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Mott MacDonald

Mark Sweeney
CYRE Projects Pty Ltd
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03 November 2015

Attn: Mark Sweeney

Dear Mark,

Lot 844: Gregory Hills Health Hub – Traffic and Parking Impact Statement

Background

Mott MacDonald has previously prepared a Traffic Impact and Parking Assessment report for the Gregory Hills Corporate Park (GHCP) site. This strategic level submission was approved by Camden Council on the 14th August 2012 under DA number 277/2012. Subsequent to this a number of supplementary proposals and traffic impact statements have been prepared to support the refinement of site staging, masterplan and land use modifications, and changes to various individual sites that make up the Gregory Hills Corporate Park (GHCP). These proposals appear to have adopted a consistent approach to that presented under DA 277/2012.

Refer to Appendix A for further detail of GHCP and its association with land use, GFA and traffic generation.

Purpose of the Traffic and Parking Impact Statement

This traffic and parking impact statement has been prepared to support a Development Application for a proposed Health Hub on Lot 844 and acts as supplementary information to that presented in the Camden Council approved DA number 277/2012 for proposed development of GHCP.

The purpose of this submission is to assess the traffic and parking impacts and appraise the arrangements for the above proposed development. This traffic and parking impact statement was prepared to act as a supporting documentation for the Development Application (DA) for Lot 844, which will be submitted to Camden Council for approval.

Report Structure

This report is structured to provide the following:

- A brief introduction and background to the development of Gregory Hills Corporate Park (GHCP);
- A review the existing traffic, parking and public transport conditions within the vicinity of the development site;
- A brief description of the proposed development;
- A review of parking provision with respect to the Council requirements and parking needs for multiple land uses within the proposed Health Hub precinct and includes parking allocation for accessible users, motorcycles and bicycles;
- To estimate AM and PM weekday peak hour traffic demand and traffic distribution associated with the multiple land uses situated within the proposed Health Hub precinct, and provides an understanding of the likely traffic impacts (if any) on the surrounding road network;
- Review access arrangements and consider facility provision for deliveries; and
- A summary of the key findings from the assessment of the proposed development.

Site Context

Gregory Hills Corporate Park

Gregory Hills Corporate Park (GHCP) is a large subdivision that is bounded by Camden Valley Way to the west, South Creek to the north, Gregory Hills Drive to the south and Hermitage Way to the east. The development as a whole is anticipated to yield a Gross Floor Area (GFA) of between 107,500 – 119,000m^2 (Refer to Appendix A) and consists of mixed use commercial and retail developments. The proposed Health Hub represents approximately 4% of the total GFA identified in the current planning for the GHCP.

This rapidly expanding Corporate Park represents one of the first commercial developments in the South West Growth Centre (SWGC) Turner Road Precinct and supports the rapid expanding residential sub-divisions situated to the north east and south east of site and industrial type development to the south. The original concept plans (dated 28/11/11) for the precinct was prepared by De Angelis & Taylor Associates and proposed an employment area divided into three separated stages. As presented in the earlier sections of this statement, the staging of the employment area was refined as part of subsequent planning and now consists of six stages all of these align with the original concept layout.

The current proposed layout and staging plan for the entire GHCP is presented in Figure 1.

Figure 1: Gregory Hills Corporate Park (GHCP) Site Layout Plan and Staging

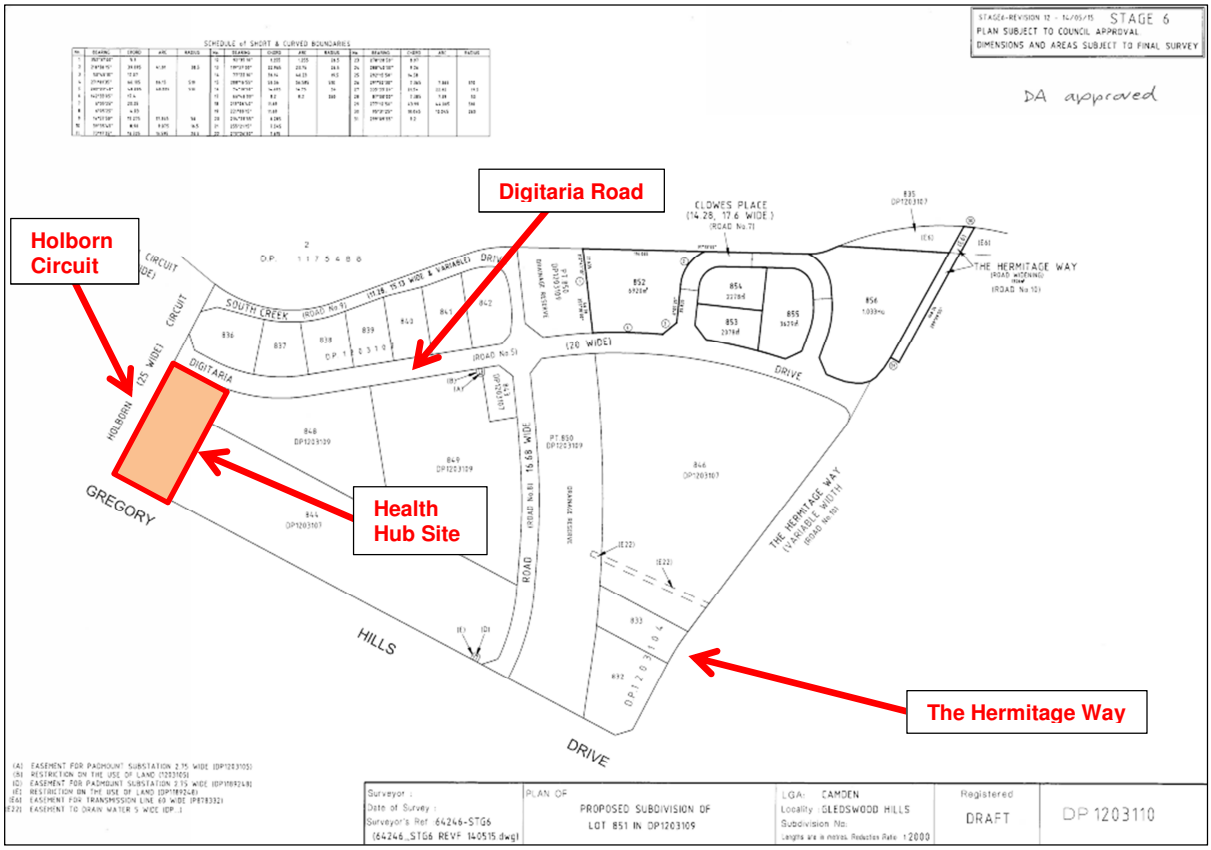
Source: De Angelis + Taylor Associates Site Plan SK01 - 25/11/11

Subject Site

The subject site currently forms part of Lot 844, Gregory Hills, which is currently a vacant Greenfield lot, prepared for future development. The subject site only covers the western sections of Lot 844 and is surrounded by developed lots that form part of Stage 1 to the west and vacant lots that form part of stages 3 and 5 to the north and east. The proposed development of Lot 844 is expected to comprise of two anchor tenants an allied Health Hub and bulky goods uses. The proposed Health Hub will include specialist medical practices and other ancillary uses, such as a radiology and chemist, along with a café, restaurant, and other supporting small retail outlets. The bulky goods elements are likely to attract homeware type uses, which are viewed to compliment the Health Hub theme.

