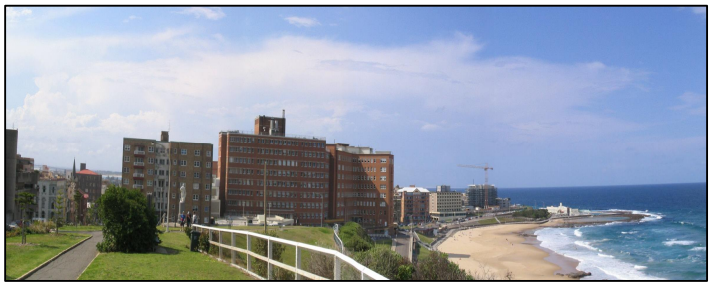
Better Transport Futures

Mark Waugh Pty Limited
ABN 67 106 169 180
Transport Planning & Engineering

Royal Newcastle Hospital - Proposed Subdivision of David Maddison Building Site

Transport Impact Assessment Report

June 2006



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1. Introduction

Mark Waugh Pty Ltd was commissioned by National Project Consultants on behalf of Landcom to assist in the assessment of the proposed subdivision of the David Madison Building (DMB) as part of the redevelopment of the Royal Newcastle Hospital Site in Newcastle East, NSW. The subdivision application is being sought to allow the DMB to continue operations whilst the Royal Newcastle Hospital site is redeveloped.

This report has been prepared to support the subdivision application for the subject site, and makes use of the previous traffic investigations prepared for the RNH site master planning process. It presents the findings of the traffic and parking investigations in relation to the DMB site. It is structured as follows:

- **Chapter 2** outlines the existing situation in the vicinity of the subject site, including discussions on traffic conditions and planned growth within the vicinity and any known road network improvements.
- **Chapter 3** describes the retention of the existing traffic, access and parking arrangements of the DMB site, and how these relate to Council and road authority guidelines.
- **Chapter 4** details the assessment of traffic related impacts relevant to the site
- **Chapter 5** summarises the findings of this investigation, outlining conclusions and recommendations for the continued operations of the site to support the subdivision application.

In completing the investigations for this matter the following guidelines and standards have been considered**:**

- **RTA Guide to Traffic Generating Developments, October 2002 Revision**
- **RTA Road Design Guide**
- **Austroads Guide to Traffic Engineering Practice**
- **Newcastle City Council DCP November 2005**
- **Australian Standard AS2890.2:2002 Parking Facilities Part 2: Off-Street Commercial Vehicle facilities**

2. Existing Situation

The section describes the existing traffic and transport conditions surrounding the subject site to confirm the current operating conditions for the DMB site. It is included here to verify that satisfactory transport conditions are in place for the site and surrounding area.

2.1 Background and Regional Context

The DMB site is located in Newcastle East adjacent to Newcastle Beach. This places it near the eastern most point of the traditional Central Business District of Newcastle. In a regional context it lies east of the main road network that feeds the CBD, with the vast majority of the region's population situated further west in Newcastle, Lake Macquarie and beyond.

Newcastle CBD is sited on southern side of the mouth of the Hunter River, where the original settlement was established some 200 years ago. It was the site of the original port activity involved in the transport of coal, and the vital link by sea to the other colonies particularly Sydney.

Rail transport was introduced in the mid 1800's principally to haul coal to the port.

Over the years as transport technology has changed, and the land transport links to Sydney have improved, the nature of transport has shifted to reflect a dominant movement pattern for trips by private motor vehicle. Today in Newcastle around 95% of personal trips are by car, with a small 5% using the rail and bus based public transport systems. Coal is still a dominant feature of the Newcastle Port, the largest coal export facility in the world. The main bulk cargo handling facilities are now located on Kooragang Island and further up the Hunter River, leaving the rail spur line into Newcastle solely for public transport use.

The central Newcastle area is illustrated in **Figure 2.1** below.

