# Children's Medical Research Institute

## Westmead Redevelopment

## Environmental Assessment for Project Application

March 2009

**Prepared for:**

CHILDREN'S MEDICAL RESEARCH INSTITUTE

**Prepared by:** *Urban Planning Outcomes Pty Ltd*
*PO Box 787*
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# Children's Medical Research Institute Environmental Assessment Report

# Contents

## List of Appendices



## List of Figures

# Executive Summary

The Children's Medical Research Institute (CMRI) was established as the Children's Medical Research Foundation in 1957 and was originally part of the Royal Alexandra Hospital for Children at Camperdown. It is now an independent organisation, although it continues to work with hospitals and the University of Sydney in research and teaching.

Over the past 50 years, CMRI has contributed to advances in paediatric health and well-being in many ways, including the improved survival of premature babies, pioneering microsurgical techniques and developing paediatric heart and lung support systems for surgery in infants.

Growth in its workforce, its physical premises, and its research infrastructure are critically important for CMRI to maintain a leadership position in the current areas of research excellence. It is equally important to allow CMRI to retain the expertise offered by senior research staff, to attract high-quality new staff, and, importantly, to increase its ability to compete successfully for major new funding.

With well-equipped facilities, world-class researchers, and an investment fund that is large by Australian standards, CMRI have a strong platform on which to build. It is anticipated that new teams will be recruited in four areas: cancer research, neurochemistry/therapeutics, developmental biology/congenital diseases, and genetic medicine. The aim will be to establish a cluster of teams in each of these disciplines.

The proposed expansion would enhance CMRI's capacity to take up opportunities for interactions and collaborations with other research teams especially those at the Children's Hospital Westmead.

On 25 August 2008, the Director General of the Department of Planning, as the Minister's delegate, formed the opinion that the Children's Medical Research Institute(CMRI) Westmead Redevelopment is a major project under the terms of the State Environmental Planning Policy - Major Projects (Major Projects SEPP) and Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Director General's Environmental Assessment Requirements (DGEARs) were issued on 23 September 2008.

The current CMRI building is a research and administrative facility designed by Ancher Mortlock Woolley Architects and completed in 1992. The existing facility provides two levels of research, administrative, seminar, and building support areas with a public frontage to Hawkesbury Road. This environmental assessment concerns the redevelopment of the facility in order to allow a significant increase in the research potential of the facility, while responding appropriately to the contextual demands of the Westmead campus and Hawkesbury Road. The redeveloped facility comprises five (5) to six (6) floors of research, administrative, support areas and staff recreation spaces, a roof top plant level and a basement level.

The building is proposed to be constructed in five (5) stages so as to minimise disruption to research functions. It is anticipated that by the time the last stages are underway, ten to fifteen years from now, the landscape of Westmead will be quite different from the current one. There is likely to be significantly more development, both along Hawkesbury Road and within the Westmead Health Campus and Westmead Precinct as a whole.

The proposal provides a high level of environmental sustainability and has adopted a carbon neutral approach to building and services design. Items such as water tanks, low energy hot water supplies and energy efficient air conditioning have been included in the design concept and have undergone an initial phase of testing to ensure they can meet the "business critical" functions of the Institute. These have been expanded upon in the report and appendices and will be further developed in the detailed design phases of each stage of the project.

The environmental assessment of the proposal has concluded that the redevelopment of the CMRI is highly compliant with the applicable planning instruments and policies and the principles of Ecologically Sustainable Development. Both construction and operation impacts have been considered and many have been addressed through the design process. Where this could not be achieved, Statements of Commitments have been made which will see these impact mitigated at the appropriate time.

The assessment concludes that the site is suitable for the proposal and that the implementation of the redevelopment of the Children's Medical Research Institute is consistent with the public interest.

Accordingly, we seek the Ministers favourable consideration of this application.

# 1. Introduction

On 25 August 2008, the Director General of the Department of Planning, as the Minister's delegate, formed the opinion that the Children's Medical Research Institute(CMRI) Westmead Redevelopment is a major project under the terms of the State Environmental Planning Policy - Major Projects (Major Projects SEPP) and Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Director General's Environmental Assessment Requirements (DGEARs) were issued on 23 September 2008. This Environmental Assessment has been prepared in response to those DGEARs.

The purpose of the report is to outline the key aspects of the proposed redevelopment and to provide an assessment of the proposal in terms of the DGEARs. Table 1 in Section 1.4 shows where in the report each of the DGEARs has been addressed. A copy of the DGEARS is attached in **Appendix A**.

This Environmental Assessment report is structured as follows:

| | |
|---|---|
| 1. Introduction | This section provides an overview of the project and relevant background. |
| 2. Site Analysis | This section provides details of the existing site and the proposed redevelopment context. |
| 3. The Project | This section provides an overview of the proposal and its key elements. |
| 4. Environmental Assessment | This section responds to the Director General's Requirements in terms of the key issues raised and the plans and documents required. |
| 5. Consultation | This section details the issues discussed with key agencies. |
| 6. Draft Statement of Commitments | This section contains a Draft Statement of Commitments. |
| 7. Conclusion | This summarises the key issues and provides a recommendation to approve the Project as outlined within the report. |

## *1.1 Background*

The Children's Medical Research Institute (CMRI) was established as the Children's Medical Research Foundation in 1957 and was originally part of the Royal Alexandra Hospital for Children at Camperdown. It is now an independent organisation, although it works with hospitals and the University of Sydney in research and teaching aspects.

Over the past 50 years, CMRI has contributed to advances in paediatric health and well-being in many ways, including the improved survival of premature babies, pioneering microsurgical techniques and developing paediatric heart and lung support systems for surgery in infants.

Growth in its workforce, its physical premises, and its research infrastructure are critically important for CMRI to maintain a leadership position in the current areas of research excellence. It is equally important to allow CMRI to retain the expertise offered by senior research staff, to attract high-quality new staff, and, importantly, to increase its ability to compete successfully for major new funding.

With well-equipped facilities, world-class researchers, and an investment fund that is large by Australian standards, CMRI have a strong platform on which to build. It is anticipated that new teams will be recruited in four areas: cancer research, neurochemistry/therapeutics, developmental biology/congenital diseases, and genetic medicine. The aim will be to establish a cluster of teams in each of these disciplines.

The proposed expansion would enhance CMRI's capacity to take up opportunities for interactions and collaborations with other research teams especially those at the Children's Hospital Westmead.

## *1.2 Aims and Objectives*

The key aims and objectives of the development are to:

- Provide the CMRI with the state of the art research facility to allow it to attain a critical mass in research terms in order to enrich and diversify its existing in-house expertise in parallel with the rapid growth of knowledge and technological advances in their current areas of research.

- Develop the Institutes' workforce, its physical premises, and the research infrastructure to maintain its position as a leader in its current areas of research excellence.

- Give the Institute the ability to retain the expertise offered by current senior research staff and to attract high-quality new staff, and, importantly, to increase its ability to compete successfully for major new funding that is now available principally for consortia of research teams with a common research focus and/or to medical research institutes that have a substantial breadth in their research portfolio.

- Give the Institute the ability to take up opportunities for interactions and collaborations with other research teams in basic sciences and clinical research on the Westmead campus, especially those at the Children's Hospital Westmead.

- Develop a world class research facility that is compliant, efficient and economical to run that incorporates the latest offerings in energy saving technologies without loosing the fundamental operating principles of redundancy, adaptability and sustainability.

## *1.3 The Project Team*

The team for this redevelopment project is:

| **Company** | **Role** |
|---|---|
| Children's Medical Research Institute | Project Director |
| Ancher Mortlock Woolley | Architect |
| Arup | Structural Engineering, Geotechnical Engineering, Vibration and Noise |
| Brian Knight & Associates | Electrical Engineering |
| Colin Shears Associates | Mechanical and Environmental Engineering |
| Davis Langton | BCA Compliance and Quantity Surveyor |
| Defire | Fire Engineering |
| Michael Frost & Associates | Hydraulic Engineering |
| SCAPE | Traffic and Transport |
| Urban Planning Outcomes | Statutory Planning |

## *1.4 Compliance with Director Generals Requirements*

Table 1 following outlines how the Project Application addresses the Director General's Environmental Assessment Requirements.

**Table 1 Compliance**

| | **Issue** | **Location** |
|---|---|---|
| 1. | An executive summary | Page 1 |
| 2. | A description of the proposal including:<br>▪ description of the site including cadastre and title details;<br>▪ a thorough site analysis and description of the existing environment;<br>▪ suitability of the site for the proposed development;<br>▪ likely environmental impacts;<br>▪ design, construction, operation, maintenance, rehabilitation and staging as applicable; and<br>▪ justification for undertaking the project, taking into consideration the environmental impacts of the proposal, the suitability of the site and whether or not the project is in the public interest | <br>Chapter 2.2<br>Chapter 2 and Appendix B<br>Chapter 2.8<br>Chapter 4<br>Chapter 4<br>Chapter 3<br>Chapters 4 and 7 |
| 3. | A consideration of the following with any variations to be justified:<br>(a) all relevant State Environmental Planning Policies; and<br>(b) applicable local planning instruments and relevant legislation and policies. | Chapter 4 |

| | |
|---|---|
| 4. A draft Statement of Commitments, outlining commitments to the project's management, provision of infrastructure, mitigation and monitoring measures with a clear identification of who is responsible for these measures. | Chapter 6 |
| 5. A conclusion justifying the project, taking into consideration the environmental and construction impacts of the proposal, mitigation measures to address these impacts, the cumulative impacts of the proposal, the suitability of the site, and whether or not the project is in the public interest. | Chapter 7 |
| 6. A signed statement on the validity of the Environmental Assessment, the qualifications of person(s) preparing the assessment and that the information contained in the Environmental Assessment is neither false nor misleading. | Page 8 |
| **Key Assessment Requirements** | |
| ***Urban Form and Design***<br>▪ Urban design, height, density, bulk and scale of the development and relation to the surrounding development, landscape and topography;<br>▪ Floor space calculations;<br>▪ Site analysis and architectural plans;<br>▪ External materials and finishes, including a sample board;<br>▪ Photomontages and view analysis;<br>▪ Details of proposed areas of landscaping and open space | Chapter 3 and Appendix B |
| | |
| ***Amenity Impacts on Neighbouring Properties***<br>▪ Address the visual impact, privacy and overshadowing of the development on adjoining properties, with particular regard to any sensitive uses. | Chapter 4 and Appendix B |
| | |
| ***Transport, Traffic & Access***<br>▪ Provide a Transport and Accessibility report that takes into consideration the objectives of the draft West Central Subregional Strategy and addresses the following:<br>o Surrounding context and how proposal fits within the overall Westmead Hospital Precinct in terms of transport and traffic management;<br>o Measures to encourage mode shift to public transport and reduce reliance on on-site car parking;<br>o Identify existing public transport services in the site, together with other transport services offered by the hospital;<br>o 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 bike storage;<br>o Identify Travel Demand Management (TDM) measures that will optimise the opportunity provided by the project site's proximity to public transport; | Chapters 2 and 3 |

| | |
|---|---|
| ▪ Demonstrate compliance with the RTA Guidelines for Traffic Generating Development;<br>▪ Internal road and access arrangements including entry points, drop off points, traffic management and hierarchy;<br>▪ Off street car parking provision and management of on street parking;<br>▪ Service delivery;<br>▪ Proposed emergency evacuation and public access. | |
| | |
| ***Construction Impacts***<br>▪ Traffic management during construction including car parking requirements for construction workers;<br>▪ Address any likely geotechnical impacts;<br>▪ Flooding, drainage and stormwater management issues, including: on-site detention of stormwater, Water Sensitive Urban Design, and drainage infrastructure;<br>▪ Air pollution, soil and erosion and waste material;<br>▪ Noise and vibration;<br>▪ Details of any cut and fill and whether any fill is proposed to be imported or exported to/from the site. | Chapter 4 |
| | |
| ***Operational impacts***<br>▪ Address noise generated from plant and equipment;<br>▪ Waste management including biomedical, infectious or toxic wastes, storage of any chemicals / hazardous materials;<br>▪ Site security;<br>▪ Emergency and evacuation procedures;<br>▪ Fire safety;<br>▪ Lighting;<br>▪ Signage.<br>▪ ESD measures<br>o Address proposed ESD measures including thermal massing, water sensitive urban design measures, energy efficiency, recycling and waste disposal.<br>▪ Services<br>o Address capacity of utilities including water, sewer, stormwater, gas, power and telecommunications infrastructure which will serve the project. | Chapters 3 and 4 |
| Quantity Surveyor's report for the project | Appendix J |

# *1.5 Statement of Validity*

| **Submission of Environmental Assessment** |
|---|

Prepared under Part 3A of the *Environmental Planning and Assessment Act 1979*

| **Environmental Assessment prepared by** | |
|---|---|
| Name: | Leoné McEntee |
| Qualifications: | BA (Geog), Diploma Urban and Regional Planning, Grad Dip Natural Resources Law |
| Address: | UPO Pty Ltd<br>PO Box 787<br>Matraville NSW 2036 |
| In respect of: | Children's Medical Research Institute<br>Westmead Redevelopment |

| **Applicant & Land Details** | |
|---|---|
| Applicant name | Children's Medical Research Institute |
| Applicant Address | 214 Hawkesbury Road Westmead |
| Land to be developed | As above |
| Lot & DP | Lot 1 DP 847561. |

| **Environmental Assessment** | An environmental assessment is attached |
|---|---|
| Statement of Validity | I certify that I have prepared the contents of the environmental assessment in accordance with the Director Generals Environmental Assessment Requirements dated 23 September 2008, and that to the best of my knowledge, the information contained in the environmental assessment is neither false nor misleading. |
| Signature |  |
| Date | 17th March 2009 |

# 2. Site Analysis

## 2.1 Strategic Location

**Figure 1 Site Location**

### *Regional Context*

The CMRI sits within the Westmead Health Campus in the suburb of Westmead, within the Parramatta Local Government Area (LGA). It is approximately 26kms west of Sydney's CBD, 1.5kms north-west of the centre of Parramatta and 0.5kms north of Westmead Train Station.

The Westmead Health Campus, by the nature of its operations, is a significant provider of health services and employment to the Sydney Metropolitan area. The Westmead Health Campus is surrounded by the residential suburbs of Wentworthville, Northmead and North Parramatta and is connected by rail and bus services to the Sydney Metropolitan area. The Westmead Health Campus is immediately north of Westmead Train Station.

### *Metropolitan Context*

The Metropolitan Strategy is the NSW State Government's long term plan to maintain Sydney's role in the global economy and to plan for sustainable growth and change over the next 25 years.

The Strategy, outlined within a document entitled "City of Cities – A Plan for Sydney's Future", was released in December 2005. Draft Sub Regional Strategies have been prepared by groups of Local Councils led by the Department of Planning to provide detail of how housing and employment targets in the Metropolitan Strategy will be achieved.

Sydney's population is projected to grow from its current level of 4.2 million to 5.3 million by 2031. To accommodate this growth, the State Government anticipates it will need to provide 640,000 new dwellings and 500,000 new jobs. The "West Central: Sub Region" comprising the Auburn, Bankstown, Fairfield, Holroyd and Parramatta LGA Site is planned to accommodate an additional 95,000 dwellings and 35,000 jobs by 2013.

The Metropolitan Strategy emphasises the government's recognition of the significance of the specialised centres to the metropolitan economy and sets important targets and objectives, with which the development controls within the implementation plan must satisfy. The Metropolitan Strategy recognises that industry clusters are emerging, with Westmead, together with Sydney Central and Randwick being the location of biomedical clusters in Sydney. While Sydney Central and Randwick are closely linked with higher education facilities, Westmead hosts the greatest cluster of health facilities.

The Plan supports a metropolis made up of 6 key regional centres including Sydney's CBD, North Sydney, Parramatta, Liverpool, Penrith and Gosford and 9 other strategic centres. The specialised centres have been identified for the critical economic and employment role they play in the city's economy. Typically they contain concentrated business and research functions. Westmead is identified in the Plan as being one of the 9 specialised centres.