Lot 844 is bound by Gregory Hills Drive to the south, newly developed Holborn Circuit and Digitaria Road to the west and north, and Stage 5 to the east. The subject site in context of the latest lot layout for Gregory Hills Corporate Park is shown in Figure 2.

Figure 2: Gregory Hills Corporate Park Lot Layout and Proposed Site



Note – Figure 2 shows subject site location with respect to Gregory Hills Corporate Park subdivision layout. Actual size and number of lots in the subdivision may vary.

Adjacent Road Network

The major roads in proximity to the site are:

- Camden Valley Way acts as an arterial road oriented in a north-south direction to the west of the GHCP;
- Gregory Hills Drive is a major collector road, which is situated on the southern boundary of the site and travels in an east-west direction.
- The Heritage Way is a collector road, which is situated on the eastern boundary of the GHCP.

Camden Valley Way is a major arterial road controlled and managed by RMS, which is currently being upgraded by NSW Government to become a continuous four lane dual carriageway between Narellan Road and the M5 interchange at Cross Roads. This route acts as major regional transport corridor for the South West Growth Centre and other surrounding urban precincts. This corridor is forecast to accommodate between 3,000 and 4,000 vehicles during commuter peak hours and ADT of between 40,000 and 50,000 vehicles per day by 2026.

Gregory Hills Drive is a newly constructed road that operates as a four lane dual carriageway in proximity of Gregory Hills. In the future this road will connect Oran Park Town, Gregory Hills, and Catherine Fields to the Campbelltown City Centre and the F5 freeway. This eastern connection is understood to be committed and programmed to be delivered in 2015/16. The Gregory Hills Drive corridor is progressively being extended and will also include additional connections to the north and south as surrounding residential and industrial precincts are developed. This corridor is forecast to accommodate over 2,000 vehicles during commuter peak hours and ADT of over 20,000 vehicles per day once the corridor is fully developed.

Hermitage Way is a road that is currently constructed from Gregory Hills Drive to the Digitaria Road intersection as shown in Figure 3. In the short to medium term, the road will only provide local road access to the Gregory Hills precinct from Gregory Hills Drive. In the future, this will be extended to connect to surrounding residential and industrial precincts to the north and Camden Valley Way.

Figure 3: Gregory Hills Corporate Park - Site Masterplan

Parking

The site is situated on a larger Greenfield precinct, which is planned to be progressively implemented over time. Each site is expected to provide adequate onsite parking provision and public transport services, which will be expanded to respond to the needs of the precinct.

The proposed development of the Health Hub will adopt Council DCP 2011 parking requirements and at the same time account for parking trends associated with ancillary uses and land use clustering.

Public Transport

TfNSW have prepared bus route service plans for the Gregory Hills as part of a precinct delivery plan for the South West Growth Centre. The plans along with the more recent Sydney's Bus Future modal plan indicates that Gregory Hills Drive can play an important role in connecting newly established residential precinct with planned centres, employment areas and transport and activity hubs. A review of the plan indicates that there is an opportunity for a regional bus service route to operate through the area to help connect Campbelltown, MacArthur, Oran Park and Leppington.

Development Proposal

Land Use and Hours of Operation

The proposed development within the Health Hub is anticipated to include range of land-uses, including bulky goods, retail, restaurant/café and health service facilities. The traffic levels for each individual land use will be based on weekday opening hours. The proposed land uses and hours of operation are presented in Table 1.

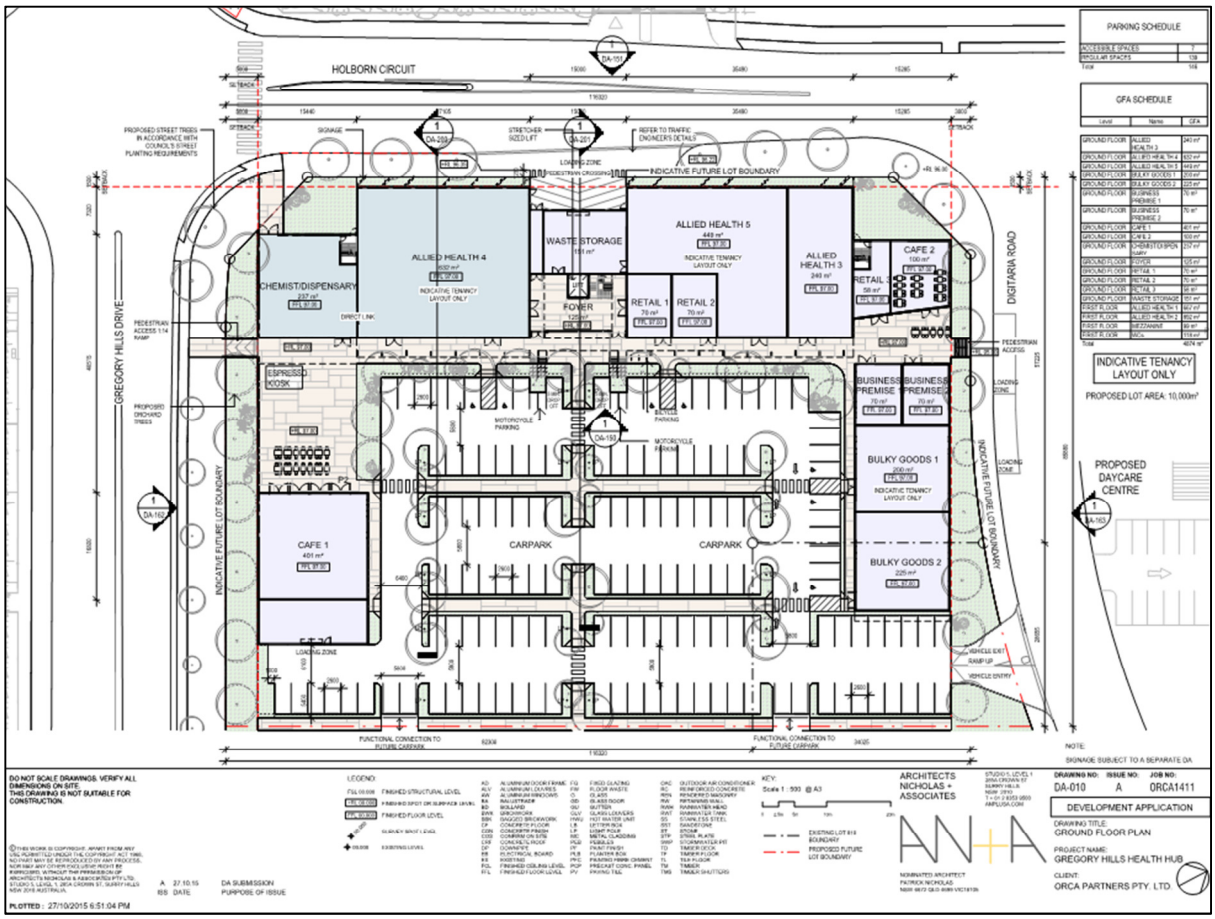
Table 1: Proposed Health Hub Land Use Areas

Level	Land Use / Name	Land Use Assumptions	GFA (SQM)	Weekday Opening Hours
Ground Floor	Allied Health 3		240	7am to 7pm
Ground Floor	Allied Health 4		632	7am to 7pm
Ground Floor	Allied Health 5	Possible Radiology	449	7am to 7pm
Ground Floor	Bulky Goods 1		200	9am to 7pm
Ground Floor	Bulky Goods 2		225	9am to 7pm
Ground Floor	Business Premise 1	Possible Hairdresser	70	7am to 7pm
Ground Floor	Business Premise 2	Possible Optometrist	70	7am to 7pm
Ground Floor	Café 1	Possible Restaurant	401	7am to 10pm
Ground Floor	Café 2		100	7am to 4pm
Ground Floor	Chemist/Dispensary		237	7am to 7pm
Ground Floor	Foyer		125	-
Ground Floor	Retail 1		70	7am to 7pm
Ground Floor	Retail 2		70	7am to 7pm
Ground Floor	Retail 3		58	7am to 7pm
Ground Floor	Waste Storage		151	-
First Floor	Allied Health 1		667	7am to 7pm
First Floor	Allied Health 2		892	7am to 7pm
First Floor	Mezzanine		99	-
First Floor	WCs		118	-
TOTAL	-	-	**4874**	-

The plans for the proposed Health Hub indicate that a land area of approximately 10,000m^2 will accommodate a GFA of 4,381m^2 (which excludes areas highlighted in grey), which will contain both Health Hub and bulky good anchor tenants and associated ancillary uses.