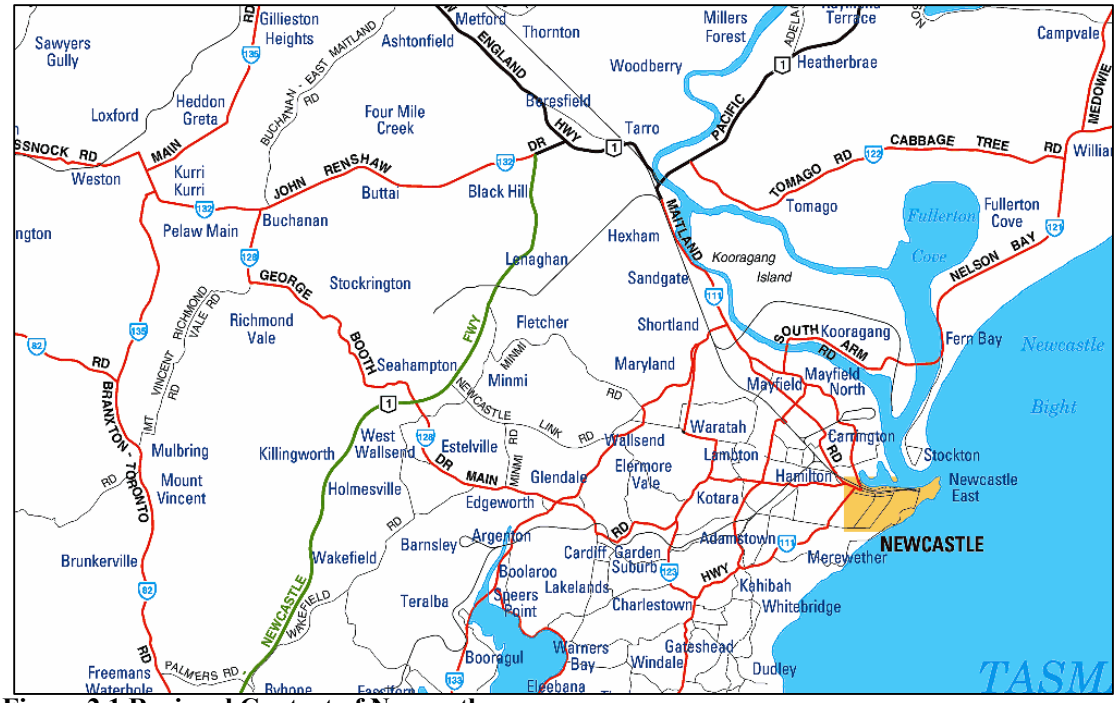

Figure 2.1 Regional Context of Newcastle

There has been a significant amount of planning and investigation into the future of the transport system in Newcastle and the region.

Regional Road Network
Newcastle's road network has evolved over a considerable time, reflecting historical development patterns along radial transport routes from the traditional heart of the city on the southern banks of the Hunter River. These radial routes (see **Figure 2.1**) are now a critical component in Newcastle's arterial road network.

As the growth of greater Newcastle continues, reaching current levels around half a million people, many of the areas in between the traditional radial corridors of transport and development have also been developed. This has increased the need for cross regional travel and has led to the development of the orbital routes such as the Newcastle Inner City Bypass (Charlestown Bypass) as part of the city's strategic road network.

Within the more immediate surrounds of the DMB site and this study area, the relationship of the site to the arterial road network can be seen as one of a mature city with no anticipated changes

Public Transport Network
The DMB site is well positioned to take advantage of this existing public transport network in the Newcastle corridor.

The State's public transport system has developed around the metropolitan heavy rail network. Much of the system has been in place since the early to mid part of the 20th Century and has developed along radial routes in a similar fashion to the road network. (It was built originally principally to haul coal to the port of Newcastle.)

The Newcastle corridor is served by a spur line to the Main Northern Railway line. The DMB site is situated at the eastern end of this corridor to the south of the railway terminus. (See **Figure 2.2**)

Other Transport
The need to provide improved regional cycling facilities has been recognised by Council and the RTA, the State Government agency responsible for developing cycling networks in NSW. A series of regional cycle plans are being developed by the RTA in conjunction with Local Government, recognising the potential of this non motorised transport mode to offer an alternative at the local/regional scale. Council's plans together with the RTA objectives have been considered as part of this study.

The key feature of the regional transport planning relevant to the DMB site is that public transport is retained to a key transport node at the existing Newcastle Railway Station, where public transport services by rail and bus are available to the greater Newcastle and Lower Hunter Region and beyond to Sydney. This situation is assumed to remain in the context of considerations for this development proposal.