### *Local Context*

The land uses surrounding Westmead Health Campus include:

- high density housing and significant residential areas to the north and south of the
- Westmead Railway Station;
- public open space (Toongabbie Creek which runs west to east and meets Parramatta River, and Parramatta Regional Park);
- educational (UWS and the Catherine McAuley and the Marist Brothers High Schools);
- health and community services (Ramsey Private Hospital and DADHC);
- some more recent office and business developments;
- limited retail, generally near to the Westmead Railway Station; and
- industrial (Coca Cola Amatil located north of Toongabbie Creek).

The CMRI facility is located within the Westmead Health Campus on land described as Lot 1 DP847561. The land is currently owned by the Health Commission of NSW and is leased from them. The facility is located on Hawkesbury Road Westmead and has a leased site area of 4773m$^2$ and with an existing building footprint of approximately 2153m$^2$ and a total floor area of 4500m$^2$. Floor plans of the existing facility are shown on the Demolition Drawings EA020 to EA 023 in **Appendix B**.

## 2.2 Site Description

The site is located within the Westmead Health Campus and is legally described as Lot 1 in Deposited Plan 847561 within the local Government Area of Parramatta. It has an area of 4772m$^2$ with a frontage of 74.27m to Hawkesbury Road. The site is of regular shape and slopes gently away from the road.

## 2.3 Site Analysis

A Site Analysis Drawing (EA 010) is included in the Architectural Drawings in Appendix B.

### 2.3.1 Zoning and Ownership

The site is owned by the Health Commission of New South Wales and is leased to the Children's Medical Research Foundation until 2042 plus a further 50 year option. The land is zoned Special Uses 5(a) under Parramatta LEP 2001 and the proposed use is permissible within the zone.

### 2.3.2 Surrounding development

The site sits within the Westmead Health Campus despite being a separate and private entity. The majority of the development surrounding the CMRI site is medical and/or research related. The Westmead Children's Hospital is immediately adjacent.

Across Hawkesbury road the predominant land use is high density residential, although most consists of 1960s and 1970s 3 storey walk up development.

**Figure 2 Development directly across Hawkesbury Road**

**Figure 3 Development further southwest along Hawkesbury Road**

**Figure 4 Development across Hawkesbury Road**

A small amount of low scale retail exists at the Hawkesbury Road and Tway intersection with the majority being café and similar development in combination with minor medical suite development. A larger scale mixed use/commercial opportunity is being proposed on the University of Western Sydney site on the same corner, however this has yet to be submitted for approval.

**Figure 5 - View along Hawkesbury Road**

### 2.3.3 Easements and Restrictions

There are no current Easements or Restrictions on the Title, apart from the lease to CMRI as mentioned above in section 2.3.1.

### 2.3.4 Topography and Landscape

The site was originally a green field site and sloping approximately 3 degrees towards the North and away from Hawkesbury Road. The existing building takes up most of the existing site.


**Figure 6 - Existing Building**

## 2.3.5 Geology and soils

The geological map of Sydney indicates that the site is underlain with Bringelly Shale of the Wianamatta Group. The shale comprises carbonaceous claystone, laminate, fine to medium grained lithic sandstone and rare coal.

A ground investigation, comprising four boreholes, was completed by Arup Geotechnics in 1990 as part of existing development. A copy of that report is attached at **Appendix C**. The diagram below indicates the location of the boreholes tested for the 1990 study.

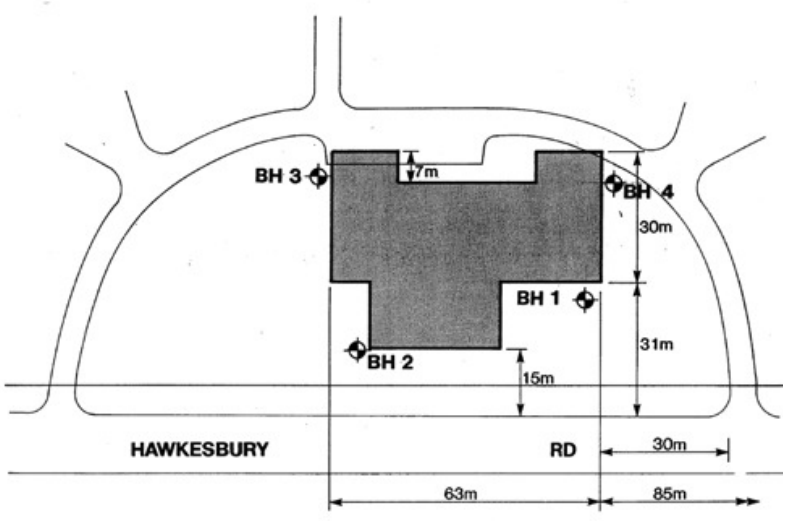


**Figure 7 Bore Hole Locations 1990**

Based on these investigations, the ground conditions are summarised below:

**Table 2 - Ground Conditions**

| Depth to Top of Strata | Designation | . Description |
|---|---|---|
| 0 | Fill | Brown silty CLAY, medium plasticity with traces of fine to coarse gravel and fragmented brick |
| 0.55 – 0.80[1] | Residual Soil | Silty CLAY – red brown, low plasticity |
| 0.85 – 1.60[2] | Bringelly Shale | SILTSTONE – grey and brown, highly weathered, very low strength, friable becoming grey, moderately weathered, medium strength |

[1] *Not encountered in all boreholes – absent in BH 3*
[2] *Slightly weathered fine grained sandstone encountered at 7.7m in BH 4*

Laboratory testing was completed on samples of residual soils and siltstone. The key findings of the laboratory testing are summarised in the following table.

**Table 3 - Laboratory Test results**

| Material | Comment |
|---|---|
| Residual Soil | Medium plasticity |
| | Moderately reactive clay (Class M) |
| | Maximum dry density = 1.65t/m³ |
| | Optimum moisture content = 21.0% |
| | Soaked CBR = 7.5 |
| | |
| HW Siltstone | Point load = 0.16 – 2.0MPa (UCS = 3.2 – 40MPa) |
| | Optimum moisture content = 13.5% |
| | Maximum dry density = 1.94t/m³ |
| | Soaked CBR = 3.0 |

Groundwater was not encountered above 2.6m below ground level (17.6 – 20.9m AHD). Below these levels, water flush was used, precluding the measurement of groundwater levels.

#### 2.3.5.1 Existing Development

The existing building is currently two levels with an additional level of plant at the roof in the centre. The building is a reinforced concrete structure founded on 450mm/750mm diameter bored piles. Construction records indicate that the piles range from 3m to 6.5m depth below existing ground level. The toe level of the piles ranges from 13.6mAHD to 18.7mAHD.

# *2.4 Existing transport and pedestrian environment*

Westmead is relatively well served by public transport with rail, T-way and bus services. The road network tends to be congested, particularly at peak periods during the week. Anecdotal information suggests that congestion is worse on Tuesdays, Wednesdays and Thursdays in conjunction with scheduling of out patient clinics. These are also the times when there is maximum demand for parking within the area. The Westmead Transport Access Guide (TAG) provides a comprehensive summary of transport services.

Westmead Health Campus has four main gateways:

- Hawkesbury Road as the main entrance for Westmead Hospital and Children's Hospital Westmead, including the adjacent CMRI;
- Institute Road which provides primary access into Westmead Health Campus and Redbank School;
- Redbank Road which provides access into the Health Campus from the north; and
- Bridge Road, which links Cumberland Hospital with the main Health Campus.

A full description of existing transport services is is the Transport and Accessibility Report by SCAPE at **Appendix D**.

## 2.4.1 Public Transport

***Rail***

Westmead Health Campus is located close to Westmead Railway Station, which is located approximately 700 metres from CMRI, well within a 10 minute walk. Westmead is serviced by the Western, Cumberland and Blue Mountains Lines. The Western Line runs from North Sydney to Emu Plains/ Richmond via Parramatta. The Cumberland Line runs from Campbelltown to Blacktown via Liverpool. The Blue Mountains Line runs from Central to Lithgow via Penrith.

The Western Line interchanges with the Carlingford Line at Clyde. The Western Line interchanges with the Northern, Inner West and South lines at Strathfield and with the North Shore line at Hornsby. Interchange between the Western Line and the Eastern Suburbs, Bankstown and Airport Line can be made at Central. There is no direct interchange between the Northern Line and the Cumberland and Carlingford Lines.

Westmead Station has good facilities, having undergone a $4.1 million Easy Access upgrade in 1995 and is therefore fully accessible with lifts, tactile paving, wheelchair-accessible car spaces and a wheelchair-accessible toilet.
Facilities include:

- Wheelchair Access (including lifts to platforms)
- Kiosk selling newspapers, snacks and drinks
- Ticket windows and machines
- Bus stop nearby, taxi rank and 'kiss and ride' bays
- Car parking

Westmead is currently the third most frequently serviced station in the Parramatta LGA.

***Bus***

Westmead Health Campus has recently benefited from the construction of the North-West Tway, which extends from Parramatta to Rouse Hill. The North-West Tway was built to provide fast, frequent and convenient bus services for the north-west Sydney region.

Westmead is reasonably well serviced by buses. On weekdays, eight (8) routes serve Westmead Hospital with approximately 190 services on these routes in each direction. Approximately 40% of these services run during peak hours. On Saturday and Sunday the number of routes serving the area is reduced to five (5) providing approximately 90 and 67 services in each direction on Saturday and Sunday, respectively.

Five (5) of the eight (8) routes are Tway routes. Of the eight (8) routes running through the Westmead area, seven (7) terminate at Parramatta and the eighth terminates at Merrylands. In the opposite direction, there are three (3) routes going to Rouse Hill, Blacktown and Kellyville respectively, one (1) route going to Northmead and the last route terminates at Westmead. The bus frequency analysis shows that Westmead Health Campus is fairly well served during the morning (7 am to 10 am) and evening (4 pm to 7 pm) peak periods from Monday to Friday. Weekend and evening services are somewhat more limited, especially on Sundays. For details refer to Appendix D.

CMRI is located approximately 450m (within a level 5 minute walk) from the Darcy Road Tway stops and local service bus stops are located close to the CMRI entrance on Hawkesbury Road.

***Taxis***

Westmead Train Station has a taxi rank and there is a taxi rank on Hawkesbury Road between CMRI and the entrance to Children's Hospital Westmead. Direct taxi phones are provided at each major hospital entrance, including emergency, outpatients and dental school entrances and the main entrances. Given the level of activity at the Westmead Hospital Campus, adjacent land uses including University of Western Sydney and the proximity of Westmead to Parramatta, taxis are generally available at Westmead.

***Community / Hospital Transport***

Given the nature of travel to and from CMRI, community/hospital transport is not relevant. CMRI does not run any employee specific transport services.

***Walking***

All the streets around Westmead Hospital Campus have footpaths and there are pedestrian crossings at Hawkesbury Road/Darcy Road and Hawkesbury Road/Railway Parade. Generally the street network provides good levels of pedestrian accessibility.

Traffic islands along Hawkesbury Road facilitate informal pedestrian crossing. Walking paths through Parramatta Park provide access to Parramatta. Residential areas close to CMRI are easy to walk through with adequate footpaths and traffic management measures that limit through traffic. Plans to develop Westmead Hospital Campus in the future will see pedestrian facilities improved with particular proposals to improve the linkage between Westmead Station, Westmead Hospital entry and Children's Hospital entry, via the Tway stops on Darcy Road through the provision of a continuous walkway negating the need to cross Hawkesbury Road and Darcy Road at grade.

***Cycling***

There are relatively few dedicated cycle route facilities in and around the Westmead Health Campus with existing facilities focused on Parramatta Park. Parramatta City Council has recently initiated an update of the municipality bike plan and a draft document was on public exhibition in late 2008, and is currently being finalised.

Current cycle paths to and from the Health Campus are limited. A bi-directional off road path has been provided adjacent to the Tway, however, a section adjacent to the elevated Tway between Cumberland Highway and Ferndale Close is currently missing and leaves cyclists to make a detour via local streets. The draft Parramatta Bike Plan identified the missing section and proposed an on road facility.

There is a nearby cycleway through Parramatta Regional Park which runs on-road along the periphery of the park effectively connecting Westmead with Parramatta CBD. This path links to Hawkesbury Road in the vicinity of CMRI via Caroline Street, although Jessie Street provides an easy and more direct link to CMRI. The draft Bike Plan also proposed an off road facility through Milson Park to Lydbrook Street and Wentworth Avenue, connecting to Wentworth, Pendle Hill and Toongabbie.

## 2.4.2 Road

Road access to the Westmead Health Campus is via Darcy Road from the west and Hawkesbury Road from the south. Direct access from the north and east is limited by Cumberland Hospital and Parramatta Park, respectively. Darcy Road has an AADT in the vicinity of 12,500 vehicles.

Local roads around the Campus which are highly significant for the Health Campus include Hawkesbury Road, Redbank Road and Institute Road. WHC lies just to the south of the intersection of Cumberland Highway and Old Windsor Road. Old Windsor Road/Cumberland Highway provides a connection between the M2 and M7 to the north and M4 and Great Western Highway to the south.

O'Connell Street, which is adjacent to Church Street, a main road leading to Parramatta, provides a connection to the east of WHC. This does not provide road access to CMRI but does offer cycle and pedestrian access via Cumberland Hospital. Darcy Road has three signalised crossings along the length of the Health Campus, including at the intersection of Darcy Road and Hawkesbury Road.

A painted median and traffic islands along Hawkesbury Road to the north of the intersection with Darcy Road assist pedestrians crossing the road, including within the vicinity of CMRI.

## 2.4.3 Parking

***Supply***

Westmead Health Campus currently has nine (9) car parks for Westmead Hospital and 3 car parks for Children's Hospital. CMRI provides some parking on land immediately adjacent to their existing building. Figure 7 below shows the location of the parking.

**Figure 8 - Existing car parking adjacent to the building**

CMRI staff have access to the following off street parking:

- Adjacent to CMRI 6 spaces (free)
- WH staff car park 13 spaces (free)
- CHW staff car park 18 spaces ($462 per annum)

A reorganisation of the off street car parking is planned, including the demolition and rebuilding of some car parks. This will result in an overall increase in the off street parking available to WHC staff and visitors. Children's Hospital Westmead has progressed plans for the construction of a new car park to the north of CMRI. CMRI will part fund the car park construction and secure approximately 100 parking spaces for CMRI staff. The total amount of car spaces within the Campus is around 5,800.

The main public car parks on the Campus are on Hawkesbury Road (two) and off Hainsworth Street serving the Children's Hospital. Public car parks have an effectively full occupancy during main weekday hours. CMRI staff use the public car parks.

On street parking in the residential area to the east of Hawkesbury Road has recently been subject to additional restrictions with the introduction of residents only parking on approximately half the street space. Non residents can park in restricted spaces for up to two (2) hours. On street parking is also available in the Redbank Road area, directly to the north of WHC and these streets are not subject to additional controls.

## 2.4.4 Existing Travel Demand

It is not appropriate to utilise standard trip generation rates for CMRI. To provide appropriate trip and mode share data a workplace survey has been conducted. The survey also provides the basis for the development of a travel demand management plan.

CMRI undertook a survey of all staff to establish current travel patterns, including home location, parking location (for drivers), the extent to which people already 'mix and match' travel options and attitudes of car users to alternative travel options. The survey was conducted in November 2008. Survey analysis has been supplemented by travel data for the travel zone including Westmead Hospital, Children's Hospital and CMRI.

***Staff characteristics and travel***

At the time of the survey CMRI employed 132 staff, of whom 40 were male and 92 female. Staff retention and turnover varies and is highly dependent on qualifications / age and work area. Amongst research staff, younger employees may stay a relatively short time with CMRI, completing specific placements while building their academic qualifications. More senior staff will remain at CMRI for many years given the specialised nature of the research undertaken and the lack of competing opportunities.

Analysis of staff resignations in the 12 months to the end of October 2008 indicated that 30 staff left CMRI employment during this period, 22.7%, including 10 visiting students who were each employed for between 1 and 6 months. The average length of employment of the staff that left through the year was just over 37 months. If visiting (temporary) students are removed from this calculation the average length of stay of permanent staff increases to just over 54 months or 4.5 years.