Figure 4 provides an understanding of spatial layout of proposed functional areas, uses and access points.

Figure 4: Proposed Health Hub Area Site Layout – Ground Floor Plan



Proposed access to the site includes:

- A two way main vehicle access point situated in the northern- eastern corner of the site, which connects the car park to Digitaria Drive;
- Two separate two way vehicle access points connecting the Health Hub precinct to adjacent sections of Lot 844 to the east; and
- Pedestrian links connecting the proposed facility with the external road network to Gregory Hills Drive and Holborn Circuit to the south-east, Digitaria Drive and Holborn Circuit to the north-west and the adjacent site to the east.

Parking Assessment

Parking Provision

Camden Council DCP 2011 (DCP) was reviewed as part of the assessment and indicted the following relevant parking rates:

- Retail premises exceeding 200 m^2 GFA should provide a rate of 1 car space per 22 m^2.
- Bulky Goods should provide a parking rate of 1 car space per 50 m^2.
- Restaurants and cafes should provide a rate of 1 car space per 30 m^2 when located within a business or industrial zone.
- Medical centre should provide a parking rate of 1 car space per 25 m^2 (double the parking requirement specified for bulky goods.

The proposed Health Hub has a GFA of 4,381m^2 and based on the proposed land use areas requires a minimum of 159 car parking spaces. This parking rate is based on land uses being appraised in isolation and does not consider the effects of clustering and ancillary uses. The appraisal also adopted the following:

- A chemist to require a similar parking rate to a retail outlet, if not situated within an activity hub.
- Radiology to require a similar parking rate to a medical centre, if not situated within an activity hub.

Refer to Table 2 for estimated parking rates using Council's DCP, which includes no parking discount associated land use activity relationships at the Health Hub.

Table 2: Parking Rate under Council Requirements – Isolated Land Use Appraisal

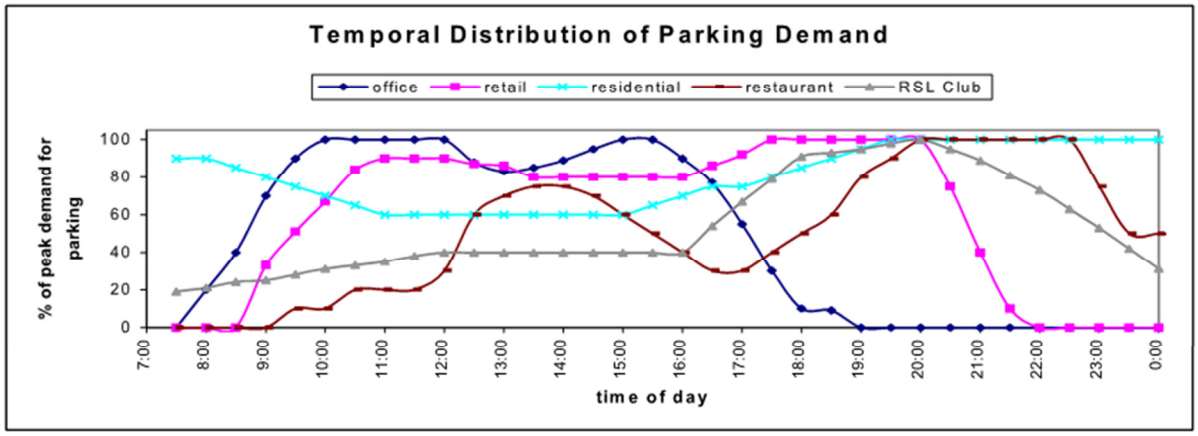
Land use	Plan Building ID	GFA (SQM)	Council Parking Rate (m^2/Parking Space)	Estimated DCP Parking Requirement (# of parking spaces)
Retail				
Retail Premises / Shop / Kiosk	Retail 1-5	338.0	22.0	15.4
Bulky Goods Premises	Bulky Goods 1 and 2	425.0	50.0	8.5
Chemist	Chemist	237.0	22.0	10.8
Restaurant	Café 1	401.0	30.0	13.4
Café	Café 2	100.0	30.0	3.3
Health Care				
Health Service Facility / Medical Centre	Allied Health 1, 2, 3 & 4	2431.0	25.0	97.2
Radiology	Radiology	449.0	25.0	18.0
Total		**4381.0**	**-**	**159**

Source: Camden Council Development Control Plan 2011

The concept plan developed for the proposed Health Hub development currently provides a total of 142 car parking spaces, which is a deficiency of 17 to the minimum parking requirements stipulated in the DCP when each use is considered in isolation. The justification for a reduction in parking is due to the nature of the Health Hub, which shares facilities, offers complimentary uses and generates peak traffic over different time periods to the other anchor tenant. The ability of the site to contain travel through accommodating multi-purpose trips within the site is supported by its proximity to its surrounding catchment, and the future quality of public transport services along Gregory Hills Drive. All of these attributes will help manage excessive on-site parking demand and allows provision to cater for peak demand needs collectively and not on individual land use basis. This approach considers all land uses situated in the Health Hub, their relationships and the potential to discount factor to the minimum requirement based on its ancillary use and differing peak parking demand requirements to the anchor tenant.

These trends are highlighted in figure 5, which was extracted from Guide to Traffic Management Part 11: Parking (Austroads 2008).

Figure 5: Hourly Distribution of Parking Demands



The above chart indicates the following:

- The majority of staff typically arrive at the workplace between 8am and 10am as highlighted under the office parking profile.
- Restaurant peak parking demand occurs in the afternoon and evening.
- Retail parking demand or customer arrival periods occur after the AM commuter peak and remain steady throughout the day.

The assumptions adopted to both understand and estimate parking provision within the proposed Health Hub are as follows:

- Anchor facilities such as Allied Health specialised medical practices and bulky goods land uses are assumed to require 100% of Council's specified parking rate.
- The specialist medical practices are by appointment only and patients will be designated a time slot, which will help to manage parking demand.

- Ancillary land uses A, such as Chemist and Radiology are assumed to only require 50% of the parking requirement and is related to 50% of demand assumed to be associated to the customer base of the anchor tenants.
- Ancillary land uses B, such as retail and cafe are assumed to only require 66% of the parking requirement and is related to 33% of demand assumed to be associated to the customer base of the anchor tenants.
- Restaurant peak demand is generated outside of the anchor tenant peak periods (evenings and weekends) and as a result the analysis assumed that only 66% of the total parking requirement would be required during weekday peak periods.
- Bulky goods peak demand is typically generated outside of the anchor tenant peak periods (Thursday evening and weekends), however to provide further flexibility it was assumed on this occasion that 100% of the rate should be provided to account for potential weekend operations of some of the medical practices.