2.2 Site Location

The subject site is located on land adjacent to Newcastle Beach. It is on the eastern side of Watt Street, the original main street of the settlement of Newcastle. King Street forms the northern boundary of the site, and Shortland Esplanade the eastern and southern boundaries. The site has been occupied by the Royal Newcastle Hospital and associated facilities for many years. The locality is illustrated in **Figure 2.2** overleaf.

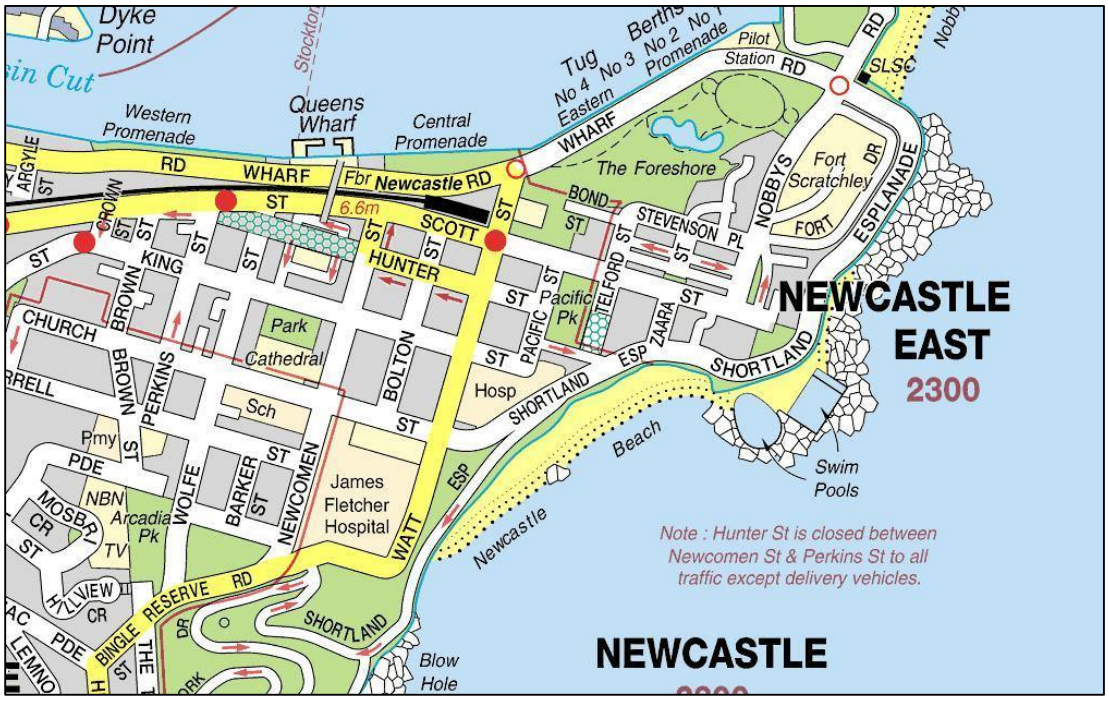

Figure 2.2 Site Location

2.3 Local Road System

2.3.1 Road Classification

It is usual to classify roads according to a road hierarchy, in order to determine their functional role within the road network. Changes to traffic flows on the roads can then be assessed within the context of the road hierarchy. Roads are classified according to the role they fulfil and the volume of traffic they should appropriately carry. The Roads and Traffic Authority of New South Wales (RTA) has set down the following guidelines for the functional classification of roads.

Arterial Road	typically a main road carrying over 15000 vehicles per day and fulfilling a role as a major inter-regional link. (Over 1500 veh/hr)
Sub-arterial Road	defined as secondary inter-regional links, typically carrying volumes between 5000 and 20000 vehicles per day. (500 veh/hr to 2000 veh/hr)
Collector Road	provides a link between local areas and regional roads, typically carrying between 2000 and 10000.vehicles per day. At volumes greater than 5000 vehicles per day, residential amenity begins to decline noticeably. (250 to 1000 veh/hr)
Local Road	provides access to individual allotments, carrying low volumes, typically less than 2000 vehicles per day. (250 veh/hr)

Peak hour volumes on all roads are typically eight to twelve per cent of the daily flows. Functional elements considered in the classification of roads are outlined in **Table 2.1: Functional Classification of Roads** overleaf.

