Infrashore

Royal North Shore Hospital Transport Report

Transport Report

11th November 2008

Report no: REP.IC.CW.0001.T01

Hyder Consulting

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1 Introduction

The proposed development is a new Acute Hospital, Community Health Facility, multi-level car park and associated works on land known as the 'Royal North Shore Hospital Redevelopment', (RNSH), and is to be administered as a Project Application under Part 3A of the Environmental Planning and Assessment Act 1979, (the Act). The Project is referred to as MP 08_0172.

In summary, the proposed scope of works includes:

- Acute Hospital building.
- Community Health Facility.
- Multi-level car park for 576 vehicles.
- Refurbishment/alterations to the Douglas Building.
- Pedestrian bridge linking Hospital and Douglas Building.
- New roads associated with the development of the Hospital, Community Health Facility and car park.
- At grade parking and the temporary use of land for parking purposes during construction.
- Public Domain works including footpaths, lighting and street tree planting.
- Demolition of Buildings 1, 2, 10 and part 19 (demolition of all other buildings requiring demolition has already been approved).
- Landscaping.
- Civil works including storm water and drainage infrastructure, new roads and utilities.

This Report has been prepared to address those matters related to Traffic / Transport and the assessment of MP 08_0172 (Reference 'Background' discussion below).

1.1 Background

1.1.1 Concept Plan

A Concept Plan Approval was issued by the Minister for Planning on 9 February 2007, (Major Project Application No. 06_0051), which gave concept approval for the following hospital related components:

- Subdivision of the site into a hospital precinct and other development precincts.
- A maximum floor area of 178,370m^2 across the development precincts (maximum FSR are prescribed for each precinct).
- Minimum and maximum FSR for the various components of the proposal including residential, employment generating uses, nurses accommodation etc.
- The conceptual road design.
- Urban design, landscaping, open space and heritage concepts.
- Maximum heights.
- Car parking provision to be in accordance with Willoughby Council DCP.
- Improved servicing of the site.
- Staged re-opening of Westbourne Street to through traffic.

Project Application Approval was given for demolition works and site preparatory works to ground level.

On 31 January 2008, the Concept Plan and Project Application Approval was modified in so far as amendments being to conditions related to agreements with public transport providers and with respect to the scheduling of a Traffic Management and Accessibility Plan (TMAP) (Conditions M9.1 and M10.1).

The Concept Plan and Project Application was further modified on 7 April 2008. The modification allowed for the erection temporary buildings and imposed relevant conditions.

1.2 Project Application

The Concept Approval for the whole RNSH site, along with the identification of development precincts within the site, was given on 19 August 2008. A request was then made to the Minister to declare the core medical precinct a “Critical Infrastructure Project”, under Clause 6 of SEPP Major Projects 2005 (the SEPP), to permit the lodgement of a Project Application, under Part 3A of the Act.

The application was accompanied by a Preliminary Environmental Assessment, (PEA), for development within the core medical precinct and a request for any relevant Director-General’s environmental assessment requirements (DGR’s).

On 30 September 2008, the DGR’s Requirements were issued by the NSW Department of Planning, under s.75F of the Act. The project has been declared a Major Project Application, (MP 08-0172).

2 Scope of Transport Report

2.1 Planning Issues

As described above, a hospital scheme, with associated residential and employment uses, gained Concept Plan approval (shown as "approved scheme" in **Appendix C**). The development application was accompanied by two traffic / transport documents

- Draft Concept / Initial TMAP Report – Dated 26th July 2006
- Transport assessment – Dated 26th July 2006

The approval included conditions – a number of which referred to a number of traffic / transport related issues.

In addition, as described earlier, a Preliminary Environmental Assessment was submitted to the Department of Planning in 2008 and as a result the Director General has issued a list of requirements, one of which refers directly to transportation and access issues and this states that in respect of Traffic, Transport and Accessibility

The Planning Conditions and Director Generals Requirements are set out in detail at **Appendix A.** This information has however formed the scope of this Transport & traffic Report

2.2 Transport Issues

This transport report will therefore address the DGR's conditions and the Development Conditions by

- Considering traffic generated by the hospital proposal – This will be achieved by comparing the traffic generated by the project application to the approved concept plan scheme
- Considering car parking provision (including separation of service vehicles and public parking facilities), – This will be achieved by comparing car parking in the project application to the approved concept plan scheme.
- Considering access and service delivery associated with the final development – Again this will be achieved by comparing the project application to the approved concept plan scheme but also showing how access will be phased over the construction period. It will also discuss provision for drop offs, disabled parking, deliveries, emergency evacuation and public access.
- Considering access during construction
- The report will be produced in the light of guidance given in the RTA document "*Guide to Traffic Generating Developments"*
- Describing arrangements in the report to facilitate public transport use - This will make reference to the draft TMAP to confirm what

measures to promote public transport will be used, and will expand upon recent discussions with STA.

- Preparing a detailed transport, traffic and accessibility study in sufficient detail to allow it to be used as part of a draft TMAP for the site.
- Considering the issues relating to the full or partial reopening of Westbourne Street showing the staged monitoring of the thoroughfare to ensure that it can operate satisfactorily – The report will demonstrate how traffic along Westbourne Street will be managed throughout the construction period.
- Demonstrating that vehicle traffic movements will not have a detrimental impact upon the existing local road network and will not cause unacceptable congestion at key intersections - This will be achieved by comparing the traffic conditions resulting from the project application to those that will occur in the approved concept plan scheme. If traffic levels are broadly the same, and the layout will not change traffic flows to any great extent, it will be shown that there will be no deterioration in traffic conditions when compared to the approved scheme.

2.3 Non Hospital Related Development

This Transport Report, which is being provided to support the project application for the hospital / healthcare scheme, will also set the context for the TMAP and Transport Report that will need to be submitted when the non hospital related activity is considered. As such, it will effectively provide a scope for these future reports.

3 Traffic Generation & Traffic Impact

3.1 Introduction

This report considers the traffic impact of the project application considered within the context of all of the healthcare facilities on the site.

The RTA document Guide to Traffic Generating Developments sets out guidelines to assess the traffic generated by developments.

It recognises that a traffic report needs to

- Consider the traffic generated by the development proposal in terms of car trips
- Consider the provision of parking at a development - The traffic generation of the site will be directly related to the number of car parking spaces on the site, and this will be used as the measure of potential traffic generation

It also recognises that where a development has a significant effect on traffic conditions, adequate traffic facilities must be provided to maintain a suitable level of service

In this case, there is an existing concept plan approval for a new hospital. The transport report supporting that the concept plan application contained information relating to parking levels and traffic generation for the site which was subsequently approved.

Fundamentally however as the hospital is basically rationalising its existing uses into a functional but smaller footprint, this means that the project application itself should result in any additional traffic demands to those currently experienced.

Any additional traffic demands will come from the subsequent redevelopment of the surplus land. The effect of this additional traffic will be assessed in a subsequent transport report which will be submitted along with the development application for the subsequent precinct development.

The main reasons why the project application scheme could be different to the concept plan approval are

- The traffic generated by the project application scheme might be greater than the approved concept plan scheme (see Section 3.2)
- The form of the development layout is such that the distribution of traffic onto the road network might be different, thereby resulting in more traffic at one of the intersections than was predicted (see Section 3.3)

It is therefore these two areas that have been examined to accord with the requirements of the RTA document.

However, if the traffic generated by the project application (see layout at **Appendix C**) is estimated to be similar or less than that generated by the approved concept plan scheme and the project application will have no greater traffic impact than that of the approved concept plan scheme.

3.2 Parking Levels

Parking levels on the site have changed over recent years. For example the 2006 Transport Report states at paragraph 3.4.3 that the site at that time had around 2410 parking spaces.

However, above 140 of these spaces have been lost along Westbourne Street in the last couple of years due to the construction of the new research and development building.

The current parking levels on the site are 2197 as shown in **Appendix C.** As such the hospital is currently operating with fewer car parking spaces than it would normally have available.

The car parks currently include

- 1672 staff spaces
- 402 visitor spaces
- 38 Short Term drop off spaces
- 69 Disabled Spaces
- 16 Ambulance spaces

3.2.1 Parking Levels – Approved Concept Plan Scheme

The parking levels on the approved concept plan scheme were based upon on North Sydney Central Health estimates of high and low staff number growth levels and this had been equated to a parking demand of between 2545 and 2620 car parking spaces (see extract from MWT Transport Report below).

3.4.3 Parking

The total parking provision at RNSH is about 2410 spaces. The main car park is the multi-storey car park located off Reserve Road, north of Westbourne Street, and this provides about 1500 spaces. The remaining spaces are located in several small surface car parking areas dispersed throughout the campus. These include 267 staff designated spaces, 598 for patients/visitors, 34 disabled parking spaces and 9 ambulance bays.

The Northern Sydney Central Health previously estimated low and high growth levels in staff numbers. The peak accumulation of staff on the site at anyone time for the low growth scenario is 2,625 and the high growth is 2,720. This results in a total car parking demand for between 2,545 and 2,620 for the hospital and its ancillary facilities. This analysis did not allow for the beneficial effects of potential increased public transport linkages and thus provides an upper band for potential hospital parking needs. This aspect is discussed further in Section 4.2.

3.2.2 Parking Levels – Project Application Scheme

The project application scheme is expected to provide 2550 parking spaces which is practically the same as the low staff growth scenario (i.e. 2545).

3.2.3 Parking Summary

The parking levels on the project application are, in principle, the same as the parking levels on the approved concept layout.

As traffic generation on hospital sites generally relates to the number of parking spaces provided, the total traffic generated by the project application will be no more than that which has already been accepted as part of the approved concept plan scheme.

3.3 Traffic changes resulting from amended development layout

The form of the development layout of both the approved concept plan scheme and the approved concept plan scheme needs to be considered to ascertain whether there are any changes to traffic movements. For example, one of the layouts may result in more traffic at some of the intersections than others which could adversely affect the intersection performance.

As described earlier, it is estimated that the volume of additional traffic resulting from the proposed hospital development compared to the existing hospital development is negligible.

Although this is expected to be negligible, an assessment of the potential traffic changes has been made. The exercise will require a comparison of the existing situation, the approved concept plan scheme and the project application.