The appraisal of parking adopted the above assumptions, which is highlighted in Table 3.

Table 3: DCP Parking Rate with Activity Hub Clustering Factor – Ancillary Land Use Appraisal

Land use	Plan Building ID	GFA (SQM)	Factored Parking Rate (SQM/Parking Space)	Parking Requirement With Cluster Factor (# of parking spaces)
Retail				
Retail Premises / Shop / Kiosk	Retail 1-5	338.0	33.0*	10.2
Bulky Goods Premises	Bulky Goods 1 and 2	425.0	50.0	8.5
Chemist	Chemist	237.0	44.0*	5.4
Restaurant	Café 1	401.0	45.0*	8.9
Café	Café 2	100.0	45.0*	2.2
Health Care				
Health Service Facility / Medical Centre	Allied Health 1, 2, 3 & 4	2431.0	25.0	97.2
Radiology	Radiology	449.0	50.0*	9.0
Total		4381.0	-	142

Source: Camden Council Development Control Plan 2011

*Note - * represents a discount parking rate linked to an ancillary use, which is defined in the assumptions listed on page 11.*

The data presented in Table 2 and 3 indicates that the parking requirement of the Health Hub can be accommodated under the proposed design with the adoption of parking discount rates for ancillary uses. The parking rates presented in Table 3 adopt 100% rates for anchor tenants of the Health Hub, which includes 98 spaces for specialist medical practices and 9 spaces for bulky good premises.

The specialist medical practices assumes that there is provision for 36 separate practices/rooms, which includes a 2.7 parking space allocation for both patients and staff allocated for each of the 36 practices/rooms. Ancillary discounting was also applied to the chemist, radiology, retail and food outlets, which would naturally generate their customer base from the associated anchor tenant uses. On this basis, the design provision is identified to provide 8 additional parking spaces to that required for the Health Hub, which is presented in Table 3.

Car parking for people with disabilities

Building Code of Australia (BCA) and AS 2890.6 (2009) provides car parking rates for people with disabilities. NCC2012 BCA – Volume One Table D3.5 stipulates rate of 1 accessible car parking space for every 50 car parking spaces or part thereof and AS 2890.6 indicates a more conservative rate based on the number of parking spaces to be provided. In light of the above, the proposed Health Hub would require 3 and 6 car parking spaces for people with disabilities in accordance with the BCA and AS2890.6, respectively.

The proposed Health Hub development provides seven car parking spaces for people with disabilities, which is in excess of both requirements.

The design of all accessible car parking spaces was reviewed and is deemed to be in accordance with the AS 2890.6.

Bicycle and motorcycle parking spaces

The DCP requires 1 bicycle and 1 motor cycle space per 25 car parking spaces in excess of the first 25 car parking spaces for retail and bulky goods type uses. On this basis, the proposed Health Hub site was not identified to need to provide either motor cycle or bicycle spaces if the DCP parking rates are adopted. The proposed Health Hub site is proposing to provide 5 bicycle spaces and 4 motorcycle spaces, which exceeds the DCP and aligns with NSW Government policy goals for supporting and encouraging cycling as a form of travel. The adoption of this provision provides benefit to the community through offering its customers travel choices, which will assist tackling congestion along both the local and regional road network.

Traffic Impact

Traffic Generation

The total trip generation for the Gregory Hills Corporate Park (GHCP) was calculated in the previous Traffic Impact and Parking Assessment (TIPA) to range between 708 - 1507 vehicle trips for total inbound and outbound traffic in the AM peak hour and between 1443 - 1982 vehicle trips in the PM peak period.

The anticipated operating period for customer arrivals and departures for the majority of land use in the proposed Health Hub facility is estimated to be between 7am and 7pm on a weekday. It should be noted that the peak activity for the proposed Health Hub site is likely to differ from the commuter peak hour on the surrounding road network, which is typically between 7.30am – 8.30am during the AM peak hour and 5.30pm and 6.30pm during the PM peak hour on a typical weekday.

Table 4 summarises the trip generation for proposed individual land uses situated within the Health Hub as specified in RTA Guide to Traffic Generating Development (2002) and the RMS Technical Direction (2013). This is based on vehicle trips estimated to be generated during the weekday AM and PM peak hours only.

Table 4: RMS Peak Hour Trip Generation Rates (Isolated Land Use Appraisal)

Land Use	Plan Building ID	GFA (SQM)	AM Peak Trip Generation Rate (Veh/h/100SQM)	AM Peak Traffic Generation (Veh/h)	PM Peak Trip Generation Rate (Veh/h/100SQM)	PM Peak Traffic Generation (Veh/h)
Retail						
Retail Premises / Shop / Kiosk	Retail 1-3	198	4.7	9.3	6.4	12.7
Business Premises	Retail 4 and 5	140	4.7*	6.6	6.4*	9.0
Bulky Goods Premises	Bulky Goods 1 and 2	425.0	0.6**	2.7	2.5	10.6
Chemist	Chemist	237.0	4.7	11.1	6.4	15.2
Restaurant	Café 1	401.0	5.0	20.1	5.0	20.1
Café	Café 2	100.0	5.0***	5.0	N/A	N/A
Health Care						
Health Service Facility / Medical Centre	Allied Health 1, 2, 3 & 4	2431.0	10.4****	252.8	8.8****	213.9
Radiology	Radiology	449.0	10.4****	46.7	8.8****	39.5
TOTAL		4381.0	-	354.2	-	321.0

Source: RTA Guide to Traffic Generation Developments 2002 and RMS Technical Direction 2013/04a

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** Business premises assumed to have a similar trip generation rate to retail.*
*** Note that the trip generation rate in the AM peak is assumed to represent 25% of the PM peak.*
**** Café assumed to only generate trips in the AM peak hour ONLY.*
***** Typically applied to local centre medical practices with GP, general walk up appointments and late working hours, which is not typical of the demand profile associated with specialist medical practices.*

Table 4 highlights that peak activity that could potentially be generated by the site if each individual use was considered in isolation and the related demand and operating characteristics of certain land uses was not applied. The adoption of this trip generation rate indicates that the site would incur 355 vehicle trips in the AM peak hour and 321 vehicle trips in the PM peak hour. The following should also be noted:

- Typically the peak level of traffic activity would not occur during the AM and PM commuter peak periods.
- It is unlikely that each land use would generate peak traffic during the same time periods and the peak activity for both a restaurant and bulky good uses would fall outside of the peak generated period for specialist medical practices.
- The traffic generation rate nominated for the specialist medical practices is excessive and assumes that each of the 36 practices/ rooms will generate over seven vehicle trips each in the peak hour.

Investigation of the operating characteristics of these types of facilities indicates that this is unlikely to occur with customers instead linked to allocated slots, which are typically every 30 minutes. Based on this, the traffic generation of each consulting room is likely to result in a maximum of 3 vehicle trips generated by customers during peak operating periods, which would equate to 108 vehicle trips in the peak hour based on a 7am to 7pm operating period.

The approach adopted for parking and traffic generation are similar and account for cluster of uses in the proposed Health Hub development, which accounts for reduction in travel linked to the proposed facilities complimentary services. On this basis, the effect from clustering of uses and operational relationships was accounted for in the estimation of trips generated by the proposed development.

Table 5 provides an understanding of the traffic generated by the proposed development during the AM and PM commuter peak hours and the associated assumptions.