Table 2.1: Functional Classification of Roads

	Arterial	Sub-arterial	Collector	Local
Traffic Volume (AADT)	>15 000	5 - 20 000	2 - 10 000	<2 000
Traffic Composition				
Through Traffic	✓	some	Little	No
Local Traffic	No	No	✓	✓
Commercial Traffic	✓	✓	No	No
Local Delivery Traffic	✓	✓	✓	✓
Buses	✓	✓	✓	Maybe
Bicycles	No	No	In marked lanes only	✓
Number of Lanes	4 or more	4 or more	2 or more	2 or more
Interconnections	sub arterial	arterial collector	sub arterial local	collector
Parking				
Peak Period	No	No	✓	✓
Off Peak	No	✓	✓	✓
Period Parking	No	Maybe	✓	✓
Unrestricted	No	No	Maybe	✓
Angle Parking	No	No	Maybe	✓
Intersection Control	✓	✓	Maybe	-
Bus and Transit Lanes	✓	✓	-	-
Pedestrian Crossings				
Speed Limit (kph)	60-80	60	60	60
Lane and Separation Lines	✓		Preferred	No
Medians	✓	Maybe	No	No
Road Closures	No	No	No	✓

Source: "Functional Classification of Roads" Traffic Authority of New South Wales

2.3.2 Local Roads

Watt Street

Watt Street is an undivided urban carriageway with two traffic lanes and two parking lanes. It operates as a two lane two-way road as part of the Newcastle Central Business District Road network. It performs the role of a minor collector road, connecting The Hill and adjacent residential areas with the Newcastle CBD. The intersections with Church Street / Shortland Esplanade and King Street operate under priority control.

The speed limit is 50 kph adjacent to the site.

- RTA traffic data is not generally available in this part of Newcastle, the road system being under the care and control of Newcastle City Council.

Watt Street forms the northern most section of an alternate access route to the Newcastle CBD, via the costal suburbs of Bar Beach and Merewether. It is used by some people to access the eastern areas of the CBD, including the Newcastle Beach and Ocean Baths and Newcastle Harbour Foreshore.

King Street

King Street is also an undivided urban carriageway with two traffic lanes and two parking lanes. It operates as a two lane two-way road as part of the Newcastle Central Business District Road network. It is the eastern most section of a principal traffic carrying route from the western areas of the City of Newcastle, through the CBD and on to the coast. It also performs the role of a collector Road, with most traffic distribution having already occurred further to the west in the Newcastle CBD. The intersection with Watt Street operates under priority control.

East of Watt Street the traffic lanes are narrowed to allow 90^0 metered parking along the northern kerb line. The junction with Pacific Street at the termination of King Street includes access into the hospital site, but is effectively a right angled bend in the street system.

Pacific Street

Pacific Street is an undivided urban carriageway with two traffic lanes and two parking lanes. It operates as a two lane two-way local road as part of the Newcastle East road network. It effectively forms the eastern boundary of the CBD. North of King Street to Hunter Street the traffic lanes are narrowed to allow 90^0 metered parking along the western kerb line. The junction with Pacific Street at the termination of King Street includes access into the hospital site, but is effectively a right angled bend in the street system. The intersection with King Street, Hunter Street and Ocean Street operate under priority control.

Ocean Street

Ocean Street is a narrow one way street eastbound that connects Pacific Street to Shortland Esplanade. It provides access to the York and North Wing developments, with Pacific Park on its northern side.

Shortland Esplanade

Shortland Esplanade is a two way two-lane road that travels north / south around the Newcastle Beach foreshore. It operates as a two lane two-way road. Its principal function is as an access street for residential and hotel development, and access to the Newcastle Ocean Baths and Newcastle Beach.

In summer months the level of on street activity, including parking, pedestrian and general traffic movements is constant and quite high. There is a pedestrian crossing adjacent to Zaara Street and an underpass connecting Pacific Park to the Newcastle Beach club house and kiosk area.

2.4 Traffic Movement Data

2.4.1 Existing Volumes

Traffic volume data for the project has been drawn from a number of existing sources, supplemented by additional PM weekday peak period surveys. Additional surveys were performed on the 4th August 2004 during the evening peak period. This was considered the typical operational time period applicable for a development investigation of this nature. The period surveys covered 4.30 PM to 6.30 PM. Surveys continued until a significant drop in traffic flows was observed.
Available data is summarised in **Tables 2.1** overleaf.