Over the same period of time, November 2007 to October 2008 inclusive, 31 staff commenced employment with CMRI.

***Existing Travel patterns***

Of the current CMRI staff, 74% (98) travel at least part of their way to work by car on at least some of their working days. Lesser numbers cycle, walk and use public transport. While rail is the most popular form of public transport, some staff travel by either Sydney Buses (Government buses) or private bus services. It should be noted that 24% (32) of staff walk to work on at least some of their working days.

To establish main mode of travel, CMRI staff were asked about their travel on a single day and asked to identify their main mode, that is, the mode they used for the longest part of their trip to work. Journey to Work (JTW) data collected at the 2006 Census was analysed to provide comparative data and establish relative performance of CMRI in terms of staff travel. All JTW trips with a destination in Travel Zone 1693 were included. Travel Zone 1693 encompasses the Westmead Hospital Campus (Westmead Hospital, Children's Hospital at Westmead, collocated research facilities including CMRI, Redbank School and the DADHC site on Mons Road. The Census category 'did not travel / worked at home' was excluded from the analysis to provide a comparable data set.

Overall CMRI staff exhibit a much greater propensity to use public transport, walk and cycle (included in the 'other' category in Census data by Travel Zone) than staff working within Travel Zone 1693 on average. CMRI staff are also less likely to drive to work than staff working at the WHC on average.

Staff roles vary considerably within CMRI, encompassing research, administration and support functions. Of the 132 staff, 92 sometimes work after hours during the week. It is also apparent that staff frequently start work relatively early (prior to 8am). Animal attendants work specified shifts with staff commencing work between 5am and 6am daily.

Discussions with CMRI suggest that the nature of medical research demands staff to work sometimes long and unpredictable hours in order to monitor and respond to experiments.

***Attitudes to Alternatives***

Staff were asked about what would potentially influence them to choose an alternative to car travel. Cheaper, faster, more reliable, more direct public transport services were identified by many staff (52 of the 132 surveyed). The remaining staff made no suggestion, already travel sustainably or indicated they would not consider changing from their currently preferred travel mode.

# *2.5 The existing buildings and uses*

The site is currently occupied by the existing CMRI building which was completed in 1992. The proposal sees this building demolished in stages as the redevelopment progresses.

# *2.6 Existing Infrastructure*

## 2.6.1 Stormwater

The existing drainage system servicing the CMRI building is documented on the 'as-built' drawings by W.G. Clarke, attached at **Appendix E**. The discharge from the site is currently into the service-way lane to the west and drains into a common On-Site Detention (OSD) pond located at the eastern boundary of the hospital grounds.

## 2.6.2 Gas

The site is currently fed with a gas service from the street main in Hawkesbury Road which supplies mainly laboratory gas outlets and mechanical boilers. A new service will be required as described in Section 3.6.4.

## 2.6.3 Electricity

The existing 1000kVA service will require augmentation for the proposed development and several options are being explored as to the most efficient manner in which to achieve the additional power. These are discussed in Section 3.6.6.

## 2.6.4 Sewer

The Children's Medical Research Institute site is located on the Westmead Campus and as such does not have its own separate connection to the Sydney Water Corporation sewer system but connects to an internal sewer system within the campus site which in turn connects to the Sydney Water Corporation sewer system.

Investigations into the most appropriate connections have been made and the proposed service is described in Section 3.6.2.

### 2.6.5 Water

The current building is fed from the Sydney Water Corporation's 150mm diameter main in Hawkesbury Road via a 50mm service and meter set up on the front boundary. Advice from Sydney Water is that it will be necessary to upgrade the incoming main to a 100mm diameter combined Fire Hydrant and Domestic water main. This has been taken into account in the detailed design work, prior to construction.

## *2.7 Site contamination*

Given that the proposal is a staged redevelopment of an existing use constructed in 1992, and there is no indication of any site contamination, a specific site contamination study has not been undertaken. Should evidence of any contaminants become apparent during demolition of construction, they will be managed in accordance with the relevant Standards and Codes of Practice.

## *2.8 Suitability of the Site*

The proposed location of the CMRI redevelopment is on the same site as the existing facility. This is necessary due to the tenure arrangements with NSW Health as well as the need to maintain the critical links with the Children's Hospital and other research facilities within the Westmead Health Campus. The reuse of the site through a stages redevelopment process saves considerable environmental resources, eliminates duplication of existing services and retains the integrity of the location. There are no environmental constraints to redevelopment in this location. On that basis, the site is considered to be is highly suitable for the proposed redevelopment.

# 3. The Project

## *3.1 Introduction*

The Children's Medical Research Institute (CMRI) was established as the Children's Medical Research Foundation in 1957 and was originally part of the Royal Alexandria Hospital for Children at Camperdown. It is now a independent organisation, although works with hospitals and the University of Sydney in research and teaching aspects.

Over the past 50 years, CMRI has contributed to advances in paediatric health and well-being in many ways, including the improved survival of premature babies, pioneering microsurgical techniques and developing paediatric heart and lung support systems for surgery in infants. More recently, the research efforts at the Institute have focused on exploring the very basis of human development as a route towards understanding the molecular cause of disease. It has led the way in gaining new insights into the mechanisms of cancer, in basic studies on the development of the brain, nerve and muscle cells and their function, in working towards new gene therapies and in exploring the molecular mechanism for the establishment of the blueprint for embryo development.

## *3.2 Need for the project*

Ongoing growth in research need and funding have required the CMRI to look at expanding their facility to incorporate additional research space up to approximately 16,800m$^2$ in the long term. This is anticipated to be managed in five (5) stages, and approval is sought for all stages as part of this application. This staging philosophy is to minimise disruption to research activities and to allow for staged funding.

The new facility will contain a new entry off Hawkesbury Road, new laboratory modules, write up areas, library, staff canteen and board rooms as well as additional parking in the basement. Additional parking is currently being negotiated with the Children's Hospital to cater for expanded staff numbers in the future.

An increase of approximately 520 to 540 new researchers and support staff could be achieved through the development of the facility. These researchers would be engaged in areas of cancer research, neurochemistry/therapeutics, developmental biology/congenital diseases and genetic medicine.

One of the key considerations in attracting research staff and funding is the quality of the research facility. This proposal will contribute significantly to this objective.

## *3.3 Building Design*

The current CMRI building is a research and administrative facility designed by Ancher Mortlock Woolley Architects and completed in 1992. The existing facility provides two levels of research, administrative, seminar, and building support areas with a public frontage to Hawkesbury Road. This environmental assessment concerns the redevelopment of the facility

in order to allow a significant increase in the research potential of the facility, while responding appropriately to the contextual demands of the Westmead campus and Hawkesbury Road. The redeveloped facility comprises six (6) floors of research, administrative, support and staff recreation spaces, a roof top plant level and a basement level. Full concept design details including architectural plans, elevations and photomontages are included in the documentation in Appendix B.

The redevelopment will involve the relocation of the main entry and public address of the building to the south-east corner of the site, adjacent to the service road on the west elevation in Stage Three. As the gradient of Hawkesbury Road decreases as it runs east, the reception level will be located on the 1st floor. A stair and ramp structure will allow access to the reception while also providing a prominent front-door to the development. Dock facilities and parking are located further west along the service road. The elevated link to the Packer building to the north will be enlarged to allow a second level of access, and there is provision for a further elevated and basement level link to the site to the west.

One of the key features of the design is its ability to provide internal flexibility thereby allowing the CMRI to contribute physically to the future research hub at Westmead through linkages and pathways to existing and future facilities within the Precinct.

The completed building will have a have a total floor area of 19,260m$^2$. In order to calculate Floor Space Ratio, the following definitions, adopted by Parramatta City Council, has been used:

*" **floor space area of a building** means the sum of the gross horizontal areas of each floor of the building contained within the inner faces of the outer walls measured at a height of 1.5 metres above the floor, including the space occupied by internal walls, staircases, lobbies, corridors and toilets, but not including:*

*(a) the horizontal cross section of lift shafts and vertical service ducts measured between the wall faces internal to the lift shaft or duct, or*

*(b) any space permanently set aside within the building for basement parking, other than spaces used for public car parking, and for the unloading or loading of vehicles, including ramps or other means of access to it, or*

*(c) any space for the accommodation of mechanical or electrical plant or equipment servicing the building, or*

*(d) any terraces and balconies with walls less than 1.5 metres high, or*

*(e) attic rooms, or*

*(f) in the case of single dwellings, one single car space with the dimensions of 3.0 metres in width and 5.5 metres in length, or*

*(g) any space permanently set aside within basement car parking areas for storage, garbage rooms and the like.*

***floor space ratio**, in relation to a building, means the ratio of the floor space area of the building to the area of the allotment on which the building is or is proposed to be erected."*

Based on these definitions the floor space ratio of the building will be 4.03:1. Details of the breakdown floor by floor are provided on Drawing EA-140 in Appendix B. A comparison of existing and proposed building information is set out below:

**Table 4 Comparison of Proposal to Existing**

| Criteria | Existing | Proposed |
|---|---|---|
| **Site Area** | 4772m$^2$ | 4772m$^2$ |
| **Footprint** | 2696m$^2$ | 4117.2m$^2$ |
| **Landscaped area (total)** | 2076m$^2$ | 654.8m$^2$ |
| Permeable | 1357.9m$^2$ | 337.4m$^2$ |
| Impermeable | 718m$^2$ | 317.4m$^2$ |
| **GFA** | 4783.56m$^2$ | 19260m$^2$ |
| **FSR** | 1.00:1 | 4.04:1 |
| **Max RL** | 34.675m | 52.9m |
| **Parking Spaces** | 0 | 23 |

### 3.3.1 Design objectives

There a number of objectives of the proposed design. Primarily, the redevelopment aims to increase the research capacity of the Children's Medical Research Institute, providing state of the art laboratory facilities and support spaces. Second, the redevelopment aims to enhance the identity of the institute. This is an important aim given the necessity to generate funding from public and private sources in order to continue the research work of the Institute. A further objective is to promote environmentally sustainable design wherever possible; an innovation in a typology where this has traditionally proved difficult. Finally, the redevelopment aims to maintain and enhance the neighbourly relations to adjoining buildings and the Westmead Health Campus as a whole.

The design achieves a high level of site efficiency in the use of the land and allows for a staged development which minimises disruption to research programs during construction

### 3.3.2 Elevational Program

The composition of the elevation responds to the physical demands of the different programs within the facility while informally adopting the classical tripartite strategy of base, middle, and top.

The base of the new facility will be constructed primarily of precast concrete panels with a circle-array relief. The precast panels clad sections of the building which require physical containment and separation from the environment such as the animal house. A section of landscaped wall is used as an alternate plinth on the south-western corner of the development providing a breathable barrier to the car parking. Refer to Drawings EA302 and EA 303 in Appendix B.

The middle floors of the facility – housing the main research and administrative spaces—are clad with a curtain wall system supplemented with passive and active solar control elements. The laboratory spaces use a passive system of vertical zinc blades which note the careful, ordered, and controlled nature of research work. The administrative areas use an active system which allows variable solar control depending on the prevailing conditions. Vertical circulation spaces are located on the perimeter of the building and are used as a contrasting device, punctuating the façade. The use of colour and more chaotic forms reference the ad-hoc nature of circulation, while their prominence in the elevation highlight the importance of collaboration and incidental discourse between different users of the facility. Service and laboratory support

spaces are typically clad with a second precast panel system allowing more intensive environmental control. The auditorium space is clad with a zinc panel system – differentiated from the other programs while aligned to the treatment of the laboratory.

The roof and plant of the facility are setback from the perimeter of the building and typically clad in perforated zinc and louvres.

### 3.3.3 Materials and Finishes

The materials proposed for the CMRI redevelopment were selected in order to: contribute to the aesthetic program of the building, for their suitability in the local context, their ability to match with existing materials – especially noting the staging of the construction, and their ability to 'weather' appropriately and provide a low maintenance regime into the future.

Precast concrete panels are used in several locations in the building: the plinth at low level on Hawkesbury Road, cladding for the service rooms – (for example, on the south east corner of the site). A light aggregate was selected in order to contrast with darker elements in the finishes palette. The panels use several surface treatments (smooth, textured, and exposed aggregate) and are shaped in order to allow modulating shadows to be cast during the day. Precast concrete has excellent durability and does not require further finishing (such as paint).

Zinc is used in a number of locations as a cladding material and porous barrier. The vertical sun shading is constructed from zinc sections with a galvanised metal substructure (including an access walkway for cleaning and servicing).

The CMRI logo and patterning is incorporated into the blades on the southern and western elevation by a subtle profiling of the inner and outer edges.

**Figure 9 CMRI logo on louvred wall**

The auditorium is clad with a proprietary zinc panel system, and the roof plant is enclosed by plain and perforated zinc panels, as well as profiled aluminium louvres. High level extraction vents are prefabricated in stainless steel.

Like the precast concrete, the zinc cladding has excellent weathering performance and does not require additional surface finishes or protection.

An aluminium framed curtain wall system is used behind the sun shading system. A standard grade of glass can be used in this system because the shading system protects the glazing from sunlight.

The car parking area is enclosed with a 'green' wall system on a stainless steel mesh substrate. This system allows the area to utilise naturally ventilation which decreases the load on the mechanical ventilation system. The following species are proposed for the 'Green Wall': Kangaroo Vine (*Cissus antartica),* Wonga Wonga Vine (*Pandorea pandorana)* Solanda Vine, and other robust native vines. These varieties were selected because they have fast growing rates. Substantial cover will be achieved within one growing season. The wall will source its base from planters at ground level.

Colour is incorporated into the elevations by the openings in the façade for the stairs (on the north, south, and west elevations) and in small areas at selected locations on the exterior – such as the exit doors. As the coloured elements are principally located internally the colours are protected from direct ultraviolet radiation, and can be easily refreshed.

### 3.3.4 Landscape

The site has minimal landscaping at the moment and this is not proposed to change with the redevelopment. Drawing EA-010 shows the extent of existing landscape and that proposed to be removed.

Four (4) of the Plane Trees at the front of the building will be removed during construction. These trees were planted in 1992 by CMRI at the time of the original development. Two (2) additional Plane Trees will be removed from the northern side of the building and one (1) at the rear due to encroachment of the building.

Following construction, these trees will be reinstated in a more suitable location in consultation with the Children's Hospital. The most significant landscape feature of the development is the "green wall" described above which will provide a highly visible landscape statement.

## *3.4 Staging and Timing*

An important consideration of the redevelopment of the CMRI is to allow the uninterrupted continuation of the operation of the facility. To achieve this aim, considerable analysis has been undertaken concerning the organisation and staging of the redevelopment. In its existent form, there is a sizable external foyer area adjacent to the entrance of the facility on Hawkesbury road.

The first stage of construction will occupy the majority of this area. During this stage the entrance will be temporarily relocated to the road on the Eastern elevation. However, the completion of the first stage will reinstate the entry from Hawkesbury road through the first stage. At the completion of the first stage the areas in the north east quadrant of the existing facility can be decanted into the new stage and services relocated to the roof of stage 1. This quadrant can then be demolished to allow the construction of the second stage.

Subsequent stages are developed using a similar decanting-construction methodology working clockwise through the development culminating with the construction of the central atrium/staff recreation space in the centre of the development in place of the existing rooftop plant area.

In summary, the stages proposed are:

**Stage 1**

- The construction of a six storey building in the current forecourt area, to be occupied by new staff and staff from the northern wing; and
- Establishment of temporary entry from Hawkesbury Road.

**Stage 2**

- The demolition of the northern wing and the construction of a five storey block, including conference rooms, in its place.
- Completion of dedicated indoor and secure cycle parking in close proximity to staff facilities.

Stages 1 and 2 will take three to four years to complete and be able to accommodate 160 new researchers plus support staff bringing the total number of staff to 320. During this period of time Children's Hospital Westmead will simultaneously construct a new staff car park which will provide 50 dedicated parking spaces for CMRI staff.

