



Our ref: PS118400-P&M-LTR-011 Request for Additional Info

19 November 2021

Ingrid Berzins
Planning Officer
Infrastructure Assessments
Planning and Assessment Group
NSW Department of Planning, Industry and Environment
4 Parramatta Square
12 Darcy Street
Parramatta NSW 2150

Dear Ingrid

Health Infrastructure engaged WSP to prepare a Transport Assessment (TA) as part of an Environmental Impact Statement (EIS) for inclusion in a State Significant Development Application (SSDA) for the Children's Hospital at Westmead Redevelopment Stage 2, Paediatric Services Building. The TA (March 2021) assessed the traffic, car parking and loading requirements of the proposal.

WSP has previously submitted a return letter on 13 October 2021 to the Department of Planning, Industry and Environment's (DPIE) *Response to Submission*, to address a number of items raised from DPIE, Transport for NSW and City of Parramatta Council to the SSDA submission.

Following the review to our responses, we understand that additional information has been requested to for further clarification of the SSDA submission.

This letter has been prepared as a traffic and transport response to these submissions and should be read in conjunction with The Children's Hospital at Westmead Stage 2 Redevelopment, Paediatric Services Building Transport Assessment prepared by WSP dated 16 March 2021, Preliminary Green Travel Plan dated 21 January 2021 and the Response to Submission letter dated 13 October 2021.

Please do not hesitate to contact me should you require any further information.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Ody Murlianto'.

Ody Murlianto
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RESPONSE TO SUBMISSIONS – TRAFFIC AND TRANSPORT

CITY OF PARRAMATTA

PICK-UP/DROP-OFF FACILITY

In response to Council's submission, the applicant states that a designated pick up/drop off facility for the Westmead Children's Hospital is provided on the corner of Hawkesbury Road and Hainsworth Street which is currently being provided under PLR. The PSB can be accessed from this area via the new pedestrian canopy link through the existing Galleria extension proposed as part of this development, connecting the PSB to the Westmead Children's Hospital forecourt and pick up/drop off area. There appears to be an interim opportunity to provide a pickup/drop off facility within the PSB building prior to the clinical services expansion. It is therefore recommended that a pickup/drop off facility be provided within the new PSB car park near the entrance/lift access.

Response

PSB car park would be accessible by patients to park and pick-up or drop-off, where convenient. As per the master plan, the designated pick-up/drop-off facility will be retained at the corner of Hawkesbury/Hainsworth to maintain consistency in short and long term, and to provide proximal access for visitors from the primary visitor multistorey car park on Hainsworth Street. Furthermore, the front entrance to The Children's Hospital at Westmead will continue to be from Hawkesbury Road, consistent with the existing entrance and entrance to the Central Acute Services Building (Block K) which houses the Children's Hospital Emergency Department.

LOADING REQUIREMENTS

Loading vehicles for the retail spaces will access via the driveway adjacent the Children's Medical Research Institute (CMRI). It is unclear where and when the loading activities will occur. Should loading activities occur in the cul-de-sac at the end of this driveway, there appears to be insufficient space for other vehicles to simultaneously undertake u-turn manoeuvres at this cul-de-sac based on the swept paths provided. The swept paths also demonstrate all loading vehicles utilising the full width of the driveway when undertaking manoeuvres and 12.5m HRV trucks reversing onto Hawkesbury Road which is a safety hazard for pedestrians and oncoming vehicles.

Based on the above, it is therefore recommended that a Loading Dock Management Plan for the PSB loading dock (including the ambulance parking bay) and the retail spaces in the Westmead Children's Hospital forecourt be submitted prior to the issue of the construction certificate, to the satisfaction of Council's Traffic and Transport Manager. The Plan must address the above concerns and the following matters:

- Delivery requirements and service schedules;
- Operational aspects on how to use facilities; and
- Management duties and responsibilities.

Response

A Loading Dock Management Plan would be developed as part of the condition of the Construction Certificate with the intent that deliveries to the retail pods in the KIDSPARK Forecourt would be undertaken outside of the core operating hours of businesses in the Westmead Health Precinct, consistent with current practice. The retail pods will be front loaded and serviced using either the access driveway adjacent CMRI or the CHW drop off zone (as per current practice). Delivery vehicles to the retail pod would be able to park within KidsPark as shown (overlaid on the landscape plan CHW-LD-DG-KIDS-SD-101) in Attachment B. Furthermore, the CMRI driveway is considered a service road, and is projected to continue to be utilised infrequently as it provides access to the following:

- occasional access to the CMRI generator in the event of a catastrophic failure or maintenance
- delivery vehicles to service the retail pods in the KIDSPARK Forecourt, proposed to be undertaken outside of the core business hours.

PARKING SPACE LAYOUT AND DIMENSIONS

It is recommended that the plans be revised to provide shared areas for disabled parking spaces that is compliant with AS2890.6-2009. Note that bollards are to be installed in accordance with Figures 2.2 and 2.3 of AS2890.6-2009. Furthermore, it is also recommended that plans be revised to include directional pavement arrows/signs to indicate the one-way traffic flow within the car park.

Response

As depicted in the image below, shared areas with complying dimensions have been provided for car parking spaces for people with disability. Additionally, the traffic circulation within the car park has been indicated to be one-way in the clockwise direction.

Bollards in the shared area and pavement arrows can be readily included in the car park layout to comply with the Australian Standards (AS2890.1 and AS2890.6 for off-street car park and off-street parking for people with disability respectively).

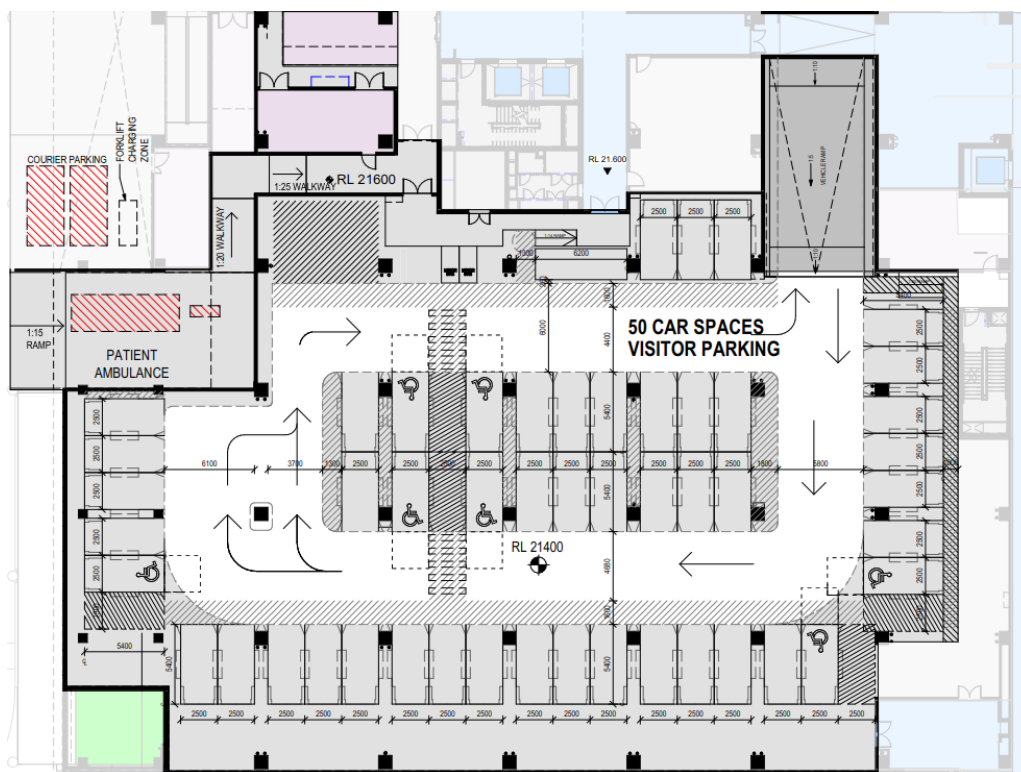


Figure 1 PSB Level 02 off-street car parking

VEHICULAR ACCESS

Changes are proposed to the vehicle access into the Children's Medical Research Institute to accommodate loading vehicles for the retail spaces in the Westmead Children's Hospital forecourt. Swept paths demonstrate that two-way traffic flow at this driveway cannot be maintained during loading vehicle access. This is a concern as this can impact traffic flows on Hawkesbury Road which is narrow with one lane provided in both directions. It is recommended that the driveway access width be widened to maintain two-way traffic flow and accommodate a B99 vehicle with trailer.

Response

Refer to Attachment B to demonstrate a two-way traffic flow can be achieved for B99 vehicles with trailer. Additionally due to the infrequent use of the service road, it is envisaged that the operation of this intersection to not impact on traffic flows on Hawkesbury Road.

SIGHT LINES

No sight triangle splays for the driveway into the Children's Medical Research Institute are shown in the submitted plans. It is recommended that the plans be revised to show sight triangle splays compliant with Figure 3.3 of AS2890.1 to improve pedestrian safety.

Response

Pedestrian sight lines of 2.0 m x 2.5 m as required in AS2890.1 clause 3.2.4 has been considered in the design. The alignment of the service road to the north-east of CMRI and its intersection with Hawkesbury Road will be retained as existing, as shown on the landscape plan, this area consists of established eucalyptus trees and ground cover which do not restrict sight lines to pedestrians on Hawkesbury Road footpath.

ON-SITE MANOEUVRING

Based on the swept path plans provided, on-site manoeuvring in the PSB car park appears to be satisfactory. HRV vehicles accessing the 2 HRV spaces in front of the compactor bay spaces may have difficulty undertaking the parking manoeuvre should one space be occupied due to the smaller aisle width at this location. It is considered reasonable that this can be managed and addressed under a Loading Dock Management Plan (see above for further details).

Swept path plans for loading vehicles (i.e. a B99 vehicle with trailer, 8.8m service vehicle and a 12.5m HRV) accessing the driveway into the Children's Medical Research Institute was provided. Loading vehicles accessing this driveway will obstruct two-way traffic flow as the swept paths demonstrate all loading vehicles occupying most of the driveway width when undertaking manoeuvres. A B99 vehicle with trailer and 8.8m service vehicle crosses to the other side of the driveway to undertake u-turn manoeuvres at the cul-de-sac and the 12.5m HRV truck occupies the whole driveway width on entry. Furthermore, the 12.5m HRV truck reverses out onto Hawkesbury Road which can be a safety hazard for pedestrians and oncoming vehicles. It is noted that access for 12.5m HRV truck is only required in the event of a catastrophic failure of the CMRI generator. Some of the access concerns can be addressed using a LDMP and widening of the driveway width (see above for further details).

It is noted that the plans submitted (Dwg No. CHW-AR-DG-PSB-SSD011 Rev E) appears to show a concrete median proposed close to the cul-de-sac at the end of the driveway. It is recommended that the concrete median be removed to facilitate loading manoeuvres.

Response

- A Loading Dock Management Plan for PSB building would be developed as part of the condition of the Construction Certificate.
- A Loading Dock Management Plan for the KidsPark would also be developed as part of the condition of the Construction Certificate. It is intended that deliveries to the retail pods in KidsPark would be undertaken outside of the core operating hours of businesses in the Westmead Health Precinct. Delivery vehicles to the retail pod would also be able to park within KidsPark as shown in Attachment B.
- The existing intersection of Hawkesbury Road with the service road north-east of CMRI will be retained. There will be infrequent traffic entering/exiting the service road as it would only provide:
 - infrequent access for maintenance vehicles to the CMRI building
 - occasional access to the CMRI generator in the event of a catastrophic failure
 - delivery vehicles to service the retail pods in KidsPark, proposed to be undertaken outside of the core business hours.

CONSTRUCTION PEDESTRIAN AND TRAFFIC MANAGEMENT PLAN

It is recommended that a condition be imposed to provide a Construction Pedestrian and Traffic Management Plan (CPTMP) prior to the commencement of the works to the satisfaction of Council's Traffic and Transport Manager.

Response

A condition to be imposed to provide a Construction Pedestrian and Traffic Management Plan (CPTMP) prior to the commencement of the works to the satisfaction of Council's Traffic and Transport Manager.

AMBULANCE BAY

Based on the Level 02 plan (Dwg No, CHW-AR-DG-PSB-SSD011 Rev E), the ambulance bay appears to reduce to approx. 2.2m in width at the adjacent driveway entrance. This width is considered too narrow to accommodate an ambulance vehicle. Aerial images show that the width of the ambulance bay is approx. 3.4m with Keep Clear installed at this location. However, it appears there are no changes proposed to this ambulance bay as part of this development. It is recommended that the plans be amended to reflect the current site arrangements to ensure the bay can accommodate an ambulance vehicle.

Response

The PSB building will not affect the existing structure, circulation area or ambulance bay area in the Westmead Precinct Central Acute Services Building (CASB)

The new PSB Ambulance Bay on L02 is accessible via the existing CASB driveway. The bay is a dedicated space and does not provide access to the parking level. The proposed dimensions for the Ambulance Bay are width: ~7.6m, Length: ~12.8m to allow for the ambulance vehicle to park and for sufficient stretcher movement, as per the below markup. There is no change proposed to the existing CASB Ambulance Bays or the access driveway as a result of this.

TRANSPORT FOR NSW

HAWKESBURY ROAD/HAINSWORTH STREET PICK-UP/DROP-OFF AREA

Vehicle queuing from the proposed pick-up/drop-off zone can cause isolated delays affecting the Hawkesbury Road/Hainsworth Street intersection, impacting the Parramatta Light rail journey time, and the operation of buses on Hawkesbury Road and Hainsworth Street. It should also be noted that the PLR end-state design for Hawkesbury Road includes a single trafficable lane in each direction alongside the light rail track and road capacities are reduced.

A vehicle queuing assessment or SIDRA modelling of the pick-up/drop-off zone is to be submitted for review to ensure increased movements can be accommodated on Hawkesbury Road without vehicle queuing into the Hawkesbury Road/Hainsworth Street intersection.

Response

It is noted that the set-down and pick-up area in reference is being delivered as part of the PLR project, under a separate planning approval. This area does not form part of the PSB project scope.

It is however noted that the increased pick-up and drop-off activity would result in additional traffic volumes of 13 vehicles in both the AM and PM peak hours. These 13 vehicles have been assumed to enter the drop-off area either via Hawkesbury Road to the south or via Darcy Road in line with the existing split of traffic at the intersection of Hawkesbury Road and Darcy Road. The impact of this additional traffic has been assessed at this intersection and indicates there would be limited impact on the surrounding road network.

Additionally, the proposed changes to the drop-off area, as part of the PLR project scope, have been the subject of extensive consultation between Health Infrastructure, the Sydney Children's Hospitals Network, TfNSW and the PLR project team.

Nonetheless, an increase of 13 additional vehicles per hour is approximately one additional arrival every 5 minutes. Given existing drop-off volumes of 52 vehicles an hour, total future development drop-off volumes are estimated at 65 vehicles per hour. With an indicative cycle time of 120 seconds, total demand for the drop-off area is estimated at 2

vehicles per cycle. Considering a typical minimum green time of 5 seconds (TfNSW *Traffic Signal Operation RTA-TC-106-B*), the arrival of 2 vehicles per cycle would be serviceable at the intersection.

With such low traffic demand for the drop-off area, it is therefore concluded that the additional traffic generated by increased pick-up and drop-off activity at CHW would have limited impact on bus and light rail operations on Hawkesbury Road.

It is noted that the SIDRA modelling was provided to TfNSW on 23 July 2020 prior to EIS lodgement. TfNSW noted that it was satisfied with the preliminary modelling and noted no specific requirements in relation to PLR on 21 August 2020. This was further discussed with TfNSW in a coordination meeting dated 27 November 2020, where it was noted that TfNSW was comfortable with the adopted traffic growth. Meeting Minutes are provided at Attachment C. It is also noted that the Preliminary Traffic Assessment was provided to TfNSW on 14 December 2020 prior to EIS lodgement with no comments received.

CUMULATIVE TRAFFIC IMPACT OF PARRAMATTA LIGHT RAIL

TfNSW is seeking confirmation that the development traffic of the Parramatta Light Rail (PLR) has been considered as part of the future 2030 scenario without development, to consider cumulative traffic impact.

Response

The background growth rates assessed in the Transport Assessment report was established based on historical growth in the area and recognise the ongoing traffic growth associated with both surrounding developments and an increase in the through traffic that uses the local and arterial road network. SIDRA modelling was provided to TfNSW on 23 July 2020 prior to EIS lodgement. TfNSW was satisfied with the preliminary modelling and noted no specific requirements in relation to PLR. It is also noted that the Preliminary Traffic Assessment was provided to PLR for comment prior to EIS lodgement. No comments were received. This was further discussed with Transport for NSW in a coordination meeting dated 27 November 2020 (Attachment C), noting that TfNSW is comfortable with the adopted traffic growth.

CONSTRUCTION CUMULATIVE IMPACT

Several construction projects, including the PLR Project and Sydney Metro West Project are likely to overlap at the same time as the development. The cumulative increase in construction vehicle movements from these projects could further have the potential to impact on general traffic and bus operations within the precinct as well as the safety of pedestrians and cyclists.

It is noted that the RTS states “Furthermore, as Sydney Metro West are not yet at the site it is instead suggested that Sydney Metro should be consulting with the MSCP Contractor and SCHN, noting that engagement between the Westmead Health Precinct and the Sydney Metro West project team has commenced.” However, TfNSW request that consultation be carried out now to ensure that there is open communication, and that Sydney Metro West project related information is included within any CPTMP developed by the proponent. This will ensure any CPTMP is considered accurate and includes all potential projects within close proximity to the proposed development.

Response

Health Infrastructure representatives has met with Sydney Metro on 3 August 2021 for an initial briefing and early discussion of their construction traffic flows, refer to Attachment D.

As noted in the RtS dated 13 October 2021, it is anticipated that the construction works for PSB would commence early to mid-2022 and would be completed late 2024. The exact construction staging, timeframe and duration would be confirmed once a contractor is appointed for the project. In terms of program timeline, it is expected construction of the PSB would coincide with construction of the Parramatta Light Rail (PLR) and Sydney Metro West.

However, in terms of construction haulage route, construction of PSB would utilise different routes as compared to those nominated for Parramatta Light Rail and Sydney Metro.

The primary construction vehicle routes for the PSB are likely to include to/from north and east via Redbank Road and Briens Road and to/from south and west via Institute Road, Darcy Road and Cumberland Highway. Redbank Road

would be the preferred route, as it provides a more direct access between the site and the arterial road network to/from the site from the north-east. The haulage route is shown in Figure 2. The preliminary estimated peak construction volumes for the PSB are up to 20 vehicles per hour and up to 100 vehicles per day.

It is understood that the primary construction vehicle route for Sydney Metro West and Westmead Metro Station would be Hawkesbury Road and the M4 to the south, and that the primary construction vehicle route for PLR would be Hawkesbury Road, Darcy Road and Cumberland Highway. The following routes have been specifically identified for Sydney Metro's construction:

Inbound Construction Routes

- Hawkesbury Road Northbound to Pye St, between 6am to 8pm, and
- Hawkesbury Road Northbound to Bailey St, between 8pm to 6am

Outbound Construction Route

- Hawkesbury Road, South bound

General Traffic Diversions (allowance for current traffic volumes)

- Eastbound via Bailey St
- Westbound via Priddle St
- Northbound via Mowle St

Given the low anticipated peak construction activity and the differing primary construction vehicle routes for the PSB, it is not anticipated that the cumulative construction impacts would be measurably greater than isolated construction impacts.



Figure 2 PSB Construction vehicle routes

Noting the above, a condition of consent would be imposed on the proponent to prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) prior to the issue of any construction certificate in consultation with TfNSW. As part

of the CPTMP, coordination with Transport for NSW and PLR Contractors will be done to any adverse impact associated with PLR project during construction, testing, commissioning, and regular service operation.

MODE SHARE TARGET

It is advised that future mode share targets for public transport are considered too low for the extremely high level of transport infrastructure to be provided at the site. Given the large amount of public transport infrastructure planned for the precinct, a mode share increase of 10% for public transport is considered insufficient for the site. By limiting provision of car parking and encouraging the use of public and active transport, higher mode shares for sustainable transport should be attainable.

Response

A detailed assessment of the mode share and its impact to the parking demand is provided in the *Car Park Demand Study* completed by GTA. The proposed reduction in mode share has been based on detailed Survey, post code and existing infrastructure analysis.

It should be noted that this Car Park Demand Study was issued and approved as part of the Multi Storey Car Park SSD10434896 Revised Transport Assessment during Response to Submission. Refer to Section 8.1.2 specifically.

Based on correspondence with Health Infrastructure and PwC, it is understood that this Car Parking Demand Study was provided to TfNSW for review on 8 November 2019 with no comments received.

Additionally, the preliminary Green Travel Plan has highlighted a number of actions to:

1. **Establish** current situation
2. Provide attractive **alternatives** to private vehicles
3. Provide **information** on choices
4. **Promote** non-private vehicle modes

This includes a monitoring process during operation to review the travel plan and adapted over time to consider new opportunities that exist as development plans are realised. A review of usage across different modes and car park utilisation rate would be included as part of the monitoring plan

END OF TRIP FACILITY

It does not appear that sufficient end of trip facilities are proposed to enable expected mode shift to active transport. The applicant proposes that no additional end of trip facilities are required because they are already provided in the CASB; and by relocating the existing bike parking facilities in P17 car park.

Response

A detailed assessment of the precinct End of Trip facilities is provided in the Traffic Assessment submitted during EIS lodgement. Refer to Section 3.10 and 6.3 specifically. It should be noted that the provisions of precinct end of trip facilities was issued and approved as part of the Multi Storey Car Park SSD10434896 Revised Transport Assessment during Response to Submission.

Notwithstanding, the preliminary Green Travel Plan has identified opportunities to monitor and review the demand for end of trip facilities and bicycle parking during operation and respond appropriately. This includes identifying opportunity to replace car parks with bicycle and motorcycle parking as a medium-term commitment and install end-of-trip facilities as a long-term commitment.

PEDESTRIAN AND BICYCLE NETWORK

The Transport Assessment report makes limited commentary and recommendations for improving links to the surrounding pedestrian and cycle networks. This is considered necessary to achieve mode shifts to public and active transport. The preliminary GTP and Transport Assessment report make no assessment of surrounding pedestrian and cycling infrastructure to access the site.

Further, the proposed pedestrian connections between the PSB and public transport (indented bus bay along the frontage of the site and “Children’s Hospital” light rail stop on Hainsworth Street via the pedestrian crossing on Hawkesbury Road) via the proposed KIDSPARK are indirect.

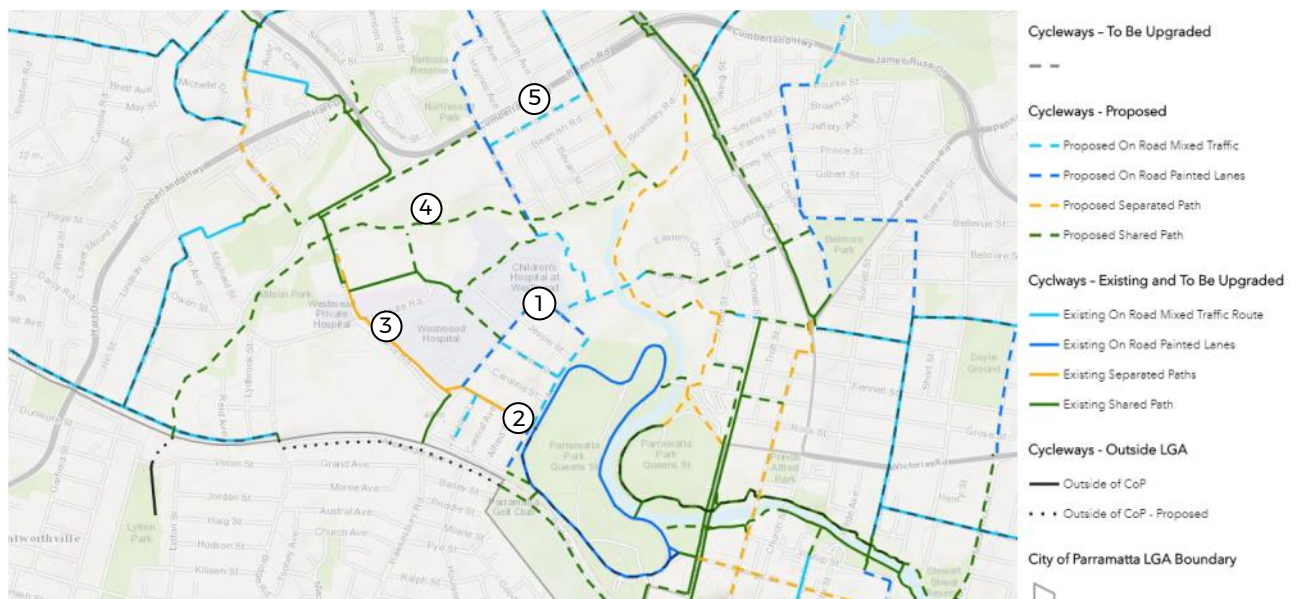
Response

A detailed assessment was completed and is provided in the Green Travel Plan submitted during EIS lodgement. Refer to Section 3.2.

The GTP has identified a number of plans developed by City of Parramatta and as part of the Parramatta Light Rail project to strengthen the pedestrian and bicycle network around the CHW.

The proposed Parramatta Cycling Network identifies several corridors within the study area of varying typology (Figure 3). Corridors that may be beneficial to the CHW’s staff and visitors include:

1. Proposed painted bicycle lanes on Park Avenue, Hainsworth Street and Hawkesbury Road in Westmead
2. Existing physically separated bicycle lanes from Westmead to Parramatta CBD (Queens Road and Parramatta Park)
3. Existing off-road separated bicycle lanes along Darcy Road and Mons Road (North-West T-way)
4. Proposed Toongabbie Creek shared path
5. Proposed on-road facilities on Redbank Road, Balmoral Road and Kleins Road.



Source: Parramatta Bike Plan, Parramatta City Council, (2018)

Figure 3 Existing and planned cycling network within the Westmead region

Parramatta Light Rail will also include an active transport link along its alignment which will also strengthen cycling connections to Parramatta CBD and the wider region.

Pedestrian access between CHW and the surrounding public transport network and the surrounding active transport network would be via the Hawkesbury Road footpath. Within this site, Kidsway would facilitate this safe pedestrian access. Externally, current and future pedestrian crossing facilities will be provided along Hawkesbury Road to accommodate safe access to and from the Station and stops.

These routes are the most direct routes connecting the PSB to public transport network.

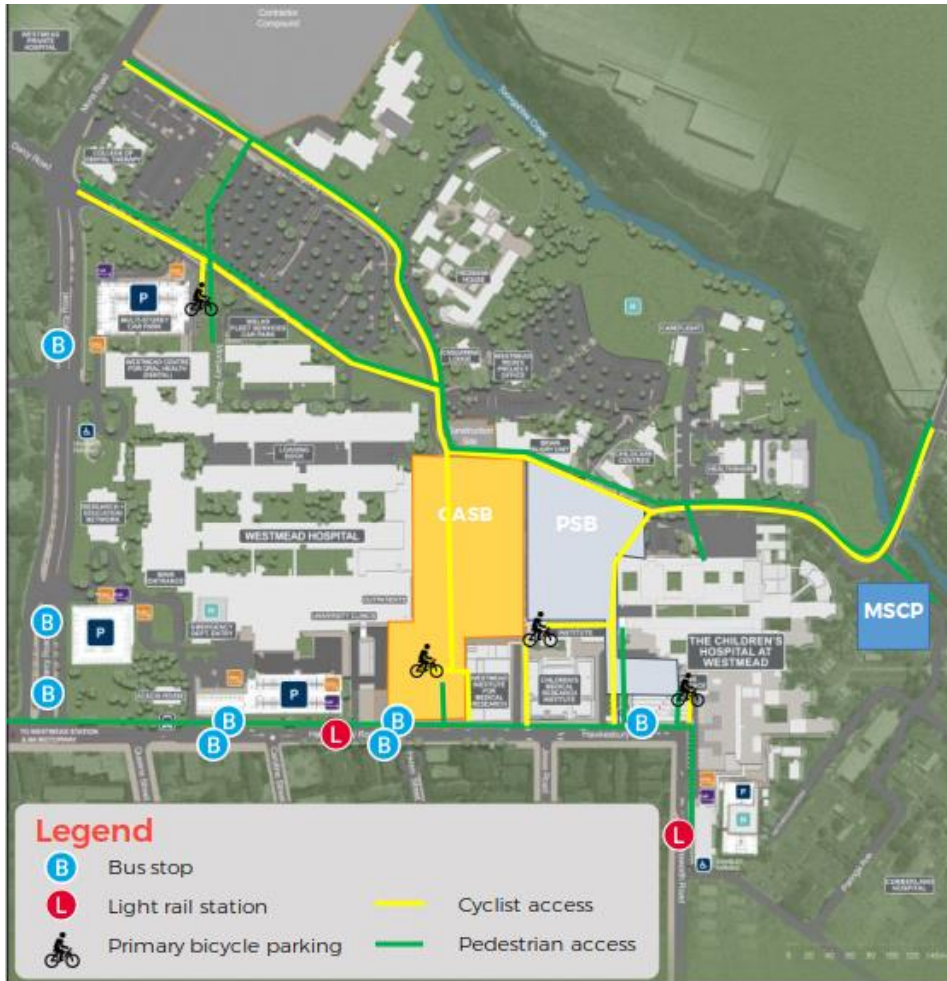


Figure 4 Active and public transport infrastructure



ATTACHMENT A

RESPONSE TO SUBMISSION REPORT



Our ref: PS118400-P&M-LTR-007 Response to Submissions Letter RevE

13 October 2021

Ingrid Berzins
Planning Officer
Infrastructure Assessments
Planning and Assessment Group
NSW Department of Planning, Industry and Environment
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Dear Ingrid

Health Infrastructure engaged WSP to prepare a Transport Assessment (TA) as part of an Environmental Impact Statement (EIS) for inclusion in a State Significant Development Application (SSDA) for the Children's Hospital at Westmead Redevelopment Stage 2, Paediatric Services Building. The TA (March 2021) assessed the traffic, car parking and loading requirements of the proposal. The TA confirmed that the proposal would have limited traffic impact on the surrounding road network.

We understand that several submissions were received in relation to the SSDA. Traffic and transport related submissions were received from the following:

- Department of Planning, Industry and Environment
- Transport for NSW
- City of Parramatta Council.

This letter has been prepared as a traffic and transport response to these submissions and should be read in conjunction with The Children's Hospital at Westmead Stage 2 Redevelopment, Paediatric Services Building Transport Assessment prepared by WSP dated 16 March 2021.

This response is made in consideration of the revised architectural plans and information that will form part of the broader response to submissions. Overall, the following traffic and transport design changes have been made since SSDA lodgement:

- The courier bays of the loading dock have been shifted south
- Seven accessible spaces have been provided as part of the car park on Level 02
- Two motorcycle spaces have been provided as part of the car park on Level 02

Please do not hesitate to contact me should you require any further information.

Yours sincerely

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Senior Traffic Engineer

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RESPONSE TO SUBMISSIONS – TRAFFIC AND TRANSPORT

DEPARTMENT OF PLANNING, INDUSTRY AND ENVIRONMENT

4. Clarification is required regarding on-site car parking supply. Detail whether the temporary P17 replacement parking provides 679 spaces and how many of the remaining spaces in P17 form part of the 50 spaces provided as part of the PSB development.

Response

The temporary P17 replacement parking provides all 679 spaces displaced by the demolition of P17. The 50 spaces provided in the PSB building are not provided as replacement of P17 displaced spaces, rather are provided as an interim use of Level 02, with the space master planned for future clinical services expansion.

This area will be lost to this clinical expansion in the future. However, it provides an interim opportunity for particular “at need” users, such as disabled parking and frequent hospital visitors, e.g. day oncology patients. As such, the car park has been designed to accommodate as many accessible spaces as possible, with seven of the 50 spaces proposed as accessible spaces, which provide additional comfort for people with limited mobility entering and exiting their vehicles.

5. Provide details of how the work area in which construction parking is proposed will integrate with existing/proposed parking.

Response

Parking for construction workers may be established within the construction site boundary only. These will be separate areas not integrated with existing/proposed parking. Workers would not be permitted to park outside of the construction site.