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Table 5: Adopted Discounted Peak Hour Trip Generation Rates (Activity Hub Appraisal)

Land Use	Plan Building ID	GFA (SQM)	AM Peak Trip Generation Rate with Cluster Factor (Veh/h/100SQM)	AM Peak Traffic Generation with Cluster Factor (Veh/h)	PM Peak Trip Generation Rate with Cluster Factor (Veh/h/100SQM)	PM Peak Traffic Generation with Cluster Factor (Veh/h)
Retail						
Retail Premises / Shop / Kiosk	Retail 1-3	198	3.1**	6.2	4.3**	8.5
Business Premises	Retail 4 and 5	140	3.1**	4.4	4.3**	6.0
Bulky Goods Premises	Bulky Goods 1 and 2	425.0	0.6	2.7	2.5	10.6
Chemist	Chemist	237.0	2.3*	5.6	3.2*	7.6
Restaurant	Café 1	401.0	3.3**	13.4	3.3**	13.4
Café	Café 2	100.0	3.3**	3.3	N/A	N/A
Health Care						
Health Service Facility / Medical Centre	Allied Health 1, 2, 3 & 4	2431.0	4.4***	108.0	4.4***	108.0
Radiology	Radiology	449.0	5.2*	23.3	4.4*	19.8
TOTAL		**4381.0**	**-**	**166.9**	**-**	**173.9**

Source: RTA Guide to Traffic Generation Developments 2002 and RMS Technical Direction 2013/04a

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*Note - * Trip generation rate reduced by 50% for Chemist and Radiology due to a large proportion of the customer base being ancillary to other health hub uses & as a result not generating additional vehicle trips.*
*** Trip generation rate decreased by a third for Retail, Business Premises, Restaurant and Café due to some of the customer base being ancillary to other health hub uses & as a result not generating additional trips.*
**** Represents the operational characteristics of the facility and is associated with 36 consulting rooms and appointment based system – refer to page 17 for further details.*

Table 5 indicates that the estimated traffic generation for the proposed development in the weekday commuter AM and PM peak hours would be 167 and 174 two way vehicle trips, respectively. This equates to be between 11.1-23.6% of the AM peak hour and between 8.8-12.1% of the PM peak traffic generated by the entire GHCP site.

Site Access

Access to the proposed Health Hub site will be via a main access point situated on Digitaria Road and Gregory Hills Drive. Access from the west will be provided by the signalised intersection of Gregory Hills Drive and Holborn Circuit and the priority controlled intersection of Holborn Circuit with Digitaria Road. Access to the south, east and north can also be obtained by travelling east along Digitaria Road to The Hermitage Way and then accessing either Gregory Hills Drive or Camden Valley Way via the proposed The Hermitage Way roundabout and signalised intersections.

An alternative access arrangement is also available and can be achieved by travelling via the left in and left out slip lane arrangement on Gregory Hills Drive in the eastern section of Lot 844 (Refer to Figure 2). This access point will help to integrate the site with surrounding development on Lot 844 and ensure that direct access between Gregory Hills Drive and the proposed Health Hub can be achieved in the future.

Refer to Figure 6 and 7 for an understanding of proposed access routes for private vehicles, delivery vehicles and bus services.

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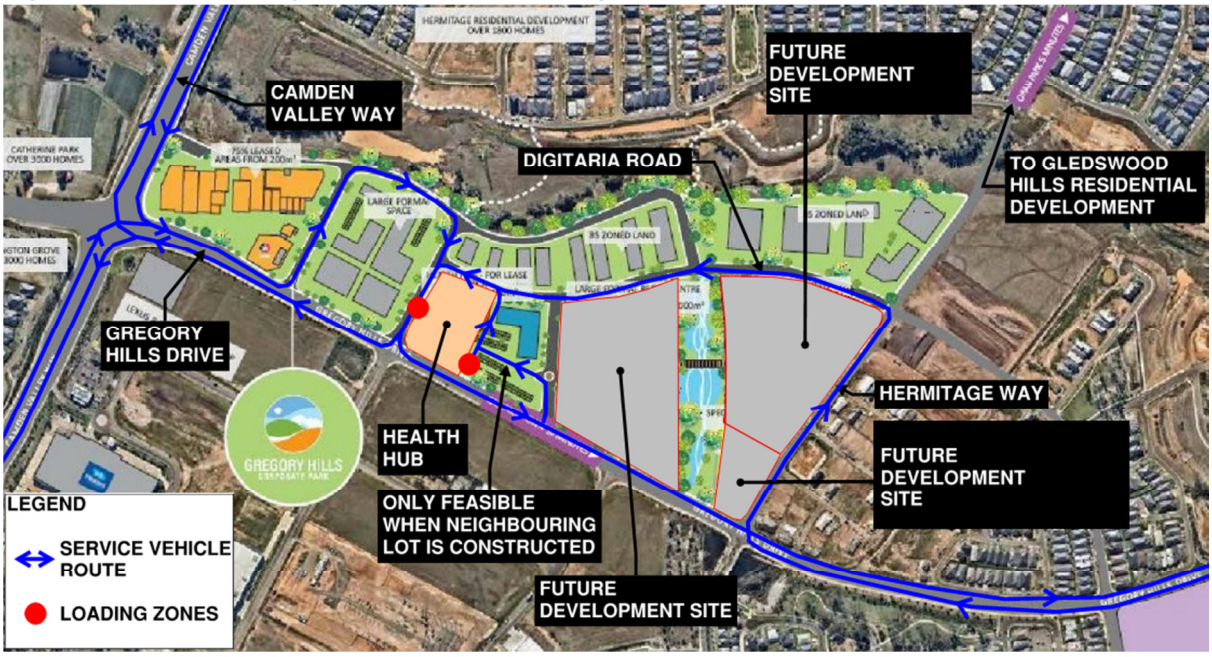
Figure 6: Private Vehicle and Bus Services – Site Access Plan

Figure 7: Service Delivery Vehicles and Site Loading Zone – Site Access Plan



Site Trip Distribution

The anticipated trip assignment for the traffic generated by the development is expected to align with all previous appraisals. Figure 8 and 9 shows the traffic assignment for the Proposed Health Hub and assumes that the Gregory Hills Drive connection to Campbelltown is constructed and open.