**Stage 3**

- The demolition and construction of southern wing fronting Hawkesbury Road.
- Completion of new entry from Hawkesbury Road; and
- Relocation of staff within buildings will provide space for an additional 160 researchers plus support staff.

**Stage 4**

- Relocation of staff and animal house.
- Demolition of existing animal house and completion of southern wing.
- Completion of conference and associated facilities.
- On-site parking providing 20 car spaces.
- Completion of Stage 4 will allow total staff numbers to increase to approximately 520.

**Stage 5**

- Decommissioning of plant and services in central core; and
- Construction of atrium courtyard and associated staff amenities (no further increase in staff numbers).

It is anticipated that by the time the last stages are underway, ten to fifteen years from now, the landscape of Westmead will be quite different from the current one. There is likely to be significantly more development, both along Hawkesbury Road and within the Westmead Health Campus and Westmead Precinct as a whole.

The stages are shown on Drawing EA-500 in Appendix B.

# *3.5 Traffic management and car parking*

## 3.5.1 Introduction

It is not considered appropriate to utilise trip generation rates given within the RTA's Guide to Traffic Generating Developments. The Guide does not specifically provide trip generation rates for medical research facilities as distinct from either an office/commercial building or medical facility with visiting patients. The operational characteristics and anticipated employee density clearly set CMRI apart from these alternative land use types.

Similarly parking requirements stipulated within the Guide are not considered appropriate. In addition to the specific nature of CMRI, the Westmead area is severely constrained with respect to parking supply, impacting on current and future parking demand.

Given the lack of available data on which to base an assessment of future traffic and parking requirements data has been extrapolated from travel habits of existing staff. This analysis develops a set of targets for CMRI in terms of future redevelopment and staff growth.

## 3.5.2 Targets

Currently 64% of CMRI staff drive to work. Staff have access to 47 off street car park spaces. This indicates that of the 160 staff that can be accommodated in the existing building, 102 staff drive to work with 46% of these staff having access to off street parking and 54% having to find other parking.

If CMRI staff exhibit the same mode share in the future, i.e. 64% staff drive to work and additional off street parking is increased as planned in stages 2 and 4, ultimately a similar proportion of driving staff will have off street parking available on completion of the redevelopment.

**Table 5 - Staff Travel and Parking**

| Development Stage | Additional Staff | Total Staff | Total Staff Driving | Additional Off Street Parking Available | Total Off Street Parking | % Driving Staff with Off Street Parking Space |
|---|---|---|---|---|---|---|
| Current building | | 160 | 102 | | 47 | 46% |
| Stage 1 | 32 | 192 | 123 | 50 | 97 | 79% |
| Stage 2 | 128 | 320 | 205 | 0 | 97 | 47% |
| Stage 3 | 160 | 480 | 307 | 50 | 147 | 48% |
| Stage 4 | 40 | 520 | 333 | 14 | 161 | 48% |
| Stage 5 | 0 | 520 | 333 | 0 | 161 | 48% |

However, this will result in an increased demand for on street parking and off street parking in public car parks, increasing the impact of CMRI on available parking and in particular parking available to patients, out patients and visitors to the WHC. If the status quo in terms of the number of on street and off street parking spaces is maintained into the future then driver mode share must be reduced.

To ensure the redevelopment of CMRI and the resultant increase in staff numbers does not adversely impact on the wider Westmead health community, patients and visitors, CMRI staff driver mode share must reduce from 64% to 42%. This mode shift can be achieved in stages based on redevelopment progress and staff number increases.

Using the parking availability as the basis of targets for the Transport Demand Strategy (TDS), potential future traffic generation has been calculated. This shows that the redevelopment of CMRI will result in a very small increase in peak hour traffic on the surrounding road network.

The maximum number of additional peak hour vehicles is calculated at 91 where it is assumed that 80% of vehicles travel in the peak hour (RTA Guide to Traffic Generating Developments – Commercial). In the case of CMRI, given the survey data available and the particular nature of the work and therefore working hours, it is considered that a much lower proportion of staff will travel in the peak periods. Based on 50% of staff travelling in the peak hour the additional number of vehicles is calculated at just 57.

This reduction in car driver mode share will be achieved through a range of initiatives aimed at increasing the take up of walking and cycling, the use of public transport and the number of people travelling as a car passenger.

### 3.5.3 Transport Demand Management

CMRI recognises the broader need to reduce staff use of private cars. A reduction in car use brings environmental benefits at the global, regional and local level. Reduced car use is generally achieved through increased use of alternatives including public transport, walking and cycling. These modes tend to result in an increase in physical activity with associated health benefits.

A reduced use of private cars for staff travel to and from work is consistent with CMRI's desire to reduce its environmental impact through the redevelopment. It also recognises the increasingly constrained road and parking capacity within the Westmead precinct and a desire not to contribute unnecessarily to local problems. The travel demand management strategy ensures the redevelopment of CMRI and the commensurate increase in staff numbers is achieved within the resources that will be available.

***Constraints***

In developing a travel demand management plan for CMRI a number of specific workplace related constraints have been recognised. These include:

- A majority of staff are female which increases the perceived and actual risks of using public transport, walking and cycling.
- Staff frequently work irregular hours necessitating late night and weekend work. At least a proportion of late night working is unpredictable. Animal attendants in particular are required to work a 7 day roster.
- CMRI competes for senior research staff internationally. This requires attractive salary packages which may include benefits such as car and fuel.

***Opportunities***

Similarly the travel demand management plan potentially benefits from a number of recognised opportunities, including:

- Many staff work flexible work hours enabling work hours to be planned around transport choices to some extent.
- CMRI is an employer with a high consideration of staff health and welfare.
- Excellent on site facilities including change rooms and showers and these will be improved as development progresses. The development enables other improvements including the provision of cycle parking.
- Location served by rail and bus services.

- Mix of locally available accommodation to rent and purchase.
- Good walking and cycling networks within the local area.
- Part of a major employment precinct with strong peak and inter peak transport demand that supports improved public transport services.

***Impact mitigation***

The redevelopment of the CMRI building will deliver a number of transport benefits including:

- Secure, indoor cycle parking
- Improved staff facilities (including showers, change rooms and locker facilities)
- Highly visible entry on Hawkesbury Road aligned with the direction of approach from Westmead Station and the Tway stops in Darcy Road
- Increased number of staff which will assist in attaining 'critical mass' for certain travel behaviour change initiatives, particularly car pooling / ridesharing
- On site car parking
- On site conference facilities, minimising the need to travel to alternative locations.

Additionally the redevelopment has provided CMRI's operational management team with the opportunity to minimise future environmental impacts. Minimising future operational impacts clearly includes transport and CMRI's management is committed to ensuring that future needs can be met within existing and future committed resources.

### 3.5.4 Travel Behaviour Change Program

To achieve the necessary mode shift CMRI recognises and embraces the need to develop and implement a travel behaviour change initiative, focused on staff travel. This will flow on to other CMRI activities including servicing and visitors. The initial focus on staff will enable CMRI to develop programs and initiatives with maximum benefit in the short term.

A number of appropriate initiatives based on CMRI activities and staff have been identified.

***Walking and Cycling***

CMRI does not have any dedicated cycle parking available to staff. Some cycles can be parked on suspended hooks in the loading bay but getting bikes on and off the hooks is difficult and often requires some assistance. Other staff secure cycles to external railings.

The redevelopment will provide dedicated cycle parking to be located internally providing a high level of security. The cycle room will be accessed via a level walkway and available to staff on completion of stage 2. The shower and change room facilities will be easily accessible from the cycle parking. Staff will each have dedicated locker space both in change rooms and adjacent to their work area. This will facilitate the storage of clothes, toiletries and other items at work. Change rooms will have ironing facilities and towels will be available for staff use, as they are at present.

Developing programs around staff that already walk or cycle to work will be important as CMRI expands in the future. These staff members can act as 'champions' in the future, pooling their knowledge of walk and cycle routes to pass on information to new colleagues. Together these staff members can put together a map based on their collective knowledge. This map can be reproduced or displayed centrally and updated as new information becomes available. Staff can be encouraged to act as cycle or walk 'buddies', walking or cycling with new staff to increase their confidence.

The redevelopment will enhance the entry to CMRI, providing a highly visible and recognisable presence on Hawkesbury Road. This will generally encourage people to approach from Hawkesbury Road and will essentially promote CMRI as a pedestrian destination.

***Public Transport***

Encouraging staff use of public transport will be an important part of the travel demand management plan. Information provision will be central to increasing public transport take up amongst staff. The Tway in particular provides a rapid and reliable service and it is likely staff may be unfamiliar with it. Information can improve knowledge of services (below).

To encourage staff to trial public transport, CMRI will offer staff free weekly tickets. On commencement of the scheme all staff will be offered a weekly TravelPass (or similar ticket depending on transport services available based on home location) to encourage trialling of available services. New staff will then be provided with a free week of travel on commencement of employment as part of their induction package.

To help support staff choosing to use public transport, CMRI will offer interest free loans to staff to enable them to purchase an annual TravelPass. Annual TravelPasses offer considerable savings over the purchase of tickets for shorter periods but are a considerable expenditure for many people. Interest free loans can overcome the initial cost with CMRI then recovering the loan directly from net pay over a 10 or 12 month period.

***Transport Information***

CMRI is well located for both bus and rail services. Despite the existence of these services many staff are likely to be unaware of the full range of transport options available. CMRI will develop transport information focused on staff needs. The information will highlight high frequency direct services. Transport information will be updated on a regular basis and distributed to staff via hard copy (noticeboards) and intranet.

***Ride Sharing***

At present CMRI has only a relatively small pool of staff to support a ride sharing scheme. Analysis of staff home locations has shown that staff are widely dispersed throughout the metropolitan area. There are, however, some small clusters of staff that drive to work regularly and also it can be seen that staff potentially pass another's home en-route to work.

It is unlikely that staff numbers warrant a large investment in a ride sharing scheme, however, CMRI will pursue an informal ride matching process. All staff use a single tea room and the workplace is open and friendly with a high level of staff interaction across all departments. CMRI will build on this through the distribution of information about ride sharing and the hosting of lunch where people can mark their home location on a map and meet other people who live close by or have potentially overlapping journeys. This initiative will also assist those staff that could potentially walk and/or cycle but would like to travel with someone else initially.

***New Employees***

CMRI continually welcomes new staff members as part of a general turnover of their workforce. Junior research staff are frequently employed on a relatively short term basis in line with academic studies and the establishment of a research based career. The redevelopment will also facilitate the expansion of activities at CMRI and therefore the overall levels of recruitment.

All staff will receive enhanced information as part of an induction process. This information will include transport options, local area map and contacts with staff who already walk and cycle.

CMRI organises short term accommodation for employees relocating to work for CMRI. While this accommodation is usually in the immediate Westmead locality there will be an increased effort to ensure this is the case in the future. This will encourage staff to walk to work from the outset and increase their familiarity with the local area and its housing options.

***Flexible Working***

Flexible working is already permitted and a necessary part of research work as working hours change to meet the needs of experiments and current research requirements. CMRI will maintain its commitment to flexible working in the future and recognise the additional benefits in terms of transport choices that flexible working can offer.

***Home / Work Travel Assistance***

The need to respond to research requirements is one of the key reasons staff drive to and from work. Experiments may require staff to work long hours, in particular finishing work late. Recognising that public transport options diminish after the traditional working day, CMRI will develop a scheme to provide staff required to work after hours with additional travel options. This scheme will be similar to the more traditional 'guaranteed ride home' but will respond to the specific nature of the CMRI work requirements. The scheme will provide staff that feel they may need to work late with a safe travel option of a taxi, work car or lift with a colleague.

### 3.5.5 Implementation

CMRI will commence implementation of the transport initiatives prior to the commencement of redevelopment, recognising that changing travel behaviour is a long term commitment. This also recognises that there is considerable opportunity to develop sustainable travel habits amongst any staff recruited in the future, particularly recognising that they may remain with CMRI for a number of years. This places an early focus on activities that relate to new staff and recruitment (induction etc). In addition, CMRI is committed to monitoring staff travel impacts to ensure that the identified targets are met in the future. This will allow CMRI to review and revise the demand management strategies in place as the redevelopment progresses.

## *3.6 Engineering and Services*

### 3.6.1 Stormwater

***Internal Drainage***

It is anticipated that the discharge from the proposed development will follow the same route as the existing discharge (refer section 2.3.8 and Drawing by Bowdens at Appendix E). On Site Detention (OSD) will not be required as it is provided commonly for the Westmead Health Campus site. The volume discharged from the site will not increase as the proposed development does not increase roof area and impermeable surfaces.

As part of the Water Sensitive Urban Design (WSUD) initiatives to be implemented, it is proposed to collect the roof water from Stages 1, 2 & 3 for reuse in the animal house and for flushing the toilets. It is proposed that a syphonic roof drainage system be used to limit the headroom required for the elevated pipe runs to a minimal. The collected roof water is considered 'clean' and will require only primary treatment prior to usage on site. This process

will be detailed in the design process prior to construction and a Statement of Commitment (SoC) has been made for this purpose.

***Rainwater Tanks***

A preliminary assessment has been undertaken to provide a nominal rainwater tank size. The assessment involved the preparation of a MUSIC model to simulate the runoff and the usage on site and determine a tank size that provides an optimal and economically viable reuse system. The parameters adopted in the model for site water usage on a yearly basis are:
5,500 KL/yr for toilet flushing and 4,300 KL/yr for use in the animal house. This provides a total annual demand of 9800KL/yr.

The roof area covering Stages 1 to 3 is calculated at 2023m$^2$. The yearly runoff from the roof area is approximately 2160 KL on an average basis. This means that the maximum collection from the roof achieves 22% of the total demand.

For the purpose of sizing the rainwater tank (RWT), three (3) scenarios were simulated using 80 years of actual rainfall recorded by the Bureau of Meteorology (BOM) between 1921 and 2001. Table 4 below records the results of the three scenarios used to model the sensitivity of the rainwater tank size.

**Table 6 - Mean Annual Simulation Results**

| Tank Size (KL) | Average Yearly Supply from RWT (KL/yr) | Percentage of Runoff used (%) | Percentage of Total Demand supplied by RWT (%) |
|---|---|---|---|
| 10 | 1333 | 61.7 | 13.6 |
| 50 | 1556 | 72.0 | 15.9 |
| 100 | 1743 | 80.7 | 17.8 |

The results of the simulations indicate that the total demand is very high in comparison to the runoff that the roof area of Stages 1, 2 & 3 can provide. Increasing the tank size does not achieve great returns and, in this case, would not be a cost effective outcome. It is therefore intended that a 50,000 litres rainwater tank be installed in the proposed building. The inclusion of this tank will reduce the quantity of runoff from the site in general and will provide approximately 16% of the water demand for toilet flushing and for the animal house.

***Basement Drainage***

The proposed basement where the plant and the tanks are to be located will require drainage relief in the event of surcharge or failure. The basement level is too low to drain by gravity to the surrounding areas of the site.

As such, it is proposed to construct a relief drain from the basement into the drainage system within the bitumen road north of the Kerry Packer Building. The drain will run under the Kerry Packer building, possibly following the same alignment of the existing sewer line draining the CMRI building. Appendix E shows the proposed surcharge route. This will require more detailed design work on the levels and the structure of the Kerry Packer Building to determine the exact route and levels of the relief drain. This will be undertaken prior to construction and a Statement of Commitment covers this issue.

***External Drainage***

The review of the as-built drawings and our site investigation indicate that the existing drainage systems serving the site drain external areas as well. The runoff from these areas will have to be included in the overall runoff into the discharge point without affecting the external drainage flows and overflow paths across the development. A water quality device will be included on site at the discharge point to control gross pollutants and silt. This will be detailed further in the design development stage prior to construction.

***Sediment & Erosion Control***

Primary sediment and erosion control measures will be implemented prior to excavation works commencing on site and will be maintained across the construction phase period.