This presents an opportunity for the contractor to encourage car-pooling and implement measures that minimise the number of workers who would arrive during the AM and PM peak periods for the precinct and also the broader road network.

The appointed contractor will be responsible for adhering to the above parking objectives in consultation with Health Infrastructure and SCHN.

11. The cumulative construction impacts are to be further investigated and assessed, taking into consideration light rail works and concurrent building construction works.

Response

It is anticipated that the construction works for PSB would commence early to mid-2022 and would be completed late 2024. The exact construction staging, timeframe and duration would be confirmed once a contractor is appointed for the project. However, it is expected construction of the PSB would coincide with construction of the Parramatta Light Rail (PLR) and Sydney Metro West.

While construction vehicles will have origins and destinations from a wide variety of locations, construction vehicles are generally limited to the arterial road network, and dedicated construction vehicle routes are developed with the aim to provide the shortest distances to/from the arterial road network. The primary construction vehicle routes for the PSB are likely to include to/from north and east via Redbank Road and Briens Road and to/from south and west via Institute Road, Darcy Road and Cumberland Highway. Redbank Road would be the preferred route, as it provides a more direct access between the site and the arterial road network to/from the site from the north-east. The preliminary

estimated peak construction volumes for the PSB are up to 20 vehicles per hour and up to 100 vehicles per day.

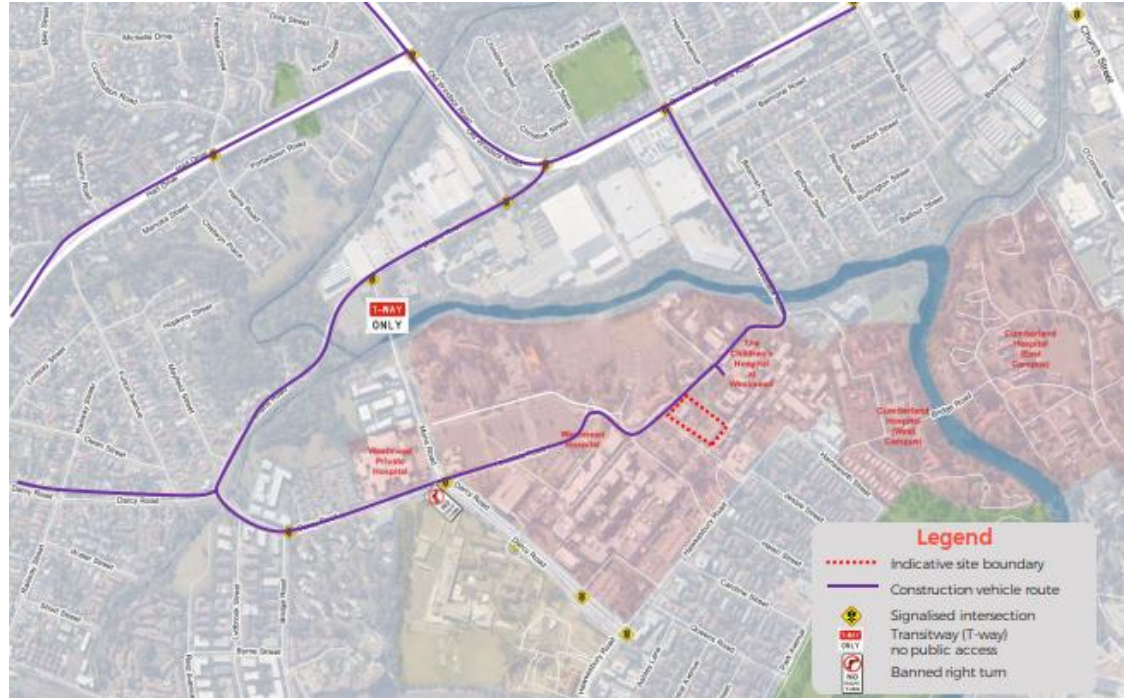


Figure 1 PSB Construction vehicle routes

It is understood that the primary construction vehicle route for Sydney Metro West and Westmead Metro Station would be Hawkesbury Road and the M4 to the south, and that the primary construction vehicle route for PLR would be Hawkesbury Road, Darcy Road and Cumberland Highway. Given the low anticipated peak construction activity and the differing primary construction vehicle routes for the PSB, it is not anticipated that the cumulative construction impacts would be measurably greater than isolated construction impacts.

Nonetheless, as a condition of consent, the proponent shall prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) prior to the issue of any construction certificate in consultation with TfNSW. As part of the CPTMP, coordination with Transport for NSW and PLR Contractors will be done to any adverse impact associated with PLR project during construction, testing, commissioning, and regular service operation.

The CPTMP shall include (but not limited) the following:

- A description of the development;
- Location of any proposed work zone(s), noting that Hawkesbury Road is not a suitable location;
- Details of crane arrangements including location of any crane(s) and crane movement plan;
- Haulage routes;
- Proposed construction hours;
- Predicted number of construction vehicle movements, detail of vehicle types and demonstrate that proposed construction vehicle movements can work within the context of road changes in the surrounding area, noting that construction vehicle movements are to be minimised during peak periods;
- Construction vehicle access arrangements;

- Construction program and construction methodology, including any construction staging;
- A detailed plan of any proposed hoarding and/or scaffolding;
- Measures to avoid construction worker vehicle movements within the precinct;
- Consultation strategy for liaison with surrounding stakeholders, including other developments under construction and PLR and Sydney Metro West builders;
- Identify any potential impacts to general traffic, cyclists, pedestrians, bus services and any light rail within the vicinity of the site from construction vehicles during the construction of the proposed works. Proposed mitigation measures should be clearly identified and included in the CPTMP; and
- Identify the cumulative construction activities of the development and other projects within or around the development site, including the PLR Project and private development. Proposed measures to minimise the cumulative impacts on the surrounding road network should be clearly identified and included in the CPTMP;
- Submit a copy of the final plan to TfNSW for endorsement; and
- Provide the builder's direct contact number to small businesses adjoining or impacted by the construction work and the Transport Management Centre within TfNSW to resolve issues relating to traffic, public transport, freight, servicing and pedestrian access during construction in real time. The applicant is responsible for ensuring the builder's direct contact number is current during any stage of construction.

The applicant shall submit a copy of the final updated plan to TfNSW for endorsement within two weeks of being notified by TfNSW to update the plan.

12. The Department questions how an analysing of staff travel patterns over two days provides for accurate results. A more comprehensive analysis or justification is required.

Response

Staff travel patterns were analysed solely to provide an indication of the peak travel demand and peak travel period for the hospital. As the hospital operates the same shifts on any given weekday, it was expected that peak travel periods and patterns would be very consistent across weekdays. The results of the two days of survey reflect this view, with each day displaying similar results. This informed the further quantitative analysis and ensured the estimated peak arrivals and departures were captured in the modelling.

13. Identify whether any motorcycle parking is incorporated into the proposal and if so, the relevant architectural plans are to be updated accordingly to show the available parking.

Response

Motorcycle parking rates for the Parramatta City Centre have been adopted, requiring 1 motorcycle parking space for every 50 car parking spaces provided or part thereof, as separate parking for motorcycles. Two motorcycle parking spaces are included in this proposal on the northern side of the car park, near the lift lobby. The proposed motorcycle parking spaces are designed in accordance with Australian Standards, with dimensions of 1.2m wide by 2.5m long. The architectural plans have been updated accordingly.

TRANSPORT FOR NEW SOUTH WALES

1. PICK-UP / DROP-OFF ACTIVITIES ON HAWKESBURY ROAD

Page 8 of the Transport Impact Assessment states that “a minor increase in set-down and pick-up activity is expected to occur along Hawkesbury Road. Based on CHW’s forecast growth, the existing drop-off activity could increase by 25 per cent.” TfNSW advises that currently Hawkesbury is designated a classified road at this location currently and will be a transitway in the future, due to the build of Parramatta Light Rail (PLR).

TfNSW is concerned that any increase in pick-up / drop-off activities might impact bus and light rail operations along Hawkesbury Road.

TfNSW recommends that the proponent undertake a vehicle queuing assessment to ensure that the increase can be accommodated on Hawkesbury Road without impacting the operation of the current and future (PLR end state) transport network.

Response

It is noted that the set-down and pick-up area in reference is being delivered as part of the PLR project, under a separate planning approval. This area does not form part of the PSB project scope.

It is however noted that the increased pick-up and drop-off activity would result in additional traffic volumes of 13 vehicles in both the AM and PM peak hours. These 13 vehicles have been assumed to enter the drop-off area either via Hawkesbury Road to the south or via Darcy Road in line with the existing split of traffic at the intersection of Hawkesbury Road and Darcy Road. The impact of this additional traffic has been assessed at this intersection and indicates there would be limited impact on the surrounding road network.

Additionally, the proposed changes to the drop-off area, as part of the PLR project scope, have been the subject of extensive consultation between Health Infrastructure, the Sydney Children’s Hospitals Network, TfNSW and the PLR project team.

Nonetheless, an increase of 13 additional vehicles per hour is approximately one additional arrival every 5 minutes. Given existing drop-off volumes of 52 vehicles an hour, total future development drop-off volumes are estimated at 65 vehicles per hour. With an indicative cycle time of 120 seconds, total demand for the drop-off area is estimated at 2 vehicles per cycle.

With such low traffic demand for the drop-off area, it is therefore concluded that the additional traffic generated by increased pick-up and drop-off activity at CHW would have limited impact on bus and light rail operations on Hawkesbury Road.

CITY OF PARRAMATTA COUNCIL

1. The Transport Assessment (TA) report references a Car Parking Demand Study conducted in 2019 by GTA Consultants where it identified a need for an additional 280 spaces by 2031/32. This study was not provided and it remains unclear why an additional 280 spaces is required. and it cannot be peer reviewed.

Response

The Car Parking Demand Study is provided in Attachment A of this Response to Submissions letter.

3. It is unclear of the 50 spaces, which are for staff and which are for visitors. This is to be noted on future versions of architectural plans.

Response

The spaces allocated in L02 PSB are provided as an interim arrangement, available to the public and accessed and managed through the ticketing system with the P17 at-grade car park. The architectural plans have been updated accordingly.

The 50 spaces provided in the PSB building are provided as an interim use of Level 02, with the space master planned for future clinical services expansion. However, it provides an interim opportunity for particular “at need” users, such as disabled parking and frequent hospital visitors, e.g. day oncology patients. As such, the car park has been designed to accommodate as many accessible spaces as possible, with seven of the 50 spaces proposed as accessible spaces, which provide additional comfort for people with limited mobility entering and exiting their vehicles.

4. The TA report indicates that based on the Building Code of Australia (BCA) requirement for the provision of accessible parking, at least 1 accessible parking space is required for the PSB carpark as it accommodates 50 car spaces. The report also recommends that a higher portion of disabled spaces be provided in the PSB car park. Council recommends that although 50 car spaces is accommodated in the PSB carpark, as this development appears to generate an additional 280 car spaces, this should be used to determine the provision of accessible parking instead. Therefore, it is recommended that at least 3 disabled parking spaces be provided in the PSB carpark.

Response

Seven car parking spaces for people with disability have been accommodated within the car park. The proposed accessible parking spaces are designed in accordance with Australian Standards, with dimensions of 2.5m wide by 5.4m long, with an adjacent space for mobility impaired persons to access and egress vehicles in comfort and safety. The architectural plans have been updated accordingly.

7. The architectural plans provided indicates that the parking dimensions proposed will be 2.4m wide and 5.4m long. This will need to be amended to comply with the Australian Standards for Class 3 vehicles (i.e. 2.6m wide and 5.4m long).

Response

The spaces are proposed to be 2.5m wide, complying with Australian Standards for Class 2. The width of the spaces was limited to 2.5m due to the column sizes and standardised grid design required for the clinical nature of the building.

In terms of the difference in car parking space ‘class’:

- Class 3 is generally defined for short-term parking with the design criteria requiring **full opening for all doors** and 2.6m wide angled (90 degrees) parking spaces. It is understood that hospital and medical centres were used as examples for Class 3 in AS2890.1.
- Class 2 is generally defined for medium-term parking with the design criteria requiring **full opening for all doors** and 2.5m wide angled (90 degrees parking spaces). Long-term city and town centre parking were used as examples for Class 2 in AS2890.1.

To understand the length of stay at car parks, the boom gate activities for both the former P17 staff car park and P6 visitor car park were monitored as part of the study to understand the ingress/egress patterns for staff and visitors to the hospital – shown in the graphs below. The graph shows that ingress

activities are highest in the AM peak and egress activities highest in the PM peak. The lack of activity in between the two peak periods indicates longer stay with minimal short stay high turnover demand.



Figure 3.7 Former P17 staff car park boomgate daily profile

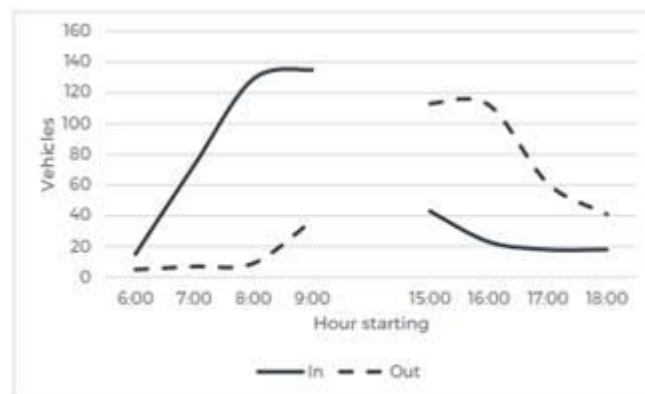


Figure 3.9 P6 visitor car park boomgate peak period profile

Figure 2 Staff and visitor car parking demand profile

Considering the importance of the column sizes for the design of the PSB building, minimal dimension and operational difference between Class 3 (2.6m) and the proposed Class 2 (2.5m) car parking spaces, and the low-turnover currently reflected in existing visitor and staff car parks, the use of Class 2 - 2.5m wide car parking space is considered appropriate for this use.

Additionally, the car park is seen as temporary, with the space master planned for future clinical services expansion. It provides an interim opportunity for particular “at need” users, such as disabled parking and frequent hospital visitors, e.g. day oncology patients.

8. Swept path plans for the PSB car park; particularly for the ramp; have not been provided to demonstrate satisfactory on-site manoeuvring and therefore, cannot be peer reviewed.

Response

Swept path plans for the PSB car park and ramp are shown in Attachment B. This has been completed on the updated architectural plans since SSDA lodgement.

9. Swept path plans for the loading dock have been provided and indicate that on-site manoeuvring for vehicles accessing the HRV, Substation Maintenance bays and Compactor bays require certain spaces to be unoccupied and at times, utilise the full width of the driveway/ramp in order to park the vehicle rear to kerb. It is unclear how the spaces will remain unoccupied, how the trucks will be coordinated within the loading dock and who will have priority should there be vehicles (particularly HRVs)

wanting to enter and exit the facility simultaneously. Therefore, a Loading Dock Management Plan should be provided and reviewed to address these concerns.

Response

The current CHW loading dock will be maintained as the primary delivery point for CHW, and the loading dock proposed as part of the PSB will serve only a satellite purpose for deliveries direct to the PSB. The operation of the loading dock would be incorporated into the CHW operational loading dock management systems and management plans to ensure loading spaces are managed adequately within the loading dock.

However, it is recognised that per the plans submitted as part of SSDA lodgement, on-site manoeuvring for vehicles accessing the HRV (side-loading), Substation Maintenance bays and Compactor bays require certain spaces to be unoccupied, and that vehicles exiting the loading dock in a left-out manner may conflict with vehicles entering the loading dock.

Design changes since SSDA lodgement have shifted the courier bays to the south to enable the side-loading dock to be accessed without affecting the courier spaces. As such, all HRV bays can operate independently. The swept path plan for the HRV (side-loading) bay is shown in Attachment C.

It is reiterated that the substation maintenance bays would be required infrequently and could be managed to ensure its access does not coincide with loading/unloading of the compactors. Additionally, access to compactor 2 could be managed to ensure that access to both compactors is not needed simultaneously. Nonetheless, a Loading Dock Management Plan (LDMP) tailored to address these conflicts can be prepared as part of the conditions of consent.

10. Driveway and ramp gradients for both the PSB carpark and Loading Dock have not been provided and cannot be peer reviewed.

Response

The driveway and ramp gradients for the car park and loading dock are now included on the updated architectural plans included in Attachment D.

11. The car park design including parking dimensions, aisle widths, column locations, swept paths and sight lines are to comply with AS2890.1

Response

The car park design is compliant with AS2890.1 requirements for User Class 2, as the car park is envisaged to be low turnover. Moreover, the car park is seen as temporary, with the space master planned for future clinical services expansion. For further detail, see response to submission 7.

12. It is recommended that a pick-up/drop-off facility be provided within close vicinity to the PSB entrance as this would provide a convenient and designated area for staff or visitors to pick-up/drop off passengers.

Response

A designated pick-up/drop-off facility for the CHW is provided on the corner of Hawkesbury Road and Hainsworth Street. This facility is being provided under the PLR project, under a separate planning approval. The PSB can be accessed from this area via the new pedestrian canopy link through the existing Galleria extension proposed as part of this development, connecting the PSB to the CHW forecourt and pick-up/drop-off area.

RETAIL CONCEPT DESIGN DEVELOPMENT SINCE SSDA LODGEMENT

Since the SSDA lodgement and exhibition, there have been a number of design changes due in part to responses to received submissions, as well as due to design development. One such change has been the retail concept in the CHW forecourt. At SSDA lodgement, retail was included as a high-level concept in the landscape plans only. Since then, the retail concept has been expanded. This includes a redesign of the retail pods in the forecourt, increasing activation and integration with the KIDSPARK and landscaping. A revised plan showing these retail pods is shown in Figure 3. More detail surrounding these design amendments can be found in the Architectural Design Statement Addendum (BLP Architects, 13 August 2021).

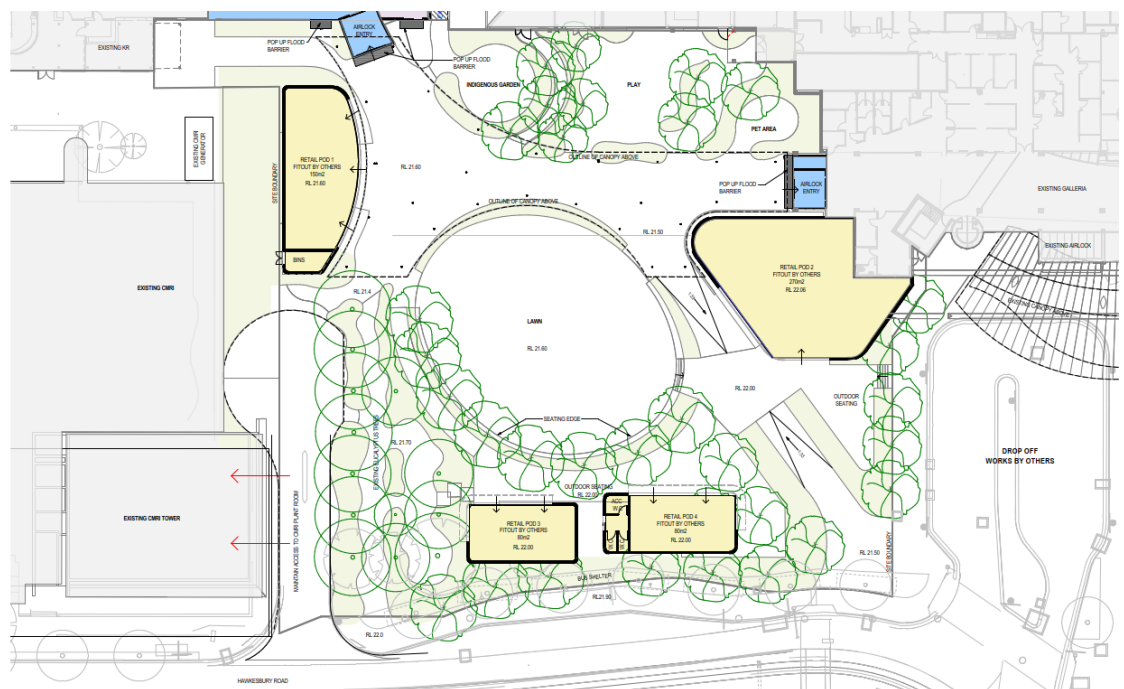


Figure 3 Revised forecourt plan, with amended retail concept

This section provides a brief overview of the servicing and traffic operations related to these forecourt retail pods.

The retail pods will be front loaded and serviced out of hours. Loading vehicles will access the retail pods through the access driveway adjacent the Children's Medical Research Institute (CMRI). Swept paths have been completed for the proposed amendments to the existing driveway, and are shown in Attachment E.

The swept paths show the driveway allows for forward access and egress for a car with trailer. The proposed driveway amendments also allow for an 8.8-metre long Medium Rigid Vehicle to turn around within the driveway, allowing for both access and egress in a forward direction. This accounts for the large majority of vehicles accessing this area, such as delivery trucks, construction vehicles and refuse vehicles.

The largest vehicle that would access this area would be a 12.5-metre Heavy Rigid Vehicle, but only in the event of a catastrophic failure of the CMRI generator. Therefore, this size of vehicle has been allowed for, but would require the vehicle to reverse out of the driveway. As a vehicle of this size would only require this area as an 'occasional service' (defined as less than once a day), a reverse movement is considered acceptable per AS2890.2 Clause 3.2.2, subject to approval by the road authority.

The retail pods in the forecourt are provided to support and enhance the patient, carer and staff experience within the Hospital and wider Health Precinct. The provision of retail pods within the forecourt delivers vibrancy to the outdoors experience (providing a space to dwell and socialise). The retail pods also enhance the KIDSPARK area to breathe connection between the old hospital, the new facilities and light rail stop proposed on Hainsworth Street.

In this regard, the retail facilities are provided as an ancillary use within the forecourt and wider Health Precinct. It is anticipated that the customers of these retail facilities would be staff, patients, and carers of the Hospital. As such, all customers using these facilities would already be within the Precinct for other reasons, and no new car trips will be associated with the provision of these retail facilities.



ATTACHMENT A

CAR PARKING DEMAND STUDY

(GTA, 2019)

The Children's Hospital at Westmead

Stage 2 Redevelopment
Car Parking Demand Study



Prepared by: GTA Consultants (NSW) Pty Ltd for Health Infrastructure
on 23/10/19
Reference: N117285
Issue #: B

The Children's Hospital at Westmead

Stage 2 Redevelopment Car Parking Demand Study

Client: Health Infrastructure

on 23/10/19

Reference: N117285

Issue #: B

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	16/09/19	Final	Andrew Zhou Ingrid Bissaker	Brett Maynard	Brett Maynard	Brett Maynard
B	23/10/19	Final – minor update	Ingrid Bissaker	Brett Maynard	Brett Maynard	<i>B. Maynard</i>

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

GTA Consultants (GTA) was commissioned by Health Infrastructure to prepare a car parking demand study to inform the business case for The Children's Hospital Westmead (CHW) Stage 2 Redevelopment.

This report sets out an assessment of the anticipated car parking requirements for the proposed redevelopment. This assessment includes a review of the current car parking demand profile of the existing CHW. To ensure the proposed quantum of parking can accommodate the operations of the proposed redevelopment, this assessment has considered the parking demand of the CHW in the future design years 2026/ 27 and 2031/ 32.

Existing Hospital

The existing CHW currently has 3,204 full time equivalent (FTE) staff and a total of 359 beds. The site is serviced by up to 1,547 on-site parking spaces, as well as available off-site parking.

An online staff questionnaire was distributed to all hospital staff in July 2019 to understand existing staff travel patterns. The results of the survey indicate that car travel was generally the main mode of travel to/from the hospital, with around 79 per cent of respondents travelling by private vehicle (including car passengers and motorcyclists).

GTA obtained car park occupancy data from Secure Parking for all CHW car parks operated by Secure Parking. The results indicate that on-site car parking demand at CHW remains high across the day and that staff parking demand exceeds capacity, however Car Park 17 operates in a stacked arrangement to improve available parking supply. The peak demand for parking resulted in an overall car parking demand of 1,515 vehicles. This excludes any off-site parking demand. For the purposes of this assessment, off-site car parking demand has been empirically assessed based on existing staff travel mode share and staff and visitor survey responses. This equates to an assumed off-site parking demand for 462 spaces.

Combined on-site peak parking demand of 1,515 spaces and the off-site assumption of 462 spaces indicates that a total demand of 1,977 spaces is currently being generated by CHW.

Parking Demand Model

A collation of attributes involving separate parking for staff, public/ visitors, and LHD controlled fleet vehicles has been used to model parking demand. The model attempts to analyse the total number of persons which utilise the site against the parking demand through weighting factors such as rates of attendance, vehicle occupancy, and parking space turnover.

Based on input parameters agreed with Health Infrastructure, the parking demand model calculated a peak demand of 2,029 spaces for the existing CHW. This calculated demand is within three percent of the observed peak demand of 1,977 spaces. Allowing for minor fluctuations in assumptions, this is considered a suitable reflection of the existing demand and therefore the parking model is appropriately calibrated for determining car parking requirements for the proposed redevelopment.

Various other options for determining suitable car parking requirements for the proposed redevelopment were assessed, including a review of the *Guide to Traffic Generating Developments* (Roads and Maritime Services, 2002) and the Development Control Plan requirements of nearby councils. However, the projected parking numbers were considered low when reviewed against existing hospital demand.

The Children's Hospital at Westmead Stage 2 Redevelopment

It is proposed that the redevelopment would provide an additional 115 beds. It is understood that the hospital is projected to employ an additional 460 FTE staff in 2026/27 and 810 FTE staff in 2031/32. It is noted that the number of inpatient beds and FTE staff are likely to reduce and therefore the adopted numbers represent a conservatively high growth estimates.

Using the calibrated parking demand model, an additional demand of 280 parking spaces is estimated for the design horizon of 2031/2032, comprising 110 staff and 170 public spaces¹. Therefore, it is recommended that a total on-site parking supply of 1,827 spaces be provided. This includes 1,085 spaces for staff, 699 spaces for the public, 37 spaces for LHD and Fleet vehicles and 6 for emergency/ patient transport/ community bus. This excludes the provision of additional spaces for ambulance parking, LHD and Fleet vehicles or visiting medical officers.

Summary

It is recommended that an additional on-site parking supply of 280 spaces be provided for the proposed CHW Stage 2 Redevelopment.

In addition, the redevelopment would be required to reinstate any parking removed from the CHW as a result of the new building footprint and ancillary works. This is understood to be in the order of 560 – 680 parking spaces, bringing the total requirement for any new multi-storey car park to around 900 - 1,000 parking spaces.

¹ Based on pro-rata growth of workforce in line with CSP projected activity.

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1. INTRODUCTION

01

1.1. Background

Health Infrastructure and the Sydney Children's Hospital Network are investigating Stage 2 of The Children's Hospital at Westmead (CHW) redevelopment. Health Infrastructure commissioned GTA to complete a car parking demand study to inform the business case for the proposed development.

1.2. Purpose of the Report

This report sets out an assessment of the anticipated car parking requirements for the proposed redevelopment. This assessment includes a review of the current car parking demand profile of the existing CHW. To ensure the proposed quantum of parking can accommodate the operations of the proposed redevelopment, this assessment has considered the parking demand of the CHW in 2026/ 27 and 2031/ 32.

As part of the assessment, the following matters have been considered:

1. existing parking conditions surrounding the site
2. existing parking demand profile of the current CHW
3. existing visitor and staff travel patterns to/ from the current CHW
4. the traffic generating characteristics of the proposed redevelopment
5. various options for determining suitable car parking requirements.

1.3. References

In preparing this report, reference has been made to the following:

- an inspection of the site and its surrounds
- car parking supply surveys undertaken by GTA
- car parking demand data provided by Secure
- car park demand assessment template, Health Infrastructure, 23 July 2018
- online surveys completed by hospital staff/ visitors
- on-site interview surveys with hospital visitors
- Roads and Maritime Services (Roads and Maritime) Guide to Traffic Generation Developments 2002
- a range of Sydney metropolitan Council Development Control Plan's.

2. SITE CONTEXT

02

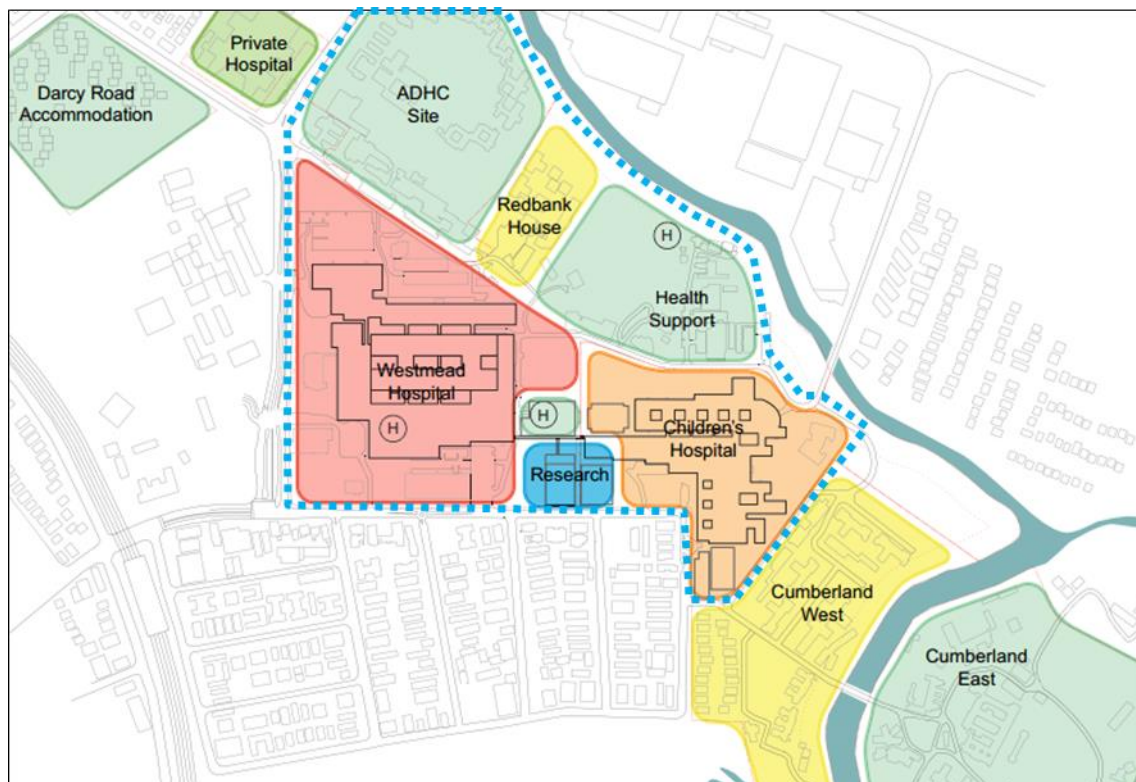
2.1. Overview

2.1.1. Westmead Health Campus

Westmead Health Campus comprises Westmead Hospital and The Children's Hospital at Westmead (CHW) amongst other specialty health services. It represents a significant portion of the Westmead Health Precinct, as indicated by the blue outline in Figure 2.1.

The Campus is in Westmead, directly west of Parramatta CBD and plays a significant role in Sydney's Greater Metropolitan area.