3.3.1 Existing Situation

The hospital site is currently served by of the following roads

- Westbourne Street (east), which has not been used in recent years due to the construction of the new research and development building.
- Westbourne Street (west) access which primarily serves the TAFE, the private hospital and parking along Westbourne Street. There is limited access to the car park area which includes the multi-deck car park. Traffic counts were undertaken by Hyder in July 2007 to determine the traffic volume using Westbourne Street to reach the multi-deck car park area.
- Reserve Road (north) which serves the hospital from the north and provides the most direct access to the Multi-deck Car Park

- Reserve Road (south) which serves the hospital from the Pacific Highway but which also can provide access to the multi-deck car park. The main areas of car parking to the south of Westbourne Street are also accessed from Reserve Road (south).
- Herbert Street – there are also a number of small hospital car parks which are accessed from Herbert Street, many of which are operated by boom gates.

The car parking areas at the existing site can be broadly allocated into areas (*N.B. figures have been rounded to nearest 25 for estimating purposes*)

- The multi-deck car parking and ground car parks around the periphery – Total approximately 1650 spaces. These spaces are served by Reserve Road (N) and by Reserve Road (S) and to a lesser extent by Westbourne Street (W)
- The car parking areas around the existing hospital & Douglas Building – Total approximately 375 spaces. These spaces are served primarily by Reserve Road South
- The car parking areas scattered around the buildings to the east of Reserve Road - Total approximately 375 spaces. These spaces are served primarily from Reserve Road (S) with some being served by accesses / boom gates from Herbert Street

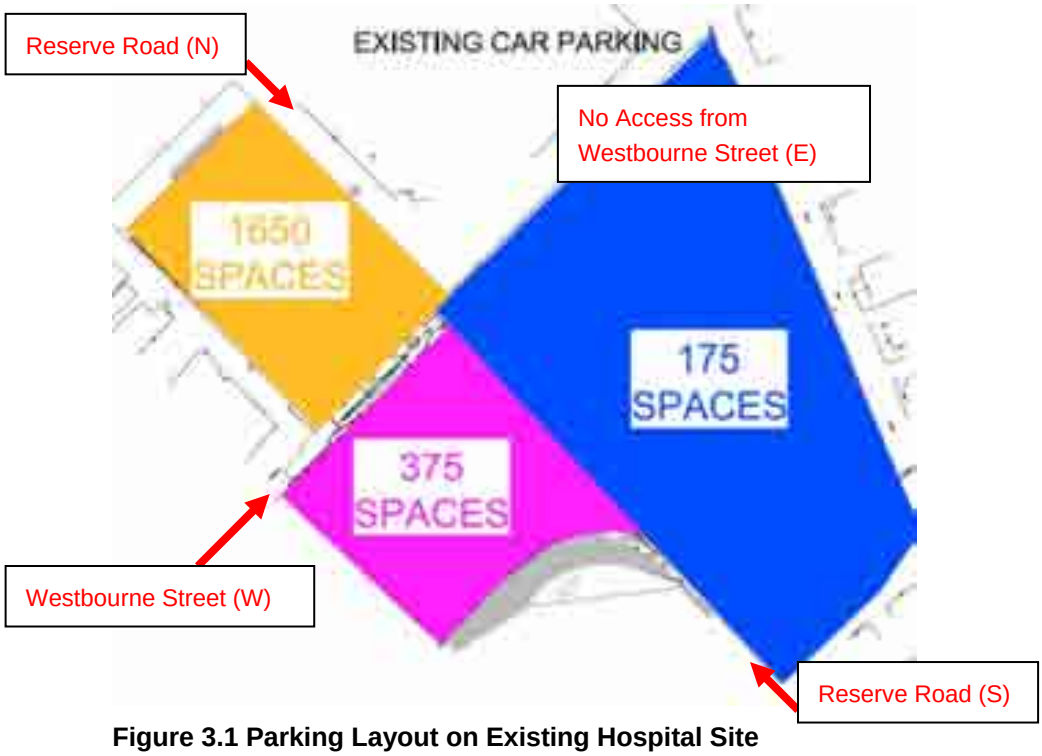

Figure 3.1 Parking Layout on Existing Hospital Site

However, as described above, the multi deck car park can be reached from Westbourne Street (west), Reserve Road (north) and Reserve Road (south) and this car park area has been the subject of more detailed investigation.

The traffic movements into the multi-deck car park were counted in July 2007. This count revealed the following information.

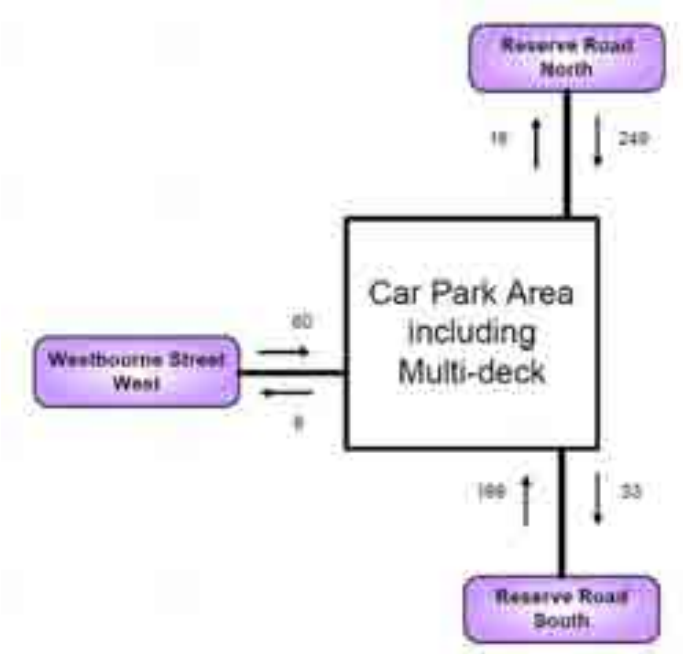

Figure 3.2 Car Movements into / out of multi-deck car park area in AM Peak

Westbourne Street (W) was found to provide access to 13% of the parking spaces in this area whereas Reserve Road (N) contributed 52% and Reserve Road (S) contributed 35%.

Based upon this survey and the assumptions made above, it is possible to estimate the number of parking spaces served by each of the accesses.

	1650 Spaces (Yellow)	375 spaces (Pink)	175 spaces (Blue)	TOTAL
Westbourne Street (E)				0
Westbourne Street (W)	215			215
Reserve Road (N)	858			858
Reserve Road (S)	577	375	100	1052
Herbert Street			75	75
TOTAL	1650	375	175	2200

Table 3.3 Number of parking spaces served by each of the access roads – Existing Layout

3.3.2 Approved Concept Plan Scheme

The most noticeable change, in traffic terms is that Reserve Road (S) would not provide a direct route to the existing multi deck car park.

In addition, traffic from Westbourne Street (W) and Westbourne Street (E) can now achieve direct access the existing multi-deck car park.

Although the approved layout plan does not explicitly show it, the connection between Westbourne Street (W) and Westbourne Street (E) would be managed to prevent the rat-run.

Again, the car parking areas have been grouped together into the 3 broad areas previously considered.

Figure 3.4 Parking Layout on Approved Concept Plan Layout

The traffic changes resulting from the approved concept plan scheme would therefore be as follows

- The 577 car parking spaces in the multi-deck car park area served by Reserve Road (S) would distribute between Westbourne Street (E) and Westbourne Street (West). The fact that traffic from the North West can already use Campbell Street to get to the multi-deck car park area means that the cars currently entering Reserve Road (S) are primarily from the east. We have therefore assumed that 450 of the 577 would use Westbourne Street (East) after completion of the Hospital development.

- There will also be additional car parking in the pink area. The transport report submitted with the approved application didn't specify exactly where the parking was to be provided in any great detail although it showed 100 parking spaces to the east of Reserve Road and made reference to underground car parks in the new hospital area. As the report also made reference to a minimum of 2545 spaces, a total parking number of 2550 has been assumed (i.e. it has been rounded up) and therefore 800 spaces have been calculated as being in the pink area.

Based upon the above assumptions, we can estimate the parking numbers served by each of the access points for the approved scheme.

	1650 Spaces (Yellow)	800 spaces (Pink)	100 spaces (Blue)	TOTAL
Westbourne Street (E)	450	100	50	600
Westbourne Street (W)	342			342
Reserve Road (N)	858			858
Reserve Road (S)	0	700	50	750
Herbert Street				0
TOTAL	1650	800	100	2550

Table 3.5 Number of parking spaces served by each of the access roads – Approved Concept Plan Scheme

3.3.3 Project Application Scheme

The proposed project application scheme is similar to the approved scheme except for the fact that Westbourne Street (E) has a limited connection to Reserve Road (S) as a result of the one way road running to the west of the new hospital building. The road to the south of the hospital is a cul-de-sac and there is no connection between Red Road and Eileen Street.

It can be seen that there are 100 less spaces in the pink area and 100 spaces more in the blue area but the total number of parking spaces on the proposed scheme are the same. As the blue area has no direct connection from Reserve Road (S), the blue parking spaces will be accessed from Westbourne Street (E). The pink area will be accessed from Reserve Road (S), and to a limited extent from Westbourne Street (W) and Reserve Road (N).

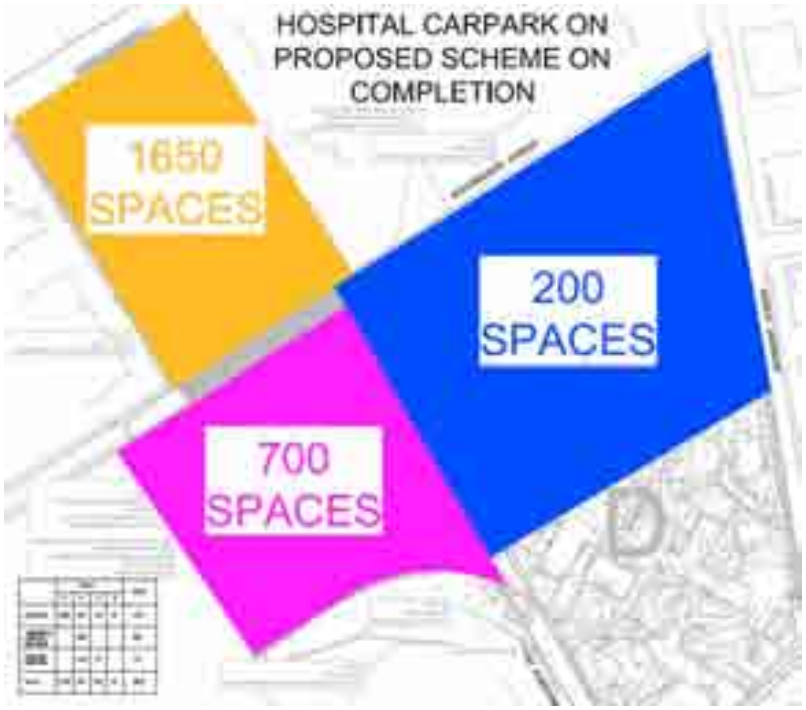

Figure 3.6 Parking Layout on Project Application Site

The project application scheme has the parking areas served by the following accesses

	1650 Spaces (Yellow)	700 spaces (Pink)	200 spaces (Blue)	TOTAL
Westbourne Street (E)	450		200	650
Westbourne Street (W)	342			342
Reserve Road (N)	858			858
Reserve Road (S)	0	700		700
Herbert Street				0
TOTAL	1650	700	200	2550

Table 3.7 Number of parking spaces served by each of the access roads – Project Application Layout

3.3.4 Summary - Analysis of Data / Traffic Impact

The difference between the approved concept plan scheme and the project application scheme will be that, with the approved concept plan scheme, 50 more car parking spaces will be accessed from Westbourne Street and 50 less spaces will be accessed from Reserve Road (S).