The suspended solids concentration in flows exiting the site will not exceed 50mg/L for all 5-day rainfall totals up to 75th percentile rainfall event. The series of controls that will be imposed during construction include:

- Temporary stabilised construction entry/exit with a grid shaker and a wash down facility;
- Sediment fences to the lower sides of the disturbed areas;
- Topsoil stockpile located within the disturbed areas and protected with a diversion bank on the uphill side and surrounded with a sediment fence at the downstream side; and
- Temporary drains and diversion banks should be installed to the lower side of the area to direct flows into the sediment basin.

An erosion and sediment control plan is attached at **Appendix G**.

## 3.6.2 Sewer

The Children's Medical Research Institute is part of the Westmead Health Campus and as such does not have its own separate connection to the Sydney Water Corporation sewer system but connects to an internal sewer system within the hospital site which in turn connects to the Sydney Water Corporation sewer system.

A Section 73 application was made to the Sydney Water Corporation which indicated the Children's Medical Research Institute site must have its own sewer main connection within the development site.

It has been determined that the existing connection to Sydney Water Corporation's sewer is via a encroaching and joint private sewer house service arrangement with Westmead Hospital. In accordance with the Plumbing and Drainage Code, the house service connection will have to be replaced with a new Sydney Water Corporation sewer upon redevelopment of the existing building.

In lieu of this the Sydney Water Corporation may consider the re-use of the existing connection provided it was in satisfactory working order. This will be determined by a CCTV /dye test and reviewed by a Plumbing & Drainage Inspector prior to construction, however preliminary discussions indicate this is achievable.

This the sewer was renewed recently with the construction of the new Kerry Packer Building and therefore it is anticipated that this sewer would pass the latter testing required by the Sydney Water Corporation to re use the existing connection.

The existing 225 mm sewer connection provided as part of the recently completed Kerry Packer Building to the North (rear) of the CMRI building has an estimated Fixture Unit Loading capacity of 3,250 units at a minimum grade of 0.65%. Estimated Fixture Unit Loading of the redeveloped CMRI site is 998 and therefore well within the sewer mains capacity.

## 3.6.3 Water

As mentioned in Section 2.3.8.5, it will be necessary to upgrade the incoming main to a 100mm diameter combined Fire Hydrant and Domestic water main.

A new meter and a site containment backflow unit (Reduced Pressure Zone Device) will be installed on the Domestic service within the site and a Double Check Valve will be installed on the fire hydrant service.

A separate 100mm sprinkler service main will be installed from the Sydney Water Corporation mains in Hawkesbury Road. A Section 73 Application to Sydney Water Corporation indicates the above noted 150mm main in Hawkesbury road is of sufficient capacity and is available for connection.

## 3.6.4 Gas

The site is currently fed with a gas service from the street main in Hawkesbury Road which supplies mainly laboratory gas outlets and mechanical boilers. Due to increased gas loads a new incoming service from the street main in Hawkesbury Road will be required with a new meter and regulator setup.

Enquiries to the AGL indicates the street main will be available for connection and has sufficient capacity to service the new development.

## 3.6.5 Water and Energy Conservation Measures

### 3.6.5.1 Water Conservation

The new development will provide for water conservation measures in a number of areas but mainly in the provision of rainwater harvesting as outlined in the stormwater strategy section of this submission. The 50,000 litre tank will provide water for flushing of toilets and urinals and for the cleaning of the animal house. The toilets being fitted with dual flush cisterns and the urinals being fitted with beam activated flushing units.

All tap ware will be AAA rated with flow restriction devices fitted to maximise water savings in all areas. Pressure limiting valves will be used to even out the pressures in the building if found necessary in the design process.

### 3.6.5.2 Energy conservation.

To achieve maximum energy conservation it is proposed to provide hot water via three separate systems.

- Domestic Hot Water.
- Laboratory Hot Water.
- Bio Services Hot water (Animal House).

Each system will be a flow and return system with high quality insulation to minimise heat losses and each system run at a temperature of 65°C with temperature control at each group of fixtures/each fixture. Hot water generation in the Domestic and Laboratory system will be with 5 star multiple gas instantaneous hot water units with 50% solar pre heat via roof mounted solar panels. Gas heaters are controlled via a micro computer with units bought on line as required depending on hot water usage. The Bio Services Facility will be provided with hot water from electric mains hot water units with 50% preheating from a heat reclaim unit/s fitted to the waste water system from the same area. Electric units are necessary to provide for redundancy in the event of power failure with backup from an emergency generator. Such redundancy is not available with a gas system and hot water in this area is deemed essential at all times. Boiling water units will be fitted with time clocks in accordance with BCA Section J.

***Hot water energy issues***

The hot water energy has been factored using the following assumptions:

- 57% to 60% of domestic and laboratory hot water requirements will be solar generated;
- Domestic and laboratory hot water will be generated via gas which is 81% efficient;
- Animal house wash down hot water will be via the space heating gas boiler with 50% waste heat water recovery; and
- Backup source of heating for the animal house hot water requirements via electric mains pressure hot water heaters, which are also fed off the emergency generator.

Based on 60% solar hot water for domestic and laboratory requirements, Rinnai solar modelling nominates the performance of the proposed solar water heaters will represent an energy saving of 45,555 kwhrs/annum which would reduce the annual carbon footprint by 11.6 tonnes of $CO^2$. Based on a nominal gas price of 3.8c/kwhr (1.38c/MJ) then this represents a green power saving of $1730.11 annually.

Estimated extra cost for the above, over and above a minimal gas system is $88,000.00. Without panel replacement it will take 50 years to payback the initial cost. There are however significant $CO^2$ savings from the initiative. Further details of these issues are contained in **Appendix F.**

## 3.6.6 Electrical Services

Various electrical systems are being assessed for concept suitability and are subject to detailed design prior to construction. The electrical services are proposed to include the following:

- The augmentation of the existing 1000kVA service.
- Maintain the existing building lead-in services active during construction of the new buildings.
- Upgrade and relocate the existing High Voltage underground services.
- Upgrade the existing substations.
- Establish/upgrade to two main switchboards arranged side by side offering emergency redundancy.
- Distribute Low Voltage infrastructure throughout the new buildings. and
- Temporary diversion/establish new communications lead-in services.

The final configuration will be subject to detail design and resolving a position, currently being negotiated, with Westmead Children's Hospital, Integral Energy and Telstra.

### 3.6.6.1 Solar power generation and green initiatives

Solar photovoltaic cell array is being considered for installation on the Stage 5 roof subject to detailed assessment. Allowance is included in the budget for approximately 28KVA generation requiring in the order of 252m$^2$ (roof area approx. 576m$^2$) of sun light exposed roof space with inverter switch for regeneration to mains. Battery storage is not proposed.

Photovoltaic (PV) solar green power credit is 28kw x 300 days x 9 hrs/day = 75,000 kwhrs. The reduction in annual carbon footprint would be 73 tonnes of $CO^2$. At 0.13c/kwhr this would be an annual saving of around $10,000.

The cost of the 28KVA is around $280,000 plus say $30,000 for special structures on the roofing, ie total of say $300,000, hence the break even payback time is approx 30 years. If it is assumed the PV cells fail and need to be replaced every 15 years, then the actual owning cost is a further $280,000 and the break even, payback time is then around 60 years. The savings on $CO^2$ are however significant ongoing and would represent 1% of the total site energy use. This system is under consideration but will need to be fully assessed prior to construction of Stage 5 to ensure economic benefits of changes to this technology are realised for the project.

## 3.6.7 Mechanical services

This section outlines the proposed system concepts and defines the intent of the design principles. CMRI is committed to delivering cost effective and low carbon footprint mechanical services. The various mechanical systems are being assessed, on an ongoing basis, for concept suitability and are subject to detailed design. The issue of risk assessment and redundancy in the event of failure has also been considered in respect to these services.

The mechanical services are proposed to include the following:

- Ventilation
- Medical Gases
- Steam services
- Air conditioning

### 3.6.7.1 Ventilation

The ventilation system concepts, to a large extent, are based on business critical requirements and regulated by codes and standards. Examples include:

- Fume cupboard exhausts, laboratory and specialist room dedicated decontamination exhausts, which will rise to well above the roof and discharge in safe locations in engineered exhaust plumes to avoid cross contamination. Speed controlled fans will minimise fan energy.
- Hazardous area supply and exhaust eg chemical and gas stores.
- Dust and heat removal exhaust systems from specialist rooms and animal house areas eg autoclave, dust from cage handling.
- Amenity areas eg staff and public toilets, locker rooms.
- Plantroom and workshop ventilation, including switchrooms, service rooms.

The last stage of the development will see the introduction of a large public space atria area. Depending on the detail design and fire engineered solutions that are developed, this space will have the opportunity to introduce natural stack effect ventilation, possibly mixed with low level, tempered environment systems, to deliver a buffer environment.

### 3.6.7.2 Medical gases

The medical gases used are process specific eg nitrogen, $CO^2$, vacuum. In some cases these will be bottled and brought to specific areas of need and in other cases they may be piped from a central building service.

### 3.6.7.3 Steam

Steam generators, either electric or gas, will provide steam to the main animal house autoclaves.

### 3.6.7.4 Air Conditioning

The systems proposed fall into two categories:

- Business critical environmental control air conditioning eg PC2 laboratories and specialist rooms, plus the animal house.
- General administration and public space air conditioning, computer room systems.

A number of practical solutions have been assessed against the criteria of delivering stable temperature and humidity control, cost effective payback times for energy initiatives plus achieving a low carbon footprint. In some cases the carbon footprint has been balanced against the need to provide two different system energy driven types of plant, to deliver failure risk management eg gas and electric backup, reverse cycle and gas engine.

The key requirements for the air conditioning in the specialist areas eg labs/animal house include the following:

- Provision of a passive building fabric which minimises ambient impacts eg solar and heat/cold, via shading and insulation.
- Provision of internal lighting based on low energy fittings and control to allow management of lighting energy usage.
- Provision of specific temperature and humidity control whilst maintaining pressure differentials, in business critical areas eg labs/animal house.
- Provision of redundancy/backup to minimise the risk of failure in business critical areas.
- Provision of long life proven technology which has local support and is readily able to be maintained at reasonable cost.
- Provision of energy efficient operation, acknowledging the 24/7 nature of many areas which have constant heat loads eg freezers in labs.

Based on the above, the criteria for selection of mechanical services were:

- Fit for purpose ie satisfy Client room data sheets
- Standards and Codes compliance
- Minimising Legionella risk.
- Future flexibility to add and modify existing systems.
- Business critical areas plant capacity under higher than design ambient conditions
- Plant failure risk and redundancy in business critical spaces, due to failure or maintenance
- Ability to maintain tight humidity control in laboratories and specialist rooms
- Ability to maintain laboratory, specialist room pressure differentials
- Plant ability to isolate areas to save energy
- Ability to fire isolate and smoke exhaust individual lab areas.
- Plant initial capital cost
- Extra cost for redundancy

- Extra cost for airside heat recovery
- Plant annual energy cost differential
- Plant maintenance cost
- Plant controls and reliance on BMS
- Plant room and service riser spatials translated to cost to build

Following a comprehensive comparison between the various systems – specifically Type 1 being the traditional system and Type 2 Improved energy efficiency model, the Type 2 Energy Efficient Design philosophy is proposed to be further investigated as the appropriate balance between energy efficiency, carbon footprint reduction, cost and ability to satisfy the business critical functions of the CMRI**.** **Appendix F** provides comprehensive information on the comparison and the technical differences between this system and the traditional systems and the benefits in terms of performance and energy savings

# 4. Environmental Assessment

## *4.1 Relevant Environmental Planning Instruments and Guidelines*

### 4.1.1 State Environmental Planning Policy No 55 – Remediation of Land

SEPP 55 aims to provide a State wide planning approach to the remediation of contaminated land to reduce the risk of harm to human health or any other aspect of the environment. The SEPP achieves this by specifying when consent is required, and when it is not required, for a remediation work, and by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and by requiring that a remediation work meet certain standards and notification requirements.

When a development application is lodged with a consent authority the consent authority is not able to grant consent unless it has considered:

(a) whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

### 4.1.2 State Environmental Planning Policy (Major Projects) 2005

Schedule 1 of the Major Projects SEPP sets out the classes of development that qualify as Major Projects, specifically Group 19 - Medical research and development facility applies to this proposal and includes:

*Development for the purpose of health, medical or related research (which may also be associated with the facilities or research activities of a NSW Government Area Health Service, a University or an independent medical research institute) and that:*

*(a) has a capital investment value of more than $15 million, or*

*(b) employs 100 or more people.*

The proposed expansion of the CMRI is consistent with the above criteria with regard to the services it will provide. The capital investment value (CIV) of the project is approximately $90 million and will employ up to 540 people and therefore meets the SEPP criteria as a major project.

The then Minister for Planning confirmed this through his opinion dated 25th August 2008.

### 4.1.3 State Environmental Planning Policy (Infrastructure) 2007

This Policy commenced on 1st January 2008 and repealed SEPP 8 and others relating to significant infrastructure provision.

However as the proposed development in this case is declared to be a development to which Part 3A applies, Clause 8 of the Infrastructure SEPP places it in a subordinate position to the Major Projects SEPP and therefore the provisions of the Infrastructure SEPP do not apply to this proposal.

### 4.1.4 Standard Instrument (Local Environmental Plans) Order 2006

This Order prescribes the form and content of a principal local environmental plan for an area for the purposes of section 33A of the *Environmental Planning and Assessment Act 1979*. The Order provides a framework for local environmental plans to be drafted and includes a standard set of zones which are compulsory in their application. Parramatta City Council has implemented the Order in its Draft Local Environmental Plan 2008, discussed below.

### 4.1.5 Sydney Regional Environmental Plan 18 – Public Transport Corridors

The Sydney Regional Environmental Plan (SREP18) was gazetted in September 1989 and provides for improved access by public transport into Parramatta from the rapidly developing suburbs on the north-western and south-western fringe of the metropolitan area. The objective is to reserve a corridor of land from Hoxton Park to Baulkham Hills via the Parramatta City Centre. This SREP does not impact directly on the CMRI site.

### 4.1.6 Sydney Regional Environmental Plan 28 - Parramatta

Sydney Regional Environmental Plan 28 (SREP28) establishes planning aims for the Westmead Precinct which are to be taken into consideration in the determination of development applications, and when a local environmental plan is being prepared. The planning aims for the Westmead Precinct under SREP 28 are:

- To encourage a vibrant Precinct with a distinct health and teaching identity;
- To improve direct and efficient access to and through the Precinct from other parts of the Greater Metropolitan Region, and to improve linkage of Westmead Hospital to the public transport network;
- To provide opportunities for a range of housing types;
- To develop a mixed use centre of retail, residential, commercial and community services at the transport node serving the Precinct;
- To facilitate physical and business research links to other Precincts, especially the City Centre, Rydalmere and Camellia Precincts;
- To achieve environmental management best practice that protects and promotes the natural assets of the Westmead Precinct;
- To improve the environmental performance of development in a way that minimises energy and resource use and noise, odour, dust, water, soil, air quality and contamination impact;
- To protect and enhance local and regional biodiversity, maximising the extent and integrity of aquatic and natural land areas, in particular, the Parramatta River and Toongabbie Creek corridors.

### 4.1.7 Parramatta Local Environmental Plan 2001

The site is zoned 5 Special Uses Zone under provisions of the Parramatta Local Environment Plan 2001. The zoning provides for hospital, education and community type uses. The objectives for this zone are:

(a) to facilitate certain development on land which is, or is proposed to be, used by public authorities, institutions or organisations, including the Council, to provide community facilities, services, utilities and transport facilities;

(b) to allow other ancillary land uses that are incidental to that primary use of land within the zone; and
(c) to provide flexibility in the development of sites identified for special uses by allowing development which is permissible in an adjacent zone.

Within the zone the following development is permissible with consent: Development allowed only with consent includes those for the purpose of:

- car parking spaces
- community facilities
- depots
- educational establishments
- housing for older people or people with a disability
- public utility installations (other than gas holders and generating works)
- the particular land use indicated by black lettering on the zoning map
- development that may be carried out on adjoining or adjacent land in the same zone or in a different zone
- centre based child care services
- demolition
- drainage
- hospitals
- places of public worship
- roads
- subdivision

All other development is prohibited if not covered by Council's Exempt and Complying Development Policy. On that basis the proposal is permissible with consent.