Figure 2.1: Westmead Health Precinct and Campus



Base image source: Westmead Alliance

2.1.2. Stage 1 Redevelopment

The Campus is currently undergoing Stage 1 of its redevelopment, planned to continue over the next three years in several phases. These include:

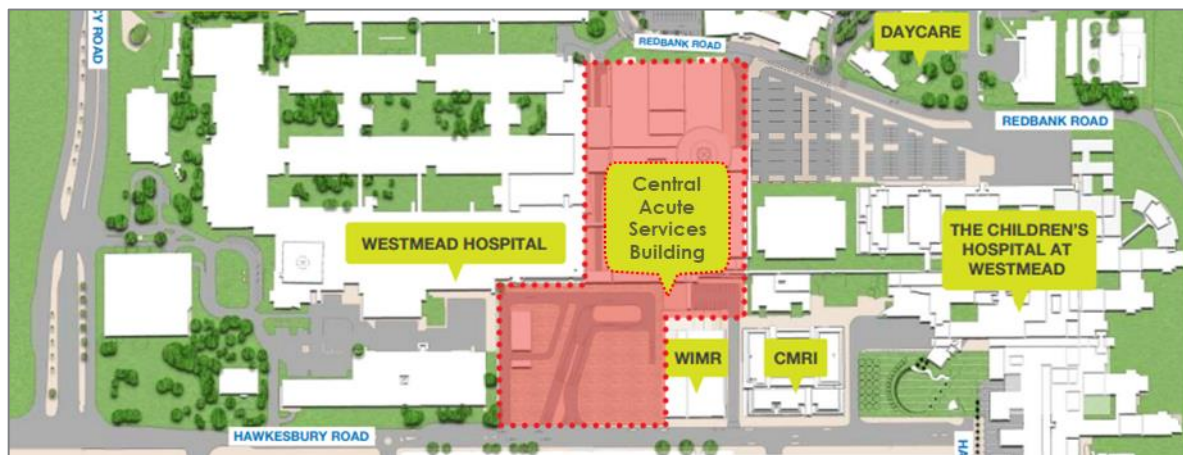
- construction of at-grade parking along Dragonfly Drive (complete)
- construction of a new Multi-Storey Car Park on the corner of Darcy Road and Institute Road (complete)
- construction of the new Central Acute Services Building (CASB), Innovation Centre and Hawkesbury Road Plaza (underway)
- refurbishment of existing hospital buildings (underway).

The new CASB will increase integration between Westmead Hospital, CHW and the University of Sydney. It will host both adult and children's services, including emergency, pharmacy, imaging and state-of-the-art operating suites. Key features of the new building include:

- two new emergency departments — one for Westmead Hospital and one for CHW
- a two-level undercroft car park for use primarily by visitors and patients of the CASB.

The location of the new CASB and its proximity to CHW is illustrated in Figure 2.2. The CASB is currently under construction and planned to open in late 2020.

Figure 2.2: Central Acute Services Building



Base image source: Westmead Redevelopment Prototype rooms map, Westmead Redevelopment, 20 September 2018

2.1.3. Westmead Precinct Travel Plan

The Westmead Sustainable Travel Plan was prepared to manage travel demand, improve transport access and transport operations for the Westmead Precinct. The purpose of this plan is to encourage patients, staff and visitors to travel to the Westmead Precinct by modes other than private vehicle. This will ultimately reduce parking issues and promote public and active transport opportunities.

The Westmead Precinct comprises Westmead Hospital, CHW, Westmead Private Hospital, Cumberland Hospital and several other entities and institutions outlined in Figure 2.1. The Sustainable Travel Plan is intended to be a living document that is periodically updated and continues to drive positive transport outcomes for the Precinct into the future.

The objectives of the Travel Plan include:

- allow all staff, patients, families and visitors to easily access the Precinct by a range of transport modes
- reduce the dependency on private car to 65 per cent by 2026
- increase cycling and walking
- improve health and well-being
- build strong partnerships across government to support the uptake of active transport.

Most notably, the Travel Plan is committed to reducing the dependency of private vehicle travel by over 16 per cent by 2026. This results in a Westmead Health Campus future vehicle mode share target of 65 per cent.

3. EXISTING HOSPITAL

03

3.1. Overview

This section details the existing transport environment around CHW.

3.2. Current Hospital Operations

CHW is located at the corner of Hawkesbury Road and Hainsworth Street, Westmead NSW. The hospital is part of the Sydney Children's Hospital Network and is one of two major children's hospitals in metropolitan Sydney.

The hospital currently has 3,204 full time equivalent (FTE) staff and a total of 359 beds. The site is serviced by parking for up to 1,547 on-site parking spaces as well as available off-site parking, outlined further in section 3.4.

3.3. Surrounding Road Network

3.3.1. Road Hierarchy

Roads are classified according to the functions they perform. The main purpose of defining a road's functional class is to provide a basis for establishing the policies which guide the management of the road according to their intended service or qualities.

In terms of functional road classification, State roads are strategically important as they form the primary network used for the movement of people and goods between regions within Sydney, and throughout the State. Roads and Maritime is responsible for funding, prioritising and carrying out works on State roads. State roads generally include roads classified as freeways, state highways, and main roads under the 1993 Roads Act, and the regulation to manage the road system is stated in the Australian Road Rules (2014).

Roads and Maritime defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

Arterial Roads – Controlled by Roads and Maritime, typically no limit in flow and designed to carry vehicles long distance between regional centres.

Sub-Arterial Roads – Managed by either Council or Roads and Maritime under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their purpose is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).

Collector Roads – Provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.

Local Roads – Provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

3.3.2. Road Network

CHW is accessed via several key traffic routes with key access points located along Hainsworth Street, Hawkesbury Road and Redbank Road.

Table 3.1 provides a summary of the characteristics of the surrounding key roads.

Table 3.1: Surrounding road network

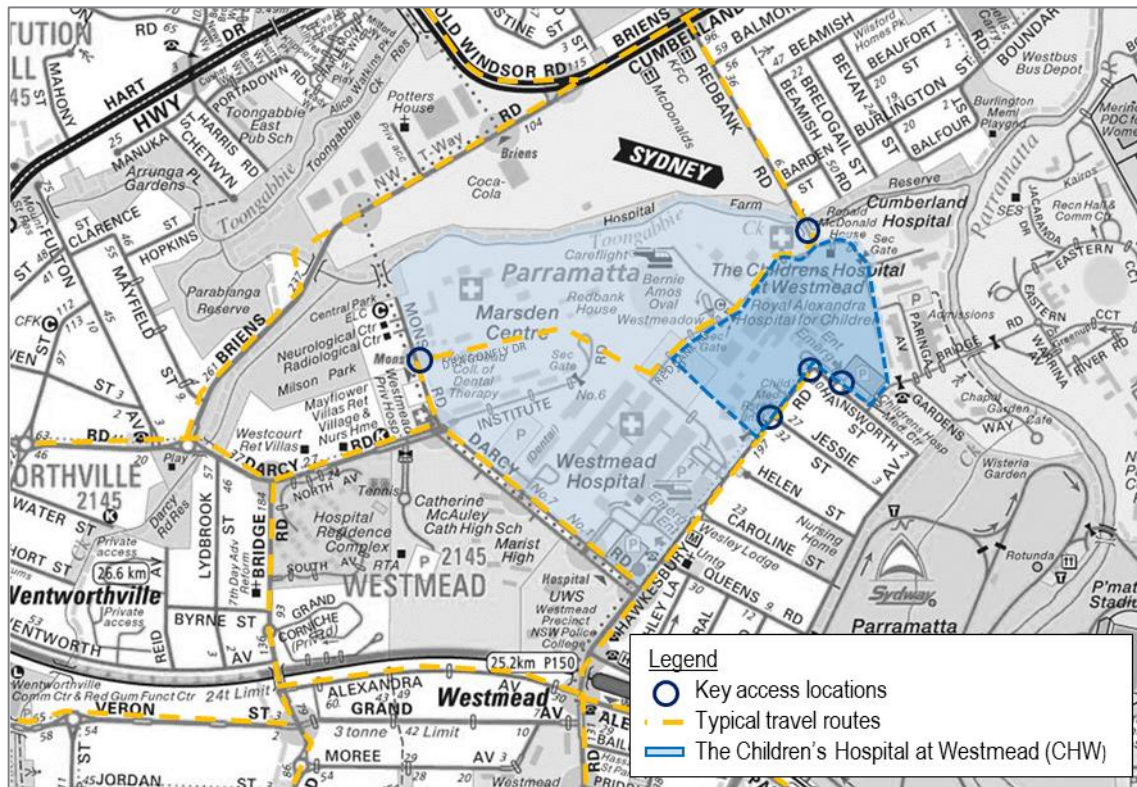
Road	Classification	Authority	Characteristics
Hainsworth Street	Local Road	Council	Two-way, two lane road with kerbside parking. Connecting between Hawkesbury Road and Park Avenue.
Hawkesbury Road	Local Road/ Regional Road	Council RMS west of Darcy Road	Two-way, two lane road with kerbside parking. At intersections, parking is removed to allow additional traffic lanes and bus only lanes. It connects to the Great Western Highway to the south and is an RMS Regional Road west of Darcy Road.
Redbank Road	Local Road/ Private Access Road	Council, HI/ LHD	Two-way, 2-lane road with kerbside parking. It connects to Briens Road, located north of the Hospital. Redbank Road is a private access road within the Campus.
Darcy Road	Regional Road	RMS	Two-way, 4-lane road with an additional Transit Way (T-Way) running through the median. It connects to Hawkesbury Road to the south.
Institute Road	Private Access Road	HI/ LHD	Provides local access into a Hospital staff car park with boom gates limiting access.
Mons Road	Local Road	Council RMS - T-Way and Bus Lanes	Two-way, 2-lane road with marked kerbside parking for the southern portion and is an exclusive T-Way for the northern portion. Mons Road connects to Briens Road to the north and Institute Road and Darcy Road to the south.
Briens Road	Local Road	Council RMS - Bus Lanes	Generally a 4-lane road with bus lanes between Mons Road to the west and Cumberland Highway to the east. Arterial road further to the east (also known as Cumberland Highway) with 3-lanes in each direction.

The surrounding local road network connects with the broader arterial network, including connections to the Cumberland Highway (Hart Drive), Great Western Highway, M4 Western Motorway (M4), Old Windsor Road and Pennant Hills Road.

The Great Western Highway and the M4 both provide east-west access to greater Sydney including Sydney CBD, Parramatta, Blacktown and key regional centres. The Cumberland Highway provides a north-south arterial road link to south-west Sydney areas including Liverpool and extending to the M5 South-West Motorway to allow access to Campbelltown, Canberra and southern regional centres. The M2 Hills Motorway and Westlink M7 also combine more broadly to provide a convenient north-south link.

The location of the Westmead Campus and its surrounds, as well as the CHW key access locations and typical access routes to the Hospital are shown in Figure 3.1.

Figure 3.1: Surrounding road network and key access routes



Base map source: Sydney

3.4. Car Parking

It is noted that the available on- and off-site parking supply is changing periodically throughout the course of the Westmead Redevelopment as a result of construction staging and work area requirements.

3.4.1. On-Site Supply

GTA completed a review of all Westmead Health Campus car parking in late October 2015, prior to the Westmead Hospital redevelopment works commencing. Subsequently, GTA completed a review of the CHW on-site car parking in March 2019 to record car parking changes due to the Westmead Hospital redevelopment works, with the current staff, visitor and authorised user car parking supply across CHW summarised in Table 3.2 and shown graphically in Figure 3.2.

Overall, CHW currently accommodates 1,547 spaces predominately within one visitor and two staff car parking facilities. It is noted that a portion of both staff car parks (car park 14 and at-grade car park 17) are currently occupied by Multiplex to assist with construction of the Central Acute Services Building. Once construction is complete, car parking spaces will be reinstated. It has not been confirmed if CHW car parking supply will increase as a result (noting Westmead Hospital may begin to partially occupy car park 14 if car park 17 spaces are reinstated and given to CHW). Therefore, these spaces have not been considered in this study.

Table 3.2: Existing (March 2019) CHW parking supply

Description ³⁴	Visitor (including short stay)	Staff	Disabled		Authorised	Total
			Visitor	Staff		
Car park 6	512		10		1	523
Car park 14 ^{1,2}		416		6		422
At-grade car park 17 ¹		126		5	2	133
Multi-storey car park 17		418		4		422
CHW ED	4		3		2	9
Car park near ED					26	26
On-street near CMRI					12	12
Total	516	960	13	15	43	1,547

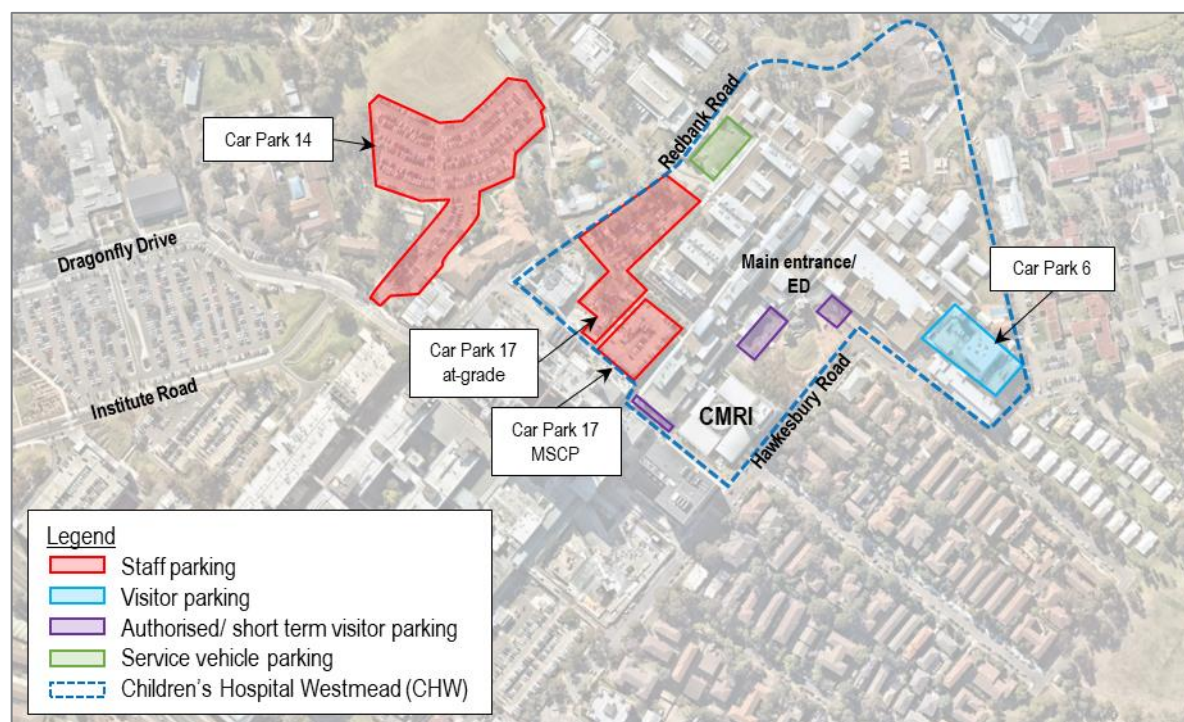
[1] Car park partially occupied by Multiplex to assist with construction of the Central Acute Services Building

[2] Car park includes four additional spaces allocated for Casuarina Lodge however these have not been included as they are not CHW controlled spaces

[3] Loading area near Redbank Road accommodates informal service vehicle parking and is not included as part of official CHW parking supply

[4] Stacked parking arrangement in car park 17 not included in formal parking supply.

Figure 3.2: Existing (2019) parking facilities



Base image source: Nearmap

Car Park Operations

To accommodate the high demand for staff parking, car park 17 currently operates in a stacked arrangement that is managed by the car park operator, Secure. The stacked car park arrangement accommodates a maximum of 124 additional vehicles. In addition, a shift changeover allowance of 88 car parking spaces are reserved on the top level of the multi-storey car park that are made available to staff from 10am each weekday morning.

The CHW staff car parks currently operate as follows:

- Car park 17 is filled to the reduced capacity of 467 spaces (noting allowance of 88 spaces for shift changeover).
- Once car park 17 is full, vehicles are directed to car park 14.
- Before 10:00am and if car park 14 becomes full, car park 17 is stacked by Secure in the at-grade parking area near the multi-storey car park (indicative maximum capacity of around 15 spaces reported by the car park operators).
- After 10:00am, vehicles are allowed to park on the top level of car park 17 multi storey car park (capacity of 88 spaces).
- Once the top level of car park 17 multi storey car park is full, vehicles are stacked from the top level of the car park down to a maximum capacity of 124 stacked spaces.

Furthermore, due to the helipad being relocated from the CASB construction site to the top level of car park 6, Secure operate a valet style service for the top level of parking. The valet service only takes effect once all other car parking levels are full.

Parking Fees

Current staff parking rates for full time staff is \$22.70 per week. A summary of the types of staff parking permits is shown in Table 3.3.

Table 3.3: Types of Parking Permits – Access Times¹

Permit type	Fee and work type	Details
All-day permit	Full-Time	24 hours/ 7 days a week access for staff members who work over 32 hours per week
	Part-Time	24 hours/ 7 days a week access to staff members who work part-time hours up to a maximum of 32 hours a week.
After hours	After-Hours	Staff working rotating shifts starting after 1.00pm and finishing on or after 6.30pm Monday to Friday, weekends and Public Holidays. No waiting list normally applies however this is subject to availability. Applications to be submitted to the Transport Manager by the applicant.
	Special After-Hours	Staff working shifts starting after 10.30am and finishing after 6.30pm Monday to Friday, weekends, and Public Holidays. Shifts need to be verified via email to SCHN-CHW-Transport@health.nsw.gov.au by the Department Head or NUM before Special After Hours is allocated, noting the staff member needs After-Hours parking before Special after hours can be issued.
On-Call Parking Access	On call staff	“On-Call” staff who require access to attend to CHW patients, particularly in an emergency After-Hours can access the Staff Car Park P17 by pressing the boom gate intercom and state to Secure Parking that they are on call & have been called in.

[1] ¹ Staff Parking – Westmead Policy, page 7, prepared by The Children's Hospital at Westmead, dated 29 July 2019

Current public parking fees are detailed in Table 3.4.

Table 3.4: Public car parking fees

Type	Length of Stay	Fees
Normal	First 15 mins	Free
	15mins – 1 hr	\$6.80
	1 – 2 hrs	\$10.10
	2 – 3 hrs	\$13.50
	3 – 4 hrs	\$15.80
	4 – 5 hrs	\$18.10
	5 + hrs	\$20.20
	Lost Ticket	\$20.20
Concession	0-3 hrs	Free
	3 + hrs	\$5.60
	3-day ticket	\$11.30
	7-day ticket	\$22.60

3.4.2. On-Street Parking Supply

GTA completed a review of all on-street car parking in the vicinity of the site in 2015. Subsequently, GTA completed a review of car parking changes due to development works in the local area, including the Westmead Hospital redevelopment and Parramatta Light Rail works. The parking supply for key areas identified as being most likely used by staff and visitors to CHW has been summarised in Table 3.5 and illustrated in Figure 3.3.

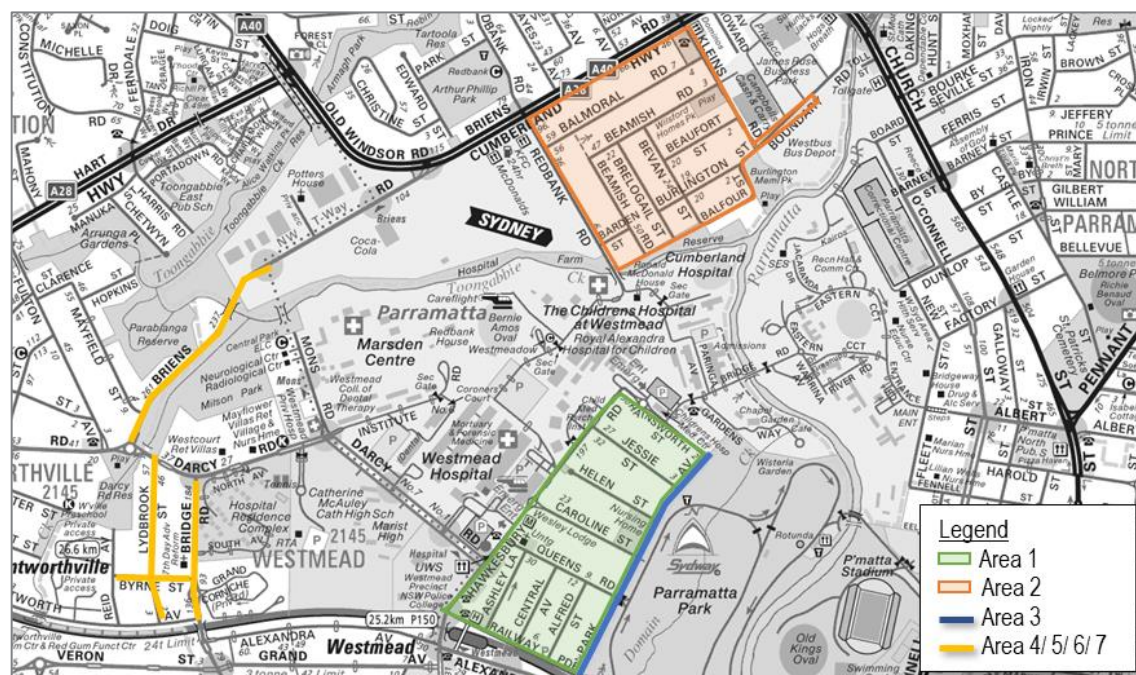
Overall, there are approximately 1,770 publicly available spaces in the surrounding area including approximately 960 unrestricted spaces.

Table 3.5: Relevant on-street parking supply

Area #	Location	Unrestricted Spaces	1P/2P	Disabled	Total Estimated Parking Supply
1	Hawkesbury Road and south to Parramatta Park ¹	263	414	11	688
2	South of Cumberland Highway to Toongabbie Creek	329	242	1	572
3	Park Avenue along western side of Parramatta Park	0	140	0	140
4	Briens Road between Mons Road and Darcy Road	146	0	0	146
5	Bridge Road	76	0	0	76
6	Lydbrook Street	119	0	0	119
7	Byrne Street	28	0	0	28
Total		961	796	12	1,769

[1] Approximately five 2 hour on-street parking spaces were removed from the CASB construction site frontage during construction. Furthermore, from the commencement of Parramatta Light Rail Hawkesbury Road widening works, 57 on-street parking spaces were removed from Hawkesbury Road. 11 disabled and 16 2 hour spaces were relocated to Caroline, Helen and Jessie Street.

Figure 3.3: Relevant on-street parking areas



Basemap source: Sydney

3.5. Public Transport

CHW is generally located within a 900-metre walk from Westmead Railway Station. Westmead Railway Station is serviced by the Western Line (T1) providing frequent services to the Sydney CBD and is complemented by the Cumberland Line (T5) which provides a north-south link between Campbelltown and Schofields.

Parramatta Railway Station is located one stop to the east of Westmead, providing a number of additional NSW TrainLink services extending to the Blue Mountains, and less regular services to Central West NSW including Orange, Bathurst and Dubbo.

The Hospital is also well-served by the North-West T-Way which opened in 2007 and provides regular bus services with significantly increased reliability and good travel times, improving the level of service offered to passengers.

All bus services that pass the Hospital originate or terminate at Parramatta Railway Station with the exception of the 818 Merrylands to Westmead service. The majority of bus services operate as part of the T-Way, which provides direct services to/ from the north-west Sydney growth area that includes Rouse Hill, Glenwood and Bella Vista. There are also limited services which provide local links to Blacktown and Constitution Hill.

The existing public transport services in the vicinity of the Hospital are summarised in Table 3.6 and presented in Figure 3.4.

Table 3.6: Existing public transport services

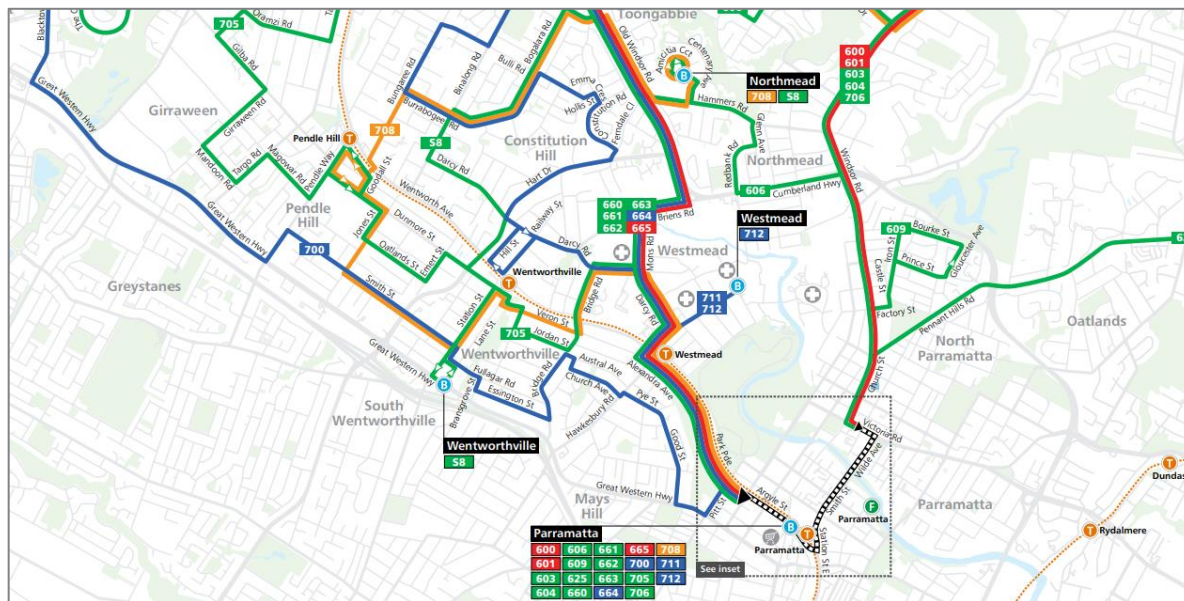
Mode	Route	Location of Stop	Distance	Route	Peak Hour Frequency
Train	T1	Westmead	900m	Penrith/Richmond to Epping/Hornsby	5-10 mins
	T5			Schofields to Campbelltown	30 mins
	Blue Mountains	Parramatta	2.5km	Sydney to Lithgow	Twice Daily
	Regional			Sydney to Dubbo	Daily

EXISTING HOSPITAL

Mode	Route	Location of Stop	Distance	Route	Peak Hour Frequency
Bus	711	Hawkesbury Road	50m	Paramatta to Blacktown	30 min
	712			Westmead Children's Hospital to Paramatta	30 min
	818			Westmead to Merrylands	Hourly
	660, 662	Darcy Road/ Mons Road T-Way	550m	Castlewood to Paramatta	5-15 mins
	661			Castle Hill to Paramatta	
	663, 664, 665, 666			Blacktown to Paramatta	
	708			Rouse Hill Station to Paramatta	2 services per day (1 during AM peak)
	705			Constitution Hill to Paramatta	30 min
				Blacktown to Paramatta	

The bus network map is shown in Figure 3.4, noting that the 818 bus service is not shown given that it is operated by Transit Systems.

Figure 3.4: Bus network map



Source: Hills District Bus Guide – Network Map effective from 28 July 2019

4. EXISTING TRAVEL PATTERNS

04

4.1. Overview

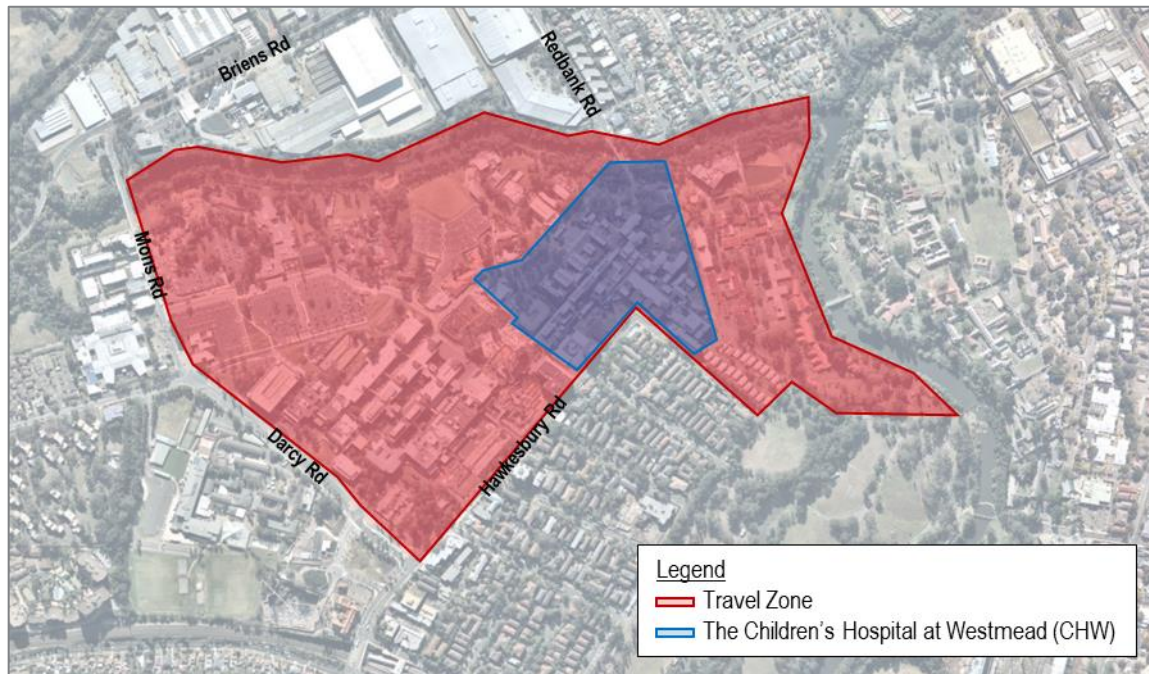
This section provides an assessment of the current travel patterns and car parking demand profile of the existing CHW.

4.2. Travel Patterns

4.2.1. Journey to Work

Journey to work (JTW) data has been sourced from the Australian Bureau of Statistics 2016 census and provides an indication of existing travel patterns to/ from the Westmead Health Campus. Figure 4.1 details the catchment of census data analysed which corresponds to the Transport for NSW Transport Performance and Analytics geographical area of a Travel Zone (TZ). The relevant TZ used for this assessment is 1045, and contains Westmead Hospital, CHW and Cumberland Hospital west campus.

Figure 4.1: Travel zone containing CHW (TZ 1045)



[1] Destination zone (114913685) corresponds to TZ1045

Base image source: Nearmap

2011 and 2016 JTW data for the travel zone was analysed to gain an initial understanding of any change in staff travel mode share over the five year period. This analysis is summarised in Table 4.1.

Table 4.1: Travel characteristics comparison for Westmead Health Campus destination zone (114913685) JTW

Mode	2011 JTW Data Travel Zone	2016 JTW Data Destination Zone	% Change
Vehicle Driver	76%	71%	-5%
Vehicle Passenger	5%	4%	-1%
Train	10%	15%	5%
Bus	2%	3%	1%
Walk	5%	4%	-1%
Other (100% - sum of other rows)	2%	3%	0%

Table 4.1 indicates the following:

- Private vehicle mode share (as a driver or passenger) for commuter trips to Westmead Hospital Campus has reduced by 6% between 2011 and 2016.
- These private car trips shifted to public transport, noting commuter trips by train increased by 5% and trips by bus increased by 1%.

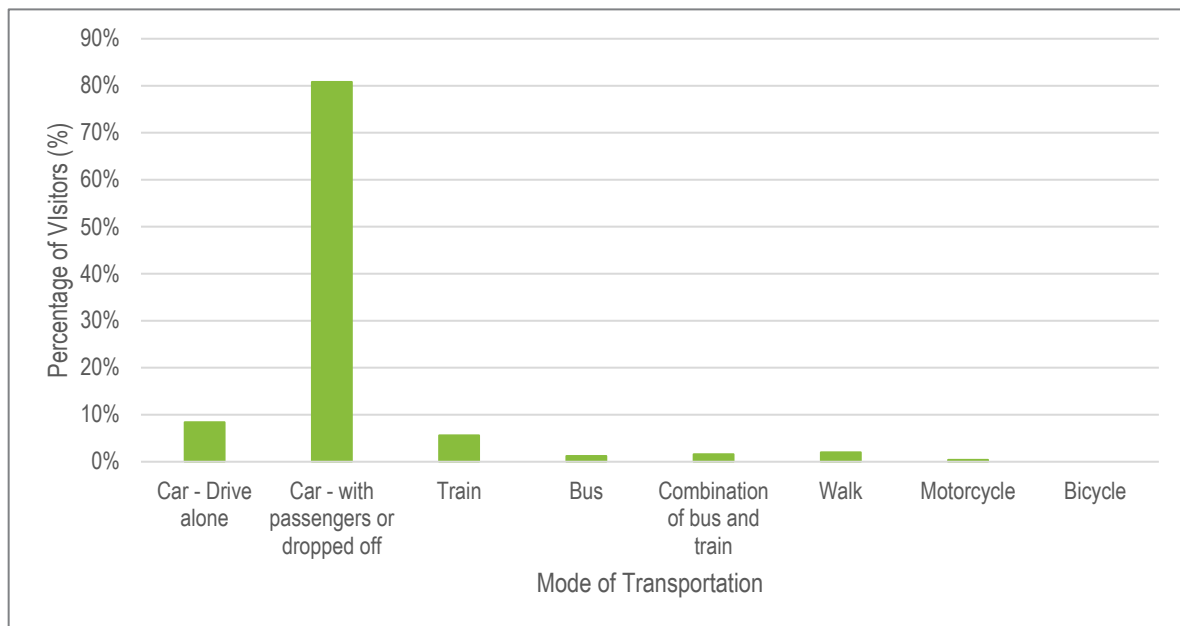
Notwithstanding the above, it should be noted that considering the travel zone contains the entire Westmead Health Campus, the private vehicle mode share reductions are likely due to changes at Westmead Hospital during the Stage 1 Redevelopment and may not have been achieved by CHW to the same extent.