Even if we assume that all of these additional 50 parking spaces would be accessed in a single hour, this represents less than 1 additional vehicle at the Westbourne Street access than would occur with the approved scheme.

This is insignificant in terms of traffic analysis so it can be assumed that the traffic impact will be the same as the approved scheme and that the intersection performance would be no worse than with the approved scheme.

3.4 Other Traffic Effects

3.4.1 Lane Cove Tunnel

Since the original study in 2006, the Lane Cove Tunnel has opened and this will have changed traffic patterns, particularly on the Pacific Highway.

In 2006, the peak hour traffic counts at the main accesses serving the hospital were as shown below.

Figure 3.8 Peak Hour Traffic Counts at Hospital Accesses

Hyder obtained figures from the RTA to analyse the effect of Lane Cove Tunnel on Pacific Highway. The counts were taken from the Sydney Coordinated Adaptive Traffic System (SCATS) at the same location on the Pacific Highway north of Westbourne Street in 2006, 2007 and 2008.

The counts were undertaken in

- August 2006 (prior to the scheme opening)
- August 2007 (after the scheme has opened but before traffic had 'settled' down and before the Epping Road surface works had been completed)
- August 2008 (when traffic has generally 'settled down and all works associated with Tunnel have been completed,')

The through flows at the SCATS location show the following

Weekdays Average	AM Northbound	AM Southbound	PM Northbound	PM Southbound
2006	1500	1622	2004	1215
2007	1282	1722	1828	1196
2008	1270	1566	1691	1141
% Change	AM Northbound	AM Southbound	PM Northbound	PM Southbound
2006 - 2007	-14.53%	6.19%	-8.77%	-1.53%
2007 - 2008	-0.97%	-9.09%	-7.50%	-4.61%
2006 - 2008	-15.36%	-3.47%	-15.61%	-6.07%

Table 3.9 Pacific Highway Traffic Flow Changes on following Lane Cove Tunnel opening

Traffic travelling northbound has generally dropped by around 15% in both peak periods whereas traffic travelling southbound has dropped by around 3% (AM) and 6% (PM).

This reduction in traffic levels should not have a significant effect on the project application when compared to the approved concept scheme plan (in fact it should mitigate any of the very minor effects of the change in development layout as described in Section 3.3.4). The change in traffic levels on Pacific Highway will be considered in more detail when the Transport Assessment / TMAP reports are prepared for the whole precinct development.

4 Car Parking Provision

4.1 Current Parking Provision

At present, there are 2197 parking spaces located on the Royal North Shore Hospital site.

4.2 Parking Occupancy Count at Existing Hospital

Hyder undertook a car park occupancy count mid morning in April 2007. The time for the counts was selected as being typical of peak hospital activity. It was a time of very high parking demand with minimal staff turnover as it took place mid-shift. The survey also avoided any anomalies associated with the weekend. Being mid-shift, it also avoided any additional parking requirements which would occur at shift changes. Observations during the survey indicate that there is a constant public parking turnover, with a steady flow of vehicles entering and leaving the parking areas. The main observations were as follows:-

- Total number of parking bays on site is currently 2197
- At the time of the count, the hospital had lost 140 parking spaces due to the construction of the R&E Building.
- Current occupancy of staff parking is 95%
- Current occupancy of public parking is 95% (but this could be exaggerated by staff using public multi deck)
- The public multi deck car park reflected an occupancy of 97% (but this could be exaggerated by staff vehicles also using it)
- At staff shift changeovers, when the staff arriving for work often do so 10-30 minutes early, whereas people finishing their shift tend to leave 15-30 minutes after the end of their shift, parking demand on hospital was observed as being at its peak (N.B. at other hospital sites, it is sometimes 20% higher over the peak hour than in the shoulder periods). At these times any spare capacity on the hospital site was used up and demand exceeded capacity over short periods.
- Current public parking capacity appears to be near or at capacity
- Future demands, as outlined in the reports produced for the approved scheme, indicate a total requirement of 2545 -2620 parking bays.
- The currently project application scheme aims at producing around 2550 spaces which is at the bottom end of the range thereby demonstrating a commitment to minimum parking provision rather than over provision.

4.3 Car parking management

Currently, parking at RNSH is tightly managed, with restricted parking areas in operation, a progressive scale of charges, and a permit system. Enhancements to this management regime to be considered further could include:

- Possible multi-use of parking spaces to facilitate sharing of capacity by different uses
- Differential scale of parking charges to discourage entry / exit during the peak hours.

Preferential parking locations for certain staff are already provided and the possibility of extending this to staff vehicles with more than one person should be examined. The organisation of car parking into parking areas which have entry and exit controls will allow much better car parking management than is achieved at present. Provision of specific disabled car parking spaces (located close to the hospital entrance, & specific drop off & emergency vehicle areas) will also make policing the car park more efficient.

4.4 Parking Provision Guidance

4.4.1 Hospital

Based upon Willoughby Councils Parking Guidance, the hospital could, depending upon interpretation of the guidance could request more car parking spaces than it currently provides (see **Appendix B**).

As the current proposal includes 2550 car parking spaces, this confirms that the hospital, by virtue of the good existing bus and rail services, already operates a minimalist car parking approach.

4.4.2 Future Precinct Development

At the Council's discretion, requirements for on site car parking for any future precinct developments may be reduced on the basis of a written agreement.

The draft transport assessment produced for the approved scheme used reduced trip generation rates for future precinct development uses which indicated that "less than maximum" car parking rates had been assumed.

4.5 Proposed phasing of car parking throughout construction

Car parking for public, staff, ambulances and service vehicles will be maintained throughout the construction. The car park phasing plans contained in **Appendix D** show how the car park will be managed throughout the construction period. However, in broad terms, the following will occur

- Stage 1 – The eastern side of the site will be cleared for construction and parking will be provided along approximately half of the length along Westbourne Street (E) to replace this lost parking. The phased car parking provision along Westbourne Street (E) is to facilitate the reconstruction of Westbourne Street. A new temporary staff car park will be built close to the Herbert Street // Westbourne Street (E) intersection.
- Stage 1/2 – Parking will be displaced from the section of Westbourne Street (E) previously used, to the opposite end. The phased car parking provision along Westbourne Street (E) is to facilitate the reconstruction of Westbourne Street.
- Stage 2 – the disabled parking and staff parking in the vicinity of the existing hospital will be also and displaced to parking spaces available on Westbourne Street (E) and Reserve Road (N)
- Stage 3 /4 – Disabled parking in the vicinity of the existing hospital will be relocated to locations outside the new hospital and along Reserve Road (N). Parking spaces in the southern part of the area between Herbert Street and Reserve Road (S) will be lost.
- On completion – the temporary staff car park will be removed and the parking around the Oval will also be lost. This will be replaced in the new multi-deck car park.

Throughout this process, 69 disabled spaces, 38 short term spaces and 16 emergency reserved spaces will be retained as show in **Appendix D.**

5 Accessibility

5.1 Introduction

The RTA Guide to Traffic Generating Developments includes travel demand management measures which can be used to reduce vehicular demand through a range of strategies including

- Encouragement of and access to pedestrian and cycling facilities
- Encouragement of car pooling
- Improved access to public transport facilities
- Mixed land uses
- Use of teleworking
- Encouragement of fuel and energy conservation

Prior to examining what measures can be used, it is necessary to look at the existing facilities, what is being proposed and the performance of the existing site in terms of meeting travel demand by means other than car.

5.1.1 Rail

Existing

There are southbound and northbound trains arriving at St Leonard's station every 4-6 minutes on average during the peak periods and the station is around 600m from the main entrance to the hospital

There is a pedestrian over bridge linking the station to the west side of Herbert Street but many pedestrians still use the at-grade pedestrian crossing at Herbert Street/ Pacific Highway to walk along Pacific Highway to the Reserve Road (S) access road, as this route also leads to the hospital entrance.

Proposed

The Epping to Chatswood Railway improvement will create the capacity for an additional 12000 passengers per day.

This will improve the range of services that will be available to healthcare staff to undertake their journey to work trip by means other than car.

5.1.2 Buses

Existing

Scheduled bus services run along the Pacific Highway including

- Chatswood – Manly
- St Leonard's to Manly
- Epping to Manly
- Epping to York Street
- Ryde to Milson's Point
- Chatswood to Bondi Junction
- Kellyville to Milson's Point

Some of the buses (the Chatswood-Manly service) enter the site via Reserve Road (S) and use the internal roundabout to turn around and pick up from the bus stop which is on the southbound arm of Reserve Road (S).

Other services have stops on Pacific Highway either side of Reserve Road (S) and near the pedestrian crossing north of Westbourne Street (W)

Proposed

STA has recently ordered 150 new state transit articulated buses which will help address additional public transport demand throughout the city in general. This is likely to have a positive effect on the routes.

5.1.3 Pedestrians

Existing

There are a significant number of pedestrian movements between the railway station, the hospital and the TAFE.

The main pedestrian route is along Reserve Road (S) where there are three zebra crossings. However, the buildings between Reserve Road(S) and Hebert Street are dispersed and so there are many informal pedestrian routes leading into and around these buildings.

Proposed

The new main hospital building will be located closer to St Leonard's Station than either the current main building or that proposed with the approved concept plan scheme. The entrance into the main hospital building would be better defined and access paths between the New Main Building and both the bus stop and St Leonard's Station would be:

- More direct than the current circuitous access routes
- More obvious with signage being more visible than the current arrangement
- Of high quality urban design
- Provide a link to the existing Herbert Street pedestrian overbridge. Willoughby Council would prefer if this pedestrian link was at the same grade as the existing overbridge deck level but this will be dependent on the development of the surplus land

These improvements will make living and working locally, based on a short walk commute, possible for more people. They will also result in a reduction in walk time to St Leonard's Station which would encourage pedestrians to use the train rather than the car.