Table 2.1 – Observed Weekday Traffic Volumes

Road	Location	Direction	Date	Daily traffic Flows (Vehicles per Day)[1]	PM Peak Hour Volumes [2] (vehicles per hour)	Mid-Block Road Capacity[3]	Volume / Capacity	LoS
Watt Street	South of King Street	Northbound	August 2004	2470	247	380	0.65	B
		Southbound	August 2004	3530	353	380	0.93	B
Watt Street	South of Church Street	Northbound	August 2004	2690	269	380	0.71	B
		Southbound	August 2004	5480	548	600	0.91	C
Church Street	West of Watt Street	Eastbound	August 2004	1520	152	200	0.76	A
		Westbound	August 2004	920	92	200	0.46	A
Shortland Esplanade	East of Watt Street	Eastbound	August 2004	1810	181	200	0.91	A
		Westbound	August 2004	3070	307	380	0.81	B
Shortland Esplanade	South of Ocean Street	Northbound	March 2000	1830	183	200	0.92	A
		Southbound	March 2000	2720	272	380	0.72	B
Shortland Esplanade	North of Ocean Street	Northbound	March 2000	2580	258	380	0.68	B
		Southbound	March 2000	2670	267	380	0.70	B
Ocean Street	West of Shortland Esplanade	Eastbound	March 2000	810	81	200	0.41	A
Pacific Street	South of Ocean Street	Northbound	March 2000	470	47	200	0.24	A
		Southbound	March 2000	1870	187	200	0.94	A
Pacific Street	North of Ocean Street	Northbound	March 2000	1210	121	200	0.61	A
		Southbound	March 2000	410	41	200	0.21	A
King Street	West of Watt Street	Eastbound	March 2000	1260	126	200	0.63	A
		Westbound	March 2000	2390	239	380	0.63	B
King Street	East of Watt Street	Eastbound	March 2000	1590	159	200	0.80	A
		Westbound	March 2000	3740	374	380	0.98	B
Zaara Street	North of Shortland Esplanade	Two Way	1999	1850	185	400	0.46	A
Shortland Esplanade	West of Moroney Avenue	Two Way	1999	4230	423	760	0.56	B

Table 2.1 Notes:

1. Peak flow assumed as 10% of daily flow where not recorded directly
2. Traffic Surveys and historical traffic data, Mark Waugh Pty Ltd.
3. RTA 2002, urban road peak hour flows per direction
4. AMCORD 1995, Local Access Street, 10% Daily Volume

Table 2.1 demonstrates that all roads in the vicinity of the site are carrying traffic flows that are well within their technical operating capacities during midweek PM peak periods. Roads are operating at satisfactory service levels in the vicinity of the subject site and at the highest Levels of Service 'A' and 'B' on all approaches. RTA has confirmed recently that under urban road conditions a Level of Service 'D' is considered satisfactory operation. The above flow forecasts have been derived from the PM survey data flows. The AM flow period would be expected to mirror flows from the PM period. i.e. the major flow directions would generally be reversed (southbound) with similar peak directional flows. Site observations confirmed that traffic flows were fairly consistent throughout the observation periods.

2.4.2 Closure of Hospital Operations

The peak hospital operation of the RNH site involved in excess of 1000 people working on the site. This was a significant work force that would have used all elements of the available transport system for journey to work travel. There would have also been significant movement of patients, and visitors to and from the site.

At the time of initial masterplan development the site operational staffing levels were of the order of 450 staff with working shifts of around 200 people. This level of operation has now ceased. The traffic data recorded above actually incorporated the movement of these people as part of the existing traffic volumes on the network in 2004 and so represents a conservative view of the current (2006) transport operations with all hospital activity ceased.

2.4.3 Application of Seasonal Variations

Seasonal variations have been an important consideration in planning matters associated with the development activity adjacent to the coast line in Newcastle. The timing of initial investigations in 2004 during the winter months of the year prevented collection of traffic data to reflect summer flow conditions. However some historical data was available from the summer months of 2000 and additional data was collected during summer 2005.

Whilst the seasonal factors become important considerations in the overall operation of the road network surrounding the RNH site it is not relevant to the DMB subdivision application where there is no forecast increase in traffic and transport activity.