4.2.2. Visitor Surveys

Two visitor surveys were completed to understand current visitor travel patterns to/ from the hospital. These include an online questionnaire that was distributed to hospital visitors via the Sydney Children's Hospital Network (SCHN) social media channels in July 2019 and an intercept survey, with surveyors positioned at the CHW main entrance on 23 and 24 July 2019 during typical visiting times. A total of 250 visitor responses were received across the two surveys.

A summary of visitor mode of transportation is shown in Figure 4.2.

Figure 4.2: Visitor survey¹ – CHW mode of transportation



[1] Combined dataset from the online and intercept surveys

As shown in Figure 4.2, respondents predominantly arrived by car with only 10 per cent of visitors arriving by public transport or walking. Outpatients recorded a higher mode share of 94 per cent arriving by car (including 4 per cent as passengers dropped off), whereas visitors to inpatients recorded a lower mode share of 79 per cent arriving by car.

Overall, nine per cent of visitors travelling by car drive alone, with the remaining 91 per cent traveling with one or more passengers. The average vehicle occupancy for various users are summarised in Table 4.2.

Table 4.2: Visitor survey – average vehicle occupancy

Category	Average people per car
All visitors	2.5
Visitors to inpatients	1.8

Table 4.2 indicates that the average visitors to inpatients vehicle occupancy is lower than the average for all visitors. The relatively high average for all visitors is likely to be influenced by vehicles containing families who are attending with one child patient.

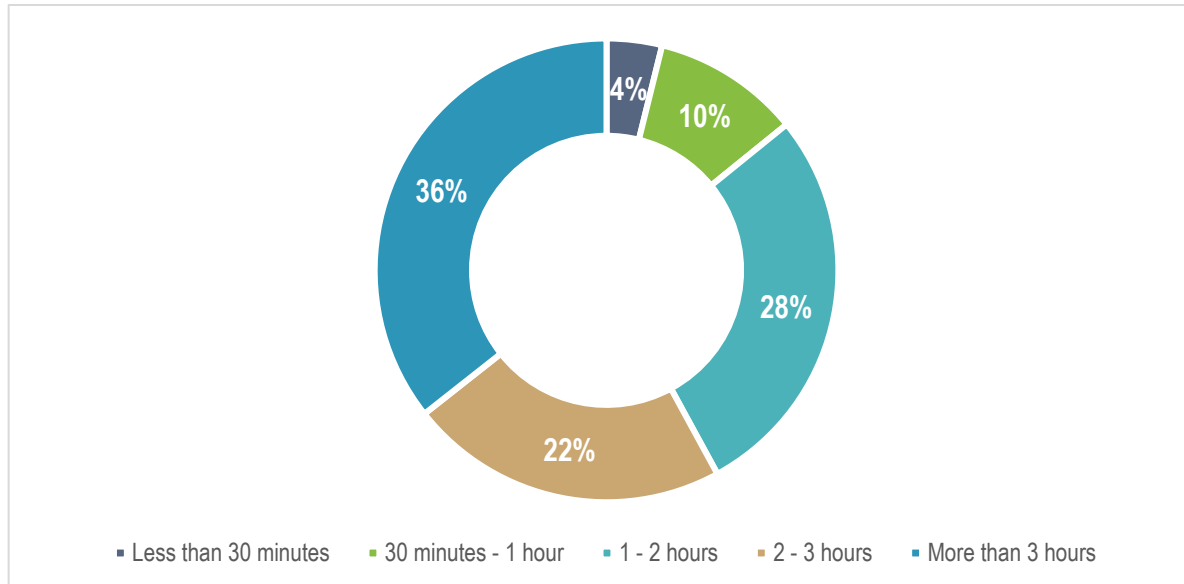
A summary of typical visitor parking locations is outlined in Table 4.3.

Table 4.3: Visitor survey – visitor parking methods

Description	Visitor percentage (%)
Children's Hospital Westmead Visitor Car Park	76
Westmead Hospital Visitor Car Park	2
Off-site parking	17
Dropped off by someone	5

The visitor surveys indicated that 36 per cent of visitors surveyed stayed at the hospital for a duration of more than three hours, with 86 per cent of those surveyed staying at the hospital between the range one and three hours. 14 per cent of those surveyed identified as having a duration of stay less than one hour. A summary of responses is identified in Figure 4.3.

Figure 4.3: Visitor survey¹ – average duration of stay



[1] Combined dataset from the online and intercept surveys

4.2.3. Staff Surveys

An online staff questionnaire was distributed to all hospital staff in July 2019 to understand existing staff travel patterns, and a total of 864 responses were received. The results of the survey indicate that car travel was generally the main mode of travel to/from the hospital, with almost 80 per cent of responses travelling by private vehicle (including car passengers and motorcyclists) with an average vehicle occupancy of 1.1 persons per vehicle according to those surveyed.

The mode of travel for hospital staff was generally higher than the 2011/ 2016 JTW data noted in Section 4.2.1. The survey responses relating to current staff modes of transportation is summarised in Table 4.4.

Table 4.4: Mode of travel of staff

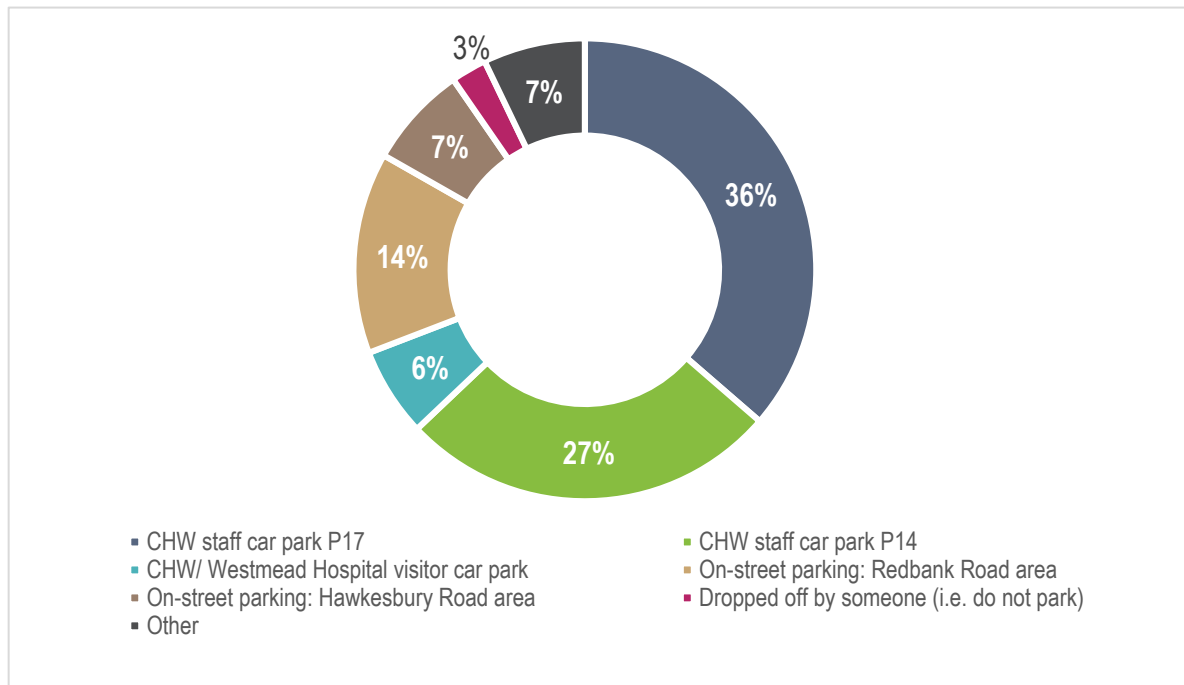
Mode of transport	Responses (%)
Car	79.2
Bus	2.6
Train	11.7
Combination of Bus and Train	3.7
Motorcycle / scooter	0.2
Bicycle	0.8
Walk	1.8

A summary of typical staff parking locations for staff is outlined in Table 4.5 and locations identified in Figure 4.4.

Table 4.5: Staff survey - staff parking methods

Description	Staff percentage (%)
On-site CHW car park	69
Off-campus car parking	1
On-street parking around Westmead Precinct	21
Dropped off by someone (No parking required)	2
Other	7

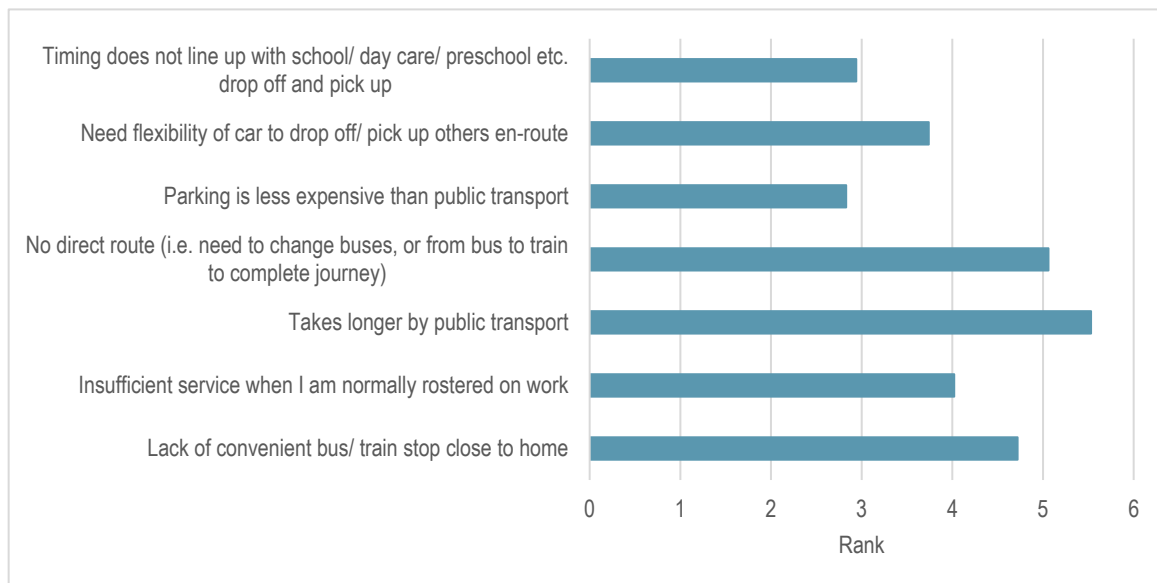
Figure 4.4: Staff survey – staff parking location



The survey identified common reasons for staff not choosing public transport with the four most common reasons (score greater than 4 out of 6) including:

- journey to work trip takes longer by public transport than car
- lack of convenient bus/ train stops close to home
- no direct route, requiring staff to change services to complete the journey
- insufficient services for typical shift start and finish times.

Figure 4.5: Staff survey – reasons for staff not choosing public transport



Further to the above, qualitative comments made by staff during the survey have been summarised in Table 4.6.

Table 4.6: Staff survey – public transport usage

Use public transport	Don't use public transport	Staff recommendation
Prefer to catch a bus	Parent - School drop off and pickup	• CCTV in oval parking • Fee reduction for car pooling • Improved street lighting in popular on and off-site parking areas, including along creek • Add shaded parking for staff in the oval with better stormwater drainage infrastructure. Improved signage for pedestrian crossings • Wondering if there will be any facilities for electric cars planned for the future • Priority parking closest to hospital should be given to staff members arriving or leaving in the dark • Mobility parking needs to be evaluated in conjunction with the staff who require it • Needs some type of cover from car parks to hospital. • Pedestrian and bicycle access in terms of both amenity and safety into and around the Westmead Health campus need improvement; to encourage both active and multi-modal transport. eg. train/light rail bicycle/walk. Quality end of trip facilities cycling facilities located within buildings and collocated with showers would do same • Provide a Sustainability Incentive Program for staff that, walk, cycle, take public transport etc to encourage more staff to do so, and to make public transport more attractive. Currently, Merck Sharp and Dohme offer a Sustainability Incentive Program to their Sydney staff who take public transport. SCHN talk a lot about sustainability however should consider this incentive for staff.
Street Parking is poor and never available unless you are at work 0530-0600. About 1-2 hrs before work.	Longer journey times compared to driving	
Despite many staff living in the Hills area, public transport does not cater for them	Difficult with shift work	
Walking around and through the hospital grounds in the dark is a security issue.	Flexibility with driving	
Redbank road is a nightmare at 5pm	More expensive than parking	
Weather and traffic also often play a role in my driving or public transport use	No direct lines and no fast and frequent services	
The Penrith trains do not stop at Westmead during peak times which add an extra 15 minutes to my commute	Feel unsafe using at night	

Based on the above, opportunities for increased public transport usage are likely to require improved public transport services and routes.

The survey also identified common reasons for staff choosing public transport with the two most common reasons including:

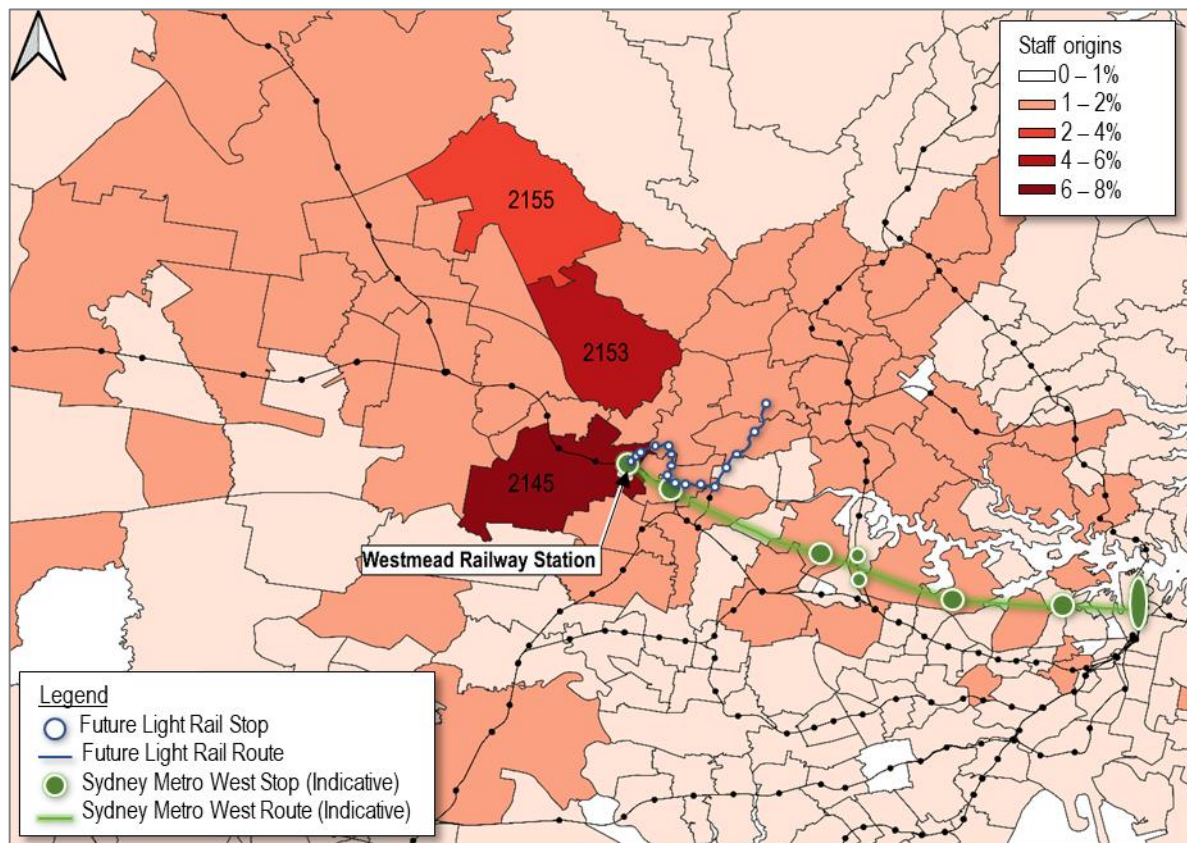
- difficulty finding parking on street
- parking not available on-site.

Around 67 per cent of staff surveyed work a day shift starting between 7am to 9am, with around 78 per cent finishing between 3:00pm to 7:00pm. Around 26 per cent start that their working hours are variable with rotating shift work and out of hours on call.

4.2.4. Post code data

Sydney Children's Health Network provided GTA with staff post code data. Detailed GIS analysis was completed for the post code data set identifying key staff origins, as shown in Figure 4.6.

Figure 4.6: CHW staff origin heat map



The post code data indicates that staff journey to work trips are largely from the local area and the north and west. Given this, it is evident that Darcy Road (to the west) and Briens Road (to the north) currently accommodate the majority of staff vehicle trips on a day-to-day basis. Darcy Road users typically make use of Institute Road and Briens Road users make use of Redbank Road to access the various car parks located across the Campus.

A reasonable number of staff also arrive from the local southwest and southeast areas, while a limited number of staff travel from the far northeast, far southeast and far southwest.

A summary of the most common staff origins based on postcodes is provided in Table 4.7.

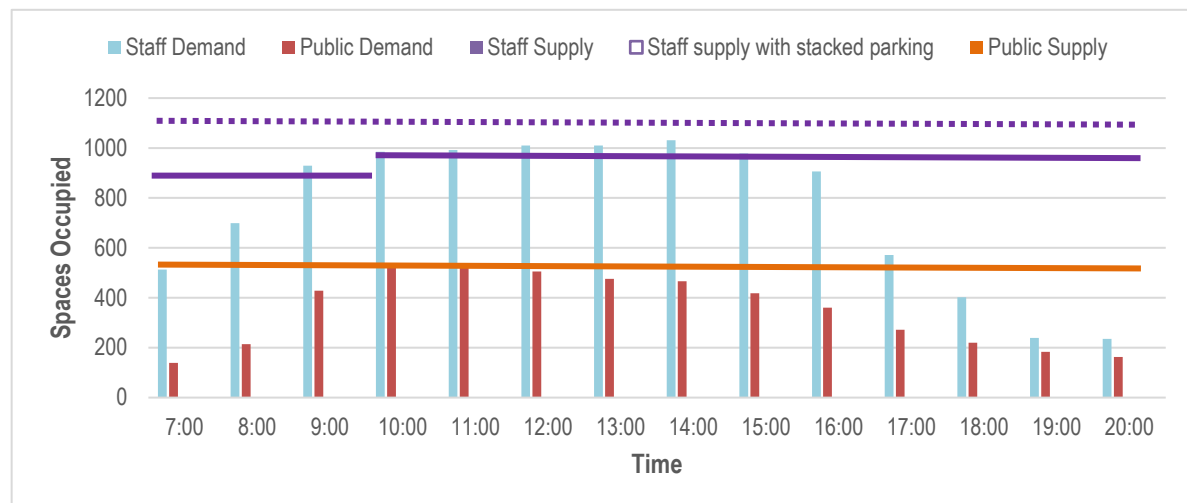
Table 4.7: Staff post code data - staff origins

Postcode	Staff origin (based on postcodes)	% Staff
2145	Constitution Hill, Girraween, Greystanes, Mays Hill, Pemulwuy, Pendle Hill, South Wentworthville, Wentworthville, Westmead	9%
2153	Baulkham Hills, Bella Vista, Winston Hills	4%
2155	Beaumont Hills, Kellyville, Kellyville Ridge, Rouse Hill	3%
2067	Chatswood, Chatswood West	2%
2147	Kings Langley, Lalor Park, Seven Hills, Seven Hills West	2%
2148	Arndell Park, Blacktown, Blacktown Westpoint, Huntingwood, Kings Park, Marayong, Prospect	2%
2154	Castle Hill	2%
2152	Northmead	2%
2146	Old Toongabbie, Toongabbie, Toongabbie East	2%
% Total		27%

4.3. Current Parking Demand

GTA was provided with car parking data for CHW Car Parks operated by Secure for the period between 1 July 2018 to 1 July 2019 to gain an understanding of current on-site parking demand. Peak parking activity was recorded on Monday 4 June 2019, as shown in Figure 4.7. It is noted that Car Park 17 operates with a stacked parking arrangement during peak demand for parking.

Figure 4.7: CHW on-site peak parking occupancy (4 June 2019)¹



[1] 88 car parking spaces are reserved on the top level of staff car park 17 until 10:00am to allow for staff shift changeover

Figure 4.7 indicates that on-site car parking demands remain high across the day. The peak demand for staff parking occurred at 2:00pm, with a demand for 1,031 spaces, whereas the peak demand for visitor parking occurred at 10:00am, with a demand for 523 spaces (i.e. car park at capacity). The overall peak demand for parking occurred at 12:00pm, with a combined staff/ visitor demand for 1,515 spaces, comprised of 1,010 staff spaces and 505 visitor spaces.

In addition, Figure 4.7 indicates that demand for staff parking exceeds the formal supply of 975 spaces between 11:00am and 3:00pm. Furthermore, between 9:00am and 10:00am demand for staff parking exceeds the reduced formal supply of 887 spaces, noting that 88 spaces are reserved in car park 17 for shift changeover. Therefore, between 9:00am and 3:00pm, car park 17 operates in a stacked arrangement to accommodate the additional demand for parking. During peak demand for staff parking at 2:00pm, a total of 56 vehicles were stack-parked. During the overall peak demand for parking at 12:00pm, Car Park 17 generated a demand for 35 stacked parking spaces. It is noted that demand for staff parking never exceeded the combined formal and stacked parking supply of 1,099 spaces.

Due to car park 6 being occupied by 10:00am and staff parking being over capacity (operating in a stacked arrangement) after 9:00am, it is likely that a significant percentage of the surrounding on street parking is occupied by hospital related vehicles. Furthermore, a limited number of staff parking permits are available for CHW staff. Therefore, a proportion of staff rely exclusively on other parking arrangements, including on-street parking or off-site parking facilities. Table 4.5 and Figure 4.4 indicate that staff primarily park on street around the Westmead Precinct, with 14 per cent of staff parking between Redbank Road and Cumberland Highway and seven per cent of staff parking between Hawkesbury Road and Parramatta Park.

Considering demand for on-street parking is shared with other Westmead Precinct staff and visitors, in addition to local residents and business owners, on-street car parking demand surveys would not accurately determine on-street parking demand generated by CHW. Therefore, for the purposes of this assessment, off-site (including on-street or off-campus parking facilities) car parking demand has been empirically assessed based on existing staff mode shares and staff and visitor survey responses.

CHW staff off-site car parking demand has been calculated as follows:

- of the existing 3,204 FTE staff, 71 per cent are assumed to be present on weekdays
- of the 2,275 staff present on weekdays, a maximum of 65 per cent are present during shift change over (i.e. during peak demand for parking)
- Table 4.4 indicates that 79 per cent of staff drive. Therefore, 1,168 staff require a park during shift change over
- Table 4.5 indicates that 28 per cent of staff who drive park off-site (including on-street or off-site parking facilities). Therefore, 331 staff park off-site.

Furthermore, CHW visitor off-site car parking demand has been calculated as follows:

- Table 4.3 indicates that 17 per cent of visitors park off-site, 2 per cent of visitors park in Westmead Hospital visitor car parks and 76 per cent of visitors park in the CHW Hainsworth Street visitor car park
- Figure 4.7 indicates the peak demand for visitor parking in the CHW visitor car park is 523 spaces. Assuming this represents 76 per cent of visitors travelling to CHW, the total persons traveling in a car to CHW during peak demand is 691 vehicles
- Therefore, the number of visitors parking off-site would equate to 131 vehicles during the peak demand for parking.

The combined staff and visitor on-site peak parking demand of 1,515 spaces and off-site assumption of 462 spaces outlines that a total demand of 1,977 spaces is currently being generated. This is summarised in Table 4.8.

Table 4.8: Current parking demand summary

User	Description	Demand (no. of spaces)
Staff	On-site parking demand ¹	1,010
	Off-site parking demand ²	331
	Sub-total	1,341
Visitor	On-site parking demand ¹	505
	Off-site parking demand ²	131
	Sub-total	636
Total		1,977

[1] Determined from Secure car park occupancy counts

[2] Assumed, based on empirical assessment of off-site car parking demand

5. SUSTAINABLE TRAVEL PLANNING

05

5.1. Overview

As discussed, The Westmead Sustainable Travel Plan was prepared to encourage patients, staff and visitors to travel to the Westmead Precinct by modes other than private vehicle. The Travel Plan is committed to reducing the dependency of private vehicle travel by over 16 per cent by 2026. This results in a Westmead Health Campus future vehicle mode share target of 65 per cent.

This section reviews how the mode share target may be achieved by each hospital/ entity within the Westmead Health Campus.

5.2. 2026 mode share target

5.2.1. Mode share reduction since 2011

2011 and 2016 JTW data for the travel zone has been analysed to gain an initial understanding of any change in staff travel mode share over the five-year period. This analysis is summarised in Table 5.1.

Table 5.1: Survey mode share analysis

Mode	2011 JTW Data Travel Zone	2016 JTW Data Destination Zone	% Change
Vehicle Driver	76%	71%	-5%
Vehicle Passenger	5%	4%	-1%
Vehicle total	81%	75%	-6%

Table 5.1 indicates that the private vehicle mode share (as a driver or passenger) for commuter trips to the travel zone has reduced by 6 per cent between 2011 and 2016.

5.2.2. Current mode share reductions by entity

An online staff questionnaire was distributed to all Sydney Children's Health Network staff and all Western Sydney Local Health District (WSLHD) staff based at Westmead or Cumberland campus respectively in July 2019 and September 2019 to understand existing staff travel patterns. A total of 864 CHW and 1,247 WSLHD responses were received, noting the WSLHD survey is ongoing and will close on 11 October. Table 5.2 compares the staff private vehicle mode share recorded as part of the Westmead Redevelopment by Parking and Traffic Consultants in 2015 against the staff private vehicle mode share recorded as part of the 2019 surveys.

Table 5.2: Survey mode share analysis

Entity	2015 Survey Results (PTC)	2019 Survey Results ¹ (GTA)	Difference
Westmead Hospital	93%	70%	-23%
CHW	82%	79%	-3%
All other WSLHD hospitals/ entities	55% to 91%	55% to 90%	0% to 1%

As shown in Table 5.2, the primary driver for the six per cent reduction to private vehicle mode share across the travel zone detailed in Table 5.1 is Westmead Hospital. The Hospital experienced a significant 23 per cent reduction in private vehicle mode share since 2015, whereas CHW only experienced a modest three per cent reduction in private vehicle mode share. All other entities have either recorded or are assumed to have no change in mode share over this period.

5.2.3. Future mode share reductions by entity

One of the primary reasons for Westmead Hospital's significant private vehicle mode share reduction is due to the increase in weekly staff parking fees from as little as three dollars prior to the redevelopment to now be in line with the Ministry of Health guidelines (\$22.70). CHW had already increased parking fees hence their private vehicle mode share reduction was much less significant.

Furthermore, considering CHW have already implemented Westmead Hospital's primary mode share reduction driver of car park fee increases and car park fees are unlikely to be increased by the Ministry of Health, it is unrealistic to assume CHW will achieve significant mode share reductions as exhibited by Westmead Hospital.

With this in mind, the Travel Plan overall mode share target of 65 per cent will likely be a result of varied private vehicle mode shares from each hospital/ entity located on the Westmead Health Campus. Furthermore, it is unlikely that CHW will achieve a 14 per cent mode share reduction between 2019 and 2026 in the same period where Westmead Hospital only achieves a five per cent mode share reduction (when strictly applying the 65 per cent target to each entity). This is particularly apparent considering the low mode share reduction demonstrated in Table 5.2.

Therefore, probable 2026 mode shares for each hospital/ entity within Westmead Health Campus have been detailed in Table 5.3.

Table 5.3: Travel mode share analysis

Entity	Full Time Equivalent Staff (approximate)	2026 mode share target	2019 to 2026 mode share reduction
Westmead Hospital	8,200	60%	-10%
CHW	3,700	74%	-5%
All other WSLHD hospitals/ entities ¹	100 to 700	51% to 74%	-4% to -16%

[1] Changes to attributes as a result of different planning scenarios results in -1 per cent to + 1 per cent variance to weighted average of overall mode share. Therefore, insignificant impact to results.

The weighted average of the approximate FTE staff numbers and probable hospital/ entity mode shares detailed in Table 5.3 results in an overall private vehicle mode share of 65 per cent in 2026 for the Westmead Health Campus, in accordance with the Travel Plan objectives.

6. FUTURE TRANSPORT INITIATIVES

06

6.1. Overview

6.1.1. Parramatta Light Rail

The Parramatta Light Rail Stage 1 route will connect Westmead with Carlingford via the Parramatta CBD. The route will provide a high frequency transport service to support existing residential catchments as well as several priority urban renewal precincts in the greater Parramatta to Olympic Peninsula Priority Urban Renewal Area, including Parramatta North, Camellia, Rydalmere and the Carlingford Corridor (including Telopea and Dundas).

The service is expected to commence in 2023 and will likely influence a shift in mode share away from private vehicle to the light rail service.

6.1.2. Sydney Metro West

In November 2016, the NSW Government announced the Sydney Metro West project. Sydney Metro West will service the key precincts of Greater Parramatta, Sydney Olympic Park, The Bays Precinct and the Sydney CBD. The scope of works includes a new underground metro station at Westmead, to support the growing residential area as well as the health, research and education precinct.

While funding has been committed for the planning of Sydney Metro West, it is understood that an investment decision has not yet been made. Detailed station location information is not yet available; however, it is understood that the new Westmead station would be in the vicinity of the existing heavy rail station to allow appropriate interchange between services.

Sydney Metro West would not service key staff catchments to the northwest and southwest, however could significantly improve travel times and service frequency from the inner west, Sydney CBD and north shore. The existing barrier of connectivity to the CHW would still exist, noting that the PLR assists this connection. Given that Sydney Metro West is not likely to open until circa 2030, the opportunity for further mode shift as a result of this service is likely to be realised beyond the 2031 design year being considered by this study.

6.1.3. Staff/ Visitor uptake

The staff and visitor surveys included questions regarding uptake of future public transport initiatives available at/ near CHW. For staff, this included both the Parramatta Light Rail and Sydney Metro West projects, with results summarised in Table 6.1.

Table 6.1: Staff survey – Potential Parramatta Light Rail/ Sydney Metro West uptake

Response	Staff current mode of transport		
	All modes of transport	Car mode only	Train/ Bus mode only
Parramatta Light Rail	11%	9%	16%
A combination of heavy rail and light rail	10%	6%	25%
Sydney Metro West	7%	6%	9%
Parramatta Light Rail and Sydney Metro West	4%	3%	8%
None of the above	68%	75%	41%

Table 6.1 indicates that up to 32 per cent of journey to work trips to CHW could be via Parramatta Light Rail and/ or Sydney Metro West once they open. However, it is important to note that a large proportion of the mode shift is at the expense of existing train/ bus mode share instead of private vehicle mode share.

In this regard, only 25 per cent of staff currently travelling by private vehicle to CHW indicated they would shift to either mode of transport, with the remaining 75 per cent of staff indicating that would not use either. Of the 25 per cent of staff currently travelling by private vehicle, 15 per cent indicated they would potentially use Parramatta Light Rail, 6 per cent indicated they would potentially use Sydney Metro West and 3 per cent indicated they would use both.

For visitors, the survey included a question about the Parramatta Light Rail only, with results summarised in Table 6.2.

Table 6.2: Visitor survey – Parramatta Light Rail uptake

Response	Visitor current mode of transport		
	All modes of transport	Car mode only	Train/ Bus mode only ¹
Yes	18%	16%	47%
No	62%	63%	35%
Unsure	20%	21%	18%

[1] Small sample size as shown in Figure 4.2 likely skews results

6.2. Expected Catchment

6.2.1. Parramatta Light Rail

Sydney Children's Health Network provided GTA with CHW staff home post code data, compiled into a staff origin heat map illustrated in Figure 4.6. The indicative percentage of staff who currently live in areas surrounding the proposed alignment is summarised in Table 6.3.

