as a standalone development may double up on parking requirements already accounted for across the broader hospital.

Furthermore, a site-specific assessment would provide a more accurate measure of the expected parking demand, rather than implementing a standard parking rate as per the DCP. A site-specific parking study has been conducted and outlined below.

We have been advised that the new facility will involve 28 full-time equivalent (FTE) staff members, or a maximum of 17 staff on-site at any one time. In addition to staff, the new facility will also generate parking demand for visitors. A parking demand calculation is included in Table 2 which indicates a peak parking demand of approximately 23 spaces.

Table 2: Car Parking Demand Study

PARKING DEMAND CALCULATIONS	
Staff:	
FTE[1]	28
Peak On-Site Staff[2]	17
Private Vehicle Use[3]	97%
Vehicle Occupancy Rate	1.03
Staff Parking Demand	**16**
Visitors:	
Visitors Per Bed	2
Visitors/Day	24
Private Vehicle Use	95%
Vehicle Occupancy Rate	1.5
Space Turnover Factor	2.5
Visitor Parking Demand	**7**
Total Parking Demand	**23**

As outlined above, the WCEoL facility contains 12 beds, which includes 8 – 9 palliative care beds from the existing hospital operations. The above parking demand calculations assume that the existing 8 – 9 beds will be repurposed and remain in use, and so the 12 beds at the WCEoL facility will be additional to the existing hospital operations. However, this has been applied as a conservative assumption, as it is not fully known what the future use of the existing 8 – 9 beds will be. Further, the existing palliative care operations are spread throughout the hospital campus across different wards, and so consolidation of these operations to a centralised location will likely improve staffing efficiencies. Therefore, it is considered that the parking demand of 23 spaces is a conservative estimate, and day-to-day operations would likely generate less demand than this.

Furthermore, the above parking demand has been calculated in accordance with the assumptions made in the previous parking demand study undertaken by Arup in 2018 (refer to footnote 3). Since this study was undertaken, a Green Travel Plan (GTP) has been implemented at the hospital which works to reduce private vehicle usage and encourage alternative travel modes and carpooling. As the measures in the GTP are continually implemented over time, it is expected that private vehicle usage (and therefore parking demand) will further reduce.

[1] Provided by Capital Insight based on the preliminary workforce profile in the Functional Brief (Aconex reference: CI-GCOR-000482).
[2] As above.
[3] Private vehicle use, vehicle occupancy rate and space turnover factor for staff and visitors as per previous parking demand study *Wyong Hospital – Car Parking Supply and Demand (Arup, January 2018)*

The occupancy of the on-site car parks within Wyong Hospital have been reviewed to assess the historical usage trends. Nearmap imagery has been used to review the occupancy of the carparks within each allocated zone (see Figure 4). Where uncertainties arose due to unclear imagery, a conservative approach has been taken. The Nearmap imagery used in this study includes 9 days of data from April 2022 to October 2023.

The following exclusions and assumptions have been made:

- The car park labelled “CSB” has been excluded in the analysis, as it is not visible in the satellite images.
- Zone C has been excluded, as it has been recently used as a contractor site zone, and therefore not representative of general hospital operations.
- Nearmap images from 2023 onwards show the REF car park covered by solar panels, however based on the high historical usage, a conservative approach has been taken and assumed it is fully occupied.

Figure 4 below displays all car parking zones within the hospital (totalling to 1,220 parking spaces), and therefore includes Zones C and CSB, which are not accounted for in the Nearmap analysis.