5.1.4 Cyclists

Existing

Willoughby City Council has already introduced on-road and unmarked cycle routes in the vicinity of the hospital. There are currently two bicycle parking facilities at St Leonard's station and on-road cycle route covers the length of Herbert Street adjacent to the RNSH's eastern boundary on both sides of the street. The main cycle route is along Herbert Street which connects into the Gore Hill Freeway cycleway at Punch Street. An unmarked cycle road covers the southern perimeter of the hospital along Marshall Avenue.

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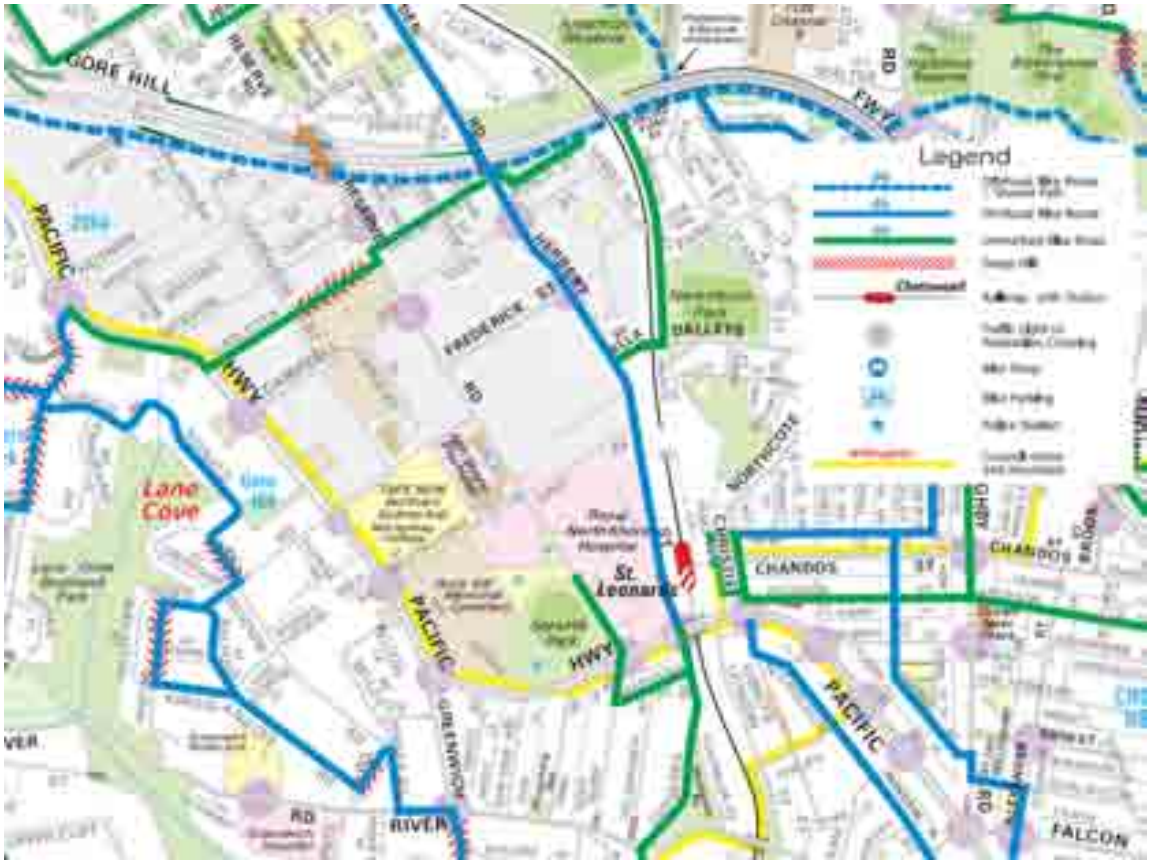


Figure 5.1 Cyclist Layout

Figure 5.2 Cycle Way on Herbert St

Figure 5.3 Cyclist Connection to Gore Hill Cycleway

Proposed

The proposal shows a considerable number of cycle parking spaces (approximately 400) and shower facilities in the layout in the new Western Car Park.

This will provide facilities for staff at the hospital to use.

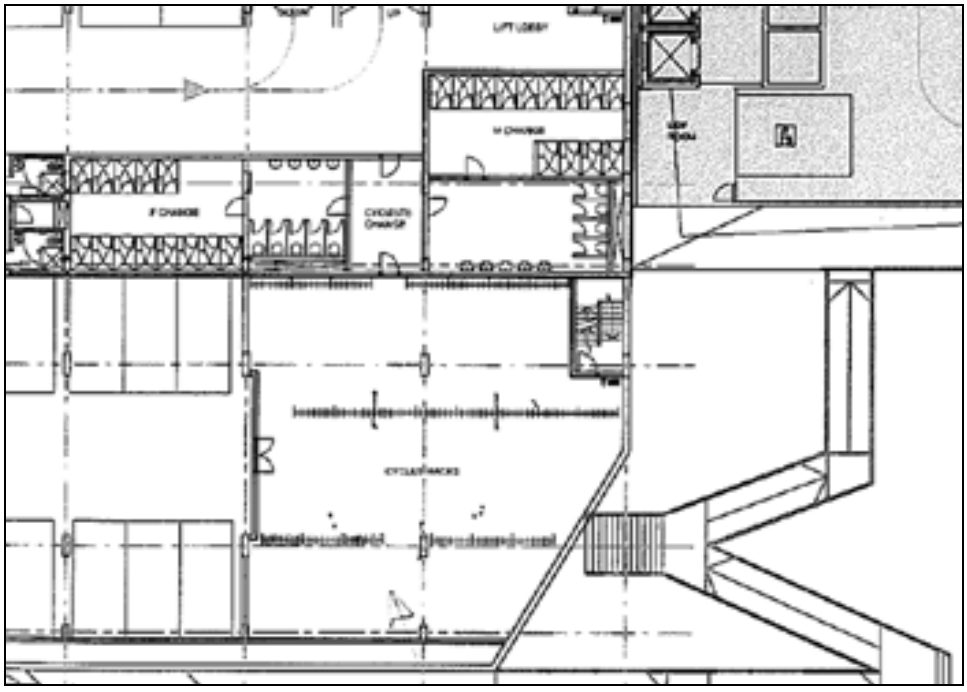


Figure 5.4 Cycle Parking / Shower Facilities in the Project Application

In addition, Willoughby Council has a longer term aim to provide a direct cycleway connection from the redeveloped ABC site, through the TAFE and the hospital down to the Pacific Highway. This more direct and obvious route, which might be in the form of a shared path would provide a more direct link between the St Leonard's Station, the Pacific Highway, the new precincts that are to be constructed on the site in later stages of the development and the TAFE and ABC to the north.

As the design progresses, discussions will take place with the council to ensure that this strategy is being addressed.

5.2 Existing Modal Split

The Transport/Population Data Centre shows that the Royal North Shore Hospital is in travel zone 776. Based upon 2001 figures, commuters' origins by mode share were

- 39.3% train
- 2.7% bus
- 39% car
- 2.5% car passenger
- 16.4% other

A travel survey undertaken at the Hospital by TEF however suggested that most doctors, nurses and visiting medical officers travelled by car.

	Car Driver	Car Passenger	Dropped Off	Other	Bus	Train	Walk	Bicycle/ Motorcycle
Doctors	79%	2%	0%	0%	1%	10%	6%	2%
Admin	60%	1%	2%	0%	8%	26%	2%	0%
Catering	75%	5%	5%	0%	7%	2%	7%	0%
Other	80%	10%	10%	0%	0%	0%	0%	0%
VMO	100%	0%	0%	0%	0%	0%	0%	0%
Nursing	85%	1%	2%	0%	2%	5%	5%	1%
Cleaning	42%	17%	0%	0%	8%	33%	0%	0%
Allied Health	76%	2%	1%	1%	3%	15%	2%	0%
NAHS	79%	0%	0%	0%	7%	10%	5%	0%
Community Health	100%	0%	0%	0%	0%	0%	0%	0%

Source: TEF Consulting (2005)

Table 5.5 TEF Modal Split Survey at RNSH (2005)

However, as is true at most hospitals, a great proportion of staff are administration staff and 36% of this group travel by bus, train or walk.

Whilst this 'non-car' mode share is not as high as the 42% illustrated by the Transport/Population Data Centre information, it still significantly exceeds the State Plan target of 25% Journey to Work trips.

5.3 Increasing Accessibility

The issue of increasing accessibility to the site by non-car means was discussed at great length in the draft TMAP that accompanied the approved concept plan.

In addition, the information contained at **Appendix B** suggests that the parking levels provided at this site are less than would be provided on other hospital sites elsewhere in Sydney. This shows that the hospital is already taking a minimalist approach to car parking and the project application is consistent with this.

5.4 Workplace Travel Plan - Health Department Initiatives

5.4.1 TMAP

The conditions for the approved concept plan state that

The approved draft TMAP must include the provision of a Work Place Travel Plan for each development precinct (excluding those with exclusive residential use) and shall include strategies to promote and encourage public transport use, including, but not limited to, staggered start and finish times for employees and car pooling so as to minimise the impact on the road system.

A Workplace Travel Plan is a package of practical measures influencing travel to an individual site. It aims to reduce car use for travel to work and on business, and to lessen the environmental impact of travel arrangements.

- **The Individual** through improved health, reduced stress and cost savings;
- **The Workplace** through a healthier, more motivated workforce, reduced congestion and improved access to sites for employees, potential recruits, visitors and contractors;
- **The Community** by organisations demonstrating their commitment to environmental priorities and setting an example to others;
- T**he Environment** through improved local air quality with less noise, dirt and fumes which can contribute to other national and global improvements.

The production of a plan presents an ideal opportunity to raise awareness of the consequences of our travel choices, the benefits of alternatives, and the opportunity to minimise the impact of travel on the environment. More specifically it has the following objectives:

- To encourage a healthier lifestyle for patients, visitors and staff;
- To maximise the opportunities for patients, visitors and staff to travel to and from the site using transport modes other than the private car;

- To encourage more accessible public transport which is better and easier;
- To provide better opportunities for pedestrian access to the site;
- To provide better opportunities for parking for those staff who are eligible;
- To prioritise access to parking related to defined needs;
- To reduce reliance on car access;

In developing the plan, certain principles need to be kept in mind:

- The need to promote easy patient and visitor access;
- The need to keep the hospital operating well;
- A commitment to be fair to staff;
- A wish to contribute to the community;
- The need to meet government and local council requirements.