Figure 8: Traffic Distribution – Inbound Traffic

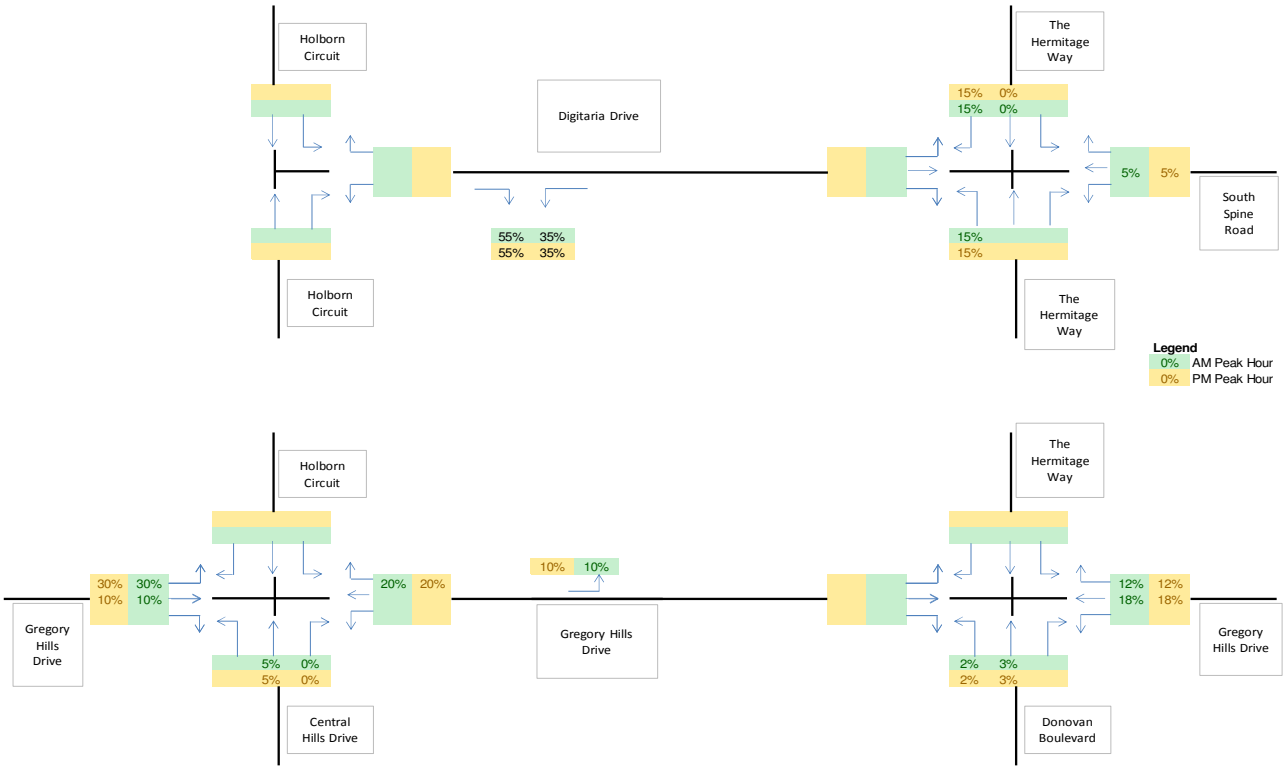
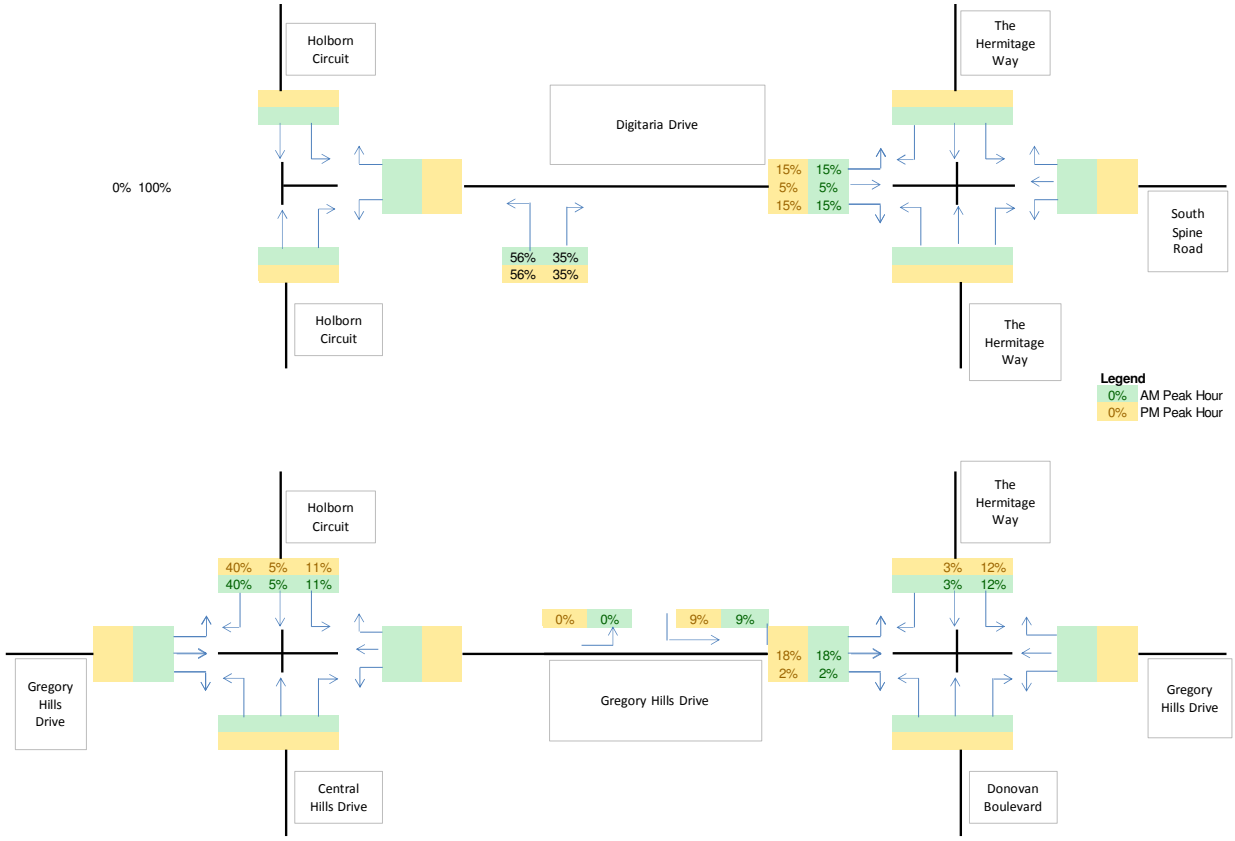


Figure 9: Traffic Distribution – Outbound Traffic



The expected inbound and outbound traffic movement associated with proposed land use is presented in Table 6.

Table 6: Assumed Health Hub Land Use Inbound and Outbound Traffic Flows

Land Use	AM Peak		PM Peak	
	Inbound	Outbound	Inbound	Outbound
Retail				
Retail Premises / Shop / Kiosk	50%	50%	50%	50%
Business Premises	70%	30%	30%	70%
Bulky Goods Premises	100%	0%	50%	50%
Chemist	50%	50%	50%	50%
Restaurant	50%	50%	70%	30%
Café	50%	50%	N/A	N/A
Health Care				
Health Service Facility / Medical Centre	50%	50%	50%	50%
Radiology	50%	50%	50%	50%

Based on the adoption of the traffic distribution assumptions shown in Figures 8 and 9 and land use traffic flows assumptions shown in Table 6 it is expected that the proposed Health Hub would generate the following:

- 64 inbound and 39 outbound additional vehicle trips in the AM peak and 57 inbound and 49 outbound additional vehicle trips in the PM peak that will pass through the signalised intersection of Gregory Hills Drive with Holborn Circuit.
- 35 inbound and 25 outbound additional vehicle trips in the AM peak and 31 inbound and 31 outbound additional vehicle trips in the PM peak that will pass through the signalised intersection of Gregory Hills Drive with The Hermitage Way.
- 35 inbound and 25 outbound additional vehicle trips in the AM peak and 31 inbound and 31 outbound additional vehicle trips in the PM peak that will pass through the roundabout of The Hermitage Way with Digitaria Drive.

Summary

Based on the Traffic Assignment shown in Figures 8 and 9 it is concluded that additional traffic generated by the proposed Health Hub during AM and PM commuter peak hours represents less than 5% of forecast traffic along Gregory Hills Drive. This additional traffic is noted to increase the levels of traffic presented in previous analysis, which similar to previous appraisal is balanced between two signalised intersections on Gregory Hills Drive. The estimated increase in traffic is associated with a change in land use characteristics, which attracts higher trips levels than the previous assessment and is planned to be managed through the creation of a Health Hub with complimentary uses that will help to contain vehicle trip demand. Based on the estimated increase in traffic generated by the proposed development and the forms of control at connecting intersections along Gregory Hills Drive it is not anticipated that operating performance of the surrounding road network will be impacted.