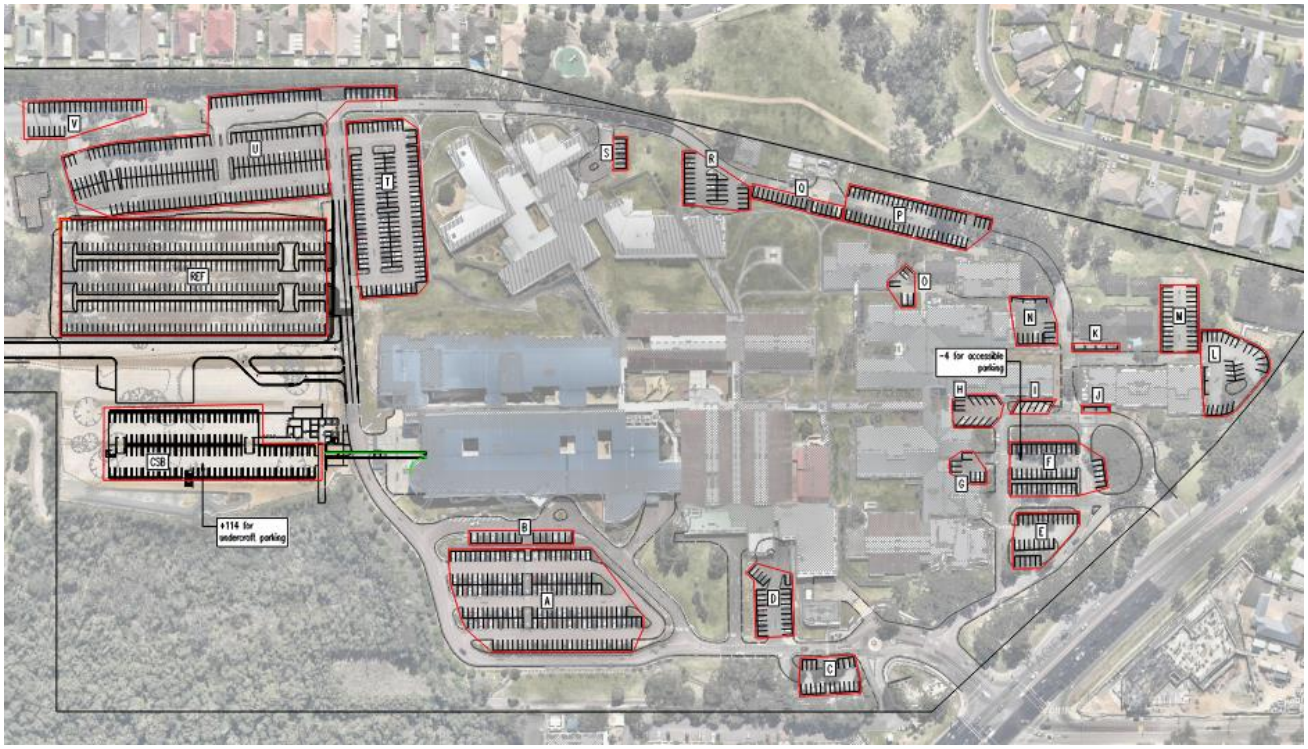

Figure 4: On-Site Car Parks

The analysis in Table 3 shows that the on-site parking adequately supports the current hospital operations, with surplus vacancies on both weekends and weekdays. During the busiest period in the week, when there is peak on-site staff, there is a minimum of 154 vacant parking spaces. Thus, the existing parking provision accommodates for the increase in parking demand of 23 spaces since there are ample vacancies in the busiest periods.

Table 3: Car Park Occupancy

	Weekends			Weekdays		
	Minimum	**Average**	**Maximum**	**Minimum**	**Average**	**Maximum**
Occupied	465	584	929	508	805	935
Vacant	160	505	624	154	284	581
Total[4]	1089	1089	1089	1089	1089	1089

It is noted that the car park contains 1,220 spaces, however this differs to the surveyed total of 1,089 due to the following exclusions in the Nearmap analysis:

- Zone C – 17 spaces
- Zone CSB - 114 spaces

Thus, once the excluded zones are considered, the total number of surveyed parking spaces as shown in Table 3 is 1,089.

Additionally, of the total 1,220 spaces the hospital campus contains, the generated parking demand of 23 spaces equates to < 2% of the total campus provision. As the GTP is implemented, a reduction in private vehicle usage by 2% at a campus-wide level would therefore result in no additional parking demand.

Based on the above, the typical parking demand is likely less than 23 spaces and would become negligible compared to the overall campus parking provision. However, there is still sufficient vacancy to support the additional demand of 23 spaces if required. Following this, no additional parking is provided as part of the proposal.

The two parking spaces to the north of the facility that are to be removed according to the proposal will be relocated to elsewhere on the hospital campus. The exact relocation of these parking spots will be determined during the detailed design phase.

Construction Traffic

Construction trucks will have good access to the site via the signalised intersection to the southeast of the hospital campus, which provides direct access to the Pacific Highway as shown in Figure 1. The internal road network on the hospital site provides access to the southeast and north sides of the facility. Majority of the hospital's on-site traffic activity occurs at the main car parks to the west of the WCEoL facility, meaning that minimal interaction is expected to occur between construction traffic and members of the public accessing the hospital. Detailed access arrangements will be confirmed when a contractor is appointed.

It is expected that the refurbishment works will not generate large volumes of construction vehicles, and that the internal roads and signalised intersection can suitably accommodate these volumes.

Construction traffic will have no impact to ambulance movements, as ambulance access to the hospital is via Louisiana Road on the western side of the campus, and construction vehicles will be accessing the campus via the Pacific Highway to the east.