Workplace Travel Plans can typically include the following measures

Public Transport

- The provision of a better range of information about public transport for patients. Information will be included with appointment or admission letters and will be available at bus stops around the site.
- The provision of better information for staff. This will be provided by means of a co-ordinated communication strategy.
- The improvement of pedestrian links from Herbert Street and Pacific Highway and other bus routes into the site with the provision of better signing.
- Ongoing liaison with bus companies to encourage improved bus services to the site.
- Possible liaison with bus / train operators to negotiate group discounts for hospital staff.

Cycling

- The provision of better information and emphasis on the health benefits of cycling.
- Provision of additional secure cycle parking/storage around the site.
- Provision of additional showering, changing and locker facilities.
- Liaison with the hospital / local Bicycle Users Group (BUG) to encourage non-users and occasional users to cycle to work on a more regular basis.

Walking

- Implementation of a programme of improved signage and footpaths in all areas as part of the redevelopment programme.

- Provision of improved pedestrian links to Herbert Street and St Leonard's Railway station and other routes around the site.

Car Sharing

- Investigation into how car sharing might be introduced on the site and the provision of designated priority parking areas for car sharers to give more opportunity to find a space.

Further discussions are required with the health departments to determine measures that serve staff and hospital requirements and their introduction to achieve higher modal split to non car modes.

5.4.2 Measures Already Proposed

Pedestrian Links

However, as described above, one of the most important initiatives will be to maximise the links to existing infrastructure. The improved pedestrian route from the hospital to the railway station will be clear, well signed, straightforward and safe. This will however be dictated somewhat by the development of the future precinct through which the section of footway closest to the railway station will pass. The route of the pedestrian link will therefore be subject to future project applications which will need to address this issue.

Cycle Proposals

The provision of new cycle storage facilities is likely to encourage more cycling and the provision of cycleway connections into the site from the cycleway on Herbert Street will be dependant upon the layout of the future precinct. The route of the cycle link will therefore be subject to future project applications which will need to address this issue.

Free Transport

With regard to minimising car trips, the hospital already has a number of free transport initiatives, organised by themselves and others, to minimise their traffic impact.

RNSH provides free transport in the form of taxi vouchers and hospital transport to patients to facilitate discharge. In addition, there also many community bus services such as

- The Mosman Thursday Shuttle Bus Services which runs a 'door to door' bus service, with an assistant, operating 3 trips every Thursday between Balmoral Beach and Royal North Shore Hospital, St. Leonard's with stops along the way
- Manly Warringah Pittwater Community Transport which runs a door to door North Shore Shuttle service on trial to Royal North Shore Hospital for the elderly, people with a disability, carers and transport disadvantaged in the Manly Warringah and Pittwater LGAs. This service runs between Monday and Friday.

6 Proposed Hospital Access

6.1 The Hospital

The project application is located within the existing healthcare precinct and will replace out of date buildings that will be demolished.

The proposed road hierarchy is shown at **Appendix E.**

The proposed hospital building is located closer to Herbert Street (i.e. on the eastern side of Reserve Road (S)) than the current building but the road arrangement in terms of hierarchy will remain broadly the same.

The Community Hospital will be served primarily from Blue Road and Eileen Street although there is a drop off area which enters the site from Red Road and leaves onto Blue Road.

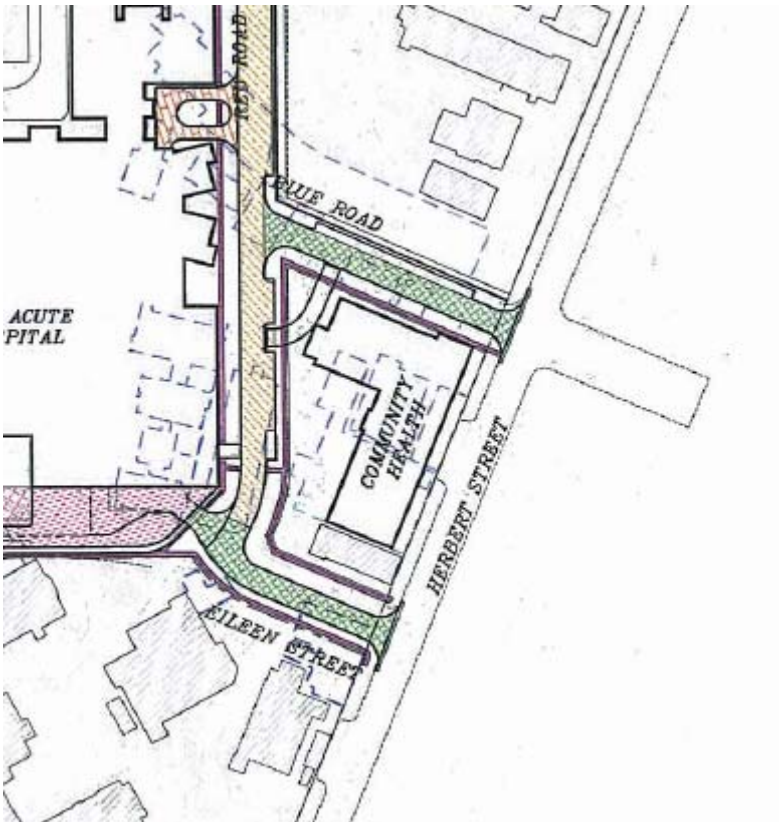


Figure 6.1 Access into Community Health

Most vehicles entering the hospital will be making their way towards a car parking space be they staff, visitor, patient etc. Consequently, access into the site is dictated by how access to the car parking spaces is achieved.

6.2 Access to Car Parks

Section 4.5 described how access to car parks will be achieved during the different phases of the hospital development.

- Westbourne Street (east) which has not been used in recent years due to the construction of the new research and development building.
- Westbourne Street (west) access which primarily serves the TAFE, the private hospital and parking along Westbourne Street. There is limited access to the car park area which includes the multi-deck car park. Traffic counts were undertaken by Hyder in July 2007 which indicates how much traffic was using this route to reach the multi-deck car park area.
- Reserve Road (north) which serves the hospital from the north and provides the most direct access to the Multi-deck Car Park
- Reserve Road (south) which serves the hospital from the Pacific Highway but which also can provide access to the multi-deck car park. The main areas of car parking to the south of Westbourne Street are also served by means of Reserve Road (south).
- Herbert Street – there are a also a number of small hospital car parks which are accessed from Herbert Street, many of which are operated by boom gates

All of these accesses will be retained, although the use of Herbert Street to access the hospital will be reduced.

The major difference between the existing access arrangements and both the approved concept plan / project application schemes is the reopening of Westbourne Street albeit with limited turning facilities.

The main difference between the approved and the proposed scheme will be that there will be no direct road connection between Eileen Street and Red Road.

6.3 Provision for other vehicles

The provision for the majority of other vehicles is located in close vicinity of the new hospital. Disabled parking, emergency access, short term drop off (i.e. public parking space less than 15 minutes) and service access are shown in the extract from the “on completion” hospital masterplan shown below.

Figure 6.2 Extract from Project Application Masterplan

6.3.1 Emergency Vehicles

The main hospital will achieve emergency access by means of Eileen Road which runs immediately south of the new hospital building. Emergency vehicles will enter the hospital site by means of Reserve Road (S) and then use the proposed roundabout to turn right into the emergency drop off area.

Other buildings such as the Douglas Building, Mental Health and the Community Health building have dedicated emergency drop off outside their respective buildings.

6.3.2 Short Term Drop Off

The main hospital has short term drop off located in front of the main hospital building access and also along the emergency drop off area to the south of the building. Such vehicles will enter the site by means of Reserve Road(S).

There are also short term drop off spaces in the close vicinity of the mental health building.

6.3.3 Disabled Parking

Disabled parking (20 spaces) is proposed outside of the proposed multideck car park which provides a short connection to both the Douglas building and the new main hospital building.

There are also disabled parking spaces located

- In the new multideck car park (23 spaces).
- In the existing multi-deck car park (26 spaces).
- Outside the proposed community health (2 spaces).

6.3.4 Service Vehicles

In the proposed scheme, the main service access into the main building will be achieved at a lower ground floor level. In this way, service vehicles will be separated form public access.

Access for service will be achieved by means of Red Road which will in turn be accessed from Herbert Street by means of Eileen Street.

A lesser number of service vehicles serving the Community Health building and Douglas Building will use Herbert Street or Reserve Road (S) to access the respective areas.

6.3.5 Taxis

There are 6 taxi spaces provided - 3 in the area to the west of the new main hospital building entrance and 3 along Eileen Street.

6.4 Westbourne Street

Particular issues were raised in the conditions of consent in relation to Westbourne Street.

Following the completion of the Research & Development building on Westbourne Street, the connection from Herbert Street along Westbourne Street into the hospital will be re-established. There is therefore a concern that rat-running will occur across the site.

However in order to restrict this, the configuration of the Reserve Road / Westbourne Street intersection will be such that

- Traffic travelling west along Westbourne Street (E) will not be able to travel straight ahead. They will be able to turn right towards the multi-deck car park using Reserve Road (N) and to a limited extent turn left along the front of the main hospital building by means of a narrow one way road. Speeds along Reserve Road (N) should be regulated by the fact that there will be car parking located along the road so there will be a number of parking / reversing movements occurring.
- Traffic travelling east along Westbourne Street (W) will not be able to travel straight ahead to Westbourne Street (E). They will be able to turn left towards the existing multi-deck car park.

- Traffic travelling from Reserve Road (S) will be able to access the hospital by means of the roundabout but they will not be able to travel further north to Reserve Road (N) as the road section between Reserve Road North and the roundabout will be one way (south).

Figure 6.2 Permitted Vehicle Movements

The Transport Report submitted with the approved concept plan scheme has also referred to the need to signalise the Westbourne Street / Herbert Street intersection at some time in the future when the level of development necessitated it.

The timing of this improvement will therefore be dependent upon the development phasing of the residential / employment uses so the subsequent transport report for the whole precinct development will identify when this traffic signal is required.