2.5 Intersection Performance

Intersections are the critical points which control the capacity of the road system. This is due to the need for conflicting traffic movements to share the same road space at these locations

The analysis applied here relates to the observed levels of traffic on Watt Street in the vicinity of the junctions with King Street and Church Street. Firstly it is useful to consider the Austroads threshold levels for intersection capacity under uninterrupted flow conditions. **Table 2.2** presents these thresholds. Where traffic flows fall within these limits intersection operation is essentially at no delay or interruption for approaching drivers other than to obey the requisite road rules.

Table 2.2 Intersection Capacity – Uninterrupted Flow Conditions

Road Type	Light Crossing or turning volumes Maximum Design Hour Volumes Two-way (vph)		
Two Lane through Roadway	400	500	650
Cross Road	250	200	100
Four Lane through roadway	1000	1500	2000
Cross road	100	50	25

Source: Austroads Guide to Traffic Engineering Practice - Part 5, 1988

Based on the data observed in surveys, the existing peak period flows on Watt Street at Church Street were observed at in the order of 250 to 350 vehicles per hour on a weekday PM peak hour. Corresponding side street flows on Church Street and Shortland Esplanade were around 150 to 300 vehicles per hour. This is over the threshold flow levels presented in Table 2.2 confirming that existing operations will require analysis to determine the operating service levels. This will apply also to the junction of Watt Street and King Street and other junctions in the vicinity of the site.

Other factors were observed during the surveys:

- The street parking was well utilised in both the metered and unlimited parking zones.
- No significant delays were observed at the junctions
- The Church Street leg is not heavily utilised
- local bus routes use Watt Street in both directions

Based on the observed traffic volumes intersection analysis has been conducted. aaSIDRA is a traffic analysis tool developed originally by the Australian Road Research Board. It calculates the amount of delay to vehicles using an intersection, and gives a level of service rating which indicates the relative performance of the nominated intersection treatment. Levels of service of A to C are considered to be satisfactory, a level of service of D is acceptable, and levels of E and F are considered unsatisfactory. SIDRA also calculates the degree of saturation, which indicates the amount of **spare capacity** available. The summary results are shown overleaf in **Table 2.3**.

Data has included the pedestrian volumes and proportions of heavy vehicles observed during the traffic surveys.

Table 2-3 – Existing Intersection Performance – Weekday PM

LOCATION	MID YEAR CONDITIONS			MID YEAR CONDITIONS PLUS 50% LOADING		
	DEGREE OF SATURATION	AVERAGE DELAY (SEC/VEH)	LEVEL OF SERVICE	DEGREE OF SATURATION	AVERAGE DELAY (SEC/VEH)	LEVEL OF SERVICE
Watt St / Church St	0.30	8.6	**A(D)**	**0.93**	**25**	**D(F)**
Watt St / King St	0.29	8.1	**A(D)**	**0.87**	**23**	**D(F)**
Ocean / Pacific	0.12	4.0	**A**	-	-	-
Ocean / Esplanade	0.11	8.8	**A**	-	-	-
Shortland Esplanade / Zaara St	0.15	4.3	**A**	-	-	-
Scott St / Zaara St	0.07	4.0	**A**	-	-	-

Notes:
1. Mid Year Loading analysis applied only to critical junctions on Watt Street
2. Average delay, degree of saturation based on overall intersection performance
3. Level of Service (LoS) based on overall intersection (worst movement performance in brackets)

The conditions observed at these times indicate that the existing operation of the Watt Street / King Street and surround intersections are well within its capacity limits with substantial spare capacity and high overall service levels under mid year conditions. Analysis and observations of right turns out of Church and King Streets onto Watt Street indicate that these movements are approaching the limits of operation under the existing priority control arrangements and that investigation may be required into improvements to the intersection controls. The 50% loading to simulate summer time operations indicates that these movements would experience substantial delays. This will be reviewed further when the analysis considers the effects of the Development proposals on the road network.

2.6 Road Network Improvements

There are no known improvements planned on the surrounding road network that may influence the long-term movement patterns to and through Newcastle East.

2.7 Public Transport, Pedestrians and Cyclists

The site is well situated to all access to public transport. Local busses were observed at the time of survey undertaking regular and school bus services to along Watt Street. These services would continue to Newcastle Station and bus interchange.