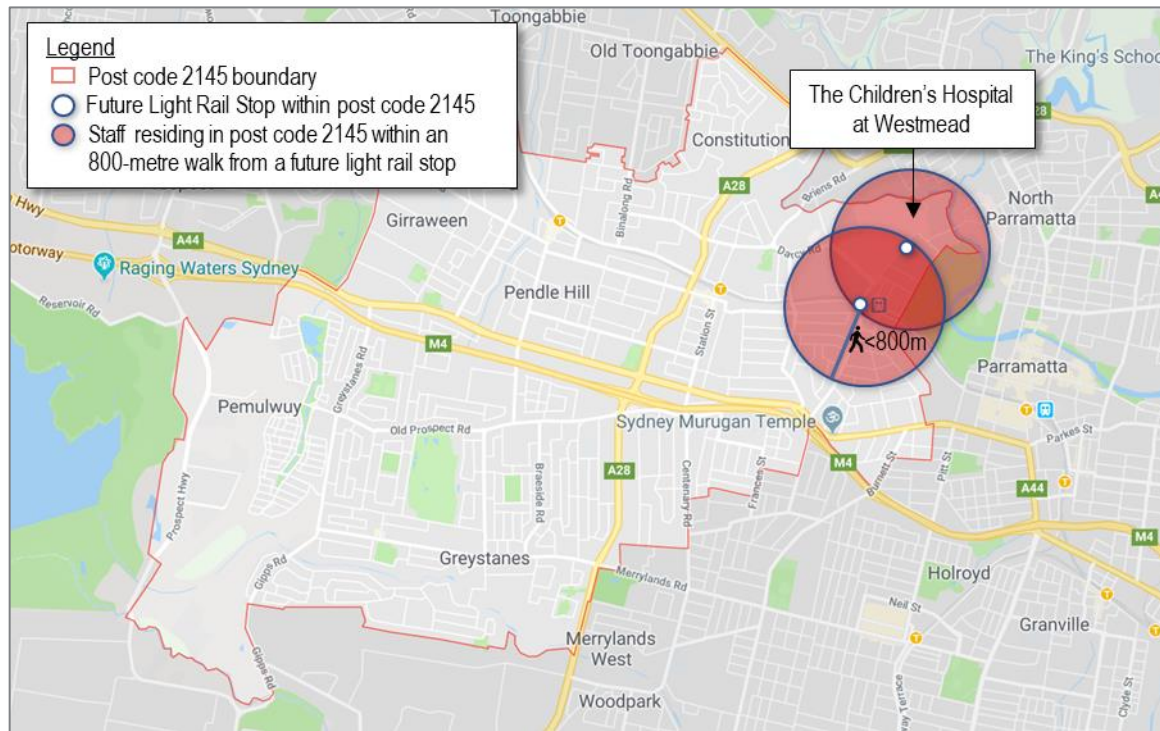
Table 6.3: Origin of staff on the PLR route¹

Postcode	Staff origin (based on postcodes)	% Staff
2151	North Parramatta, North Rocks	1.4%
2150	Parramatta, Harris Park	0.9%
2116	Rydalmere	0.3%
2117	Dundas, Telopea, Oatlands	0.7%
2118	Carlingford, Kingsdene	0.9%
% Sub-total		4.2%
2145	Westmead, Pendle Hill, Pemulwuy, Wentworthville, Constitution Hill, Girraween, Greystanes, Mays Hill	8.7%
% Total		12.8%

[1] Dataset includes all CHW staff, including part time staff

Table 6.3 indicates that the majority of staff residing in a post code surrounding the proposed alignment reside in post code 2145, which includes the suburbs of Westmead, Pendle Hill, Pemulwuy, Wentworthville, Constitution Hill, Girraween, Greystanes and Mays Hill. However, it is important to note that majority of postcode 2145 is located outside the typical 800 metre capture radius of light rail stops, as illustrated in Figure 6.1.

Figure 6.1: Future light rail stops within post code 2145



Base map source: Google Maps

Therefore, it is unlikely that the Stage 1 route could improve public transport accessibility for more than 50 per cent of staff residing in post code 2145, if at all.

With consideration for the above, it is evident that the Stage 1 route could improve public transport accessibility for an absolute maximum of 9 per cent of existing staff, noting that a proportion of these staff would reside outside of the typical 800 metre capture radius of light rail stops. Notwithstanding this, it is expected that the Parramatta Light Rail would have significant influence on the travel choices made by future staff who would be more likely to live in key growth areas, particularly those serviced by high frequency public transport such as light rail.

In addition to the above, it is expected that staff and visitors would make use of the Parramatta Light Rail to connect between Westmead railway station and CHW, assuming that interchange between the two services functions well.

6.2.2. Sydney Metro West

Sydney Children's Health Network provided GTA with CHW staff home post code data. Detailed station location information is not yet available; however, indicative station precinct areas are illustrated in Figure 4.6. The percentage of staff who currently live in areas surrounding the indicative station precincts is summarised in Table 6.4.

Table 6.4: Origin of staff on the Sydney Metro West route¹

Postcode	Staff origin (based on postcodes)	% Staff
2150	Parramatta, Harris Park	0.9%
2127	Sydney Olympic Park, Newington, Wentworth Point	0.6%
2041	Balmain East, Balmain, Birchgrove	0.6%
2138	Rhodes, Liberty Grove, Concord West DC, Concord West	0.4%
2137	North Strathfield, Mortlake, Concord, Cabarita, Breakfast Point	0.7%
2039	Rozelle	0.4%
2000	Sydney CBD	0.2%
% Sub-total		3.8%
2145	Westmead, Pendle Hill, Pemulwuy, Wentworthville, Constitution Hill, Girraween, Greystanes, Mays Hill	8.7%
% Total		12.8%

[1] Dataset includes all CHW staff, including part time staff

Table 6.4 indicates that the majority of staff residing in a post code surrounding an indicative station precinct area reside in post code 2145, which includes the suburbs of Westmead, Pendle Hill, Pemulwuy, Wentworthville, Constitution Hill, Girraween, Greystanes and Mays Hill. Postcode 2145 is located near the last Sydney Metro West indicative station precinct near Westmead Station. Therefore, considering this station precinct would be the destination of staff traveling along Sydney Metro West to CHW, the 8.7 per cent of staff residing in post code 2145 would unlikely benefit from increased public transport accessibility.

With consideration for the above, it is evident that the Sydney Metro West could improve public transport accessibility for an absolute maximum of 3.8 per cent of existing staff, noting that a proportion of these staff would reside outside of the typical 800 metre capture radius of light rail stops. Notwithstanding that, it is understood that a number of station precincts would be in the vicinity of the existing heavy rail or metro stations to allow appropriate interchange between services hence improving accessibility for staff residing along existing heavy rail or metro lines.

As discussed, given that Sydney Metro West is not likely to open until circa 2030, the opportunity for mode shift as a result of this service is likely to be realised beyond the 2031 design year being considered by this study.

6.3. Expected Impact on Mode Share

Table 6.1 identified that 15 per cent of staff who currently travel by private vehicle indicated they would travel to CHW using the Parramatta Light Rail when it opens. It is likely that only 50 per cent of these staff would actually change modes, resulting in a private vehicle mode share reduction of 7.5 per cent. It should be noted that this would include staff outside of the direct Parramatta Light Rail catchment that choose to use a combination of public transport services (i.e. heavy rail to Westmead station, followed by Parramatta Light Rail to CHW) once Parramatta Light Rail opens. This mode share reduction of 7.5 per cent is therefore higher than the catchment analysis presented above.

Any remaining private vehicle mode share reduction as a result of the Parramatta Light Rail will likely be by the travel choices made by future staff who would be more likely to live in key growth areas along the Parramatta Light Rail alignment.

7. STAGE 2 REDEVELOPMENT

07

7.1. Overview

7.1.1. CHW Stage 2 Redevelopment

Stage 1 of the CHW redevelopment comprised of a new and expanded Children's Emergency Department, short-stay unit, additional operating theatres and shared medical imaging services located within the Westmead Hospital Central Acute Services Building (CASB). The CASB is currently under construction and expected to open in mid-2020.

Stage 2 of the CHW redevelopment will include a new Paediatric Services Building (PSB) and refurbishment of the existing facilities, including:

- Operating Theatres
- Neonatal Intensive Care Unit
- Paediatric Intensive Care Unit
- Cancer Services
- Pharmacy Department
- Expansion of Pathology services
- Mental Health inpatient and ambulatory care.

It is understood that the proposed redevelopment has a gross floor area of around 50,000 square metres and would provide 115 inpatient beds. Furthermore, the hospital is projected to employ an additional 460 FTE staff in 2026/ 27 and 810 FTE staff in 2031/ 32 (noting that these numbers are conservatively high as previously discussed).

Early construction works for the redevelopment are expected to commence in 2020.

7.1.2. Proposed location

The new PSB is proposed to be located on the existing Car Park 17 Multi-Storey car park and adjacent at-grade parking. As such, these existing car parking spaces will need to be replaced within the Westmead Hospital Campus. Currently, car park 17 provides 555 spaces. However, to accommodate the high demand for staff parking, the car park operates in a stacked arrangement that is managed by the car park operator. This total demand will also need to be considered.

Therefore, the redevelopment will need to be provide at a minimum:

- 555 replacement spaces for existing car park 17
- Up to 124 spaces to cater for existing demand generated by the stacked parking arrangement
- Additional parking spaces for the Stage 2 redevelopment.

7.2. Proposed Car Parking Demand

This section outlines the various options for determining suitable car parking requirements for the redevelopment and is based on a combination of the following:

- Health Infrastructure parking demand model
- City of Parramatta Council Development Control Plan (DCP) and various other Council DCPs
- Roads and Maritime Guide to Traffic Generating Developments (2002)
- Empirical Assessment of Car Parking Demand.

7.2.1. Health Infrastructure Parking Demand Model

A collation of attributes involving separate parking for staff, public/ visitors, and LHD controlled fleet vehicle parking has been used to model parking demand. The model attempts to analyse the total number of persons which utilise the site against the parking demand through weighting factors such as rates of attendance, vehicle occupancy, and parking space turnover.

Staff Parking

Consideration for staff parking is made based on the total driving staff numbers present at work at any one time. Total FTE staff numbers are factored by the percentage of staff who will be present on site at any one time, the percentage of staff who drive to work, the average occupancy rates of staff vehicles, as well as a nominal staff shift changeover allowance.

This number is increased by an allowance for VMO vehicle demand, which is also factored by driving demand, vehicle occupancy and vehicle space turnover.

Public/ Visitor Parking

Consideration for public/ visitor parking is based on a combination of outpatient visitors, inpatients, Emergency Department (ED) presentations and other on-site users not accounted for otherwise.

Outpatient demand is a factor of the annual average number of service events, factored by total weekdays each year, percentage of outpatients who drive, and parking space turnover rates.

ED demand is a factor of annual average number of ED presentations, factored by total weekdays each year, percentage not admitted to an overnight bed, percentage who will have a related party travel by vehicle (non-ambulance presentations and related parties), day-time presentations, and parking space turnover rates.

Inpatient demand is a factor of the total number of beds, by the weekday occupancy rates, visitors per bed, percentage of visitors who drive and the vehicle occupancy rates, day-time visitors, and parking space turnover rates.

LHD Controlled Spaces

LHD controlled parking is provided as a nominal figure. These are allocated for the LHD fleet and service vehicles.

Existing Demand Calculation

Based on the agreed forecast parameters a demand of 2,029 spaces is calculated for the existing site. This calculated demand is within three percent of the observed demand of 1,977, allowing for minor fluctuations in assumptions, this is considered a suitable reflection of the existing demand.

Demand Assumptions

The assumptions surrounding staffing and patient/ visitor activity that were used as the basis for the demand calculations are outlined in Table 7.1 and Table 7.2.

Table 7.1: Parking demand model assumptions (patient/ visitor)

Factor	Input			Reference Source
	2019	2026/27	2031/2032	
Outpatients service events annual (weekday daily)	239,623	275,251	297,941	Clinical Services Plan version 2
Percentage outpatient driving	90%	90%	90%	Visitor survey (Section 4.2.2)
Outpatient space turnover factor	1.34	1.34	1.34	Secure Data
ED presentations annually (daily)	62,641	75,600	85,089	Clinical Services Plan version 2
ED presentation utilising private vehicle	89%	89%	89%	CHW ED Mode of Arrival 2017/ 2018 financial year ²
ED presentations not admitted to an overnight bed	74%	74%	74%	Bureau of Health Information – CHW average April 2018 to April 2019 ³
ED presentations in day time	60%	60%	60%	Average of other hospitals
ED presentation vehicle turnover factor	1.34	1.34	1.34	Secure Data
Inpatient Beds	359	474	474	Investment Decision (December 2018)
Inpatient weekday bed occupancy	94%	80%	80%	Clinical Services Plan version 2
Inpatient visitor vehicle occupancy	1.8	1.8	1.8	Visitor survey (Section 4.2.2)
Inpatient turnover factor (daytime)	1.34	1.34	1.34	Secure Data
Percentage inpatient daytime visitors	65%	65%	65%	Assumption based on other hospitals
Number of visitors per bed	1.75	1.75	1.75	Average of other hospitals

Table 7.2: Parking demand model assumptions (staff)

Factor	Input			Reference Source
	2019	2026/27	2031/2032	
FTE Staff	3,204	3,664	4,014	Assumption agreed with HI, pro rata based on activity growth
Percentage staff present on weekdays	71%	71%	71%	Assumption agreed with HI
Maximum percentage of staff present on shift changeover	65%	65%	65%	Assumption agreed with HI
Percentage of staff driving to work	79%	See Table 7.3	See Table 7.3	Staff survey (Section [1])
Average staff vehicle occupancy	1.1	1.1	1.1	Staff survey (Section [1])
VMOs present on weekdays	64	64	64	Assumed 40% VMOs attend hospital on a weekday
Percentage VMOs driving to work	100%	100%	100%	Based on other hospitals
Average VMO vehicle occupancy	1.0	1.0	1.0	Based on other hospitals
VMO space turnover factor	1.0	1.0	1.0	Assumed
Nominal changeover allowance	88	88	88	Based on existing allocation for changeover in CP17 ⁴

²CHW Emergency Dept Presentations 2017/ 2018 by mode of arrival, CaSPA Portal - ED Activity Analysis Tool developed by NSW Ministry of Health

³Hospital data – Emergency Department, Bureau of health information, http://www.bhi.nsw.gov.au/Healthcare_Observer, accessed 28 August 2019

⁴ Staff Parking – Westmead Policy, page 3, prepared by The Children's Hospital at Westmead, dated 29 July 2019

Ambitious future staff private vehicle mode share targets are outlined in Section 6.3. These include a reduction in private vehicle mode share from 79 per cent in 2019 to 65 per cent in 2026 and 60 per cent in 2032. However, these mode share reductions are contingent on the Sydney Children's Hospital Network in conjunction with the Westmead Precinct partners engaging in effective travel planning for Westmead and cannot exclusively rely on future transport initiatives such as the Parramatta Light Rail and Sydney Metro West.

Therefore, three sensitivity scenarios have been tested as follows, detailed in Table 7.3:

- Scenario 1: Assume Travel Plan mode share reduction targets are achieved (14 per cent reduction between 2019 and 2026).
- Scenario 2: Assume five per cent reduction in private vehicle mode share between 2019 and 2026 and another five per cent reduction between 2026 and 2031 (total 10 per cent reduction).
- Scenario 3: Assume no reduction to private vehicle mode share between 2019 and 2031.

Table 7.3: Parking demand model - mode share assumptions (staff)

Scenario	Assumption	Private Vehicle Mode Share Model Input Value		
		2019	2026/ 27	2031/ 2032
1	Travel Plan overall WHC mode share targets achieved (total 19 per cent reduction)	79%	65%	60%
2	Mode share reductions of 5 per cent between each study year (total 10 per cent reduction)	79%	74%	69%
3	No private vehicle mode share reduction achieved	79%	79%	79%

Based on the demand assumptions outlined in Table 7.1, Table 7.2 and Table 7.3, the additional parking demand generated by the redevelopment is outlined in Table 7.4.

Table 7.4: Parking demand model – estimated parking demand

Scenario ¹	Assumption ¹	Description	Projected Parking Demand for CHW		
			2019	2026/ 27	2031/ 2032
1	Travel Plan overall WHC mode share targets achieved	Total demand	2,029	2,088	2,167
		- Additional demand from 2019	-	+121 ²	+189 ²
2	Some mode share reduction achieved	Total demand	2,029	2,226	2,319
		- Additional demand from 2019	-	+197	+289
3	No mode share reduction achieved	Total demand	2,029	2,303	2,487
		- Additional demand from 2019	-	+274	+458

[1] Detailed in Table 7.3

[2] Total additional demand is 58 in 2026/ 2027 and 138 in 2031/32 however this is artificially low due to the reduced private car mode share of existing staff resulting in an overall decrease in staff parking demand. For the purposes of this table, staff parking demand is assumed to have no growth and the growth is generated by increased demand for visitor parking only.

Table 7.4 indicates that the redevelopment generates a parking requirement of between 189 and 458 on-site spaces, depending on the proposed reduction to private vehicle mode share.

7.3. Roads and Maritime Guidance

The *Guide to Traffic Generating Developments* (Roads and Maritime, 2002) does not provide rates for public hospitals. However, the private hospital rate indicates that the Peak Parking Accumulation (PPA) can be estimated referencing the total number of beds and the ASDS. It is noted that the ASDS has been calculated as 80 per cent of the FTE staff.

- $PPA = -19.56 + 0.85B + 0.27ASDS$, where B is the number of beds.

The number of beds and FTE staff have been calculated as any staff increase beyond the 2018/2019 staffing level.

Based on the Roads and Maritime Guide, the peak parking accumulation for the proposed facility would be 178 in 2026/27 and 253 in 2031/32.

7.4. City of Parramatta Council DCP

The City of Parramatta Council's DCP 2011 does not provide any specific guidance for hospitals. A comparison of various DCP hospital car parking requirements from Council areas similar to Westmead is summarised in Table 7.5.

Table 7.5: Hospital car parking requirements comparison

Council DCP	DCP	Size	DCP Parking Rate	DCP Parking Requirement		
				2019	2026/2027	2031/2032
Randwick City Council	DCP 2013	FTE staff ¹ and bed assumptions outlined in Table 7.2 and Table 7.1.	One visitor space per three beds; plus, one space per two staff.	938	1,104 (+166 spaces)	1,187 (+249 spaces)
Ryde Council	DCP 2015		One space per doctor likely to be on the premises at any one time; AND one space per two employees likely to be on duty at any one time; AND one space per four beds; AND one visitor space per four beds. ²	1,227	1,419 (+192 spaces)	1,543 (+316 spaces)
Ku-ring-gai Council	DCP 2016		One space per three beds plus one space per two day-shift staff or practitioners. One space per one full time night-shift employee	1,257	1,459 (+202 spaces)	1,583 (+326 spaces)
Total				938 to 1,257	+166 to 202 spaces	+249 to 326 spaces

[1] Daily staff numbers have been calculated as 71 per cent of FTE staff.

[2] Number of doctors unknown, therefore assumed all doctors are employees. Noted this aligns with Westmead Hospital Campus travel planning objectives to reduce private vehicle mode share.

Based on Table 7.5, the redevelopment would be required to provide between 166 and 202 spaces in 2026/ 27 and 249 and 326 in 2031/ 32.

7.5. Increase in Beds/ Staff from Existing Hospital

The total estimated existing parking demand is 1,950 spaces during the recorded peak.

The increase in staff numbers and inpatient beds projected for the new hospital is outlined in Table 7.6.

Table 7.6: Hospital staff and bed growth

Source	Existing CHW	CHW 2032 Projection	Percentage Increase (%)
Staff	3,204	4,014	+ 25
Inpatient beds	359	474	+ 32
Combined	3,563	4,488	+ 26

Increasing the current staff and visitor parking demand of 1,950 spaces by 26 per cent results in a future parking demand of 2,457 spaces, or an additional 507 car parking spaces.

8. PARKING DEMAND RECOMMENDATION

08

8.1. Parking Demand Estimates

8.1.1. Parking demand comparison

A comparison of the existing parking demand using different methods is outlined in Table 8.1.

Table 8.1: Parking demand comparison

Model	Existing Hospital Demand	Variance to Existing Demand
Observed demand (boom gate data)	1,977	
Parking Demand Model estimate	2,047	+52 (+3%)
Roads and Maritime parking rates	919	-1,058 (-54%)
DCP parking rates	938 to 1,257	-1,039 (-53%) to -720 (-36%)

Table 8.1 shows that parking rates from the Guide to Traffic Generating Developments (Roads and Maritime, 2002) and other Council DCPs estimate a much lower demand for existing hospital activities, compared to that observed. Utilising the parking demand model more accurately reflects the existing demand with a three percent variance.

8.1.2. Parking demand model calibration

The future parking demand appears to be best estimated by the parking demand model, projecting an additional demand of 289 spaces in total. Notwithstanding the above, the parking demand model calculates a lower staff demand and higher visitor demand than observed, respectively by 10 and 28 per cent.

As discussed, demand for on-street parking is shared with other Westmead Precinct staff and visitors, in addition to local residents and business owners and therefore on-street car parking demand surveys would not accurately determine on-street parking demand generated by CHW. Therefore, for the purposes of this assessment, off-site (including on-street or off-campus parking facilities) car parking demand has been empirically assessed based on existing staff travel mode share and staff and visitor survey responses. It is noted that a total of 250 visitor responses were received during the survey period. Due to the relatively small sample size, it is likely that survey results may not portray the full extent of on-street/ off-site parking demand. Furthermore, sampling techniques including survey staff positioned at the CHW main entrance may have resulted in a disproportionately low number of visitors who parked on-street (and potentially some distance away) responding, as these visitors may have been less amenable to answering questions. It is noted that the comments section of the visitor survey also conveyed frustration with the lack of on-site parking capacity and reliance on parking on-street.

Therefore, a total off-site visitor demand greater than indicated by the travel mode share surveys has been adopted for the purpose of this study. A 28 per cent increase in off-site visitor demand is considered excessive, hence the visitor demand projections in the parking demand model have been reduced by 10 per cent. This results in an increased visitor off-site parking demand from 131 spaces to the calibrated parking demand model calculation of 228 spaces. Noting the existing on-site visitor parking constraints and availability of on-street parking, the revised existing visitor demand for 228 off-site spaces has been adopted.

In addition to the above and to account for the variance in staff demand, the staff demand projections in the parking demand model have been increased by 10 per cent.

With regards to the above, the current parking demand summary contained in Table 4.8 has been revised in Table 8.2 to reflect the calibrated parking demand model results.

Table 8.2: Calibrated current parking demand summary

User	Description	Demand (no. of spaces)
Staff	On-site parking demand ¹	1,010
	Off-site parking demand ²	326
	Sub-total	1,336
Visitor	On-site parking demand ¹	505
	Off-site parking demand ²	228
	Sub-total	733
Total		2,069

[1] Determined from Secure car park occupancy counts, no change from Table 4.8

[2] Assumed, based on empirical assessment of off-site car parking demand and revised through calibration of the parking demand model

The parking demand for the existing year (2019) has therefore been revised in accordance with Table 8.2, from a total demand for 2,029 spaces to 2,069 spaces, comprised of 1,336 staff spaces and 733 visitor spaces.

A summary of the car parking demand projections based on the calibrated and uncalibrated parking demand model for the design horizon of 2026/27 and 2031/32 is outlined in Table 8.3.

Table 8.3: Parking demand model calibration

Scenario	Assumption	Year	Peak Parking Demand		
			Uncalibrated	Calibrated	Variance
1	Travel Plan mode share targets achieved	2026/2027	121	109	-12
		2031/2032	189	170	-19
2	Some mode share reduction achieved	2026/2027	197	192	-5
		2031/2032	289	280	-9
3	No mode share reduction achieved	2026/2027	274	277	3
		2031/2032	457	465	8

Table 8.3 indicates that calibrating the parking demand model has an insignificant impact to the total demand calculated for the redevelopment.

8.1.3. Parking demand projections

A summary of the car parking demand projections based on the calibrated parking demand model for the design horizon of 2026/27 and 2031/32 is outlined in Table 8.4. It is noted that the three scenarios assume no reduction in private car mode share for patients/ visitors and therefore, future car parking demand projections for patients/ visitors remain the same across all scenarios.

Table 8.4: CHW staff and patient/ visitor calibrated parking demand estimates

Scenario	Assumption	Year	Peak Parking Demand		
			Staff	Patient/ Visitor	Total
1	Travel Plan mode share targets achieved	2026/2027	0	109	109
		2031/2032	0	170	170
2	Some mode share reduction achieved	2026/2027	83	109	192
		2031/2032	110	170	280
3	No mode share reduction achieved	2026/2027	168	109	277
		2031/2032	295	170	465

Table 8.4 indicates that if the staff mode share reduction targets outlined in Section 6.3 are achieved, then no additional staff car parking would be required for the redevelopment. However, achieving a staff mode share reduction of 14 per cent between 2019 and 2026 (and a further 5 per cent reduction by 2031/32) is ambitious and would likely require extensive travel planning including consistent financial investment. Furthermore, even with extensive travel planning, staff uptake of travel planning initiatives may be slower than anticipated, resulting in lower mode share reductions being achieved over the timeframe. As such, a stretch target if this magnitude is not considered an appropriate for planning future car parking supply.

Scenario 2 contemplates some staff mode share reduction between 2019 and 2032 and is therefore considered more appropriate as a baseline for planning purposes. It is therefore recommended that on-site parking supply of 280 spaces be provided.

8.1.4. Stretch mode share target

Notwithstanding the above section, a less aspirational “stretch” mode share target could be considered for planning purposes. However, it is noted that any mode share reduction proposed above the baseline outlined in scenario 2 would require a consistent commitment to travel planning by the redevelopment team and SCHN. A summary of the car parking demand projections based on the calibrated parking demand model and a “stretch” mode share of seven per cent between each study year for the design horizon of 2026/27 and 2031/32 is outlined in Table 8.5.

Table 8.5: CHW staff and patient/ visitor calibrated parking demand estimates – stretch mode share target

Scenario	Assumption	Year	Peak Parking Demand		
			Staff	Patient/ Visitor	Total
4	“Stretch” mode share target of 7 per cent between each study year (total 14 per cent reduction)	2026/2027	49	109	158
		2031/2032	36	170	206

Table 8.5 indicates that if the staff “stretch” mode share reduction targets are achieved, the redevelopment generates an additional parking requirement of 206 on-site spaces.

It is noted that should CHW achieve a private vehicle mode share of 72 per cent in 2026, the weighted average mode share for the Westmead Health Campus as calculated in Section 5.2.3 would still remain as 65 per cent in accordance with the Travel Plan objectives.

8.1.5. Parking demand scenario testing

Scenarios 1 through 4 assume the mode share assumptions outlined in Table 7.4 are achieved by both existing and future staff. Therefore, Scenarios 1, 2 and 4 result in a “credit” of parking spaces available on-site as existing staff parking demand reduces. This available parking is filled by the demand for parking generated by the redevelopment, resulting in reduced overall demand estimates.

Table 8.4 and Table 8.5 have been replicated in Table 8.6 without the benefit of the car parking credit generated by existing staff.

Table 8.6: CHW staff and patient/ visitor parking demand estimates – redevelopment only¹

Scenario	Assumption	Year	Peak Parking Demand		
			Staff	Public	Total
1	Travel Plan mode share targets achieved	2026/2027	138	126	264
		2031/2032	224	187	411
4	“Stretch” mode share target achieved	2026/2027	153	126	279
		2031/2032	243	187	430
2	Baseline mode share reduction achieved	2026/2027	157	126	283
		2031/2032	258	187	445
3	No mode share reduction achieved	2026/2027	168	126	294
		2031/2032	295	187	482

[1] Excludes VMOs (as no growth projected) and consideration for shift change over allowance as this relates to existing demand

Table 8.6 indicates that without the credit generated by a reduction in existing demand for car parking, between 411 and 482 parking spaces would need to be provided for the redevelopment in 2031/ 2032.

It is noted that patient/ visitor demand for parking also increased in Table 8.6. This is primarily due to the current higher bed occupancy of 94 per cent in 2019 that generates a higher demand for public parking when compared to the future bed occupancy of 80 per cent in 2026/ 27 and 2031/ 32, outlined in Table 7.1.

8.2. Car Parking Requirements

Scenario 2 of the calibrated parking demand model projects a future baseline demand of 280 additional on-site car parking spaces. This is considered to be the most appropriate scenario for redevelopment planning purposes. A summary of the overall car parking demand projections for CHW based on the calibrated parking demand model for the design horizon of 2026/27 and 2031/32 is outlined in Table 8.7.

Table 8.7: CHW staff and patient/ visitor overall parking demand 2026/ 27 and 2031/ 32

Type	Existing Hospital	Design Year	
	2019 ¹	2026/ 27	2031/ 32
Staff ²	1,336	1,419	1,446
Public (hospital users) ³	733	842	904
Total Parking Demand⁴	2,069	2,261	2,350
<i>Total additional demand</i>	-	+ 192	+ 280

[1] Existing demand from calibrated parking demand model (see Section 8.1.2)

[2] Includes demand for 1,010 on-site parking spaces and revised demand for 326 off-site parking spaces (see note [1] and Section 8.1.2)

[3] Includes demand for 505 on-site parking spaces and revised demand for 228 off-site parking spaces (see note [1] and Section 8.1.2)

PARKING DEMAND RECOMMENDATION

Table 8.7 indicates that during peak demand for parking, CHW will generate a demand for 2,261 spaces in 2026/27 and 2,350 spaces in 2031/32 for staff and public. This includes a constant demand for 554 off-site spaces in both design years.

A summary of the on-site car parking provision requirements based on the calibrated parking demand model for the design years of 2026/27 and 2031/32 is outlined in Table 8.8. A fundamental assumption of Table 8.8 is that demand for off-site parking remains constant across the design years, primarily to ensure on-street parking demands do not increase with the redevelopment.

Table 8.8: Recommended CHW car parking provision 2026/ 27 and 2031/ 32

Type	Existing Hospital	Design Year	
	2019	2026/ 27	2031/ 32
Staff	975 ¹	1,058 ¹	1,085 ¹
VMO bays	0	0	0
Public (hospital users)	529	638	699
LHD & Fleet parking bays	37 ²	37	37
Emergency/ Patient Transport/ Community Bus	6	6	6
Total Parking Supply	1,547	1,739	1,827
<i>Additional supply for redevelopment</i>		192	280

[1] Does not include existing stacked parking supply

[2] Includes two authorised spaces at CHW emergency department

Notwithstanding the above, as discussed in Section 4.3, there is a current demand for 35 stacked parking spaces during peak demand for parking (noting that the peak demand for stacked parking is later in the day at 2pm, with 56 stacked parking spaces). While this demand for stacked parking is not expected to increase with the redevelopment, the redevelopment would be required to reinstate any parking removed from the CHW as a result of the new building footprint and ancillary works. Table 8.8 has therefore been updated to include provision for current demand generated by on-site stacked parking.

Table 8.9: Recommended CHW car parking provision 2026/ 27 and 2031/ 32

Type	Existing Hospital	Design Year	
	2019	2026/ 27	2031/ 32
Staff	1,010	1,093	1,120
All other users	572	681	742
Total Parking Supply	1,582	1,774	1,862
<i>Additional supply for redevelopment</i>		227	315

[1] Includes provision of 35 spaces to accommodate current demand generated by on-site stacked parking.

9. CONCLUSION

09

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. The existing CHW car parking facilities are located on-site, with access to staff parking provided from Redbank Road and access to visitor parking provided from Hawkesbury Road. The current on-site parking supply is 1,547 spaces, including drop-off and authorised parking spaces.
2. Both staff and patient/ visitor parking demand currently exceed formal capacity, with the demand for the existing hospital (when combining on-site and off-site parking areas) being a total of 1,977 spaces.
3. The parking demand model estimates a demand of 2,029 spaces for the existing hospital. This demand estimate is three percent higher than the observed demand of 1,977 spaces, however is 10 per cent higher for staff and 28 per cent lower for visitors. The parking demand model has been calibrated to account for these variances and is considered appropriate to estimate future demand on this basis.
4. Various options for determining suitable car parking requirements for the proposed redevelopment were assessed, including a review of the *Guide to Traffic Generating Developments* (Roads and Maritime Services, 2002) and the Development Control Plan requirements of nearby Councils. However, the estimated parking demand using these methods were considered low when reviewed against the observed demand from boom gate data.
5. It is recommended that an on-site parking supply of 280 spaces be provided for the redevelopment to service future staff and patient/ visitor demand, in addition to the existing on-site parking supply.