7 Summary

- A hospital scheme, with associated residential and employment uses, has already gained concept plan approval. The development application was accompanied by 2 traffic / transport documents
  - Draft Concept / Initial TMAP Report – Dated 26th July 2006
  - Transport assessment – Dated 26th July 2006
- The Director Generals requirements for the project application specified the need for a transport report that addressed all traffic and transport issues pertaining to the hospital precinct. This was required in sufficient detail to allow it to be a component of the overall TMAP for the site which cannot be finalised until the future planning for the rest of the site is known.
- In traffic terms, the hospital is basically rationalising its existing uses into a functional but smaller footprint - this means that the hospital itself should not have any additional demands to those currently experienced.
- **Any additional traffic demands will come from the subsequent redevelopment of the surplus land.** The effect of this additional traffic will be assessed in a subsequent transport report which will be submitted along with the development application for the subsequent precinct development.
- Car parking on site currently stands at around 2197 spaces – this is around 140 spaces less than the hospital was operating with in 2006. Many of these spaces were lost as a result of the construction of the Research & Development Building.
- The occupancy of both staff and public parking is around 95% although this has a localised surge in demand at the shift changeovers when the existing car parks are often overcapacity
- The parking levels on the **approved** concept plan scheme were based upon on the fact that North Sydney Central Health had estimated high and low staff number growth levels and this had been equated to a parking demand of between 2545 and 2620 car parking)
- The current proposal for parking at completion of the project application is expected to provide 2550 parking spaces which is practically the same as the low staff growth scenario (i.e. 2545 as described above)
- Based upon Willoughby Councils parking guidelines, it could be argued that the site could reasonably ask for parking provision above the proposed levels.
- This suggests that the project application scheme, by virtue of the good existing bus and rail services, already operates a minimalist car parking approach.

- The difference between the approved concept plan scheme and the project application will be that, with the approved scheme, 50 more car parking spaces will be accessed from Westbourne Street and 50 fewer spaces will be accessed from Reserve Road (S). The traffic impact resulting from this change is negligible and it can be assumed that the traffic impact from the proposed scheme will be the same as the approved scheme and that the intersection performance would be no worse than with the approved scheme.
- Willoughby Council has a long term aim to provide a direct cycleway connection from the redeveloped ABC site, through the TAFE and the hospital down to the Pacific Highway. This will be considered as the precinct developments progress through their various stages. Nothing that is being provided as part of the hospital development will preclude this from occurring in the future.
- This report outlines that a Workplace Travel Plan for the hospital will be developed with the view of reducing the dependency on the private car by encouraging more sustainable modes of transport.
- This report has demonstrated that disabled parking, emergency access, short term drop off and service access is well located
- This report has demonstrated that public transport, pedestrians and cars will be adequately managed through out the construction process.
- A subsequent transport report / TMAP will support the development relating to the future precinct development will review the full traffic / transport effect of this whilst also taking into account the traffic issues associated with the development of the new healthcare facilities as discussed in this document.

APPENDIX A

Planning Issues

Planning History

A hospital scheme, with associated residential and employment uses, has concept plan approval (see 'approved' scheme in **Appendix C**). The development application was accompanied by two traffic / transport documents

- Draft Concept / Initial TMAP Report – Dated 26th July 2006
- Transport assessment – Dated 26th July 2006

Director Generals Requirements

A Preliminary Environmental Assessment was submitted to the Department of Planning in August 2008 and as a result the Director General has issued a list of requirements, one of which refers directly to transportation and access issues and this states that in respect of Traffic, Transport and Accessibility

- Provide a traffic and transport study that addresses the following
  - Surrounding context and how the proposal fits within the overall hospital campus in terms of transport and traffic management
  - Measures to encourage modal shift to public transport and reduce reliance on on-site parking
  - Identify existing transport services in the site together with transport services offered by the hospital
  - Detail existing pedestrian and cycle movements within the vicinity of the subject site and determine the adequacy of the proposal to meet the likely future demand for increased pedestrian and cycle access - may include facilities for secure bicycle storage
  - Identify Travel Demand Management Measures that will optimise the opportunity provided by the project sites proximity to public transport
- Demonstrate Compliance with the RTA's Guidelines For Traffic Generating Developments
- Internal road and access arrangements including entry/drop off points, traffic management and hierarchy. The primary drop off areas to the community health facility should be clearly identified and appropriate disability access provided in accordance with appropriate Disability Access Guidelines
- Off Street car parking provision and management of on-street car parking
- Service Delivery
- Proposed Emergency evacuation and public access

Conditions of Concept Plan Approval

In addition, conditions of the Concept Plan Approval awarded in April 2007 referred to a number of traffic / transport related issues

M9 Public Transport Provision

M9.1. The proponent for development within precincts 3,4,5,6 and 7 to enter into an agreement with the RTA, STA and MoT to facilitate provision of additional bus services and other public transport improvements within and surrounding the site. The final outcome shall accompany the first subsequent application for development within Precincts 3,4,5,6,or 7.

M10 Transport Management and Accessibility Plan (TMAP)

M10.1 A Transport Management and Accessibility Plan (TMAP) shall be submitted to and approved by the Director-General prior to or concurrent with lodgement of any subsequent application for development (excluding the approved demolition and preparatory site works to ground level).

M10.2 The TMAP shall be prepared in consultation with the RTA State Transit Authority (STA) and Ministry of Transport (MoT) and will be subject to periodic review at appropriate times as set out in the agreed TMAP).

M 10.3 The approved TMAP must include the provision of a Work Place Travel Plan for each development precinct (excluding those with exclusive residential use) and shall include strategies to promote and encourage public transport use, including, but not limited to, staggered start and finish times for employees and car pooling so as to minimise the impact on the road system.

M11 Pedestrian & Cycling Strategy

M11.1 Prior to or concurrent with the lodgement of any subsequent application for development (excluding hospital development and the approved demolition and preparatory site works to ground level) on the subject site, the Proponent shall prepare and implement a site-wide pedestrian and cycling strategy, in consultation with Council and other key stakeholders.

M13 Development Staging

M13.1 Prior to or concurrent with lodgement of any subsequent application for development (excluding hospital

development and the approved demolition and preparatory site works) on the subject site, a development staging programme outlining the intended implementation of the concept plan and related applications for development shall be submitted to and approved by the Director general

M13.2 *The staging programme shall include*

(A) Gross floor area

(B) Floor Type area

(C) Distribution of dwelling mix

(D) Provision of public open space

(E) Car parking provision

(F) Likely timetable for implementation

(G) Consent and approval authority roles

(H) Any other matters required by the Director General

M13.3 *The staging programme should demonstrate consistency with this approval and prevailing strategic planning policies*

M13.4 *The staging shall consider minimising disruption to the hospital operation and where possible provide development near St Leonard's Railway Station within the staging programme.*

M14 Re-opening of Westbourne Street

M14.1 ***The intention of this condition is to allow for monitoring and management of the effects of staging reopening Westbourne Street to vehicular traffic movements to ensure that "rat-running"" does not occur. The full or part reopening of Westbourne street will not alter existing rights of access for the RNS public or private hospital but will merely consist of the staged monitoring of the thoroughfare to ensure that it can operate satisfactorily.***

M14.2 ***Westbourne Street is permitted to be reopened in the following manner***

(a) Part reopening of Westbourne Street into Reserve Road (left Hand Turn only) for hospital drop offs

(b) Full reopening of Westbourne Street to all vehicular traffic with preference for initial access by public transport operators, subject to meeting the operational requirements of these operators

M14.3 ***The extent to which Westbourne Street shall be permitted to reopen will require detailed plans to be submitted to and approved by the Director general.***

M14.4 The submitted plans and documentation will need to demonstrate where appropriate

(a) Vehicle traffic movements will not have a detrimental impact upon the existing local road network and will not cause unacceptable congestion at key intersections

(b) The reopening of Westbourne Street will not create a quicker or more desirable vehicular traffic route between the Pacific Highway/Westbourne Street and the Westbourne street/Herbert Street intersections

(c) Justification for the timing of each reopening stage as referred to above in the context of implementation of the concept plan

(d) Any other matters required by the Director general

M15 Herbert Street Pedestrian Overbridge

M15.1 As part of the proposal to realign and refurbish the pedestrian overbridge over Herbert Street its visual appearance shall be improved in terms of design and visual impact so as to achieve a desirable urban design outcome.

Section 75W Application

Some of these conditions (primarily conditions M9.1 and M10.1) were modified by means of a Section 75W Application submitted in January 2008.

Condition M9.1

As issued, condition M9.1 meant that a change in the location of the community health would trigger the agreement between RTA, STA and MOT but this was not the original intent of this clause.

The modified condition now reads

M9.1 - The proponent for non-hospital related development within precincts 3,4,5,6 and 7 to enter into an agreement with the RTA, STA and MoT to facilitate provision of additional bus services and other public transport improvements within and surrounding the site. The final outcome shall accompany the first subsequent application for non-hospital or health related development within Precincts 3,4,5,6,or 7.

M9.1a - Any application for health related development shall detail arrangements to facilitate public transport use.

This means that the RTA, STA, MoT agreement will now be triggered with the first application for non-hospital or health related development but this report will address the arrangements to facilitate public transport use.

Condition M10.1

The second change related to the production of the Transport and Accessibility management plan.

The existing condition required a TMAP for the entire site at the time that the next application is lodged which was considered premature.

As the application for the hospital will be lodged shortly after the successful consortium was selected, there would be no opportunity to determine the exact land uses of the remaining land on site to the degree that would allow preparation of the required TMAP.

As a result, it would severely delay the construction and delivery of this important piece of infrastructure.

Furthermore the new hospital facility will replace the existing facility and this construction is primarily a "like for like" replacement.

The traffic and transport plan is required as part of the Director Generals requirements for the project application for the hospital. This will address all traffic and transport issues pertaining to the hospital and will ensure that they are adequately dealt with. However the traffic and transport plan for the hospital will be a component of the overall TMAP for the site, but which cannot be addressed in its entirety until the future planning for the rest of the site is known.

The condition has therefore since been amended to read

M10.1 ***A detailed transport, traffic and accessibility study should be submitted to and approved by the Director General prior to or concurrent with the lodgement of any project application for development of the acute hospital and/or community health building. The study shall contain sufficient detail to allow it to be used as part of the TMAP for the site.***

M10.1a ***A TMAP shall be submitted to and approved by the Director General prior to or concurrent with lodgement of any subsequent project application for development (excluding the approved demolition and preparatory site works to ground level, the development referred to in 10.1 above and minor work ancillary to the development in 10.1 above.)***

The Statement of Commitments

This states that the TMAP "*will be finalised and implemented for the site in accordance with relevant Department of Transport and RTA guidelines, with the aim of optimising public transport usage and decreasing the*

dependence on private motor cars – the TMAP will be submitted prior to the granting of project approval for any buildings within Precincts 3-7".

Again this will now reflect the change in conditions 9 & 10 of the Concept Plan Approval.