The site is quite close to the key transport node of Newcastle Station, the terminus of intercity train services to Sydney, local services to Morisset and the Hunter Valley, as well as the major terminus of many of Newcastle's bus services. It is quite likely therefore those patrons of the public transport system make use of the superior frequency and range of service routes available by walking to this nearby interchange.

Pedestrian foot paths are quite wide and generally sealed the full width of all road sides. These were observed being used regularly by people accessing the beach foreshore area. No specific cycle facilities were observed in the area.

3. Site Operations

3.1 Description of the Site Operations

The David Madison Building is currently used as a medical research facility by the University of Newcastle, Faculty of Health for educational medical research purposes. Until recently there were some additional facilities occupying parts of the site, such as the Gardner Library and mortuary, but these have recently been transferred to other campuses by the Hunter New England Area Health Service.

Discussions with University of Newcastle personnel have confirmed the following details in relation to the site characteristics:

- **Total Floor area**, excluding under croft areas and plant rooms. The DMB has a gross floor area of 8,500 m^2 with a net area of approximately 7000 m^2.
- **Total staff levels,** across all university activities has been confirmed at 150 people, with a full time equivalent staff level of 100 people. This is because of the high proportion of part time and research activities that do not require a full time presence on site.

This level of activity has been used to assess the ongoing parking requirements for the site.
It is understood that the above part time numbers include allowance for post graduate students who also utilise the site's facilities.

Many of the staff activities operating at the DMB site occur outside normal business hours. That is given the nature of the core site activity of medical research the hours of operation for individual activities can vary.

Whilst the full time equivalent staff level has been assessed as 100 people it is quite likely that the actual staff levels on any one day will not reach this level. This is evident that in general site observations the existing basement car park has never been observed at 100% of its capacity.

3.1.1 Parking Requirements

The parking requirements for the site have been assessed having regard for the Council DCP (November 2005). **Table 3.1** outlines the parking provisions envisaged for the site based on the staffing levels above.

Table 3.1 DCP Parking Requirements

Item	No Full Time Staff	Parking Rate	Required Parking	Parking Provision
		Newcastle DCP 2005		
Medical Facility	100	**1/3 staff**	34	44
TOTAL	100		**34**	**44**

Source: Site masterplan, NCC DCP Nov 2005
Notes: 1. Newcastle DCP 2005 parking rates applied for staffing of medical (hospital facility)

Council's Citywide DCP November 2005 includes provisions for car parking and provides the framework for considering the parking requirement of the development. Within the Newcastle CBD this is focussed on commercial and retail style development, but includes rates for a range of other activity such as hospitals and medical facilities.

It should be noted that the current site use represents a specialist activity that is outside the categories defined in the Council's Citywide DCP November 2005, and also the RTA Guide to traffic generating development. The figures applied above are based on the core activity of the site which is related to its medical research activity. If for example the rate of parking for an educational facility were to be applied, at 1 space per 2 staff members, then the parking allocation would be 50 spaces. The actual on site basement parking is 44 spaces which is slightly less than this application. Based on the application of rates for a medical facility the requirement is 34 spaces as indicated in Table 4.1 above.

Given that the site operations have been confirmed as predominantly medical activity, and the fact that the facility exceeds the parking requirement for this type of use it is considered that the parking provision on site will be adequate for the existing site use.

3.1.2 Site Access

Site vehicle access for the DMB Building will remain unchanged. The existing basement car park access from King Street will be retained, and the existing service dock access on the eastern side of the building with access from King Street will also be retained.

With respect to the basement car park area there are currently 2 of 44 spaces cordoned off and used for storage (bicycle storage etc.) It is assumed that these spaces can be made available for general car parking use.

In terms of service vehicle access it has been assumed that vehicles will continue to utilise the dock facilities on the eastern side of the DMB site. There is sufficient width in the existing driveway access adjacent to the building to allow for occasional access for service vehicles as de scribed in the Australian Standard AS2890.2:2002 Parking Facilities Part 2: Off-Street Commercial Vehicle facilities. It has also been assumed that there will be a requirement to allow occasional access only to the loading dock area for waste removal, and possible very occasional delivery by a furniture size truck. Both movements would be classed as a Heavy Rigid Vehicles (HRV). The HRV is a 12.5 metre truck. The vast majority of movements would be by smaller commercial vehicles such as courier vans.