### 4.1.8 Draft Parramatta Local Environmental Plan 2008

Under Draft Parramatta Local Environmental Plan 2008 (DLEP2008) the site is zoned SP2 Infrastructure Zone. The objectives of the SP2 Zone are:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.
- To allow other ancillary land uses that are incidental to that primary use of land within the zone.
- To facilitate certain development on land which is, or is proposed to be, used by public authorities, institutions or organisations, including the Council, to provide community facilities, services, utilities and transport facilities.
- To provide flexibility in the development of sites identified for special uses by allowing development which is permissible in an adjacent zone.

The following development is *permissible with consent*.

- The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose
- Child care centres
- Demolition
- Development that may be carried out on adjoining or adjacent land in the same zone or in a different zone
- Earthworks
- Educational establishments
- Passenger Transport Facilities
- Roads
- Utility installations
- Car parks
- Community facilities
- Depots
- Drainage
- Flood Mitigation works
- Hospitals
- Places of public worship
- Seniors housing

The Draft LEP defines hospital as
*"…a building or place used for the purpose of providing professional health care services (such as preventative or convalescent care, diagnosis, medical or surgical treatment, psychiatric care or care for people with disabilities, or counselling services provided by health care professionals) to people admitted as in-patients (whether or not out-patients are also cared for or treated there), and includes ancillary facilities for (or that consist of) any of the following:*

*(a) day surgery, day procedures or health consulting rooms,*
*(b) accommodation for nurses or other health care workers,*
*(c) accommodation for persons receiving health care or for their visitors,*
*(d) shops or refreshment rooms,*
*(e) transport of patients, including helipads, ambulance facilities and car parking,*
*(f) educational purposes or any other health-related use,*
*(g) research purposes (whether or not it is carried out by hospital staff or health care workers or for commercial purposes),*
*(h) chapels,*
*(i) hospices,*
*(j) mortuaries."*

On the basis of subclause (g) above, the proposal is considered to fall within the definition of a hospital and is permissible with consent within the SP2 Zone.

### 4.1.8 Section 94A Development Contributions Plan

Parramatta City Council's Section 94A Development Contributions Plan became effective on 9th April 2008 and applies to all land within the Parramatta Local Government Area (PLGA) except for the city centre which is covered by a specific plan dealing with Civic Improvements. Under changes to the EP&A Act, Councils can now levy a percentage contribution based on the type of development and the value of the development. The CMRI falls within the "other" category in Schedule 2 of the plan and on that basis the levy that would apply to the CMRI would be 1% of the value of the construction. Based on the CIV of $99,467,000, the levy would amount to $994,670.00

According to the Development Contributions Plan, the levy is made to allow for certain infrastructure to be provided as the population of PLGA increases. The new infrastructure to be provided is set out in the plan, and detailed in Schedules 3 and 4 with the Public Facilities Location Map. A review of these facilities and where they are located highlights that there are very few of those facilities to be provided for the Westmead locality and of those there would be little if any benefit for or impact caused by the CMRI. Despite Section 94A(4) of the EP&A Act which allows that a *"..condition imposed under this section is not invalid by reason only that there is no connection between the development the subject of the development consent and the object of expenditure of any money required to be paid by the condition*", it is suggested that the nature of a research facility, even one increasing in numbers, does not warrant a contribution of almost a million dollars towards facilities in the whole of the PLGA.

The specific facilities to be provided fall within the sub categories of:

1. "City Development" in respect to a Better Neighbourhood Program with expenditure of $2,500,000 over Westmead, Epping and Granville;
2. "Roads, Paths, Access and Flood Mitigation" in respect to a Regional Bicycle network ($500,000) and local bicycle facilities ($1,000,000).

Given the total expenditure identified be made in the locality of Westmead and the nature of the business that is run by CMRI – ie a not for profit, research facility, it is inappropriate to CMRI to contribute to the extent outlined in the Contributions Plan.

Westmead is a significant area within the PLGA and we support the outcomes sought by Council in respect to the facilities proposed. However, the additional staff that will be employed at the CMRI over time are unlikely to have a significant impact on or create a need for and thereby a nexus between the facilities and the increased population. The only exception is the Regional Bicycle Network which, is proposed to link Westmead (and CMRI) along Hawkesbury Road. As CMRI are committed to reducing the reliance on car travel as outlined earlier, any upgrades to the Regional Bike Network will assist in achieving those objectives.

On that basis, CMRI are prepared to commit to a one off payment of a contribution of 1% of the value of those works. This would be a contribution of $5000.00 to be paid prior to construction of Stage 1. It is considered that this is in keeping with the not for profit nature of the research facility which has also been recognised by the NSW Government through a reduction in application fee.

## *4.2 Building Design*

The building design has been described in detail in Section 3.3. The design of the building has been carefully thought out to provide a minimal environmental impact both externally on it's receiving environment and in its operation and maintenance. CMRI is a unique facility and has very specific requirements in terms of operational layout and functionality as well as its engineering services and these have been tested throughout the design process by both peer review from a technical perspective and for the perspective of its environmental design.

As a result the building design is both environmentally responsible and sustainable on a number of criteria as described in Section 3 and has minimal environmental impact on the Westmead Precinct as a whole. Indeed its redevelopment will significantly improve a number of aspects of the precinct, particularly in relation to responsible travel behaviour

Figure 9 below shows how the proposed CMRI site will relate to the existing and potential locality following development over the next decade or so. Parramatta Council's planning along with that within the Draft Subregional Strategy would see a greater level of development along Hawkesbury Road, activating this space and incorporating greater heights overall. In this context, the proposed development will sit well within the vision for the future of the Westmead Precinct.

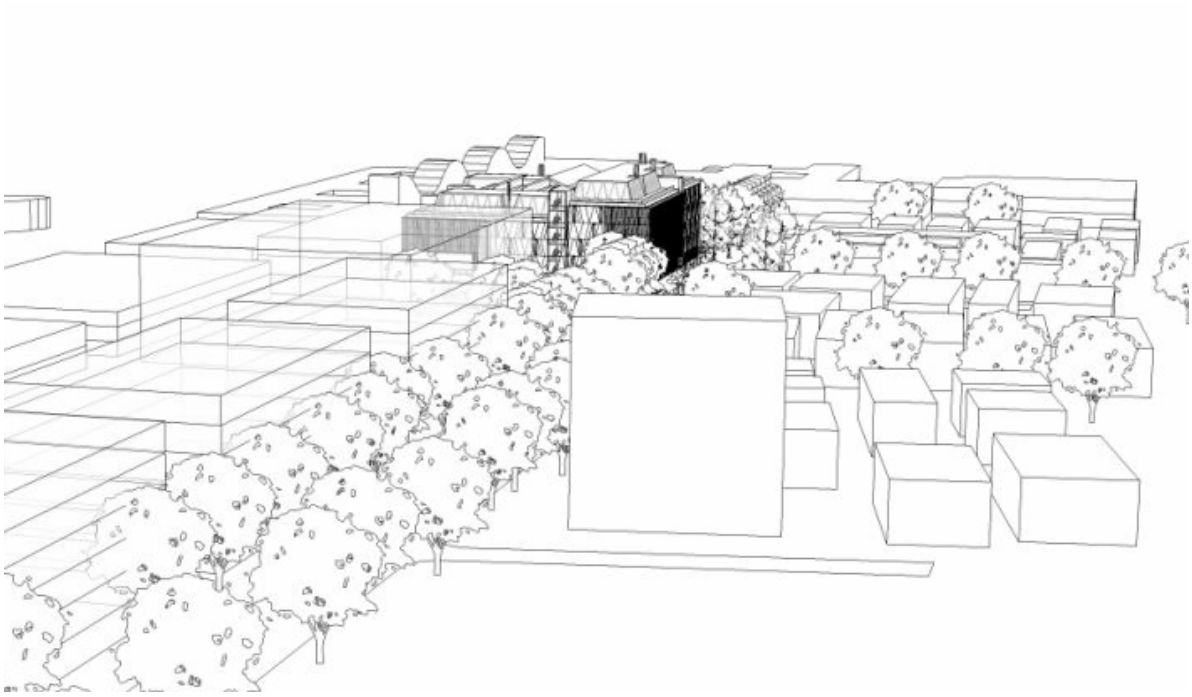

**Figure 10 - Potential streetscape along Hawkesbury Road showing existing 10 storey building in foreground.**

# *4.3 Ecologically sustainable development*

The Project has been assessed against the following four principles of ecologically sustainable development listed in the *Protection of the Environment Administration Act 1991:*

- the precautionary principle
- the principle of social inter-generational equity
- the principle of biological diversity and maintained ecological integrity
- the principle of improved valuation and pricing of environmental resources.

## 4.3.1 Precautionary principle

The precautionary principle states that:

*if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:*

*(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*

*(ii an assessment of the risk-weighted consequences of various options.*

Serious or irreversible environmental damage from the operation of installed services systems can occur, without proper planning. To this end the services design concept commits to addressing the following:

- Minimising the use of energy (both electrical and gas) through optimum building design, systems design and/or ongoing operation and maintenance of the facility.

- Elimination of the use of environment damaging materials during construction such as ozone depleting substances.
- Waste management to maximise recycling.
- Water recycling.
- Assessing the benefits of introducing electrical green power generation via significant solar energy use.

***On that basis the proposal meets the requirements of the Precautionary Principle.***

### 4.3.2 Principle of inter-generational equity

The principle of inter-generational equity states that:

> *the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations….*

The site is within a highly urbanised environment. The operation of the proposal would not result in any impacts that are likely to impact on the health, diversity or productivity of the environment for future generations.

Historically, the particular nature of the CMRI facility has resulted in the energy, water and waste usage patterns, which, if continued and expanded on the same principle, would not be considered optimal for the future.

A number of features have been included in the design to reduce the environmental footprint of the proposal to maintain the environment for future generations. The building has been designed and will be constructed to reduce the embodied energy on a whole of building approach and will incorporate opportunities for improved energy and water use efficiency, less waste and environmental footprint. Detailed comparisons and proposals for the various systems relating to energy, water and waste system solutions appear in Section 3.6 and in Appendix F in respect to air conditioning.

In some cases the use of business critical process plant and systems eg fridge/freezers/autoclaves/centrifuges/fume cupboards/steam boilers will have less opportunity for energy savings, however of the systems that can be optimised, the following have been addressed:

- Use of optimised passive external shading.
- Use of low embodied energy materials to provide thermal insulation.
- Energy efficient light fittings, day lighting, twilight sensor and motion based controls.
- Air conditioning systems have been modelled to explore opportunities for including selective systems with energy efficient outside air which is de-coupled and pre treated via desiccant using heat pump and chilled water with post humidifiers, airside heat reclaim of spill air, economy air cycles, balanced air pressure systems, high efficiency variable refrigerant volume (VRV) systems optimised for low loads as well as full load, high efficiency gas heating water boilers, advanced control systems.
- Atrium space will be modelled to explore opportunities for hybrid natural ventilation.
- Generation of on-site green power via solar panels will be explored.
- All toilets installed will be water efficient dual flush capacity with a minimum "AAA" rating;
- 5 star hot water generation augmented by solar panels.

The greatest life-time energy impact of a building is its operational energy consumption. Hence the operational environmental management plan will include requirements for periodic auditing and improvement to optimise ESD performance.

***The proposal is therefore considered to be consistent with the principle of inter-generational equity.***

### 4.3.3 Principle of biological diversity and ecological integrity

The principle of biological diversity and ecological integrity states that:

> '*Conservation of biological diversity and ecological integrity should be a fundamental consideration.*'

On the basis that the proposal is the redevelopment of the existing site, it is concluded that impacts upon the ecological integrity will be negligible.

***The proposal therefore considers the principle of biological diversity and ecological integrity.***

### 4.3.4 Improved valuation of environmental resources

The principle of improved valuation of environmental resources states that:

> *environmental factors should be included in the valuation of assets and services, such as:*
> *(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
> *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
> *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

The proposal has been designed to minimise adverse impacts on the environment by:

- siting infrastructure at locations that have been disturbed by previous land uses, and
- putting in place specific design measures to lesson the environmental impact on the area.

Although these measures did increase the costs associated with construction and in some cases the operation of the proposal, it has resulted in a higher quality environmental outcome which significantly reduces the buildings impact. This indicates that environmental resources have been assigned a significant value and this has been taken into consideration during the concept design stage.

***The proposal therefore appropriately values environmental resources.***

# *4.4 Construction Impacts*

The overall construction impacts of the proposal are considered to be minimal. However in order to ensure that this is the case, these impacts have been addressed by Statements of Commitments in Section 6 including the Construction Environmental Management Plan (CEMP).

## 4.4.1 Traffic Management

Traffic management and access during construction will recognise and accord with the Draft Statement of Commitments (below). Specific measures will be identified within the Construction Environmental Management Plan.

Throughout construction CMRI will continue to operate necessitating a clear separation of construction traffic and others accessing CMRI. A clearly identifiable pedestrian entrance will be maintained throughout construction for use by staff and visitors.

## 4.4.2 Geotechnical Impacts

The following table identifies potential geotechnical impacts and how they are proposed to be mitigated. Further information is contained in **Appendix H**.

**Table 7 - Potential Geotechnical Impact and Mitigation Measures**

| Activity | Potential impact | Possible mitigation measure |
|---|---|---|
| Demolition works | Noise, dust & vibration | Saw cutting the slab and staging the demolition in order to minimise noise and vibrations will control the levels to a certain degree. However, it is likely that there will be peaks during the demolition works. There will also potentially be an increase in heavy traffic during the demolition works which will have an impact on the noise, dust and vibration levels.<br><br>Given the presence of sensitive receivers, a noise and vibration assessment will be undertaken prior to construction. Noise and vibration monitoring will also be undertaken during construction |
| | Ground movements | Relevant to the demolition of existing retaining walls - staging the demolition in a controlled manner will assist in preventing potential ground movements. Monitoring of movement of the existing structure will be undertaken and is considered prudent. |
| | Utilities | All utilities will need to remain operational during the construction works as the existing building will remain operational. A robust system of utility identification and protection, or relocation, must be put in place prior to intrusive ground works |
| | | |
| Construction of new piled retaining wall adjacent to existing buildings | Noise from plant operations & vibration | Due to the nature of the soils the noise and vibrations levels are unlikely to be excessive. The previous ground investigation does identify some high strength siltstone layers where noise and vibration peaks could occur. As noted above, monitoring of these issues will occur. |
| | Ground movements | The use of contiguous bored piled walls adjacent to existing column locations may be required in order to minimise |

| | | |
|---|---|---|
| | | potential ground movements |
| | Utilities | See comments above |
| | | |
| Excavation of new basement | Noise, dust & vibration | It is anticipated that the excavation within the soil to basement level should be achievable using conventional excavation plant. A noise and vibration assessment will be undertaken prior to construction. There is a potential that harder stratum would be encountered towards the south corner of the site due to the higher siltstone level. Hydraulic hammers may be required in such areas. As with the demolition works the excavation of the basement will result in increased construction traffic which will have an impact on the noise, dust and vibration levels. |
| | Groundwater control | The actual groundwater level is unknown. During the ground investigation groundwater was not encountered above 2.6m depth. The basement excavation level is 3.2m below existing ground level and therefore groundwater could be encountered during excavation through defects. It is anticipated that, if encountered, groundwater control would be straight forward and impacts on the groundwater table would be minimal. |
| | Ground movements | Considering the extent of planned excavation, ground movements would be expected to be minimal. However, a ground movement assessment will be undertaken to consider the potential effects of ground movements on existing structures. This assessment will consider the staged nature of the proposed reconstruction. |
| | Utilities | See comments above |
| | | |
| Construction of new foundation piles | Noise from plant operations & vibration | Due to the nature of the soils it is likely that the noise and vibrations levels are unlikely to be excessive. The previous ground investigation does identify some high strength siltstone layers where noise and vibration peaks could occur. |
| | Ground movements | The use of contiguous bored piled walls adjacent to existing column locations may be required in order to minimise potential ground movements |
| | | |
| | Utilities | See comments above. |
| | | |
| Demolition and construction of new retaining structure around the site to build up the site to ground floor level | Ground movements | Potential ground movements from the new basement excavation will be controlled through sloped excavation, where open cut is feasible, and piled retaining walls. |

### 4.4.3 Flooding drainage and stormwater issues

The issue of flooding to the building from external catchment areas has been assessed. The building is not located in a low lying area or in the route of a major overland flowpath. However, the ambulance car park north of the building offers a land locked situation where no overland flow path has been allowed for. The car park is approximately one (1) meter lower

than Hawkesbury Road and is completely bounded by buildings to the North and the West and a retaining wall to the South.