With regard to the Workplace Travel Agreement, the statement of commitments states that it "*details specific transport management measures to be implemented in association with redevelopment of the hospital*". Willoughby Council stated that this did not need to be in place for determination of the hospital DA but a commitment to be involved in it would be necessary.

APPENDIX B

Parking Requirements for Hospitals

Hospitals

For “health & community service developments”, Willoughby Council asks for 1 parking space per 2 members of staff but also asks for 1 space / 3 beds for visitors and 1 parking space per registered medical practitioner. No additional allowance is made for beds.

This generally accords with the parking requirements for hospitals required by other councils in Sydney.

Council	Canterbury City Council	Baulkham Hills	Holroyd	Bankstown	Botany Bay	Campbelltown	Ku Ring Gai
Per Bed	0.333	0.5	0.333	0.25	0.333	0.2	0.333
Per Employee	0.5	0.666	1.5	0.5	0.5	0.5	0.5
Per Staff Doctor	1				1	1	
Per Visiting Medical Officers		0.4					

Table B.1 Parking Requirements for Hospitals in Various Councils in Sydney

The Transport Report gave a typical daily breakdown of hospital staff/ visitors movements

Category of person	Average daily people movements	
	Number	%
Patients	3040	25.6
Emergency admissions	200	1.3
Patient visitors	2670	13.6
Hospital staff	6550 to 6860	33
Students, Monday to Friday only	4470	23
Construction, peak, Monday to Friday	720	3.6
Total, rounded	19,200 to 20,000	

Figure B.2 Average Daily People Movements at RNSH

Assuming that two movements represents each person / trip, this would suggest that there are 3000 – 3400 staff per day, 2500 patients per day, 1335 patient visitors per day but there is no information as to the number of medical practitioners. There are also around 2235 students who are, in effect, hospital employees.

With regard to patients, many such “patients” are actually “day visitors” who come for consultant appointments or for short, simple treatments. Indeed, this has been the major change in healthcare in recent years where patients go in for a consultation or simple procedure rather than stay overnight.

Data from other hospitals (e.g. Gloucester Hospital in the UK) shows that

The hospitals treated 68779 inpatients, 52336 day cases, 407174 consultant outpatients and 90178 emergency cases during the period April 2004 to March 2005.

	Number	Percent
Inpatients	*68,779*	11
Day Cases	*52,336*	8
Consultant Appointments	*407,174*	66
Emergency Appointments	*90,178*	15
	618,467	100

Figure B.3 Typical Breakdown of "patients" at hospitals

This means that of all patients visiting a hospital, up to 75% would be simply visiting the hospital and many of these drive themselves. For the purposes of this exercise, however, we will assume that only 40% drive themselves.

Based upon the Willoughby parking requirements

	No of persons	Parking requirement	No of spaces
Number of staff	3200	I space per 2 staff	1600
Number of staff (students)	2135	I space per 2 staff	1068
Number of visitors	1335	I space per 3 visitors	445
Number of patient visitors (40% of 2500)	1000	I space per 3 visitors	333
Number of medical practitioners	600	I space per medical practitioner	600
TOTAL	8745		4046

Figure B.4 Parking Requirement at RNSH based upon Willoughby Council Guidance

As the current proposal includes 2550 car parking spaces, this suggests that the hospital, by virtue of the good existing bus and rail services, already operates a minimalist car parking approach.

Even if no allowance is made for patients, the total number of parking spaces required would be 3713 and if no allowance is made for students, 2645 spaces would be required.

It should also be noted that there are a number of particular key issues which need to be considered when considering the reduction of hospital car parking beneath the current levels

- Due to shift work, a proportion of staff have no viable alternative than to drive, due to personal safety concerns and the lack of suitable public transport through lower service frequencies or reduced direct services outside 'normal' activity periods.

- A proportion of patients would not find public transport suitable for access/egress from hospital due to their health (e.g. restricted mobility and requirement to carry personal / health related effects).
- A proportion of visitors to patients would generally be fitting the visit in between a disrupted normal schedule. This tends to restrict the utility of public transport, unless all elements of a multi-leg trip lie along the one service corridor.

Staff may choose where to work, based on convenience of access, or availability of parking to address their perception of personal safety or to reduce their travel time, particularly outside normal working hours.

The higher non-car mode accessibility identified at the site, as a result of proximity to public transport facilities, the likely proposed transport system improvements, and the features of the proposed layout suggest that a low level of parking demand is, by virtue of the available parking levels, already in place.

RTA Guide to Traffic Generating Developments

The RTA guide contains information about parking in relation to

- Professional Consulting Rooms
- Extended Hour Medical Centres
- Child Care Centres
- Private Hospitals

There is therefore no guidance in relation to public hospitals. However the guidance does suggest that “comparisons should be drawn with similar developments” and that “car parking should be provided in accordance with the peak parking accumulation with due consideration being given to reducing the parking requirement if convenient and safe on street parking is available provided that the use of such parking does not adversely affect the amenity of the surrounding area”.

As stated in the main report, the existing 2197 parking spaces are 95% full at mid morning and the indication is that at the change in shift period, there is an additional short term additional demand of around 20% which suggests that the parking demand based upon this peak demand is around 2500, which is close to the number that will be provided upon completion of the scheme.