A. STAFF SURVEY COMMENTS

APPENDIX: STAFF SURVEY COMMENTS

Selection of Staff Comments from Travel Survey

Pedestrian and bicycle access in terms of both amenity and safety into and around the Westmead Health campus need improvement; to encourage both active and multi-modal transport. e.g. train/light rail bicycle/walk. Quality end of trip facilities cycling facilities located within buildings and collocated with showers would do same. Thanks
Public transport from the Sutherland Shire is limited slow and unreliable. Multiple modes of transport are required to get the Westmead
I would be willing to use public transport but no good connections from my area - West Pennant hills
making safe available parking for staff who are on call or who stay late is vital
Your survey did not allow me to say why I HAVE to drive. I have chronically ill family member & an elderly mother. I need to be able to get to them to medical care or see them quickly in emergency situations. I cannot do this on public transport.
Traffic is inevitable but lack of enough all hour's access to parking is a real pain. It lengthens my commute by an extra hour each day and means less sleep for shift work + feeling unsafe getting to my car in the dark when parked on the street after 8pm.
Despite many staff living in the Hills area, public transport does not cater for them
Walking around and through the hospital grounds in the dark is a security issue.
Currently, it takes approximately an hour to travel home by Public Transport, including walking. May improve with the light rail, but as an ageing person, would still want to drive
If I could catch a train directly from Emu Plains to Westmead without changing trains or buses Mon-Fri to start work 0730 and finish 1600 I would strongly consider public transport. The current options do not have any direct services and are a waste of time.
Wondering if there will be any facilities for electric cars planned for the future
Public transport cost double than taking my private car
Need more parking spaces closer to hospital for staff
Mobility parking needs to be evaluated in conjunction with the staff who require it, it is currently a shamble.
It would be very much appreciated if there were more motorbike park spots, often we have to share a park spot with two bikes, and it is very narrow.
I work long hours (average 11 hours/day) and adding an additional hour or more to my travel time by using public transport would extend my day to an unacceptable degree.
Redbank road is a nightmare at 5pm. lane to go straight ahead at traffic lights is blocked. BIG traffic jams
Staff parking has made life a great deal easier over the last year - the constant stress of trying to find parking and feeling the need to arrive earlier and earlier made working here difficult at times. Public transport from where I live is possible but takes double the time of driving with bus and train plus walk.
If I had no staff parking or had to take public transport from the Northern Beaches I would have to resign.
my sister and I carpool every day except 1 day per fortnight, yet you charge us both full parking fees. There is no fee reduction for car pooling
it's a nightmare... and makes other jobs more attractive
I am on call for Neonatal intensive care at variable times and need to be able to get in quickly and be able to park safely. Even having to park at the overflow has put me at risk at night and I feel less secure than I used to when this happens.
Needs some type of cover from car parks to hospital. Avoid rain and intense sun
I am finding I am late to work most days due to not being able to park in the multi-story car park. I usually arrive at between 0720 and 0725. But due to having to park on the oval and walk up to the ward, I miss the huddle at the start of the shift. I cannot leave home any earlier as I need to wait for my day-care to open.
Current lighting. lack of CCTV to Oval parking is inadequate in the evening
I would much prefer to take public transport than drive but at the moment this does not fit with school schedule

APPENDIX: STAFF SURVEY COMMENTS

Selection of Staff Comments from Travel Survey

I would love to take the bus/train on a daily basis however Out of hours work requires close access to reliable bus/train services. If I leave at 8 pm, I will get home by 10 pm although I live in the Hills

Motorbike parking is needed

Its currently very difficult. I come 30mins earlier than I need to in the morning to find a street parking. I am on the waiting list for parking. If I leave around 430 or 5pm, its absolute gridlock trying to leave the area at that time, so I also stay back an extra 30-40mins, so I'm not stuck in it. I don't get paid for my extra hours.

People choose to drive because they don't feel safe on public transport late at night as shift workers. But they also don't feel safe walking to the back streets of Redbank road to get free parking.

1: Westmead does not have all trains stopping at the station 2: Safety of walking 3: Cleanliness of public transport 4: Public transport takes more time and that is not a commodity that you are able to get back

parking application has taken over 10 years to get a spot.

I currently don't cycle to work due to the very real risk of being killed or maimed on the way or the way home - I don't even like driving to work for the same reasons

Far more staff parking is needed. I do not feel safe walking alone to my car at night, and the shuttle is a hassle to wait for after being at work for 12-13 hours. The number of years it takes to gain daytime staff parking is insanity. I used to get public transport, however had to wait 1.5 hours for a bus after an evening shift (waiting until after midnight), as three buses in a row were cancelled. I will continue to drive for that reason.

Using public transport working rotating hours/shift work with a family is very difficult. Easier to drive

I would prefer to take public transport but currently there is nothing available from my area which takes less than 2 hours and it would still require me to drive to a station. Also, I have a lot of early starts and late finishes (often a 12-hour day) and adding a long journey on top of that is very tiring results in lack of time with family.

consider eBikes parking facilities as this might be more pertinent in future.

Insufficient mobility parking for staff

I am very happy to use other methods of transport here and home, however I do have to drop off and pick up primary school aged children, so it won't be an option for me for many years

A five-minute car trip would take me over an hour by public transport, so this is not an option.

Having staff parking has made a significant difference to my work satisfaction and general stress levels. It has reduced my commute times and made picking children up on the way home much easier

Public Transport is inconvenient and very expensive. I live 15minutes drive from the hospital. To do the same trip by public transport would take me almost an hour.

As a single parent I have to take my child to before school care and after school care every day on my way to and from work. Although it is in Darcy Road there is no bus from there. The car parking situation here is pretty terrible as well and is too expensive for lower paid staff members.

I need to travel by car due to commitments with my children, public transport is not an option due to time constraints.

Blue Mountains trains no longer stop at Westmead so if catching the train, I have to go to Parramatta and then catch a train back to Westmead.

from Greystanes and surround very difficult

There should be much better lighting outside and on Redbank Rd/ adjacent B streets, many staff use the walkway along the river bank and there is zero cameras/lighting along it as this walkway is not on any maps, it is convenient to use however scary if it is dark, particularly for young female staff (such as myself).

Would love to use public transport more than I do, please provide more direct services from the inner west.

I would love better services from the Hills to the hospital. Castle Hill and Baulkham Hills have poor connectivity to the hospital

Having access to parking is a major factor in deciding where people decide to work.

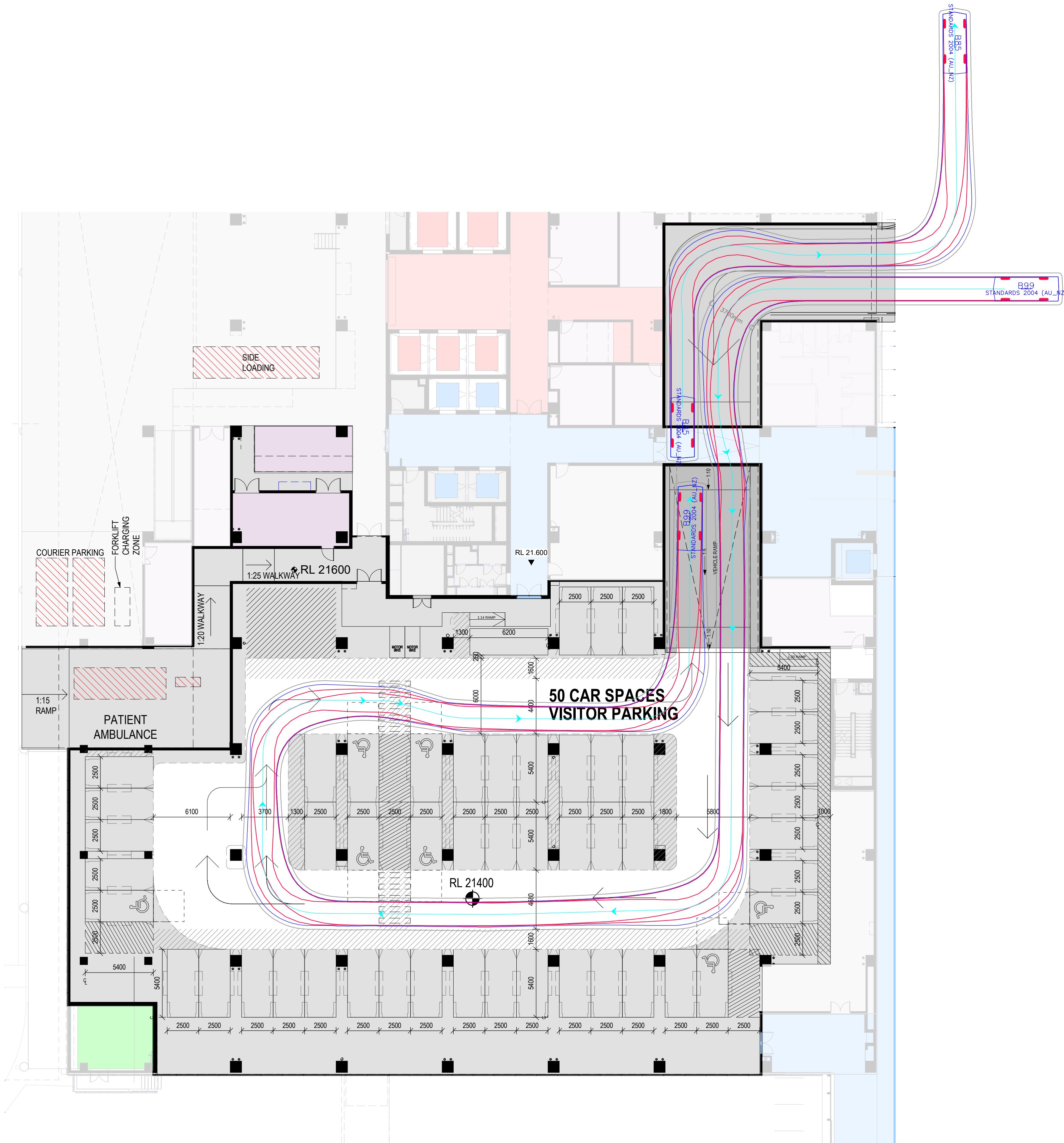
APPENDIX: STAFF SURVEY COMMENTS

Selection of Staff Comments from Travel Survey

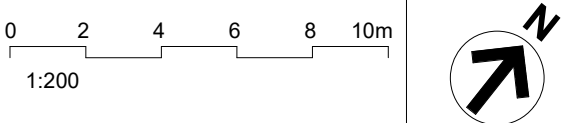
I would think about cycling to work if there were dedicated cycle paths all the way to work where you didn't have to go anywhere near the roads.
I would actually prefer public transport if there was a direct route and it did not take 1.5hrs minimum to do so.
Access to using public transport is limited by ability to be able to park near a railway station. In the inner west, street parking anywhere near railway stations is time restricted and there are minimal options for railway station parking.
Going via Parramatta is so time consuming on public transport (such heavy traffic and unnecessary), services need to go from Westmead and then head north east/east. Would cut down on transport time and encourage more people to catch public transport. All the Westmead buses go west or to Parramatta.
It takes longer to bus/train than to drive. I need the car to pick up children and groceries on the way. Before children I would use public transport, but trains/buses are late, and it is unreliable and expensive.
Need to link the T80 and other bus services from the great western highway that comes from Liverpool direction up the busway straight down Hawkesbury road rather than going to Parramatta and back to the hospital
In order to be convenient for staff and patients Blue Mountains train services should be stopping directly at Westmead
No direct train from Rooty Hill station to Westmead Station. Longer travel time
It would be great if you could talk to companies like Bunnings to use their car parks for staff at a reduced rate as a corporate donation to the hospital (they could put up a sign). Most of the time their car park is empty. Also, the path that runs alongside the creek needs a light...it is pretty scary walking along there in winter.
Parking is a nightmare!!!! More parking should be available to staff.
Difficult transport from the Hills, not enough available parking at hospital, waitlist to access parking is years.
I would be more likely to travel via train if the Mountains train stopped at Westmead. I also travel via Castle Hill in the morning for an appointment pre work
Do not get rid of staff carparks - parking is a necessity. Westmead adults' hospitals has a significant amount of staff parking areas compared to CHW. If CHW were to reduce parking areas a lot of staff including myself will resign
Need to use my car on night shift and late finishes. Do not have staff parking. More on the street long term parking, non-metered would be desirable and much needed for many other staff in a similar position
The walk from the train station to the hospital is poorly lit and long
Redbank Road is very concerning due to the traffic that can back up on this road from staff parking to traffic lights on most days esp. at peak time in the afternoon(attempting to get into right hand turning lane can take many attempts and usually a long wait to turn right).
improve public transport timetable to the hospital
Finishing work in the dark is too risky to take public transport and walking.
I am happy paying to park in the p17/multi storey car park but will be unhappy if we are moved to the outer parking especially when I have trouble walking distances.
You have not included reduced mobility as a reason for driving plus leaving in the dark in winter is not safe with public transport even if Security drives us to the train, we are still getting off the train/bus in the dark at the other end
I cycle every day, so most questions were irrelevant.
Parking is a major problem and will be a determining factor when seeking employment elsewhere.
Very rare to get a direct train from Werrington (Western Sydney) direct to Westmead the walk from CHW to the station is scary at night time when I leave
I used to catch public transport, but it takes about an hour door-to-door rather than 15-20 minutes door-to-door when driving. I changed as my family circumstance changed and I need to do school drop off and pick-up from OOSH.
Although I share the postcode with Westmead, Girraween has no train station and bus timetable does not suit my working hours and pick up to and from school for my child. Hospital parking is very important for me.

ATTACHMENT B

CAR PARK CIRCULATION AND RAMP SWEPT PATHS



1 PROPOSED PLAN DETAIL - LEVEL 02 CAR PARKING
1:200



- CAMPUS PRECINCT BOUNDARY
- EXISTING BUILDING
- PLANT / ENGINEERING
- VISUAL GARDEN
- PROPOSED LANDSCAPE - PUBLIC
- TERRACES
- WINTER GARDENS
- CARPARK / LOADING DOCK
- FAMILY FACILITIES
- RETAIL
- LIFT - RESTRICTED / CLINICAL
- LIFT - PUBLIC
- CIRCULATION - RESTRICTED
- CIRCULATION - PUBLIC
- CLINICAL DEPARTMENT
- CD CLINICAL DEPARTMENT
- SHARED ZONES
- EGRESS / ACCESS PATH
- EXISTING TREES
- PROPOSED TREES

STAFF AND VISITOR CARPARKING SUBJECT TO
CONFIRMATION OF LOCATION OF INCREASED
SERVICES ROOM TO ACCOUNT FOR UPDATED
STANDARDS

B	ISSUED FOR INFORMATION	10/08/21
A	ISSUED FOR INFORMATION	20/07/21
REV		

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PROJECT

The Children's Hospital at Westmead Stage 2 Redevelopment

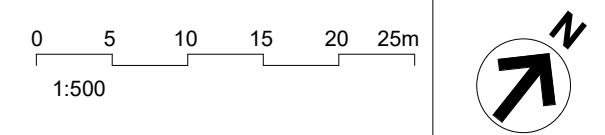
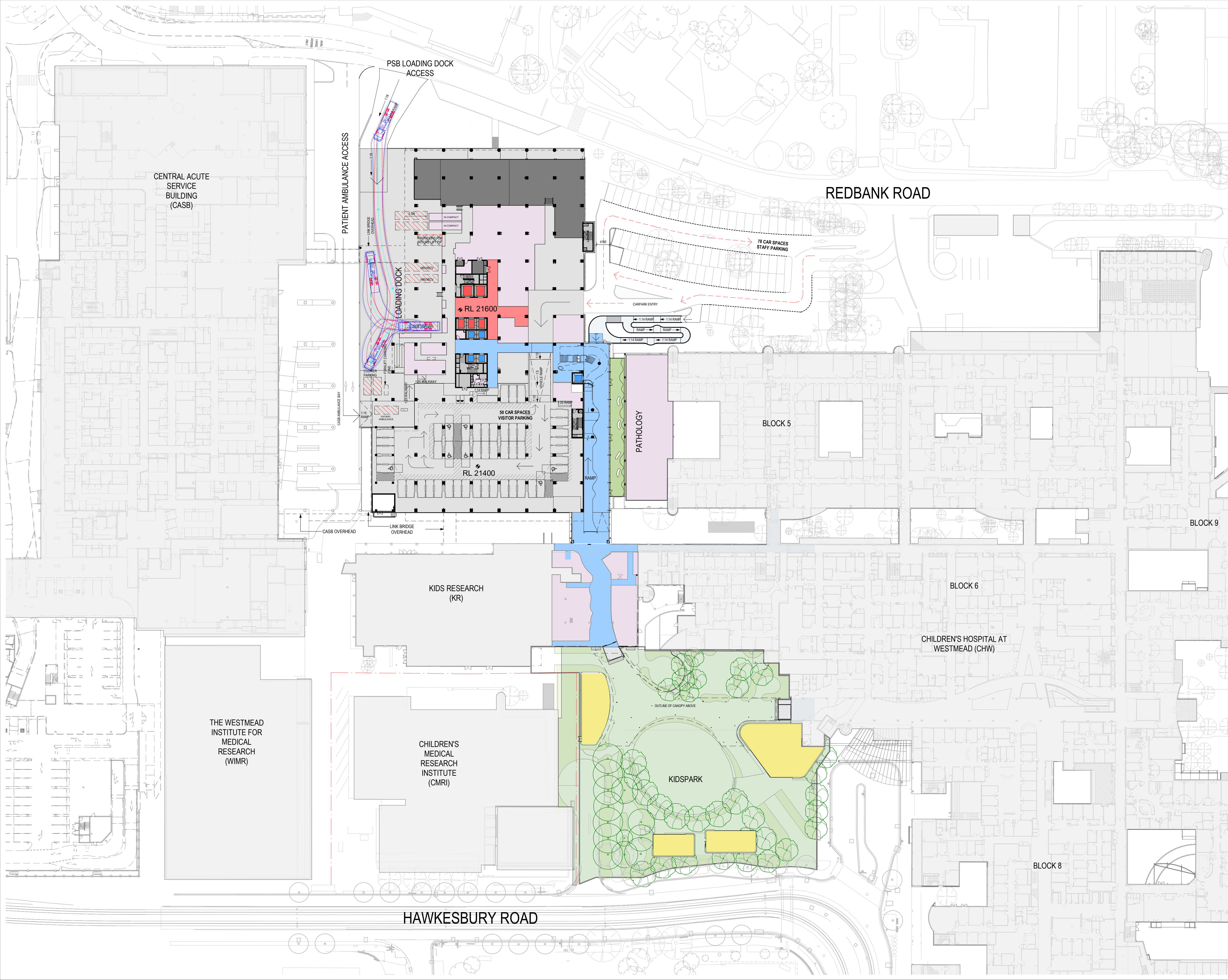
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Project No	19038	Revision	B
Drawing No	CHW-AR-DG-PSB-SSD026		

FOR INFORMATION

ATTACHMENT C
**LOADING DOCK HRV (SIDE-
LOADING) BAY SWEEP PATH**



- CAMPUS PRECINCT BOUNDARY
- EXISTING BUILDING
- PLANT / ENGINEERING
- VISUAL GARDEN
- PROPOSED LANDSCAPE - PUBLIC
- TERRACES
- WINTER GARDENS
- CARPARK / LOADING DOCK
- FAMILY FACILITIES
- RETAIL
- LIFT - RESTRICTED / CLINICAL
- LIFT - PUBLIC
- CIRCULATION - RESTRICTED
- CIRCULATION - PUBLIC
- CLINICAL DEPARTMENT
- CD CLINICAL DEPARTMENT
- SHARED ZONES
- EGRESS / ACCESS PATH
- EXISTING TREES
- PROPOSED TREES

STAFF AND VISITOR CARPARKING SUBJECT TO CONFIRMATION OF LOCATION OF INCREASED SERVICES ROOM TO ACCOUNT FOR UPDATED STANDARDS

E	ISSUED FOR INFORMATION	10/08/21
D	ISSUED FOR INFORMATION	20/07/21
C	ISSUED FOR INFORMATION	16/02/21
B	ISSUED FOR INFORMATION	22/12/20
A	ISSUED FOR INFORMATION	16/11/20
REV		

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NSW GOVERNMENT **Health Infrastructure**
PROJECT
The Children's Hospital at Westmead Stage 2 Redevelopment

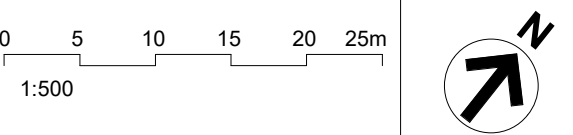
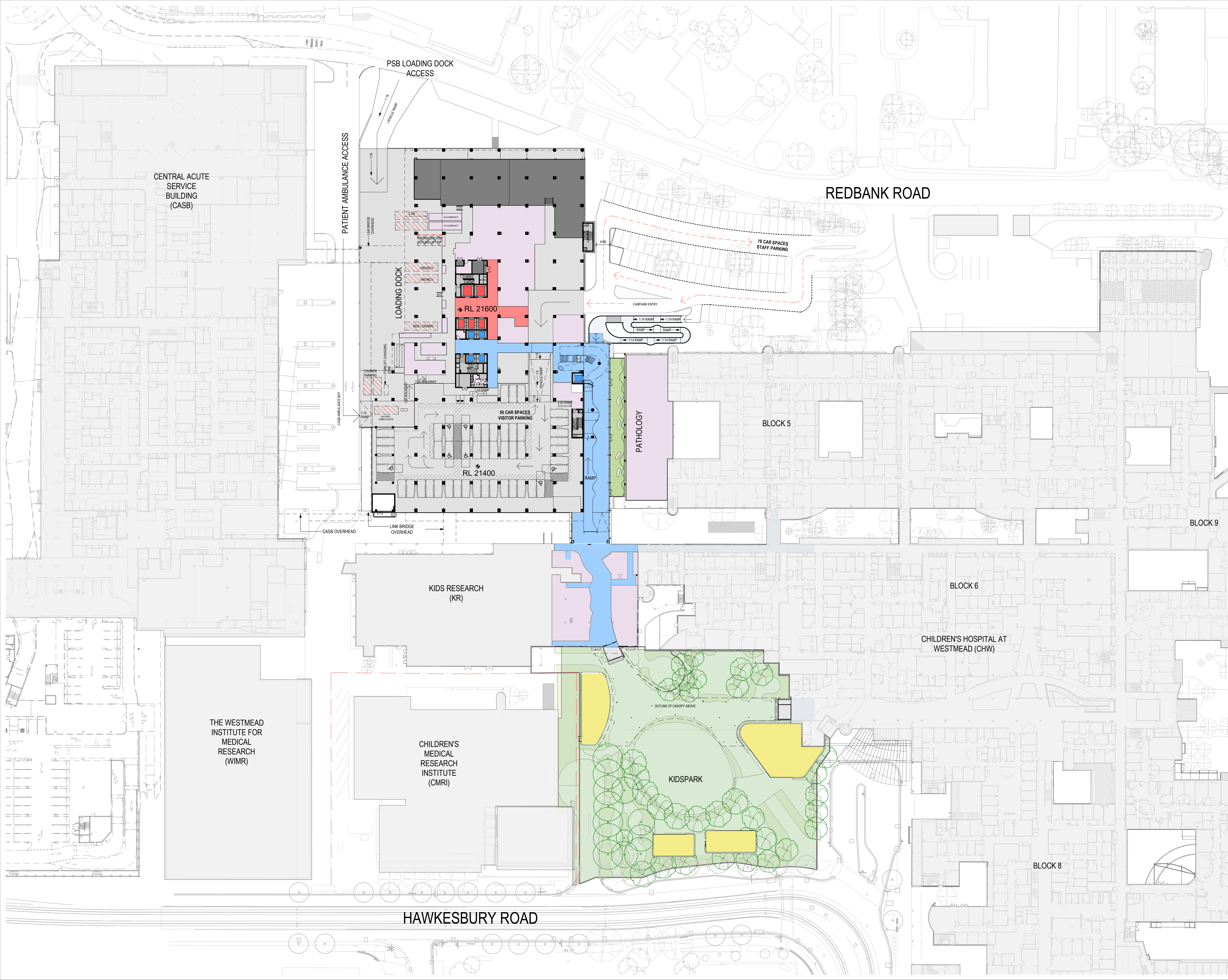
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Project No	19038	Revision	E
Drawing No	CHW-AR-DG-PSB-SSD011		

FOR INFORMATION

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ATTACHMENT D
LATEST ARCHITECTURAL
PLAN SHOWING DRIVEWAY
AND RAMP GRADIENTS



- CAMPUS PRECINCT BOUNDARY
- EXISTING BUILDING
- PLANT / ENGINEERING
- VISUAL GARDEN
- PROPOSED LANDSCAPE - PUBLIC
- TERRACES
- WINTER GARDENS
- CARPARK / LOADING DOCK
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- LIFT - RESTRICTED / CLINICAL
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- CIRCULATION - PUBLIC
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- CD CLINICAL DEPARTMENT
- SHARED ZONES
- EGRESS / ACCESS PATH
- EXISTING TREES
- PROPOSED TREES

STAFF AND VISITOR CARPARKING SUBJECT TO CONFIRMATION OF LOCATION OF INCREASED SERVICES ROOM TO ACCOUNT FOR UPDATED STANDARDS

E	ISSUED FOR INFORMATION	10/08/21
D	ISSUED FOR INFORMATION	20/07/21
C	ISSUED FOR INFORMATION	16/02/21
B	ISSUED FOR INFORMATION	22/12/20
A	ISSUED FOR INFORMATION	16/11/20
REV		

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Health Infrastructure NSW
PROJECT
The Children's Hospital at Westmead Stage 2 Redevelopment

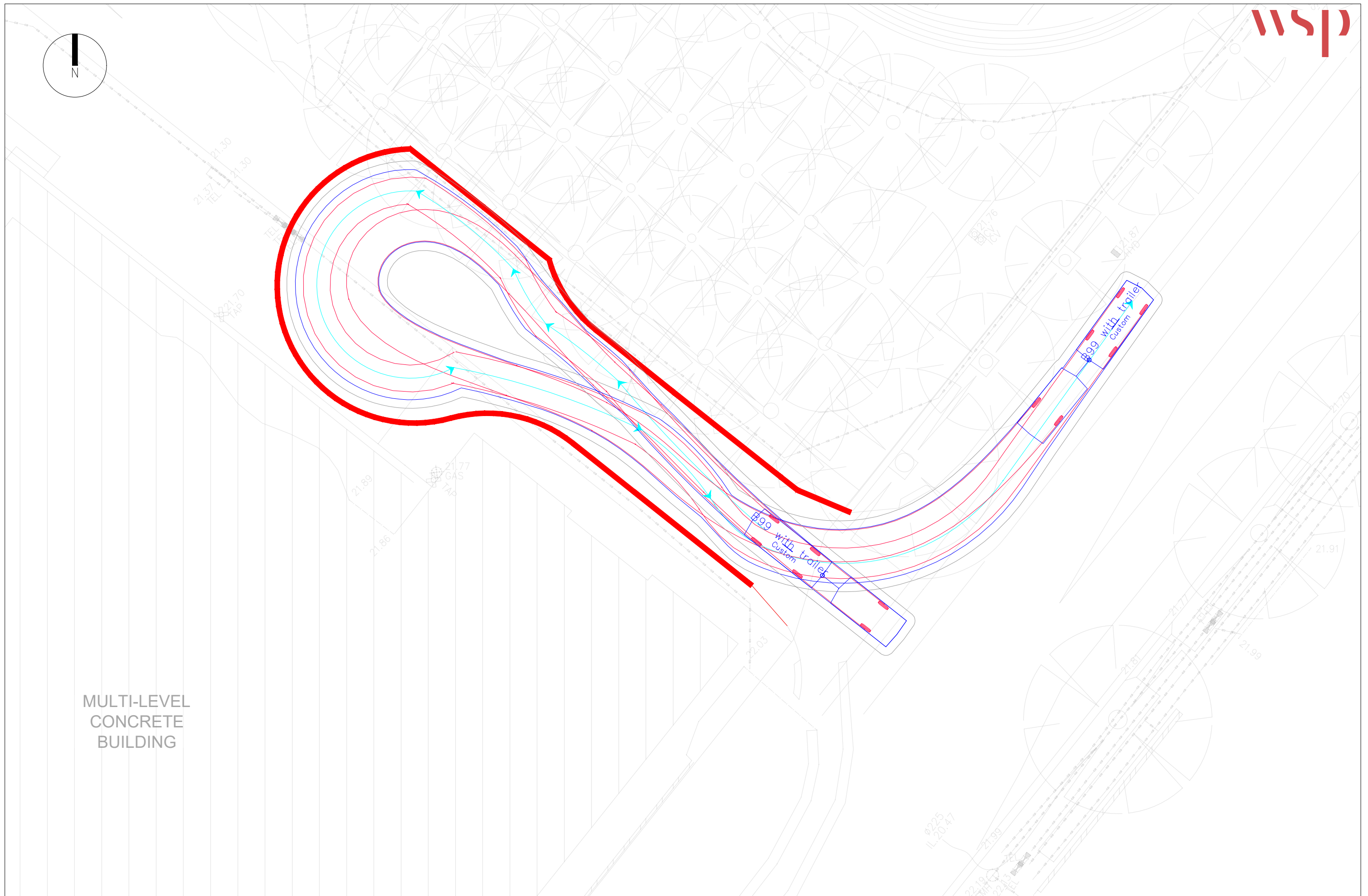
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Project No	19038		
Drawing No			
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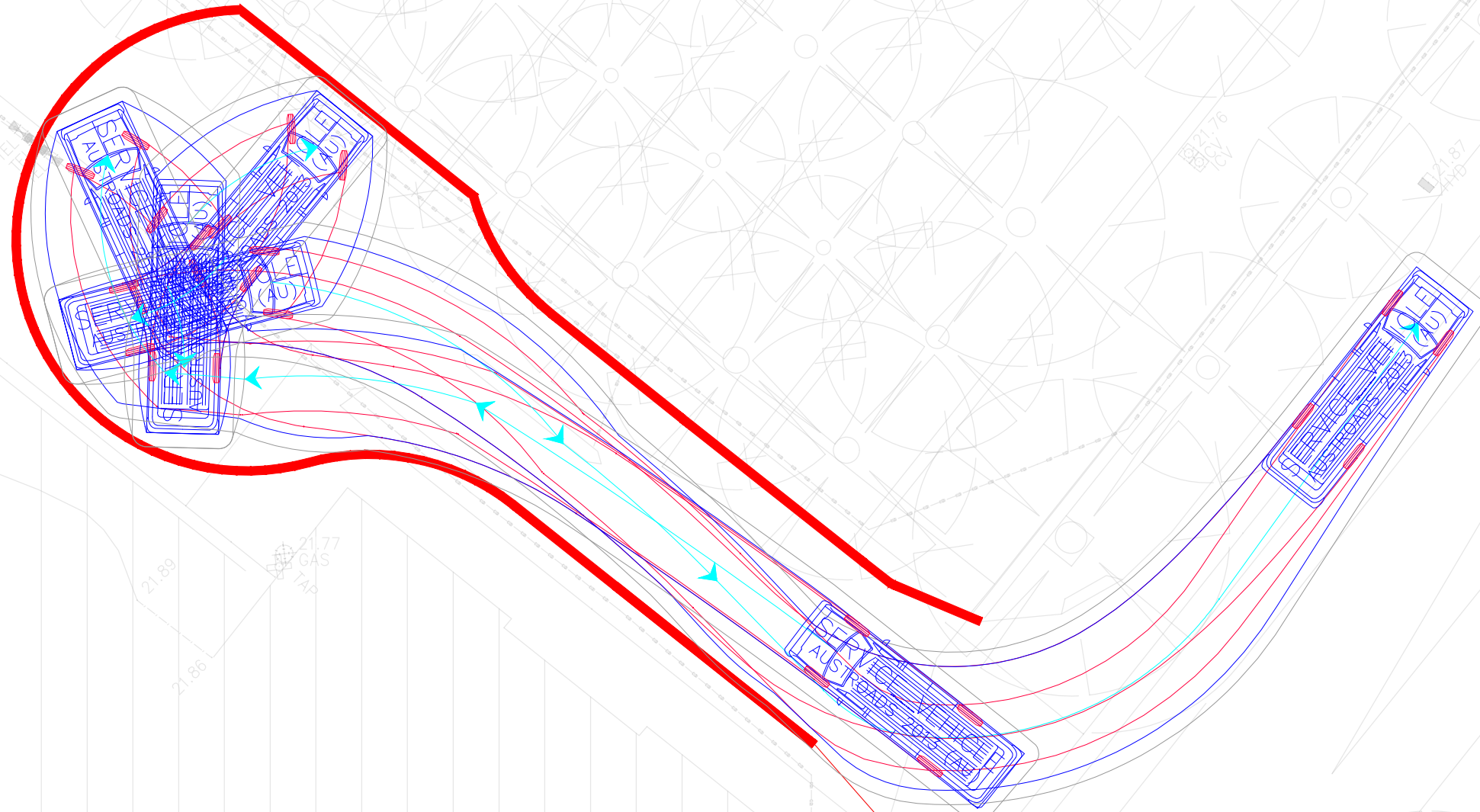
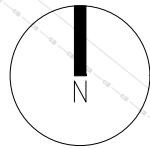
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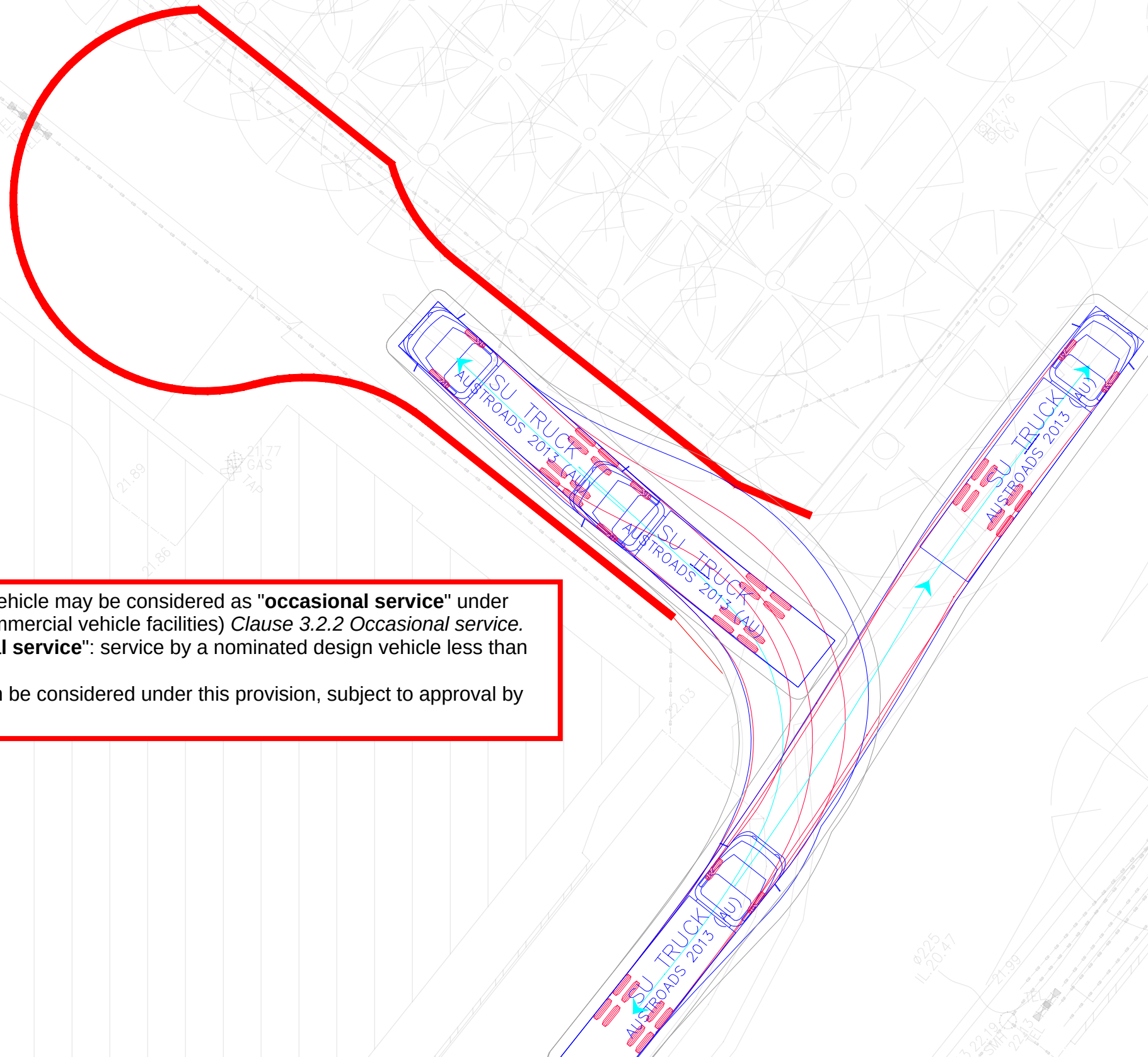
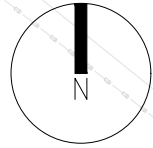
ATTACHMENT E
CMRI AND FORECOURT
DRIVEWAY SWEPT PATHS