The rear area of the CMRI building and the car park are drained through a pipe system to the north under the Children's Hospital building. The capacity of the system will be assessed during design stage to determine if it is adequate to convey the 100-year ARI storm event. Should the pipe system capacity be less than the 100-year ARI, an overland flowpath will be sought between the new CMRI building and the existing Kerry Packer building. In the latter case, the stairs from the basement will provide a freeboard of 500mm as a minimum above the external levels to prevent flooding to the basement level.

During construction, erosion and sediment control measures will be implemented. These will direct the earthworks and movement and stockpiling of soil. These measures will be maintained throughout the construction period. The indicative Erosion and Sedimentation Plan is attached at **Appendix G.**

### 4.4.4 Air pollution and waste material

These issues will be managed within the context of a Construction Environmental Management Plan which will provide mitigation measures to control dust and other air bourne pollutants during construction. Waste material will be managed according to the source of the waste and environmental best practice in terms of recycling of building materials and minimising land fill. On the basis that the proposed development will be a staged one, these issues are critical to maintain an operational environment in which only minimal disturbance can be tolerated due to the nature of the research work.

The Construction Environmental Management Plan will take into account the specific nature of the CMRI and ensure that mitigation measures are tailored to meet their needs. This plan will be submitted to the Director, prior to commencement of construction.

### 4.4.5 Noise and Vibration

An assessment of the noise and vibration impacts of the proposal has been undertaken by Arup Acoustics and their report is attached at **Appendix K**. The assessment used criteria established by the Department of Environment Change and Australian Standards to evaluate both construction and operational noise. Operational noise is addressed at Section 4.5.1 of this report. In order to establish the base level for noise and vibration noise loggers were established at key receivers close to the site. The nearest sensitive receivers (NSRs) were considered to be the residential development located approximately 25 metres from the site and the Kerry Packer Research Institute, approximately 20 metres from the site. While the Children's Hospital is also considered sensitive, the nearest ward is around 300m from the CMRI.

Two RTA environmental noise loggers were set up as shown on Figure11 below and background noise monitored for a week in late January 2009.

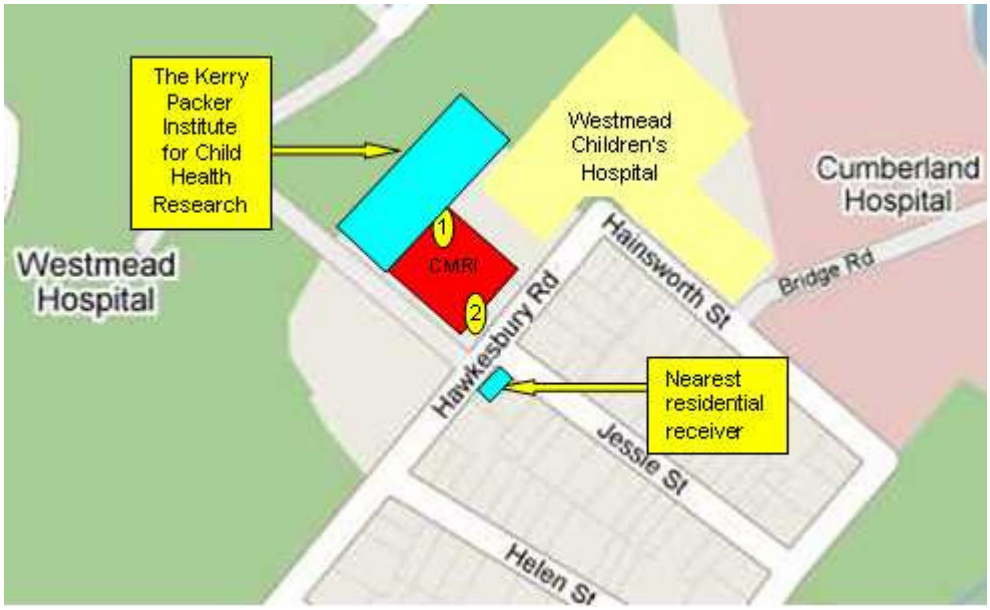


**Figure 11 Location of noise loggers**

#### 4.4.5.1 Construction noise

In respect to construction noise, the assessment found:

> *"Construction noise is likely to be a regular feature of the CMRI site as it undergoes refurbishment in stages over a number of years. Therefore it is important to carefully consider the impacts and the required mitigation measures to ensure that an adverse impact to the nearby NSRs is minimised as far as reasonable and practical.*
>
> *The anticipated noisiest construction activities for the CMRI development have been identified and it is recommended that these activities are focussed on and monitored when they first occur. Should there be no adverse noise impact from these activities then additional long term monitoring should not be necessary as the other general construction activities are expected to be quieter.*
>
> *The anticipated noisiest activities are discussed below:*
>
> ***Demolition***
>
> *Demolition will not be required for Stage 1 works as there is no existing building to be demolished. Demolition will be required for the subsequent stages 2 to 5 since existing structures will need to be replaced or modified. The demolition works will typically consist of:*
>
> - *Concrete saw cutting to physically separate parts of the existing building corresponding to different stages of the project;*
> - *An excavator to knock down parts of the structure and to load rubble onto trucks for transport off site;*
> - *Hydraulic hammers attachments (for excavators) may also be required to further break up parts of the building and breaking out of piles before transport off-site.*
> - *Truck movements to and from the site will also be required to transport the rubble off site.*

*The project staging will mean that demolition activities are unlikely to continue for periods of more than a few weeks at a time, therefore lessening the impact on the NSRs and reducing the potential for community reaction.*

*During the demolition the noisiest activity is expected to be the use of hydraulic hammers. However, this aspect of the works represents a small fraction of the overall demolition. As stated above truck movements will be required to transport the demolition rubble off-site. This will create additional traffic on the local roads. However, the 50 km/h speed limit on Hawkesbury Road and 40 km/h outside the hospital will reduce truck speed and hence noise. In addition the number of truck movements per hour is expected to be low, and the noise impact to the community minimal.*

*A noise and vibration assessment including traffic noise will be undertaken prior to demolition to quantify these sources. Monitoring will also take place at key stages (when a new noisy activity begins) throughout the demolition works until that activity can be confidently discounted as causing unacceptable noise and vibration.*

***Excavation***

*Excavation is expected to be required for all stages of the re-development and it likely to consist of the following activities:*

- *An excavator loading trucks with soil and fill to be either transported off-site or moved to another location and reused on-site.*
- *A dozer assisting with the movement of earth.*
- *Possibly a hydraulic hammer to break out any concrete or harder stratum as the previous ground investigation has identified some high strength siltstone layers in the southern corner of the site. This is likely to cause the highest noise and vibration levels during the excavation works*

*Due to the softer soils over the majority of the site, noise and vibration associated with the excavation process is unlikely to cause a significant impact at the NSRs.*

*Excavating will result in some construction traffic on local roads as heavy vehicles are required to transport the fill off-site. However, due to the 50 km/h speed limit on Hawkesbury Road and 40 km/h outside the hospital in addition to the anticipated low number of truck movements per hour, noise associated with construction traffic during the excavation stages is not expected to significantly increase noise levels. A quantitative noise and vibration assessment will be undertaken prior to excavating.*

***Piling Operations***

*For piling operations the auger method should be adopted, as it is significantly quieter than alternative methods, such as hammer and sheet piling. This should be possible for the majority of the site where the stratum in generally soft enough for auger piling. If stratum is encountered that is too hard to use auger piling an alternative method will be required.*

*However, this would be expected to be undertaken in a very short time frame and therefore additional noise and vibration impact may be acceptable following public consultation. During auger piling the main noise source is from the engine of the crane and the occasional banging of the auger bucket. Noise from auger piling is not expected to cause significant levels of noise and vibration.*

***Concreting Operations***

*All of the new buildings will be concrete framed, which will make them sturdy and resistant to operational vibration. However, concrete pumping will occur in all stages and may cause significant levels of noise. Concreting operations are likely to include the following plant and activities:*

- *A truck mixer providing concrete to the site. In addition to mixing the concrete whilst on-site truck mixers will result in additional traffic movements on local roads.*
- *A lorry mounted concrete pump to pump the concrete from the mixer to where it is required.*
- *Poker/vibrators to ensure that air pockets in the concrete are expelled.*

*All of the above plant are potential significant noise sources and should be considered carefully and mitigation measures applied if necessary. However, by careful management and adherence to a noise and vibration management plan the noise impact on NSRs can be minimised.*

***Vibration***

*Generally for most construction and demolition activities on-site the NSRs are far enough away from the source of vibration not to cause any adverse impact and the vibration criteria are expected to be met. However, there may be times when activities such as, hydraulic hammers come within 20-25m of vibration sensitive receivers. Where this is the case monitoring should take place if complaints are received. Vibration levels exceeding the 5mm/s (rms) building damage criterion are not expected to be exceeded at anytime*.

#### 4.4.5.2 Impact Mitigation

It is likely that some construction activities will exceed the DECC guidelines at nearby locations even if carried out during the preferred hours and practical alternatives are not always available. In these cases, the quietest suitable equipment will be selected, and temporary noise screening will be implemented where practical. When this will occur CMRI will endeavour to provide prior advice to the community.

In general, practices to reduce construction noise impacts may include;

- Adherence to the operating time limits and conditions where possible;
- Prior agreement of work outside standard operating limits with the community and the DECC;
- Using site sheds and other temporary structures or screens to limit noise exposure
- Installing operational noise barriers as early as possible to provide ongoing screening from construction activities;
- Appropriate choice of low-noise construction equipment and/or methods;
- Ensuring machinery is turned off when not in use, eg no idling trucks.
- Ensuring machine enclosures, doors and access hatches etc are kept closed.
- Modifications to construction equipment or the construction methodology or programme. This may entail programming activities to occur concurrently where a noisy activity will mask a less noisy activity, or, at different times where more than one noisy activity will significantly increase the noise. The programming may also consider the location of the activities due to occur concurrently.
- Provide respite periods for noise sensitive receivers, for example only working in certain areas of the site for a short period before moving to another area or a quieter activity.

- Management and public consultation including, but not limited to; advance notification of planned activities and expected disruption/effects through letter drops, and effective monitoring of noise levels in and around potentially affected dwellings.

These mitigation measures may be used to represent the best practical means of noise control. Whilst the contractor will be able to achieve moderate reductions in noise and vibration, some impact is often inevitable due to the nature of construction activities.

Construction activities associated with the CMRI redevelopment are not generally expected to generate perceptible levels of vibration at nearby residences due to the considerable propagation distances. In some cases, where construction is required near to properties, some vibration may be perceptible, but the works are not predicted to generate levels of vibration that would cause damage to buildings.

Noise associated with construction works is likely to cause some impact due to the nature of construction projects, close to NSRs. The level of adverse impact will be minimised by proactively managing the issue using mitigation techniques, such as those noted above. Therefore the significance of noise and vibration related to construction and demolition is considered to be moderate to low.

A Construction Noise and Vibration Management Plan will be adopted for construction stages incorporating criteria, mitigation methods, a programme of noise monitoring at sensitive receivers, a community information programme and a complaints hotline etc. This is picked up in the Statement of Commitments in Chapter 6.

### 4.4.6 Cut and fill

Details of the proposed construction methodology is contained in **Appendix H** which identifies an area of excavation for the basement to a depth of 3.2m. The excavated are will be shored with a piered retaining wall where necessary. Excavated material will be removed from site and disposed of appropriately as there is no fill required on site.

## *4.5 Operational Impacts*

### 4.5.1 Noise

Mechanical plant is the main operational noise source emission related to the proposed building. At this stage, mechanical plant for the CMRI will consist of:

On the roof:
- Small air cooled chillers (approximately 300 kW)
- Air condensers (VRV system)
- Fume exhaust and fans

In a plant rooms inside the building:
- Gas hot water heater
- Fan cooler units / air handling units
- Boiler
- Emergency generator

The air condensers and fume exhaust on the roof are unlikely to cause an adverse noise impact on NSRs. Air cooled chillers are likely to generate the most noise relative to the other mechanical plant. Noise control for air cooled chillers is limited due to the requirement for airflow across the chillers. A noise assessment will take place to establish the requirements for noise controls such as attenuators, barriers and duct orientation and acoustic louvers to maintain airflow for both these plant.

The general plant located inside the buildings such as, the boilers, pumps and air handling units are not expected to cause adverse noise impacts to the NSRs. However, an acoustic assessment carried out during the design will ensure that any environment side noise control such as attenuators and acoustic louvers is incorporated into the design if required.

The emergency generator when in use will produce high noise levels. A detailed noise assessment will take place during the design phase. Noise control measures may include:

- Appropriate construction of walls, doors and roof of generator plant room
- Absorptive lining in plant room walls
- Attenuators for the air radiator and radiator fans exhaust
- Attenuators or mufflers for the generator flue exhaust

There is already an emergency generator that operates on the CMRI site and additional noise from the new generator is not expected.

The operational noise associated with the CMRI is expected to meet all applicable criteria at NSRs. Detailed acoustic assessments of plant and traffic will take place during the design to ensure that all reasonable and practical noise control is applied to ensure that the relevant criteria are met. Therefore, the significance of operational nose and vibration is considered to be low.

### 4.5.2 Waste Management

The CMRI currently manage waste from a number of sources. These include general waste, paper and cardboard waste, biological waste and hazardeous materials waste. Details of the current waste policy, including the current contractors are attached in **Appendix I**.

While the volumes of this waste are anticipated to increase, there are significant economies of scale to be achieved in many areas of the waste spectrum. For example strategies are currently being investigated which will potentially cut by half the amount of waste from the animal house. These initiatives will be further investigated during the course of the redevelopment and a revised waste management plan submitted prior to construction.

### 4.5.3 Site security

The CMRI has a highly secure facility as is required for the nature of the work that is undertaken. This level of security will be replicated within the new building. In summary the key features are:

- Access to the research facility is restricted to staff, visitors and service personnel.
- The Research Facility is not a public building and all entry points are locked 24/7 and monitored by an alarm system. There is no general access for the public and no patient care or services offered by the institute.
- Entry into the facility is gained via entry through the Front Door or Walkway to the Children's Hospital & Westmead Hospital. These doors only operate by using the Institutes Staff ID card which is a magnetic coded key for restricted or 24 hours access.

- Visitors to the facility must check into reception and a visitor's badge obtained by filling in a visitors register and participating in an orientation process for scientific & service personnel entering the research facility.
- Strict access and supervision rules apply to staff and visitors entering facility for compliance requirements of both The Office of Gene Technology Regulator and the Department of Primary Industry.
- The building is alarmed after hours at all exits and entrances. There is no on site security, but the facility is monitored by Security Monitoring Services.
- There is a set policy regarding response to forced entry, fire, equipment and plant alarms. Each alarm has set procedures and response personnel.
- Overall facility security is managed by the Operations Group.
- ID badges function as access keys to the main entrance and selected operational areas within the facility, allowing restricted access to sensitive and high risk areas. This is controlled by the Operations Manager and administered by Operations personnel.
- All other Keys to the building & services are issued and maintained by the Operations Group.

### 4.5.4 Emergency and evacuation

The CMRI have a comprehensive Emergency Response Procedures Manual compiled by Wormald Security which addresses a range of emergency scenarios and equipment and the actions to be followed. This Manual will be reviewed and updated as required during the redevelopment process on a stage by stage basis. The plan can be provided if needed, however it has not been included in this application.