The requirements and recommendations from the Australian Standard for occasional service are generally able to be met. It is possible for a service vehicle to stand wholly within the site. Reverse manoeuvres at the property boundary would be limited to one only, either on entering or departing. It is considered that this type of very occasional vehicle movement would occur outside normal peak on road activity and is able to be accommodated in a safe manner that does not cause undue obstruction to other on street traffic. The street geometry adjacent to the site access would allow access for service vehicles using the existing road space and driveway configuration. This takes advantage of the full width of access driveway for both entering and leaving the site which is allowable under the Australian Standard requirements.

The general width requirement of the service access aisle would be 3.5 metres although it is noted that it is proposed to provide a greater width than this because of other service (non vehicle) requirements for the site.

3.2 Traffic Generation Distribution and Assignment

No additional level of traffic generation will result from this subdivision proposal.

3.3 Pedestrian and Cyclist Access

No changes are required or proposed in relation to pedestrian and or cyclist facilities as a result of this subdivision proposal.

4. Assessment of Transport Operations

4.1 Site Access Operations

Site vehicle access for the DMB Building will remain unchanged and will continue to provide a very good access level of service.

4.2 Road Network and Intersection Performance

Site vehicle traffic generation for the DMB Building will remain unchanged. Roads will continue to operate at a very good access level of service.

4.3 Public Transport, Pedestrians and Cyclists

The site is within easy walking distance of the major Newcastle Station transport interchange, where buses and trains are available serving the region and it is quite likely therefore patrons from the site who choose to use the public transport system will make use of the superior frequency and range of service routes available by walking to this nearby interchange. There is also a local bus service that operates along Watt Street.

4.4 Parking

The parking requirements for the site have been assessed having regard for the Council DCP (November 2005). Council's Citywide DCP November 2005 includes provisions for car parking and provides the framework for considering the parking requirement of the development.

It is considered that the existing on site supply of parking of 44 spaces is able to meet the current and continued operations of the site based on its use as a medical research facility with limited educational activity. The levels of site activity on a daily basis are generally low given the dominant activity is medical research. General on site observations have confirmed that parking is not fully utilised. The type of activity results in a low overall employee density for a building facility of this size, with large areas given over to research activity. Another significant factor is the high level of part time activity of researchers which reduces the full time equivalent level of staff on site at any one time. The staff to floor area ratio is therefore much lower than for a comparable commercial activity in this part of Newcastle.

5. Conclusions

The following conclusions are drawn from the assessment of access and parking conditions for the proposed subdivision of the David Madison Building conducted as part of the investigations into the proposed redevelopment of the Royal Newcastle Hospital Site in Newcastle East, NSW:

1. The proposal under consideration retains the existing site activity
2. The principle site access points will remain unchanged
3. Existing road network operations adjacent to the site are well within technical capacity limits and operational levels of service are good.
4. The level of traffic generation from the subject site will remain unchanged as a result of this proposal.
5. Intersection and road performance will continue unchanged as a result of the subdivision proposal.
6. Existing parking arrangements are able to meet the specific parking requirements of the specialised DMB site activity
7. Service vehicle access arrangements are retained and are able to be accommodated within the bounds of the subdivision proposal.

The overall conclusion from the investigations is that traffic access and parking arrangements for the proposed subdivision of the David Madison Building will not result in any change to the traffic and access arrangements for the site. On site parking is able to meet the proposed continuation of the activity for the site and traffic generation remains unchanged.

There are no traffic, access or parking impediments to the proposed subdivision of the DMB site and it is recommended that the subdivision proposal be approved on traffic, parking and access grounds.

Appendix A References

1. Royal Newcastle Hospital Development, Part 3A Concept Application Traffic Report, Mark Waugh Pty Ltd, May 2006

2. Royal Newcastle Hospital Development, Master Plan Traffic Report, Mark Waugh Pty Ltd, December 2004

3. Royal Newcastle Hospital Development, Transport and Urban Design Principles Report, Mark Waugh Pty Ltd, December 2004

4. Royal Newcastle Hospital Development, Summer Monitoring Report, Mark Waugh Pty Ltd, March 2005

5. RTA "Guide to Traffic Generating Developments, October 2002 edition

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