OPTION 3 - PLANT ROOM ACCESS & HAWKESBURY ROAD - B99 & TRAILER SWEEP PATH (AUSTROAD STANDARD)



MULTI-LEVEL
CONCRETE
BUILDING



Access by 12.5m rigid vehicle may be considered as "**occasional service**" under AS2890.2 (off-street commercial vehicle facilities) *Clause 3.2.2 Occasional service*.
 Definition of "**occasional service**": service by a nominated design vehicle less than once per day.
 Reverse manoeuvre can be considered under this provision, subject to approval by road authority.

MULTI-LEVEL
CONCRETE
BUILDING

ATTACHMENT B

KIDSPARK ACCESS

ASSESSMENT



- LEGEND**
- 0000 - General**
- Site Boundary
- 1000 - Preparation, Groundworks & Drainage**
- Native Garden Soil - 310 sqm
 - Lawn Soil - 130 cum
 - Allowance for site drainage system - 1 item
- 2000 - Walls & Edges**
- 150mm concrete edge - 60 lm
 - H450mm x Width varies concrete seat wall - 1 item
 - Steel edge - 150 lm
- 3000 - Pavements**
- Stone paver (various sizes and finishes) - 1,550 sqm
 - Decomposed granite - 190 sqm
 - Rubber Softfall - 250 sqm
 - Exposed aggregate concrete (for vehiaccess) - 270 sqm
 - Concrete staircase (3 risers) - 1 no.
 - Stone cladding staircase (4 risers) - 1 no.
 - Precase concrete pad steppers - 1 no.
- 4000 - Site Structures**
- Allowance for playground - 1 item
 - Allowance for aboriginal garden - 1 item
 - Allowance for pet visiting area - 1 item
- 5000 - Rails & Fencing**
- Allowance for fencing at Pet visiting area - 1 item
- 6000 - Pools & Water Elements - N/A**
- 7000 - Furniture & Fittings**
- Table & Bench Type 01 - 22 no.
 - Table & Bench Type 02 - 24 no.
 - Allowance for Lighting system - 1 item
 - Allowance for other public amenities (e.g Benches, Bins, Bollards, Bubblers - 1 item)
- 8000 - Planting**
- Existing tree to be retained
 - Proposed trees - native & exotic (100L) - 38 no.
 - Village Green mix (140mm, 6p/sqm) - 124 sqm
 - Eucalyptus Grove mix (140mm, 6p/sqm) - 230 sqm
 - Hawkesbury Edge mix (140mm, 6p/sqm) - 352 sqm
 - Playground mix (140mm, 6p/sqm) - 217 sqm
 - Aboriginal Garden mix (140mm, 6p/sqm) - 90 sqm
 - Lawn - 655 sqm

ATTACHMENT C
TFNSW COORDINATION
MEETING
27 NOVEMBER 2020

Meeting Minutes

The Children's Hospital Westmead Stage 2 – Transport for NSW / Health Infrastructure

Date/Time: 27 November 2020

Start: 3:00pm

End: 3:45 pm

Venue: Video Conference

Attendance

Name	Organisation	Role
Brendan Pegg	Transport for NSW	A/Senior Manager Land Use Assessment Planning and Programs
Vic Naidu	Transport for NSW	Land Use Planner Planning and Programs
Mark Ozinga	Transport for NSW	Principal Manager, Land Use Planning & Development
Caleb Teh	Health Infrastructure	Project Director
Brigette Humphrey-Robinson	WSP	Traffic and Transport Engineer
Mary Sakr	PwC	Project Manager

Item	Topic - Actions	Action
1.0	Introduction	
1.1	HI provided an introduction and outlined the purpose of the meeting.	Note
2.0	Project Status	
2.1	HI provided a brief overview update of the CHW Stage 2 Redevelopment and current status of works packages (Attachment A).	Note
2.2	HI presented the Health Core Masterplan which has informed the Westmead 2036 Strategy, the design consideration for the Paediatric Services Building (PSB) and the public links and entries between Stage 1, Stage 2 and the multi-storey car park (MSCP).	Note
3.0	MSCP	
3.1	PwC presented the MSCP advising of the following: 1. Entry into the car park is via Redbank Road, whilst the exit is via Labyrinth Way. 2. Redbank Road will be realigned as part of the Works.	Note
3.2	A staged approach to the MSCP whereby there is nil net increase in the car parking operational capacity at the time of MSCP's opening (approximately 800-900 car spaces to replace existing spaces on the campus).	Note
3.3	The growth in car parking demand as a result of the CHW Stage 2 project would be addressed in the State Significant Development Application (SSDA) for the Paediatric Services Building (PSB), which is anticipated to be submitted late 2020 (approximately 300 additional car spaces to be opened over a period of time in line with hospital growth).	Note
3.4	Due to Redbank Road realignment an Aboriginal Cultural Heritage Assessment Report (ACHAR) is required. The first stage of the consultation process with the Registered Aboriginal Parties has commenced.	Note
4.0	PSB	
4.1	PwC and HI presented the PSB car parking design advising of the following: 1. Interim car parking will be provided on level 2 of the PSB and the existing on-grade car park. Entry and exit are via the existing P17 driveway off Redbank Road. 2. Access to the loading dock is via Redbank Road and it includes: a. Three courier bays b. Three loading bays to accommodate vehicles up to 12.5 heavy ridged vehicles c. Two water compactors	Note
4.2	TfNSW suggested the addition of the PSB's loading dock usage and design strategy.	Note
5.0	Transport Assessment	
5.1	WSP provided an overview of the transport assessment (refer Attachment A).	Note
5.2	TfNSW's reiterated their initial advice that they are comfortable with the growth data within WSP's Preliminary Traffic Assessment (dated 22/6/2020) and have no particular issues or concerns.	Note
5.3	WSP advised that no traffic analysis has been conducted for the MSCP as the traffic is being generated due to the PSB. This will be reflected in the PSB's EIS submission.	Note
6.0	General/Other Business	
6.1	TfNSW advised that the draft Transport Impact Assessment can be submitted to TfNSW for their review and comment prior to the submission of the EIS. Project team to account for two week turn-around period.	TfNSW
6.2	TfNSW advised that a car park management plan typically forms part of the Conditions of Consent. A precinct wide approach could be adopted by the project team and include the PSB's loading dock.	Note

Attachments:

- **Attachment A: CHW Stage 2 Redevelopment TfNSW Consultation**

ATTACHMENT A

The Children's Hospital at Westmead Stage 2 Redevelopment

TfNSW Consultation
November 2020



Health
Infrastructure

connect
Collaboration in action

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Agenda

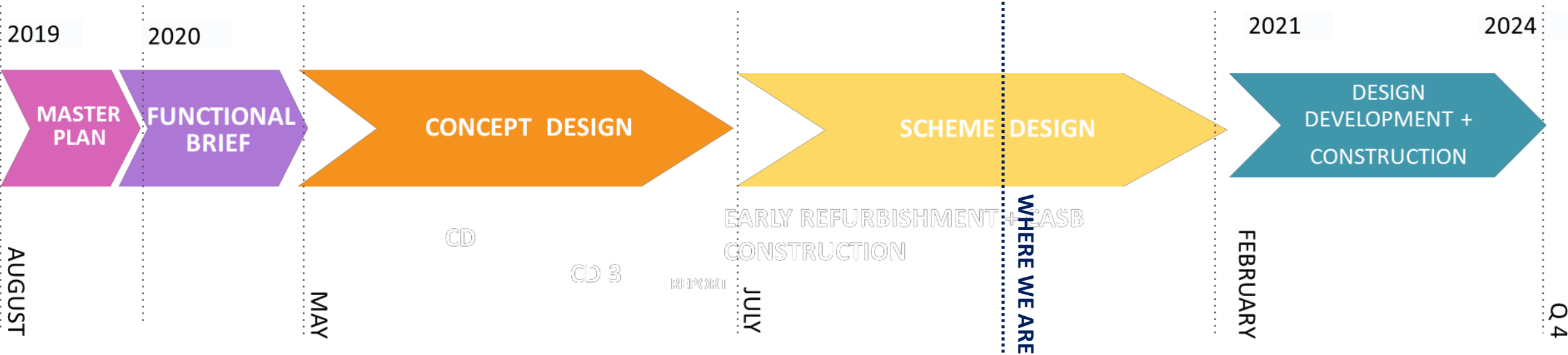
1. Project Background
2. Context – PSB and MSCP
3. Context
4. Entries and Arrivals Experiences
5. Concept Design Intent
6. MSCP Design
7. PSB Design
8. Future Intersection Operation
9. ACHAR Trigger

Project Background

The NSW Government has committed \$619m for The Children’s Hospital at Westmead Stage 2 Redevelopment. The opening of the Westmead Central Acute Services Building (CASB) will see the completion of The Children’s Hospital at Westmead Stage 1 works.

As a further development of the Westmead Health Precinct, this grows the precinct as one of the largest health, research, education and training precincts in the world.

The Stage 2 redevelopment will include a new Paediatric Services Building (PSB) and to complement the Stage 1 investment and replacement of car parking.

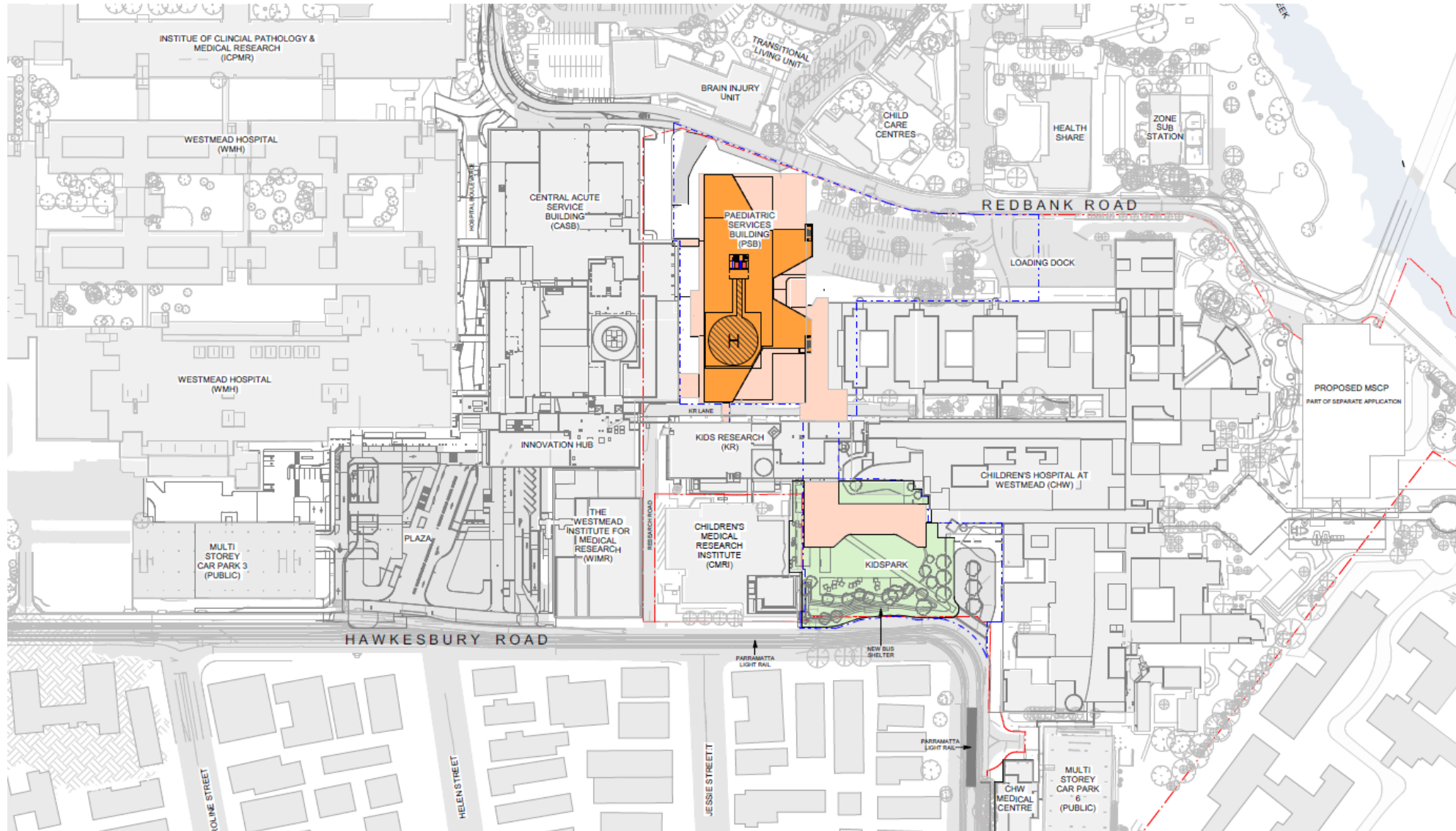


The Site – Westmead Health Core Masterplan



Context – PSB and MSCP

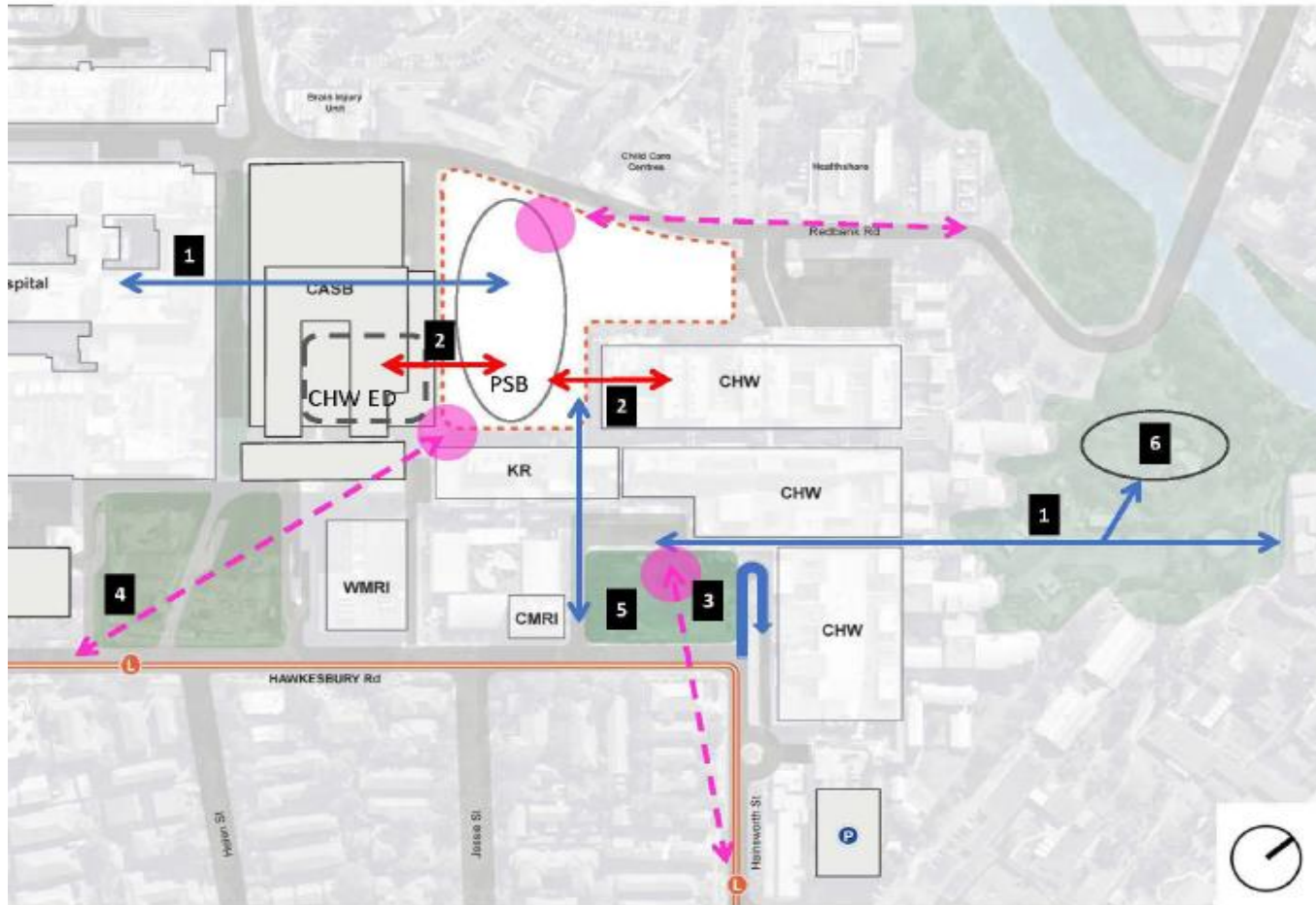
The Site – Existing Built Form and Design Considerations for the PSB and MSCP



Context – PSB and MSCP

The Site – Existing Built Form and Design Considerations for the PSB and MSCP

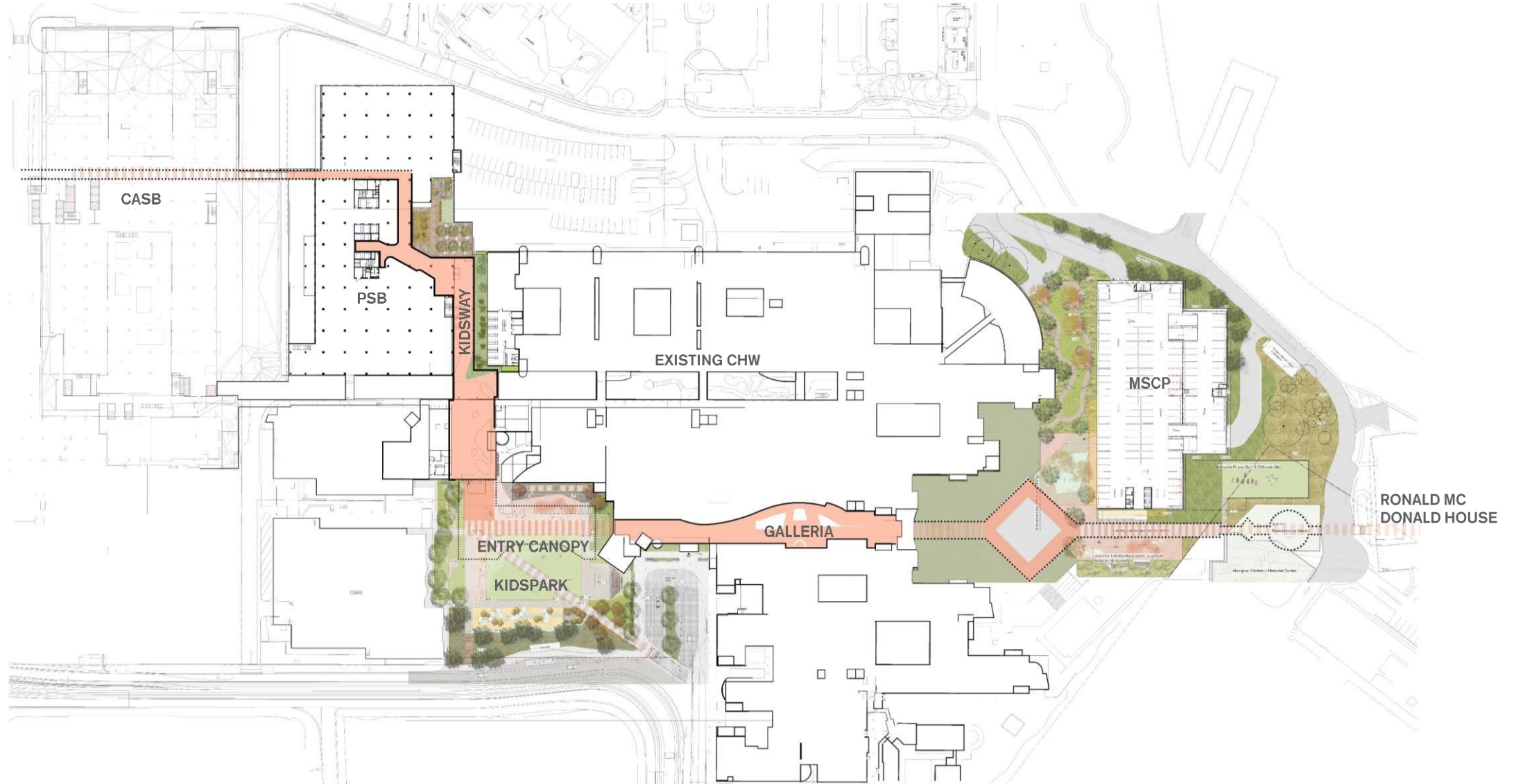
Site Plan, Analysis and Principles



1. Public campus Connections
2. Clinical Connections
3. The front entry and primary identity remains off Hawkesbury Road
4. Maximise visibility and identity from the west
5. KIDSPARK - a landmark communal space designed to provide a space to gather, provide relief and amenity for children and visitors
6. New car park & amenities provides easy access to the CHW

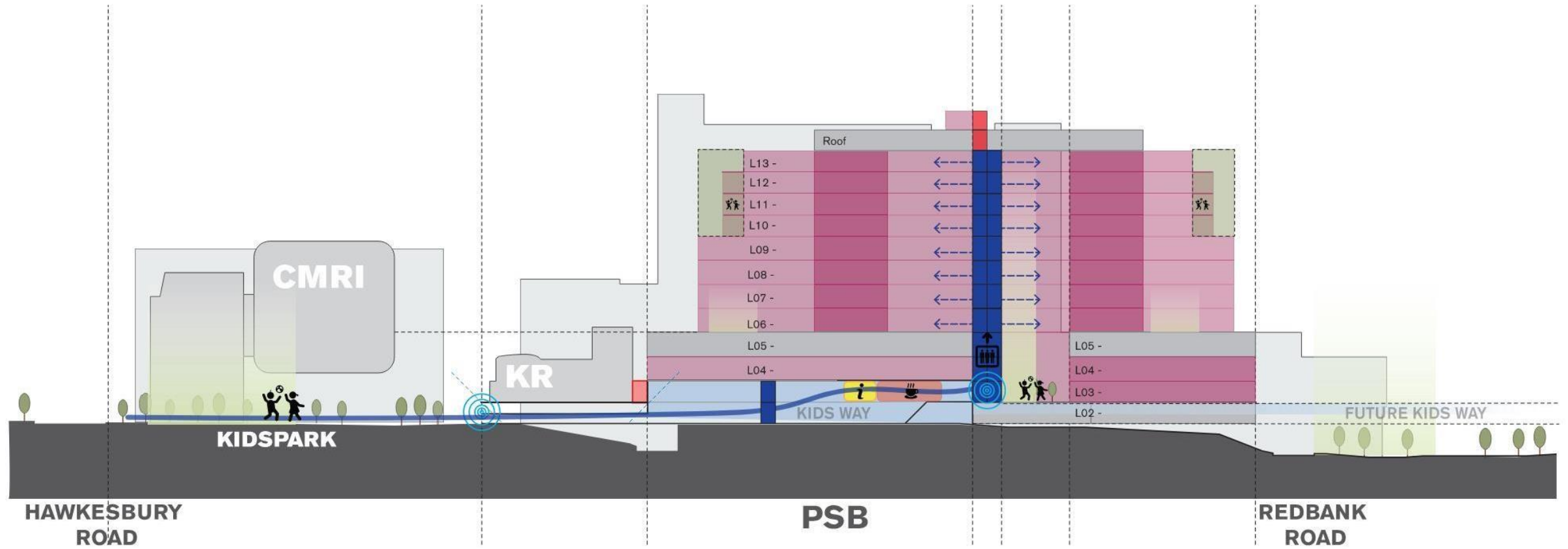
Entries and Arrival Experiences

The Site – Public Links and Entries



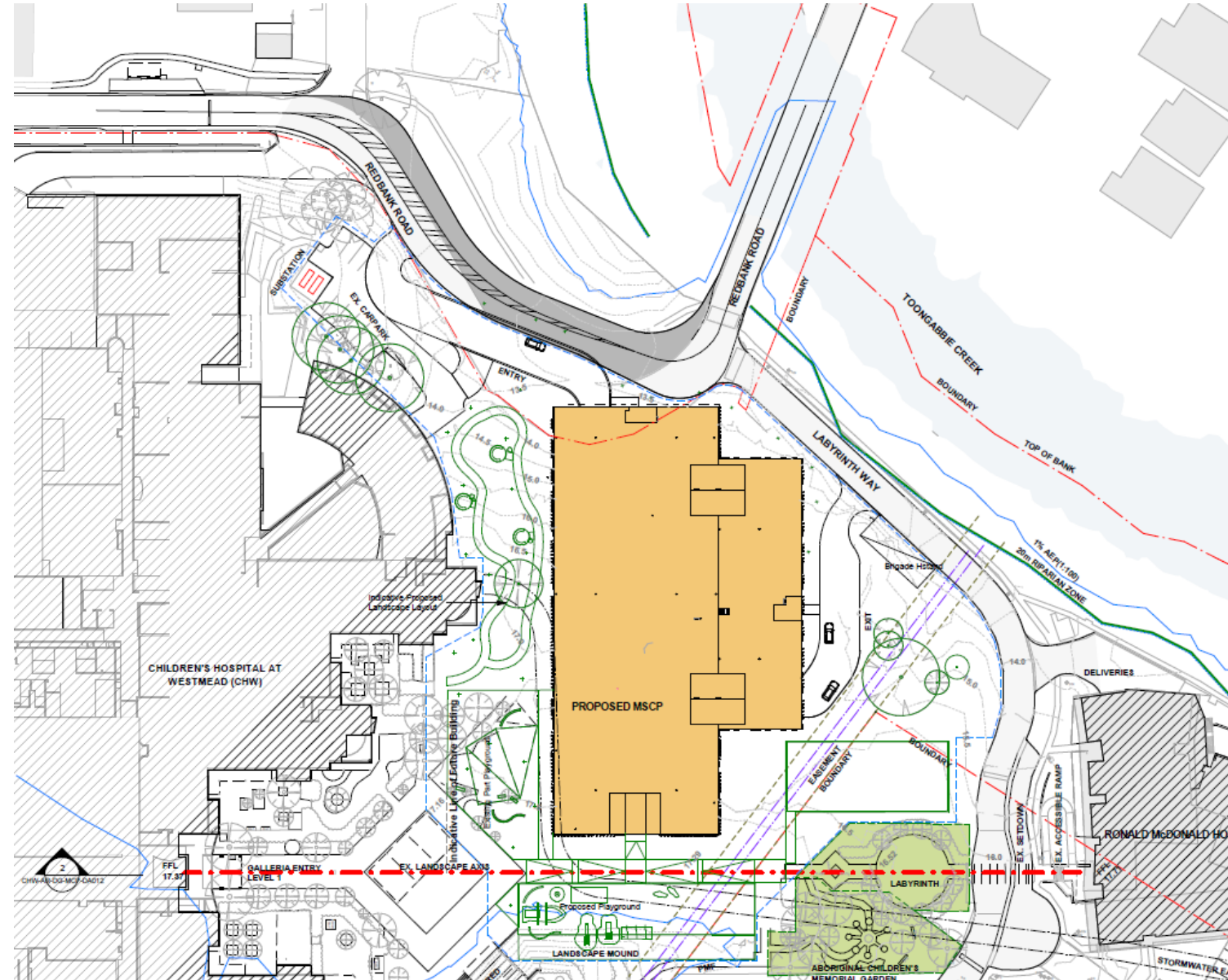
Concept Design Intent

Section



MSCP Design

- Entry into the car park is via Redbank Road.
- Exit out of the car park is via Labyrinth Way.
- Redbank Road to be realigned as part of the Works.
- The car park will be constructed in a single stage, although car parking will be staged operationally:
 - Stage 1: Replacement car parking for the demolished P17 car park with no net increase in parking numbers on site.
 - Stage 2: Car parking operation to serve the hospital's growth associated with the PSB ~ 280 additional spaces.