APPENDIX C

Existing Layout, Approved Concept Plan & Project Application Layout


EXISTING CAR PARKING
LEGEND

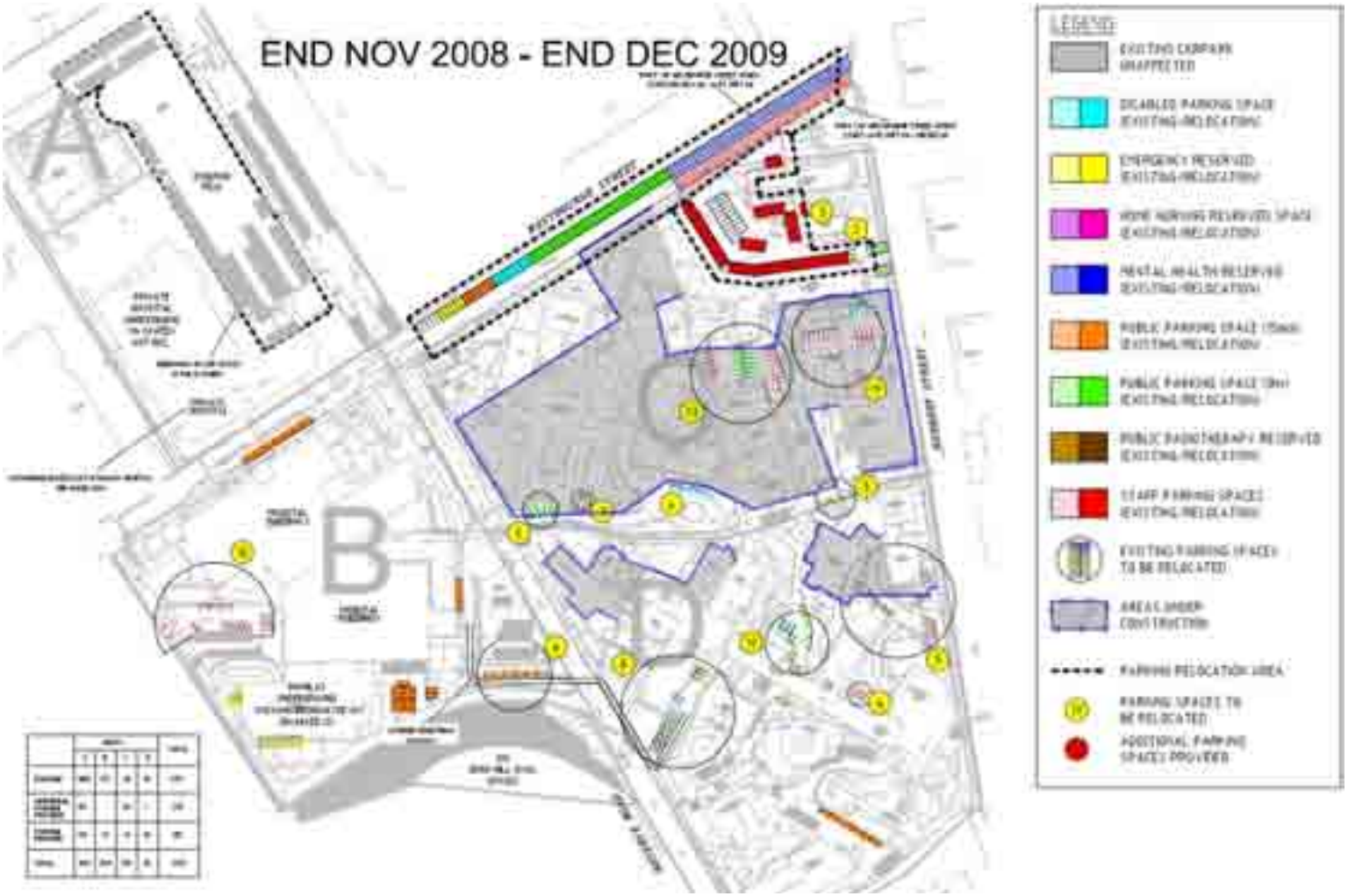
APPROVED CONCEPT PLAN SCHEME

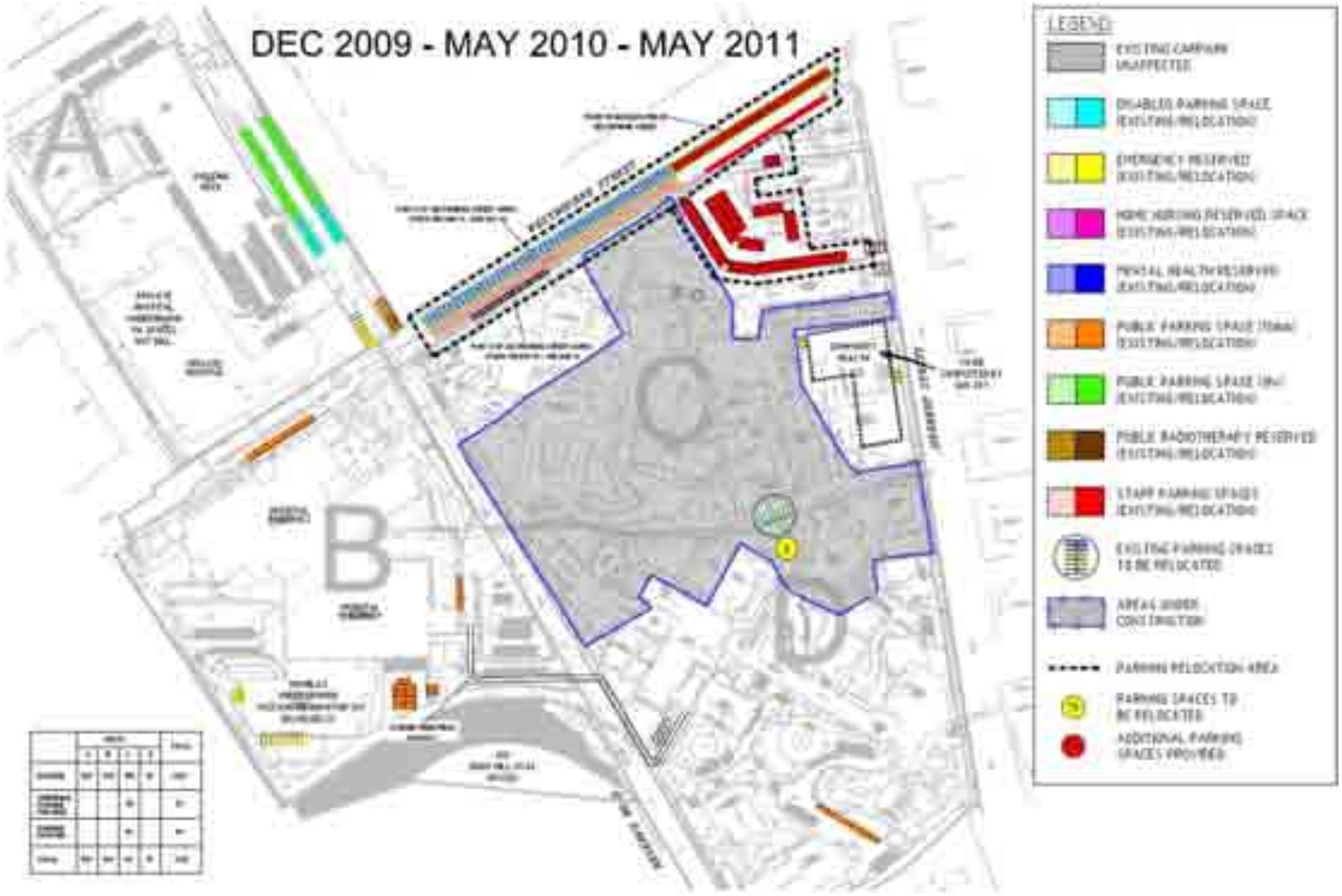
PROJECT APPLICATION SCHEME

APPENDIX D

Phasing of Car Parking Provision throughout Construction


EXISTING CAR PARKING
LEGEND


END NOV 2008 - END DEC 2009
B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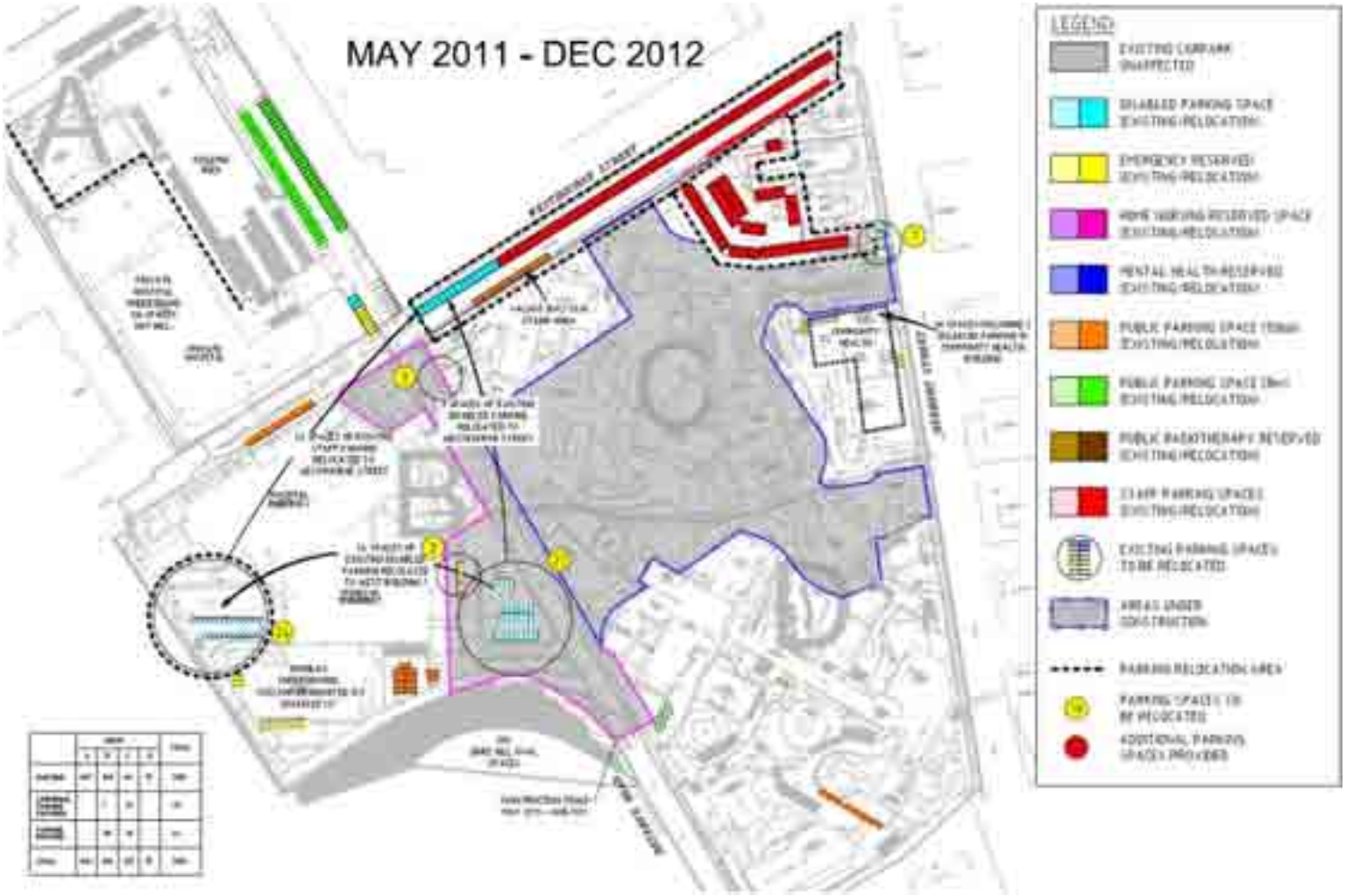
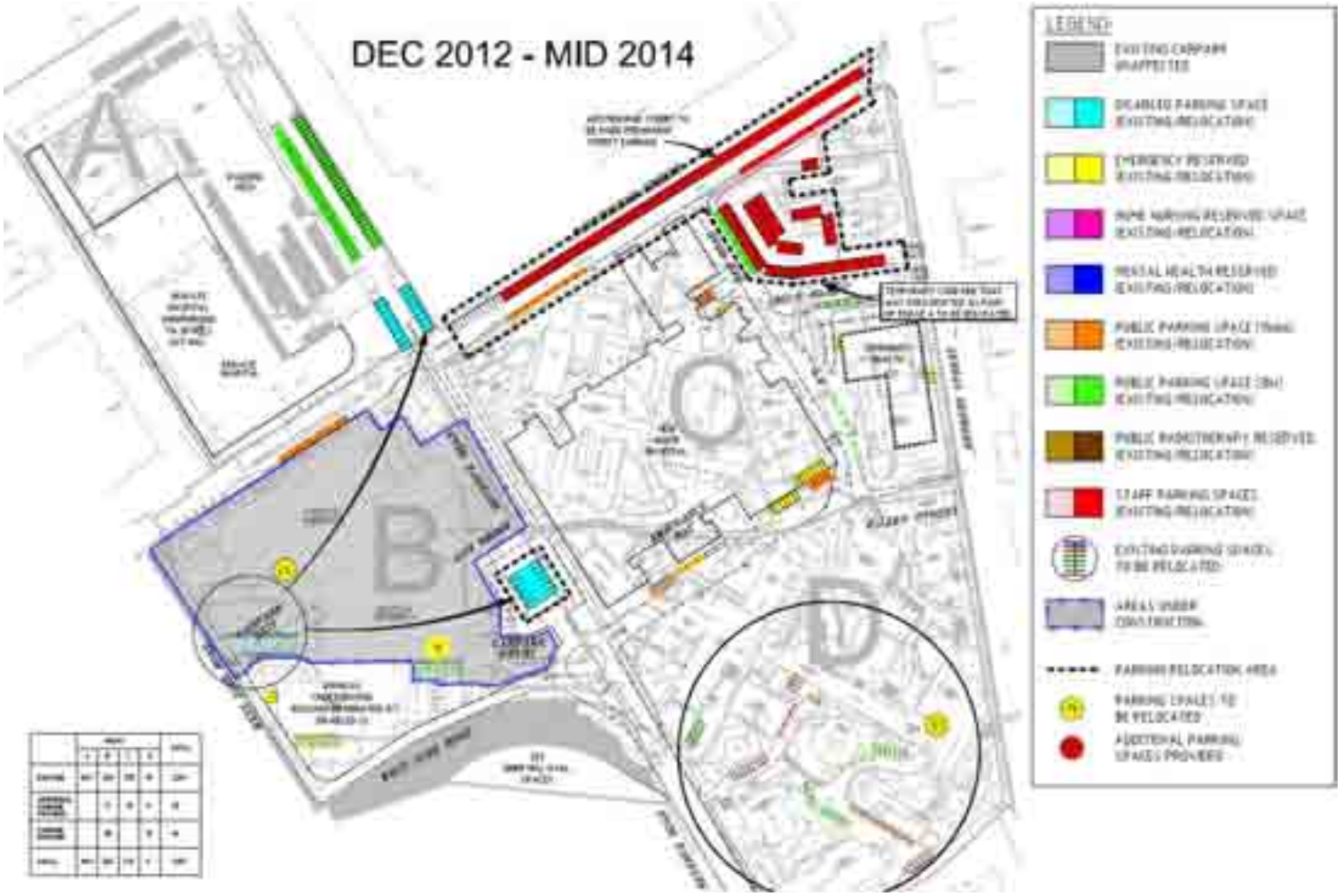
LEGEND:
A
B
C
D


MAY 2011 - DEC 2012
LEGEND


DEC 2012 - MID 2014
LEGEND


ON COMPLETION

APPENDIX E

Road Hierarchy


Legend
Collector Road
Access Roadway