Loading Areas and Access Points

Loading Zones

Council's DCP indicates that under the proposed uses there is a requirement to provide a minimum of 4 loading zone spaces. The loading zones are proposed to be provided in the following areas:

- An indented on-street facility situated on the eastern side of Holborn Circuit, which has the spatial provision to accommodate 1 service vehicle.
- Kerbside loading zones situated on southern side of Digitaria Road adjacent to the development, which has the spatial provision to accommodate 2 service vehicles.
- An internal parking area loading zone situated at the rear of the proposed restaurant, which has the spatial provision to cater for 1 service vehicle.

All loading areas have been reviewed and the designated area is considered to be appropriate based on the following:

- Deliveries will occur on site when activity is low.
- Service deliveries are anticipated to be low with only the chemist, restaurant and bulky goods expected to generate more than one or two deliveries a week by truck.
- The facility on Holborn Circuit and Digitaria Road will be time restricted through kerbside parking restrictions.
- The parking area at the rear of the restaurant will be reserved for staff which will help to facilitate deliveries and be separated from pedestrian movements.
- Clear separation of movements and pavement treatment will be considered as part of the detailed design process and will adopt typical standards presented in the DCP and applied across the Sydney urban road network.
- Refer to Appendix B for the turning path analysis associated with the proposed loading zones.

General Access Design Standards

Site access and the internal road layouts surrounding the Health Hub are designed in accordance with Austroads guidelines and the relevant Australian Standards. This will ensure that adequate provision is made for the safe and efficient movement of all traffic and vehicle types associated with the proposed development.

In accordance with appropriate road network planning principles, access points to the proposed Health Hub will be configured to align with surrounding local road system. The proposed access points offer efficient access to the strategic road network and help to manage conflict and support the progressive development of the precinct.

Refer to Appendix B for the turning path analysis associated with the movement of the worst case vehicle type at the proposed access point to the Health Hub.

Internal Vehicular Arrangements

All vehicles will enter and exit the parking areas in a forward direction. The design arrangement for access driveways, loading bays and parking layouts are shown in Figure 6 and are supported by the turning path analysis shown in Appendix B. The appraisal indicates that the parking area complies with AS2890 and can accommodate and facilitate service vehicle access with minimum impact to other uses.

Access to the Site by Walking

The pedestrian access to the Health Hub will be managed by provision of footpaths. All internal footpaths will be designed to connect with the surrounding road network and all local roads frontages will be designed in accordance with Part 3.0 of the Turner Road Development Control Plan. Access to the site from the surrounding precincts will also be facilitated by new signalised intersections and pedestrian crossings.

Access to the site by Public Transport

Two bus services operate on Gregory Hills Drive in close proximity to the proposed Health Hub. Bus route 850 operates between Minto Station and Narellan on a frequency of 30min during weekday peak periods and 60min during weekday off-peak periods and weekends. Route 896 operates between Oran Park & Gregory Hills to Campbelltown, with 4 trips during the morning weekday peak period and only 1 trip in the morning during the weekend.

These services are expected to be ramped up as the precinct is further developed and Gregory Hills Drive is eventually connected to Campbelltown and Macarthur railway stations.

These bus services will not be impacted by the proposal and the positioning of bus stops nearby will enable the site to be serviced by public transport.

Conclusions and Recommendations

- The proposed Health Hub site will be situated at the western end of Lot 844 and forms part of the Gregory Hills Corporate Park sub division.
- The proposed Health Hub site covers a total land area of 10,000m^2 with a Gross Floor Area of 4,381m^2.
- The site is appraised on the basis of the Health Hub accommodating specialist medical practices that are operated during normal working hours and by appointment only.
- The minimum parking requirements under Camden Council Development Control Plan 2011 (DCP) for appraisal of land uses as unrelated individual sites is 159 parking spaces.
- This appraisal considers the parking requirements and operating needs of all land use proposed to be situated in the Health Hub and accounts for related operational needs and applies a discount for ancillary land uses to the medical facility anchor tenant.
- The peak parking requirement is driven by the specialist medical facility, which is assumed to be the anchor tenant and the parking requirements for this land use was not discounted as part of this appraisal.
- The estimated parking requirement is 134 parking spaces when applying Camden Council Development Control Plan 2011 and a discount factor for ancillary uses and uses with peaks outside of the operating period of the specialist medical practices.
- The proposed concept design supplies 142 car parking spaces in total, which provides 8 additional spaces to that required by the proposed Health Hub.
- The proposed parking supply includes seven disabled parking spaces, five bicycle parking spaces and four motorcycle parking spaces, which also exceed the minimum requirements stated in the DCP.
- The proposed car park layout generally complies with the relevant requirements outlined within AS2890.1:2004, AS2890.2:2004 and AS2890.6:2009.
- The proposed loading zones will be designed to accommodate an 8.8m service truck and allow for a truck to enter and exit the site and associated kerbside loading zones in a forward direction as indicated in Appendix B.
- The design of the indented loading zone on Holburn Circuit is subject to detail design and will act as a pedestrian plaza outside of loading zone time periods.
- The design of the area will ensure that a separated path of travel for pedestrians can be obtained when the loading zone is occupied and will be designed to comply with the Camden Council DCP and AS2890.
- It is anticipated that the proposed development will generate 167 and 174 vehicle trips during typical weekday AM and PM peak hours based on a 7am to 7pm operating hours for the majority of land uses, which is a worst case scenario and it is noted that the number of uses opening before 9am and after 5pm are likely to be much lower.
- The estimated increase in traffic is associated with a change in land use characteristics, which attracts higher trips levels than previous assessments and is planned to be managed through the creation of a Health Hub with complimentary uses that will help to contain vehicle trip demand.

- The anticipated traffic generated by the proposed Health Hub during the weekday commuter peaks is less than 5% of the estimated traffic levels forecast along Gregory Hills Drive and as a result is unlikely to impact on network operations along the surrounding road network.

Based on the information contained within this Traffic and Parking Impact Statement it is concluded that the proposed development of Lot 844 at Gregory Hills as a Health Hub will not adversely affect the surrounding road network, parking, access or safety.

Should you require any further information, please do not hesitate to contact the undersigned.

Mott MacDonald
GORDON HUGHES
Practice Leader NSW – Transport Planning

Appendix A

Table A1: GFA Land Use and Trip Generation Comparison Table

Report Title	Date of Issue	GHCP Total Site GFA (m2)	Land Use and Change	GHCP Total Site Traffic Generation		GHCP Total Site Comparison		
						% Health Hub GFA Land Area of total GHCP	% Health Hub Traffic Generation of total GHCP	
				AM	PM		AM	PM
GHCP - TIPA	Apr-15	107,500		1427	1717	4.1%	10.8%	10.1%
GHCP - Supplementary Traffic Report	Jul-15	107,500	Increase in retail and reduction in warehousing	1507	1982	4.1%	10.2%	8.8%
GHCP - Stages 3 to 6 DA - TIA (Rev E)	Mar-15	119,000	Change to 119,000 GFA and significant change in proposed land uses with the removal of offices.	708	1443	3.7%	21.8%	12.1%

Note – Health Hub applies different land use characteristics to previous GHCP assessments and includes land uses that have higher trip generating rates and assumes that all consulting rooms will be 100% occupied. Realistically the trip generation rate associated with both the Health Hub's specialist medical services and ancillary uses will be lower as not all facilities will operate between 7am and 7pm, which will result in a reduction in peak period traffic.