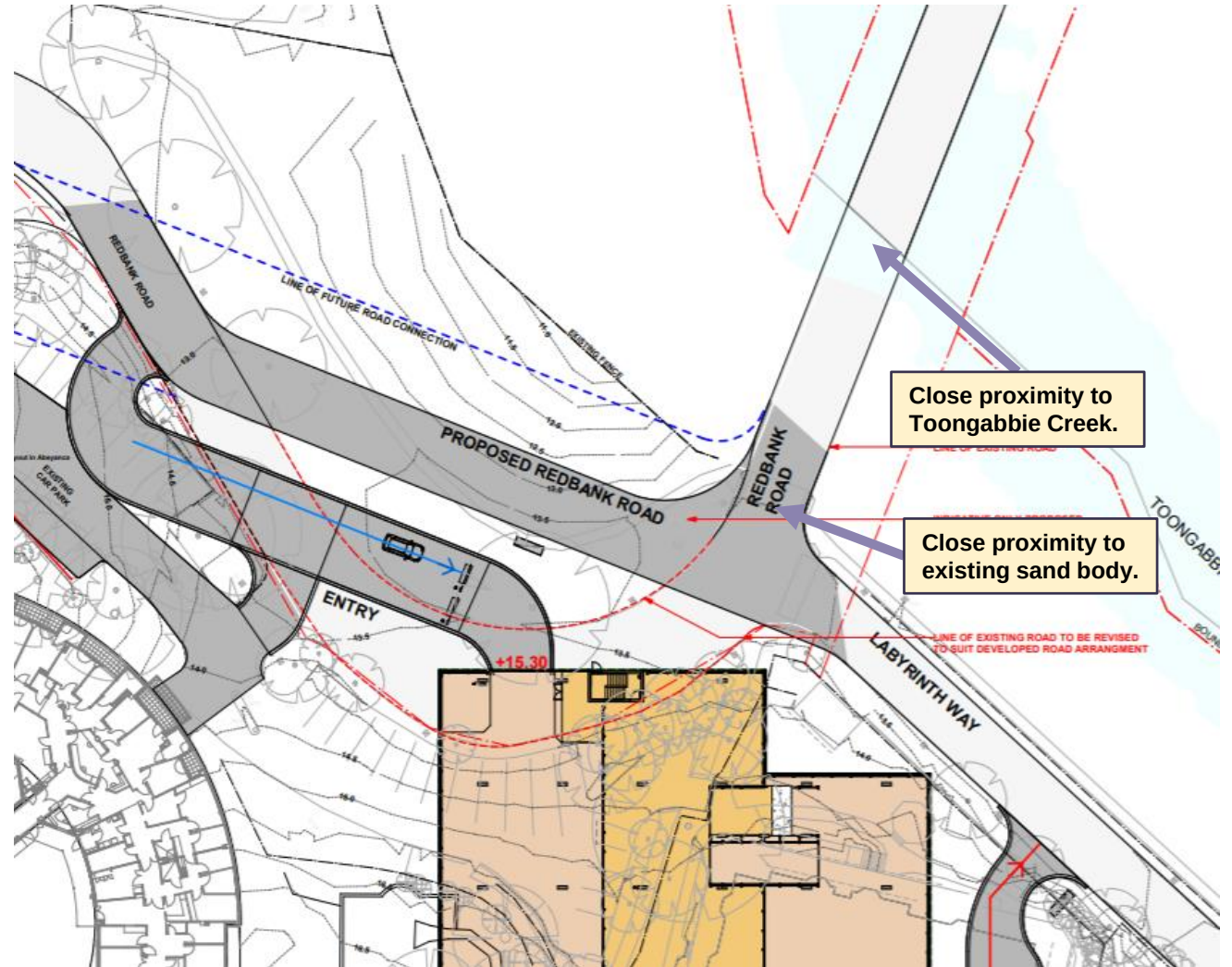
Typical Floor Plate



ACHAR Requirement

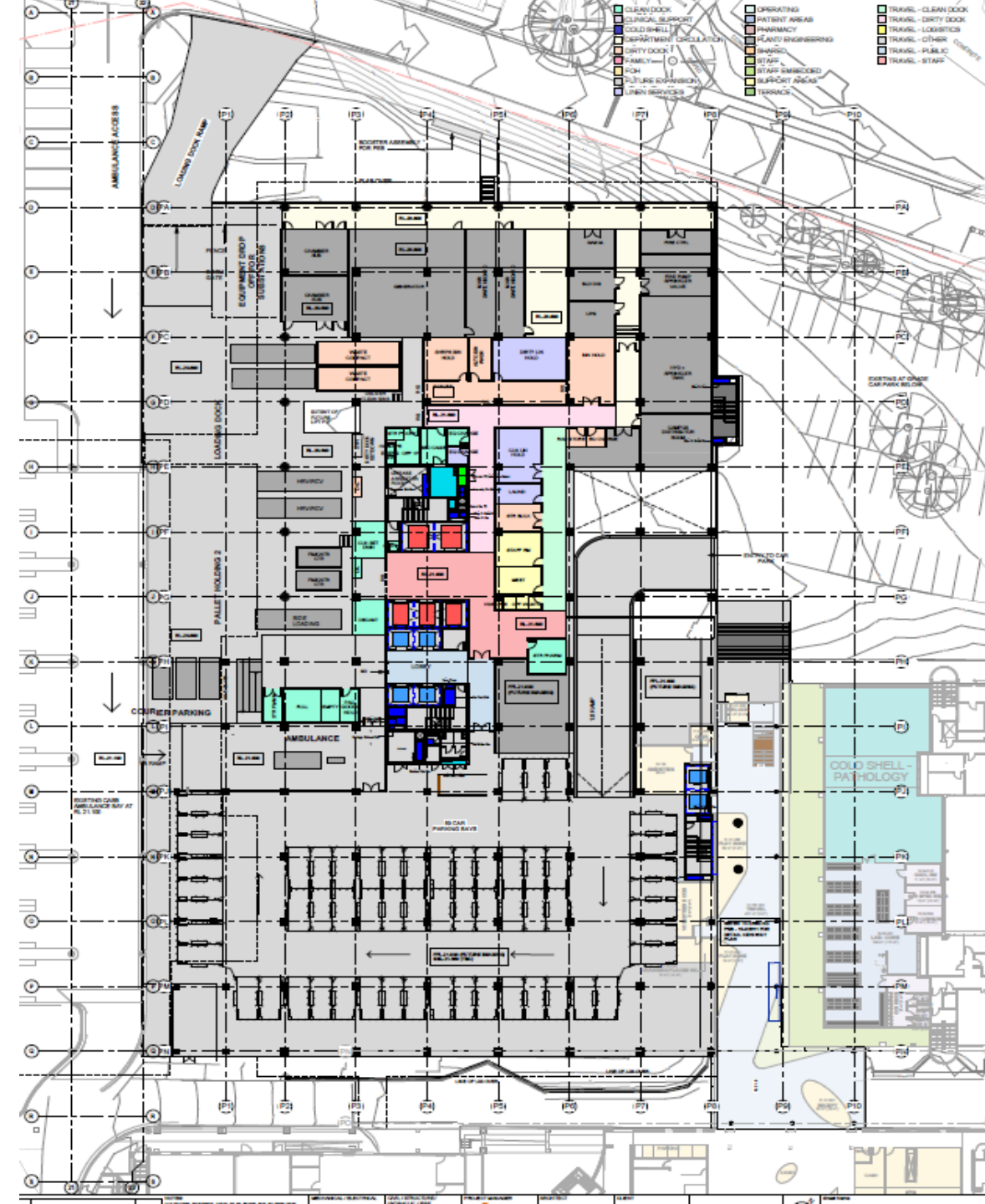
Redbank Road realignment and the ACHAR requirement.

Consultation process has commenced by notification and registration of interest.



PSB Design

- Entry into the car park is via the existing P17 entry off Redbank Road
- Exit out of the car park is via the existing P17 exist off Redbank Road
- Carparking provided on level 2 of the PSB and existing on grade carparking.
- Level 2 is future proofed for the future relocation of Medical Imaging.
- Loading dock access is via a ramp off Redbank Road. Loading dock includes:
 - Three courier bays
 - Three loading bays to accommodate vehicles up to 12.5 heavy ridged vehicles
 - Two waster compactors



Traffic Assessment

Peak hour traffic generation estimates

USER	AM (7:00AM-8:00AM)			PM (4:00PM-5:00PM)		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Staff	50	6	56	6	28	34
Visitor	25	8	33	8	34	42
Drop-off	12	11	23	15	14	29
Total	87	25	112	29	76	105

Most of the traffic generation would use Redbank Road and Institute Road or Dragonfly Drive to access the MSCP or PSB car parking, resulting in:

- Up to 45 additional two-way movements at the Redbank Road/Briens Road
- Up to 20 additional two-way movements at Hawkesbury Road/Darcy Road
- Up to 50 additional two-way movements at the Darcy Road/Institute Road/Mons Road

SIDRA Intersection traffic modelling indicates that the anticipated traffic volumes would have limited impact on the surrounding road network. The key intersections would continue to operate with similar operating conditions during the AM and PM peak hours in 2020.

Adopting historical growth rates along the key corridors indicates that in 2030, many of the surrounding intersections would be operating at or above capacity due to background growth. A whole-of-government approach is required to reduce the level of traffic growth expected in the area. However, the development itself would have minimal impact on this.

Intersection Operation - AM

Intersection	2020 without development intersection performance							2020 with development intersection performance						
	Degree of saturation	Average delay (seconds)	95 th percentile queue (m)				Level of service	Degree of saturation	Average delay (seconds)	95 th percentile queue (m)				Level of service
			South	East	North	West				South	East	North	West	
Briens Road and Redbank Road	1.04	51	71	506	-	505	D	1.12	55	73	512	-	511	D
Bridge Road and Darcy Road	0.91	30	60	46	6	160	C	0.91	31	63	47	6	165	C
Darcy Road, Institute Avenue and Mons Road	0.78	31	36	21	19	99	C	0.81	32	40	22	19	104	C
Dental Hospital, Marist High School and Darcy Road	0.37	10	25	3	30	0	A	0.37	10	25	3	31	0	A
Hospital Access, WSU and Darcy Road	0.38	17	52	9	13	5	B	0.38	17	53	9	14	5	B
Darcy Road and Hawkesbury Road	0.52	25	-	22	33	49	B	0.54	25	-	22	34	51	B
Railway Parade and Hawkesbury Road	0.54	11	22	45	-	18	A	0.54	11	22	46	-	18	A
Alexandra Avenue and Hawkesbury Road	0.63	33	39	46	52	80	C	0.63	33	39	46	52	80	C

Intersection Operation - PM

Intersection	2020-without-development-intersection-performance							2020-with-development-intersection-performance						
	Degree-of-saturation	Average-delay-(seconds)	95 th -percentile-queue-(m)				Level-of-service	Degree-of-saturation	Average-delay-(seconds)	95 th -percentile-queue-(m)				Level-of-service
			South	East	North	West				South	East	North	West	
Briens-Road-and-Redbank-Road	0.8	30	184	323	-	289	C	0.83	31	191	323	-	289	C
Bridge-Road-and-Darcy-Road	0.74	27	51	105	21	44	B	0.74	27	51	105	21	50	B
Darcy-Road-Institute-Avenue-and-Mons-Road	0.99	46	45	82	56	24	D	1.04	57	44	104	56	37	E
Dental-Hospital-Marist-High-School-and-Darcy-Road	0.21	4	4	4	13	0	A	0.21	4	4	4	10	0	A
Hospital-Access-WSU-and-Darcy-Road	0.6	41	56	25	64	5	C	0.6	42	57	25	69	5	C
Darcy-Road-and-Hawkesbury-Road	0.73	23	-	58	50	49	B	0.76	24	-	59	49	57	B
Railway-Parade-and-Hawkesbury-Road	0.74	30	58	130	-	24	C	0.69	29	58	130	-	23	C
Alexandra-Avenue-and-Hawkesbury-Road	0.78	35	58	55	37	54	C	0.78	41	58	55	37	54	C





Health
Infrastructure

ATTACHMENT D

SYDNEY METRO BRIEFING



West

Metro West

Briefing Health Infrastructure



Acknowledgement of country

I would like to acknowledge Aboriginal peoples as the traditional owners and custodians of the land on which we are all meeting today.

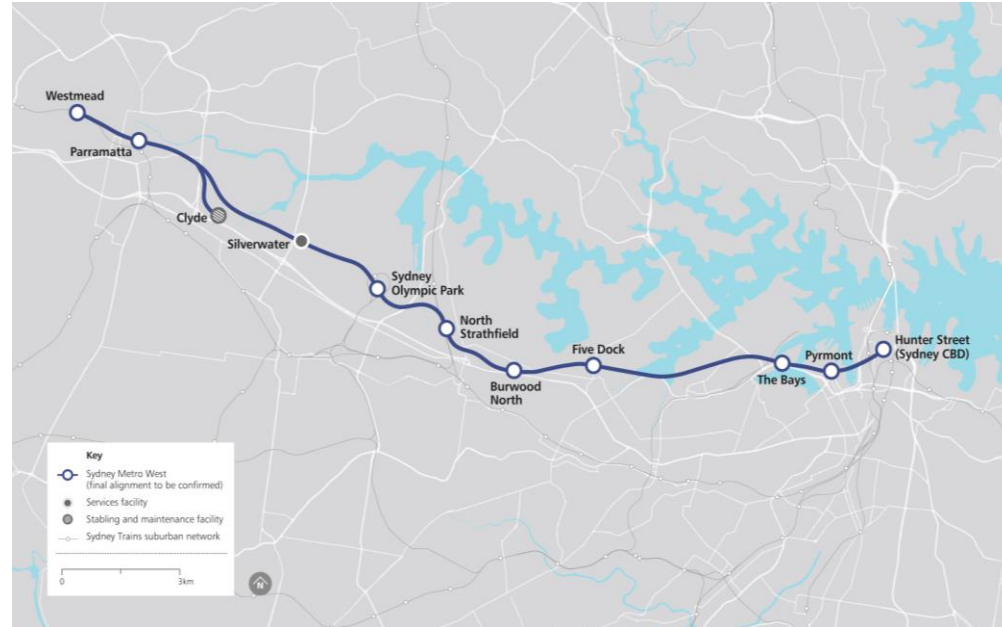
I would also like to pay my respects to Elders, past and present and acknowledge other Aboriginal people joining this meeting today and their respective cultures and nations.



Sydney Metro West - overview

Stations are confirmed at:

- Westmead – interchange with Sydney Trains
- Parramatta
- Sydney Olympic Park
- North Strathfield – interchange with Sydney Trains
- Burwood North
- Five Dock
- The Bays
- Pyrmont
- Hunter Street (Sydney CBD) – interchange with City & South West, Sydney Trains



Westmead Metro Station

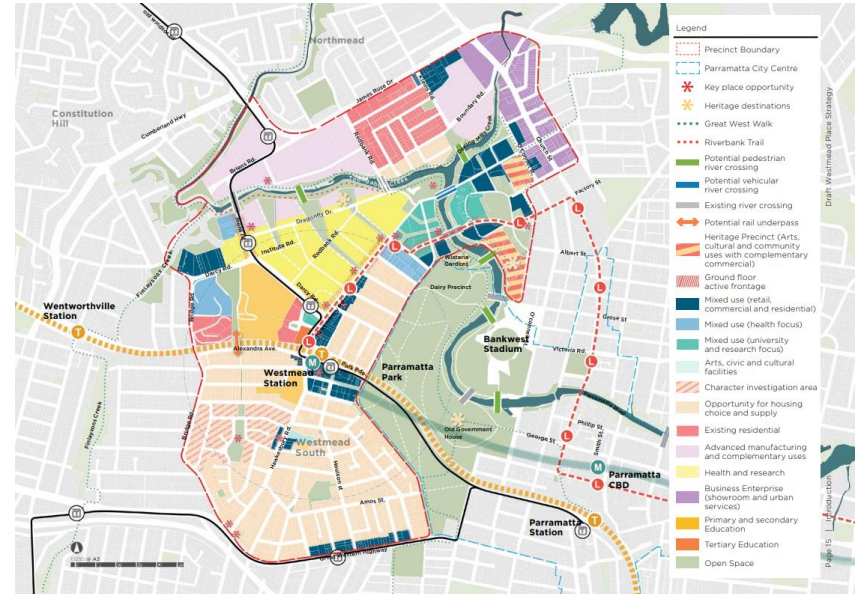
- Located immediately south of the existing Westmead Station
- Direct interchange with the T1 Western Line, providing connectivity to the hospital precinct (through interchange with Parramatta Light Rail Stage 1)
- Westmead metro station would provide increased accessibility to the Westmead employment, health and education hub, as well as residential areas experiencing growth and renewal.

Travel times		
Parramatta	Sydney Olympic Park	North Strathfield
2 minutes	7 minutes	10 minutes



A Civic Heart for Westmead

A well connected and accessible health and education precinct, and a revitalised, high amenity living and employment centre.



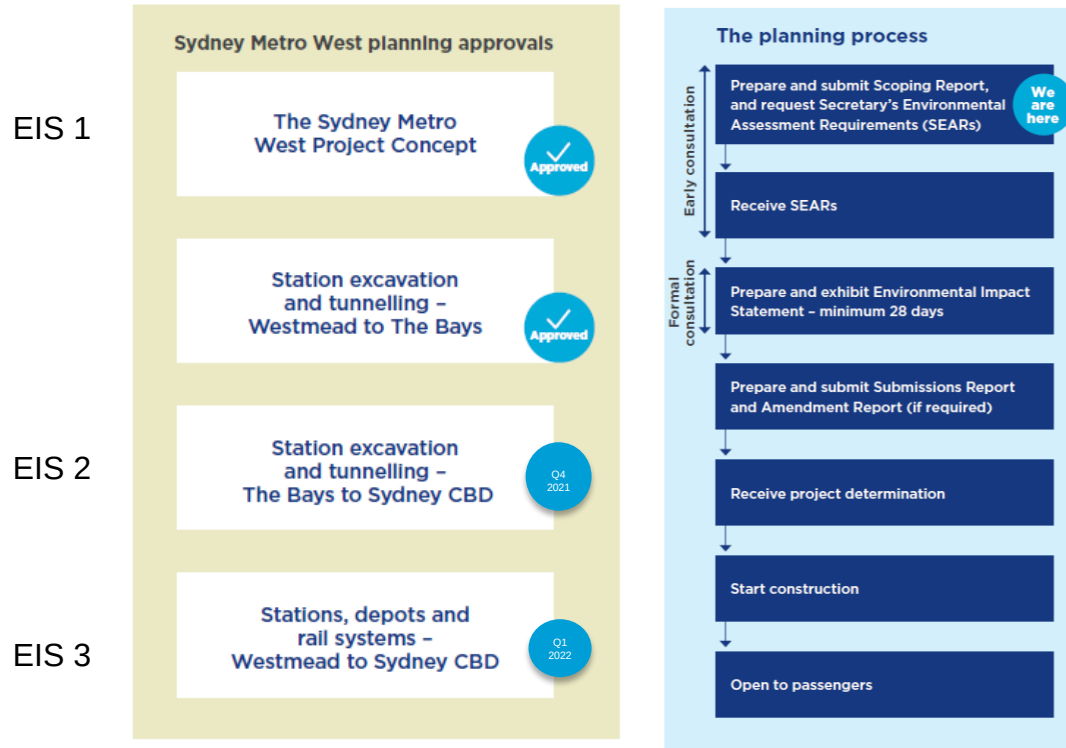
Place and design principles

- Facilitate an integrated transport hub with direct interchange between Sydney Metro and Sydney Trains services and safe, equitable and legible connections with active transport, buses and the future Parramatta Light Rail
- Provide a gateway to the Westmead Health and Education Precinct in recognition of its status
- Support greater activation along Hawkesbury Road, unifying North and South Westmead.
- Support growth and renewal opportunities by enhancing connections across the existing railway line with the station as a focal point
- Create an inviting public place at the station with high amenity and landscaped spaces that will encourage activation.

Indicative place and design principles for Westmead are shown in Figure 7-3.



Environmental assessment process

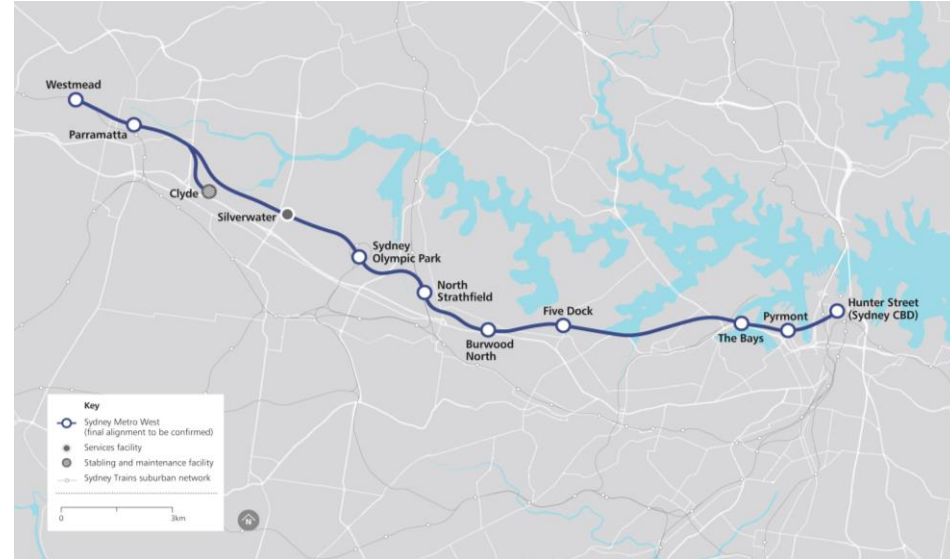


Stage 3 Proposal

Rail infrastructure, stations, precincts and operations

The proposal would involve:

- Fit-out of tunnels
- Construction, fit-out and operation of:
 - station buildings and surrounding precincts
 - services facilities and traction substations
 - a control centre, test track and stabling and maintenance facility at Clyde
- Provisions for integrated station and/or precinct developments at relevant stations
- Rail interchange support works at Westmead and North Strathfield and transport network modifications
- Operation and maintenance of the metro line.



Strategic Shift in General Traffic Approach

TfNSW

- TfNSW wishes to take this opportunity of change to focus on suitable transport modes through the new Westmead town centre
- The aim is to minimise the impacts on the transport hierarchy favouring pedestrians, active and public transport (bus and rail) during construction and beyond
- The end state Westmead town centre will be significantly different, TfNSW are seeking to discourage daily commuter travelling through Westmead from afar in peak periods, whilst still enabling local resident travel
- TfNSW are seeking a shift in transport mode choices and a reduction in general traffic through Westmead in the long term
- Less so on through travel of general traffic in peak period eastbound. While still enabling local communities to choose at non peak times

Westmead – Temp. Traffic Arrangements

Stage 2/3 Design Package Summary

Inbound Construction Routes

- Hawkesbury Road Northbound to Pye St, between 6am to 8pm, and
- Hawkesbury Road Northbound to Bailey St, between 8pm to 6am

Outbound Construction Route

- Hawkesbury Road, South bound

General Traffic Diversions (allowance for current traffic volumes)

- Eastbound via Bailey St
- Westbound via Priddle St
- Northbound via Mowle St



Westmead – Temp. Traffic Arrangements

Revised Scheme

Inbound Construction Route

- Park Pde, Hassall St, RT into site

Outbound Construction Route

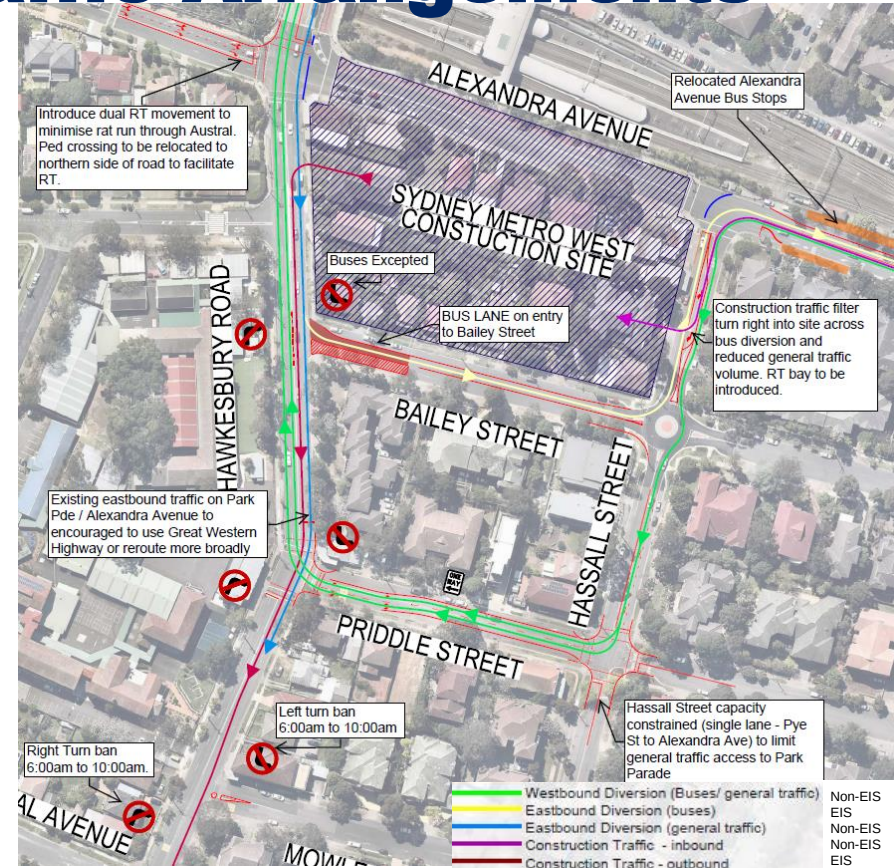
- Hawkesbury Road, South bound

General Traffic Diversions

- Eastbound via Bailey St (bus only)
- Westbound via Priddle St

Southbound traffic to continue to GWH or re-route more broadly.

- AM peak ban on access to Mowle St to discourage rat run



Next Steps

End State

Consultation for EIS 3 until November 2021

EIS 3 on public exhibition Q1 2021

Determination of EIS 3 Q3 2022 TBC

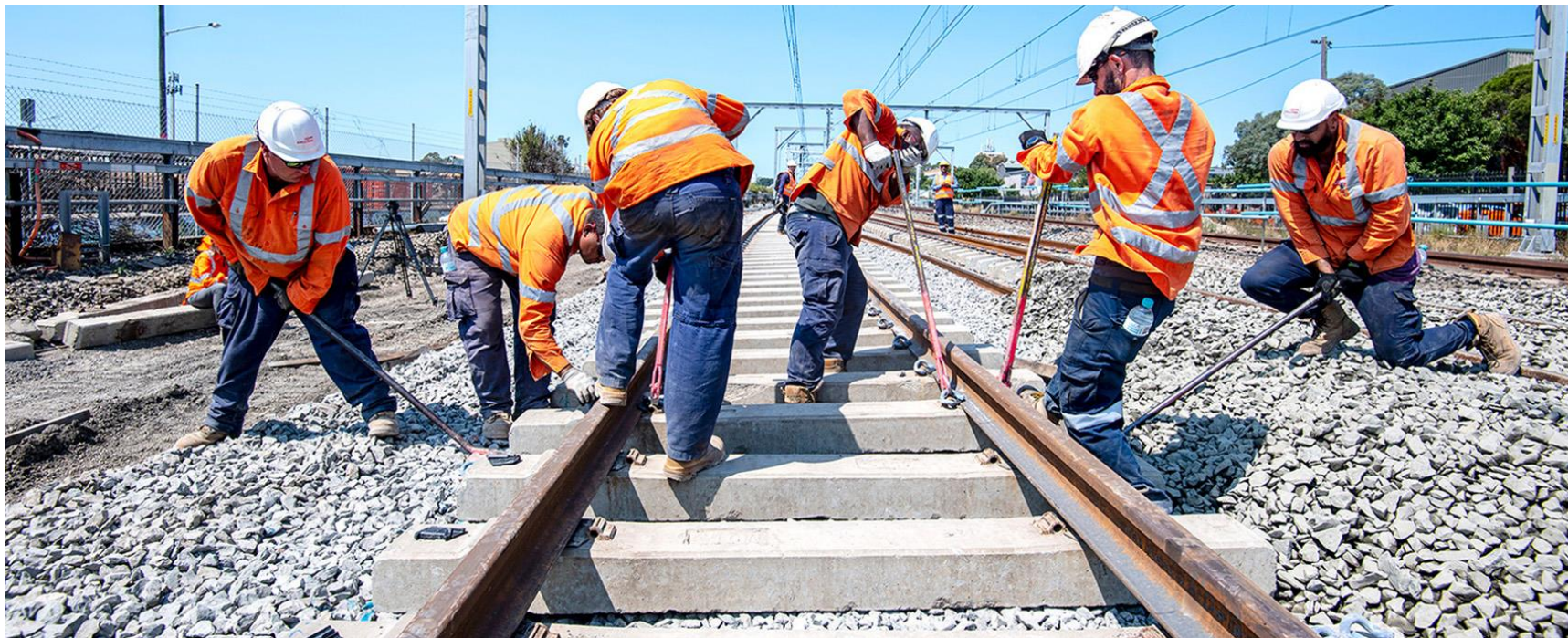
Construction Traffic Routes

80% Design late August 2021

100% Design Sept-Oct 2021 followed by civil works.



Questions and answers



Contact us



1800 612 173 Community information line open 24 hours



sydneymetrowest@transport.nsw.gov.au



Sydney Metro West, PO Box K659, Haymarket NSW 1240



If you need an interpreter, contact TIS National on **131 450**
and ask them to call **1800 612 173**

Draft Westmead Place Strategy

Directions

Objectives

- 1**
Allow for better precinct permeability, wayfinding and personal mobility.
- 2**
Deliver people-orientated streets to encourage healthy lifestyles and a strong sense of community and place.

Planning priorities

- D2.P1** Establish a centralised pedestrian experience on Hawkesbury Road connecting north and south Westmead.
- D2.P2** Investigate potential pedestrian crossings at key locations over existing barriers to improve connections between north and south Westmead.
- D2.P3** Improve urban amenity and apply pedestrian safety design to mitigate high traffic volumes on major road networks such as Great Western Highway and Hawkesbury Road.
- D2.P4** Improve active transport links to existing regional and heritage walks, i.e. Great West Walk, Redbank Trail and Governor Phillip Walk.
- D2.P5** Improve safe pedestrian and cycling access between all transport mode.

Objectives

- 1**
Support the changing needs of Westmead's future population.
- 2**
Drive social connections, cohesion and a sense of community.

Planning priorities

- D7.P1** Deliver social infrastructure through urban renewal opportunities.
- D7.P2** Encourage the delivery of community facilities, such as libraries, parks, recreational facilities, cycleways and much more.
- D7.P3** Promote co-location of active high-order community facilities in accessible locations to create neighbourhood hubs.
- D7.P4** Revitalise Hawkesbury Road to become the civic, transport, commercial and community heart of Westmead.

Catchment

Considerations:

- **Gateway** to the Health & Education Precinct to the North and mixed use residential to the south (significant public housing)
- New Metro Station providing **major interchange** with Sydney Trains (T1 and T5) , PLR , T-way from north-west Sydney & Local Buses, active transport.
- Integrated and well designed **place based outcomes** achieved from day 1 opening , providing safe and effective pedestrian experience, activation.
- Significant **growth** in population and change in built environment.
- **Topography** & achieving compliant access between modes, efficient interchange and meeting journey time requirements.
- Achieving effective and seamless north-south pedestrian **connectivity** along Hawkesbury Road
- Enhanced access to Parramatta Park and other key destinations