[4] Total number of parking spaces surveyed (i.e. considering the zones which have been excluded).

Appendix A – Parking Study Analysis

231810 Wyong Hospital Carpark Vacancy
Car Parking- Historical Occupancy Survey

Date	Day	Time	Zone A (170 spaces)		Zone B (14 spaces)		Zone C (17 spaces)		Zone D (21 spaces)		Zone E (25 spaces)		Zone F (40 spaces)		Zone G (6 spaces)		Zone H (11 spaces)	
			Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy
3/04/22	Sunday	10:25	29	141	0	14	11	6	17	4	8	17	4	36	2	4	4	7
16/06/22	Thursday	13:27	5	165	1	13	9	8	12	9	12	13	4	36	5	1	6	5
23/06/22	Thursday	12:53	6	164	2	12	15	2	13	8	9	16	5	35	2	4	6	5
11/08/22	Thursday	10:19	72	98	1	13	16	1	4	17	11	14	2	38	3	3	6	5
5/03/23	Sunday	12:53	72	98	3	11	16	1	19	2	25	0	25	15	5	1	10	1
20/05/23	Saturday	10:19	102	68	9	5	17	0	12	9	22	3	34	6	5	1	9	2
9/06/23	Friday	12:30	85	85	8	6	17	0	12	9	24	1	36	4	4	2	8	3
12/08/23	Saturday	12:30	72	98	6	8	17	0	12	9	23	2	34	6	5	1	8	3
29/10/23	Sunday	10:59	89	81	3	11	17	0	21	0	25	0	32	8	4	2	9	2
		Average	59	111	4	10	15	2	14	7	18	7	20	20	4	2	7	4

Zone I (5 spaces)		Zone J (2 spaces)		Zone K (4 spaces)		Zone L (25 spaces)		Zone M (25 spaces)		Zone N (12 spaces)		Zone O(5 spaces)		Zone P (51 spaces)		Zone Q (17 spaces)	
Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy
4	1	2	0	3	1	18	7	8	17	1	11	5	0	5	46	0	17
3	2	2	0	3	1	16	9	10	15	4	8	4	1	7	44	1	16
5	0	2	0	3	1	13	12	7	18	3	9	4	1	10	41	1	16
2	3	1	1	3	1	17	8	4	21	8	4	2	3	4	47	9	8
3	2	2	0	3	1	22	3	19	6	8	4	5	0	35	16	13	4
5	0	2	0	3	1	23	2	19	6	9	3	2	3	34	17	16	1
4	1	2	0	4	0	20	5	20	5	6	6	5	0	40	11	14	3
5	0	2	0	4	0	21	4	17	8	8	4	4	1	44	7	12	5
5	0	2	0	4	0	21	4	18	7	8	4	2	3	42	9	12	5
4	1	2	0	3	1	19	6	14	11	6	6	4	1	25	26	9	8

Zone R (23 spaces)		Zone S (6 spaces)		Zone T (118 spaces)		Zone U (202 spaces)		Zone V (29 spaces)		Zone REF (278 spaces)		Total (1106 spaces)		Total without Zone C & CSB	
Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy	Vacancy	Occupancy
2	21	1	5	0	118	24	178	23	6	0	278	171	935	160	929
1	22	0	6	0	118	23	179	28	1	12	266	168	938	159	930
2	21	1	5	1	117	32	170	27	2	0	278	169	937	154	935
3	20	1	5	1	117	60	142	26	3	1	277	257	849	241	848
14	9	1	5	71	47	197	5	29	0	0	278	597	509	581	508
12	11	3	3	79	39	195	7	29	0	0	278	641	465	624	465
11	12	1	5	71	47	177	25	29	0	0	278	598	508	581	508
10	13	5	1	57	61	191	11	29	0	0	278	586	520	569	520
9	14	1	5	63	55	193	9	29	0	0	278	609	497	592	497
7	16	2	4	38	80	121	81	28	1	1	277	422	684	407	682

Vacancy	Max(Wknd)	624
Vacancy	Max (Wkdays)	581
Vacancy	Min(Wknd)	160
Vacancy	Min (Wkdays)	154

Occupied	Max(Wknd)	929
Occupied	Max (Wkdays)	935
Occupied	Min(Wknd)	465
Occupied	Min (Wkdays)	508

	Weekends			Weekdays		
	Minimum	Average	Maximum	Minimum	Average	Maximum
Occupied	465	584	929	508	805	935
Vacant	160	505	624	154	284	581

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Vacancy	Average(Wkdays)	284

Occupancy	Average(Wknd)	584
Occupancy	Average(Wkdays)	805