Table A2: Proposed Health Hub GFA Land Use and Estimated Trip Generation

Health Hub Characteristics	Quantity	Units
Total Site GFA	4381	m^2
AM Peak Hour Traffic Generation	154	Two way vehicle movements
PM Peak Hour Traffic Generation	174	

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Appendix B

Figure B1: Service Vehicle Path for Loading Zone on Holborn Circuit

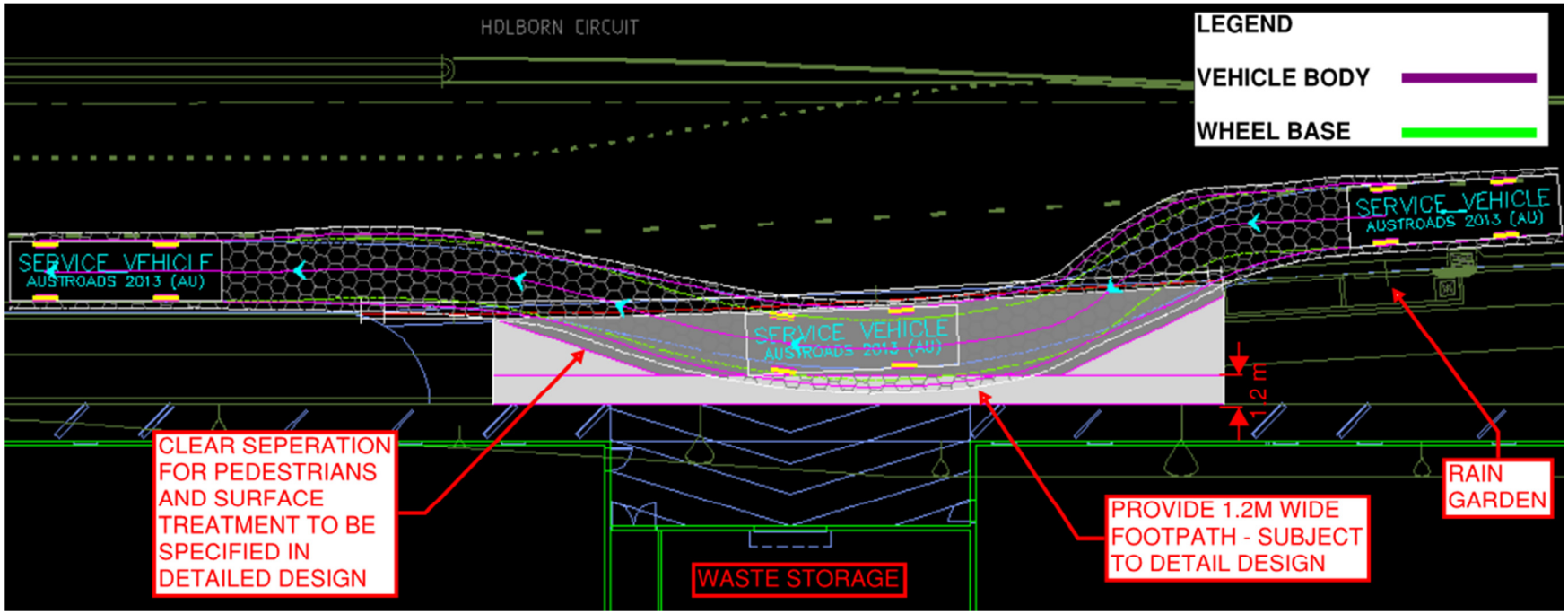

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Figure A2: Service Vehicle Path for Loading Zone at BOH and Carpark Aisles

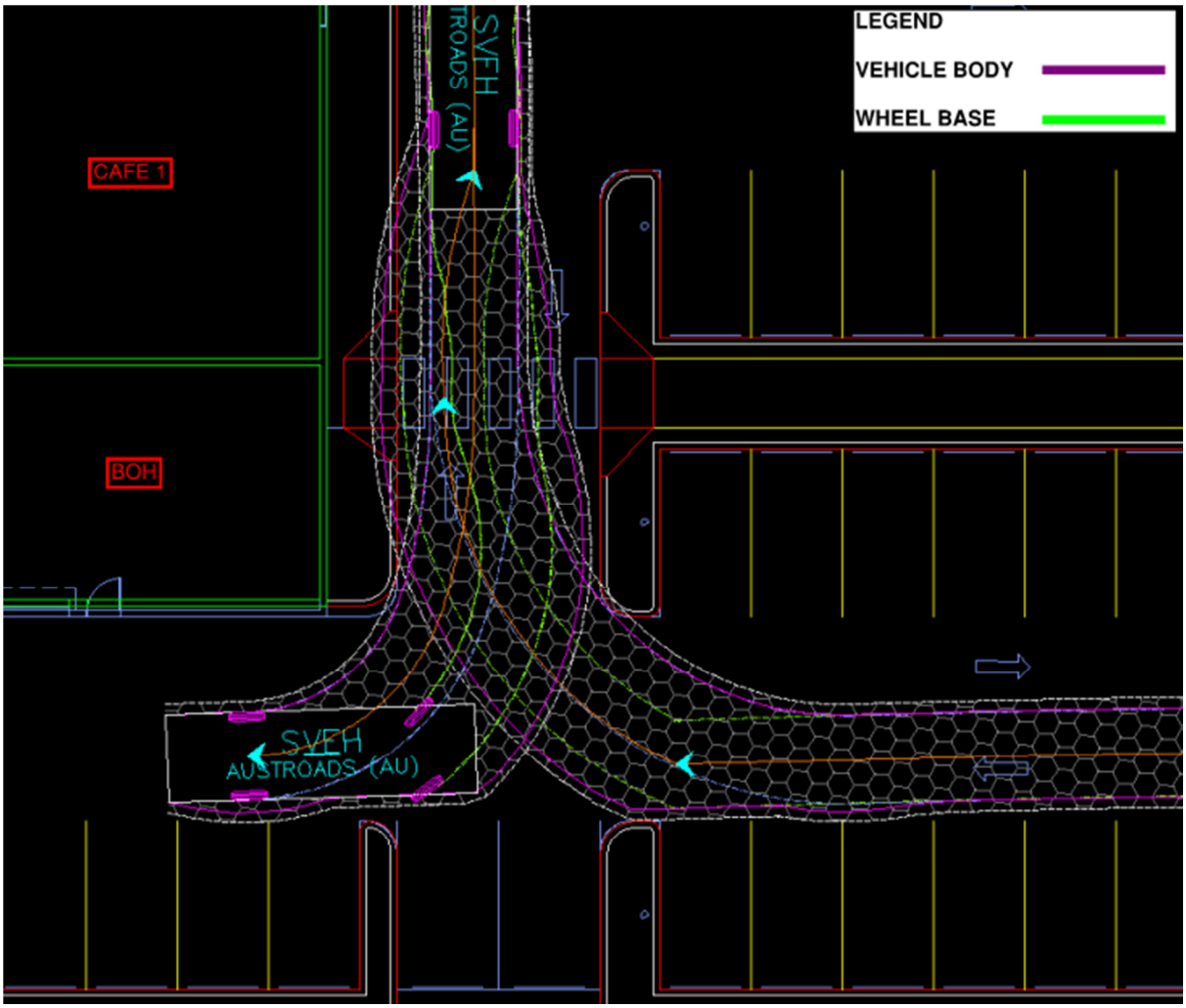

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Figure A3: Service Vehicle Path for Entry and Exit of Carpark