### 4.5.5 Fire safety

The CMRI building has its own fire safety system consisting of Fire Panel located in the front foyer and a series of Fire Doors, Heat & Smoke Detectors, Fire Extinguishers, and Hose Reels & Hydrants throughout the facility. This will continue in the new building and be expanded as required.

The Fire Panel is monitored by both the Fire Department via its service provider & the Institute's Security Monitoring Service.
There is an in-house Emergency Response Procedures Manual prepared by a Fire Safety Contractor & CMRI. This is supplemented by regular safety seminars conducted by the Fire & Emergency Training contractor with a mandatory once a year attendance requirement from all staff.

All Fire Safety Equipment is maintained to Australian Standard that is prescribed by the Fire Safety Contractor. This includes Fire Panel, Fire Doors, Heat & Smoke Detectors, Fire Extinguishers, Fire Blankest and Hose Reels & Hydrants.

The system is more than adequate for fire safety compliance.

### 4.5.6 Lighting

The appearance of the CMRI building at night was an important consideration during the design process. While external lighting is provided (as described below), the building has a mixture of transparent and opaque materials which will mean that the design of the internal lighting will be visible from outside the building. The ambient light from the stairs and laboratories will be visible, the latter being screened through the sun shading elements.

External lighting is proposed for the entry area, highlighting landscaping elements and street trees, and to provide illumination for secondary entry/exit points around the building. The entry area will be highlighted as an important point on Hawkesbury Road by floor and wall lights directed at the Level 2 soffit. Small, low intensity lights will then be used at low level to illuminate the ramps and stairs.

The street trees will be illuminated from the ground level by spot lights to highlight the canopy. Secondary entrance/exit doors will be illuminated locally by fittings placed over or nearby the doors.

This form of lighting in considered to provide a safe environment for both users of the building and passers by as well as keep environmental impacts to a minimum. It will have a positive impact on the streetscape along Hawkesbury Road.

### 4.5.7 Signage

As the CMRI is dependant on public and private funding to perpetuate its research, the public face of the CMRI is a critical aspect of the building. The signage strategy of the redevelopment has sought to enable clear identification of the building while avoiding tactless attention grabbing. The main signage is integrated into the vertical solar control devices positioned over the laboratory spaces. The prominence of the signage varies depending on the relative position of observer and image. Secondary signage is of a lower scale and provided at critical points during the entry sequence. Figure 12 below and Figure 9 earlier shows the main signage for the building.

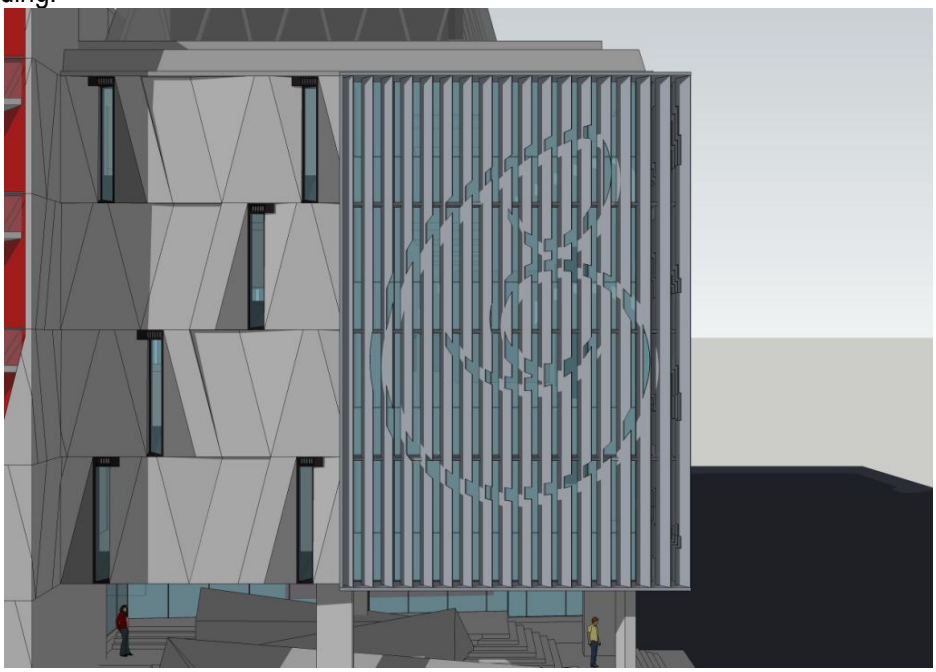

**Figure 12 Proposed signage for CMRI**

## *4.6 BCA Compliance*

An assessment of the plans has been carried out by Davis Langton in late 2008. The report concluded:

*"In summary, the design documentation has been assessed against the applicable provisions of the Building Code of Australia 2008, and it is considered that such documentation depicts a building that can readily comply with that Code."*

A copy of the report has been made available under separate cover.

# 5. Consultation

## *5.1 Agencies Consulted and their views*

### 5.1.1 Parramatta City Council

The CMRI and its consultants met with Parramatta Council officers on 24th October 2008 to discuss the proposal and to provide a presentation on the proposed scheme. Overall the proposal was favourably considered although the following issues were raised as items that the Council would wish to have addressed:

- Additional Parking
- Height above that proposed in the Westmead Implementation Plan, although this document had not been endorsed by Council and was considered as guidance only;
- Activation of Hawkesbury Road was seen as important to improve the safety and security of users of the public space.
- The rear of the CMRI building adjacent to the Children's Hospital should ideally remain open as an accessway.

In response to these issues the proposal has sought to incorporate as many design responses as possible. Parking has been one issue that has not been dealt with as Council would have preferred on the basis of high cost of underground parking; the issues of stability and vibration from underground parking impacting on experiments, difficulty of access to the site and the need to step back and fundamentally reconsider the need to additional incentives for car use. Out approach to parking and car use is clearly articulated in this report and in Appendix D.

The team again sought a meeting with Council for the week ending 20th February 2009 to discuss the project and how the issues that they raised had been addressed prior to lodging the application with the Department of Planning. However, Council did not see a need to meet again and was happy to deal with issues as they arose during the exhibition period.

### 5.1.2 Ministry of Transport

CMRI's consultant met with a representative of the Ministry of Transport (MOT) on 12th February 2009.

While the MOT recognises that CMRI is a single development within the Westmead Precinct, there is a preference for a coordinated transport planning approach, likely to encompass a Transport Management and Accessibility Plan (TMAP) for the precinct. The advantages of this approach would be to address transport and accessibility issues on an area wide basis.

Given that an area wide approach is not being currently pursued the MOT identified the following as desirable:

- Adopting a minimalist approach to parking
- Incorporating of a demand management approach
- Increasing the public transport mode share, recognising the State Plan targets

This approach is in line with the approach adopted by CMRI. It is considered that CMRI has the opportunity to 'lead the way' in terms of travel demand management policy implementation within the Westmead precinct.

### 5.1.3 NSW Roads and Traffic Authority

CMRI's representative discussed the CMRI development proposal with an RTA representative on 19th February 2009.

It was noted that the CMRI site is not located on an arterial road and is not providing significant on site parking. Within this context the RTA will comment on the development application only if requested to do so by the DOP.

While the need to understand the potential additional traffic contribution to the road network resulting from development of the CMRI site is addressed it is also acknowledged that there is considerable proposed future development within the Westmead precinct which at this stage is difficult to quantify.

The RTA will make further comments at the request of the DOP.

### 5.1.4 Utility Providers

All utility providers to the CMRI were contacted and their responses have been incorporated within the relevant sections of this report.

# 6. Draft Statement of Commitments

## *6.1 General Commitments*

G1 CMRI is committed to the principles of sustainability as defined in the Environmental Planning and Assessment Act 1979. The construction and operation of the CMRI facility will be undertaken in accordance with Best Practice environmental management policies in place at the relevant time through the sites development.

G2 The proponent will obtain all necessary approvals required by State and Commonwealth legislation in undertaking the project.

G3 The development will comply with the Building Code of Australia 2008.

G4 The proponent will continue to liaise with the local community through Parramatta City Council during the development process.

G5 The new building will be set out by a registered surveyor to verify the correct position of each structure in relation to property boundaries and the approved alignment levels. The registered surveyor will provide evidence to the Department that structural works are in accordance with the approved project application.

G6 A separate application will be made to Parramatta City Council for approval under Section 68 of the *Local Government Act, 1993*, for the erection of hoardings or scaffolding in a public place, if required.

G7 The development and its uses will be in accordance with the approved Project Application as described in this Environmental Assessment.

## *6.2 Prior to Commencement of Works*

P1 Detailed construction design details will be submitted to the Director prior to the commencement of construction works.

P2 All outdoor lighting shall comply, where relevant, with AS/NZ 1158.3: 1999 Pedestrian Area (Category P) Lighting and Australian Standard AS4282: 1997 Control of the Obtrusive Effects of Outdoor Lighting.

P4 Prior to commencement of works, a Construction Environmental Management Plan (CEMP) will be prepared. This plan will include procedures for the following:

- Contact details of the site manager;
- Air quality/dust control;
- Noise and Vibration Management;
- Waste management;
- Vegetation protection;
- Community access and safety;
- Site specific soil erosion and sediment control;
- Traffic and pedestrian management;

- Storage and handling of materials;
- Environmental training and awareness;
- Contact and complaints handling procedures;
- Emergency preparedness and response;
- Site induction, OHS&R management and training;
- Services disruption planning and management;
- Archaeological and heritage management; and
- Site contamination review and remediation, hazardous materials and contamination management.

P5 Prior to demolition a dilapidation report will be undertaken of the existing facility.

P6 A licensed asbestos/hazardous materials contractor will be engaged to undertake demolition of any parts of the building suspected of containing asbestos or other contaminant and removal of any asbestos or other contaminants from the site.

P8 Demolition of the relevant parts of the building will be undertaken in accordance with the requirements of Australian Standard AS2601– 2001: The Demolition of Structures which is incorporated into the Occupational Health and Safety Act 2000 administered by WorkCover NSW.

P13 Final design plans of the stormwater drainage systems shall be prepared in accordance with Council's and Sydney Water's requirements prior to the commencement of construction works. The hydrology and hydraulic calculations shall be based on models described in the current edition of Australian Rainfall and Runoff.

P14 A Traffic and Pedestrian Management Plan will be prepared that will identify:

- The number and location of car parking spaces required by construction workers,
- Ingress and egress of vehicles to the site,
- Loading and unloading, including construction zones,
- Predicted traffic volumes, types and routes, and
- Pedestrian and traffic management methods.

P16 A sign will be erected in a prominent position on the site prior to the commencement of works in indicating the nature of the project and the Project Director and contractor contacts details.

P17 All electrical and mechanical services plans will be submitted to the Department for information prior to the construction of each stage.

P18 Confirmation of the sewer testing to be undertaken prior to construction will be sent to the Department for information.

P19 Prior to construction of Stage 5, a full assessment of the feasibility of installing a solar photovoltaic cell array will be undertaken to determine the economic benefits of and any changes to this technology which would enable it to be introduced for this project.

P20 The various mechanical systems will be fully assessed prior to construction for suitability,

risk assessment and redundancy in the event of failure has also been considered in respect to these services. CMRI is committed to delivering cost effective and low carbon footprint mechanical services.

P21 During Detail design of services the following issues will be addressed:

- Minimising the use of energy (both electrical and gas) through optimum building design, systems design and/or ongoing operation and maintenance of the facility.
- Elimination of the use of environment damaging materials during construction such as ozone depleting substances.
- Waste management to maximise recycling.
- Water recycling.
- Assessing the benefits of introducing electrical green power generation via significant solar energy use.

P22 In respect to systems other than those which are business critical mechanical systems the following will be addressed in detailed design:

- Use of optimised passive external shading.
- Use of low embodied energy materials to provide thermal insulation.
- Energy efficient light fittings, day lighting, twilight sensor and motion based controls.
- Air conditioning systems have been modelled to explore opportunities for including selective systems with energy efficient outside air which is de-coupled and pre treated via desiccant using heat pump and chilled water with post humidifiers, airside heat reclaim of spill air, economy air cycles, balanced air pressure systems, high efficiency variable refrigerant volume (VRV) systems optimised for low loads as well as full load, high efficiency gas heating water boilers, advanced control systems.
- Atrium space will be modelled to explore opportunities for hybrid natural ventilation.
- Generation of on-site green power via solar panels will be explored.
- All toilets installed will be water efficient dual flush capacity with a minimum "AAA" rating;
- 5 star hot water generation augmented by solar panels.

P23 A one off "without prejudice" payment of $5000 will be paid to Paramatta City Council as a contribution towards the Regional Cycle Network.

## *6.3 During Construction*

D1 Measures to control soil erosion during demolition and construction will be in accordance with currently accepted principles, as described in Managing Urban Stormwater (EPA NSW) and Soil Erosion and Sediment Control (The Institution of Engineers, Australia).

D2 Erosion and Sediment Control will be implemented in accordance with the Erosion and Sedimentation Plan contained Appendix G of this report and these measures will be effectively maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works has been stabilised and rehabilitated so that it no longer acts as source of sediment.

D3 A 50,000 litre tank will be installed to provide water for flushing of toilets and urinals and for the cleaning of the animal house.

D4 To achieve maximum energy conservation hot water will be provided via three separate systems

- Domestic Hot Water via 5 star multiple gas instantaneous hot water units with 50% solar pre heat via roof mounted solar panels.
- Laboratory Hot Water via 5 star multiple gas instantaneous hot water units with 50% solar pre heat via roof mounted solar panels.
- Bio Services Hot water (Animal House) from electric mains hot water units with 50% preheating from a heat reclaim unit/s fitted to the waste water system from the same area

D5 Air conditioning in the specialist areas eg labs/animal house will include the following energy efficient practices:

- Provision of a passive building fabric which minimises ambient impacts eg solar and heat/cold, via shading and insulation.
- Provision of internal lighting based on low energy fittings and control to allow management of lighting energy usage.
- Provision of specific temperature and humidity control whilst maintaining pressure differentials, in business critical areas eg labs/animal house.
- Provision of redundancy/backup to minimise the risk of failure in business critical areas.
- Provision of long life proven technology which has local support and is readily able to be maintained at reasonable cost.
- Provision of energy efficient operation, acknowledging the 24/7 nature of many areas which have constant heat loads eg freezers in labs.

D6 All seepage or rainwater collected on-site during construction shall not be pumped to the street stormwater system unless separate prior approval is given in writing by Council.

D7 Adequate measures will be taken to prevent dust from affecting the amenity of the neighbourhood, hospital and other workers during construction. These will include:

- Physical barriers erected at right angles to the prevailing wind direction or placed around or over dust sources to prevent wind or activity from generating dust emissions,
- Earthworks and scheduling activities will be managed to minimise the amount of time the site is left cut or exposed,
- All materials will be stored or stockpiled at the best locations,
- The surface will be dampened slightly to prevent dust from becoming airborne, without creating runoff,
- All vehicles carrying spoil or rubble to or from the site will be covered to prevent the escape of dust or other material,
- All equipment wheels will be washed before exiting the site,
- Gates will be closed between vehicle movements and will be fitted with shade cloth, and
- Cleaning of footpaths and roadways will be carried out regularly.

These will also be documented in the CEMP.

D8 The hours of construction, including the delivery of materials to and from the site, will be:
7:00am and 6:00pm, Mondays to Fridays inclusive;
7:00am and 1:00pm, Saturdays;
No work on Sundays and public holidays.

Works will only be undertaken outside these hours where:

- The delivery of materials is required outside these hours by the Police or other authorities;
- It is required in an emergency to avoid the loss of life, damage to property and/ or to prevent environmental harm;
- The work is approved through the Construction Noise and Vibration Management Plan; and
- Residents and others likely to be affected by the works are notified of the timing and duration of these works at least 48 hours prior to the commencement of the works.

D9 Rock breaking, rock hammering, sheet piling, pile driving and any similar activity will only occur between the hours below unless otherwise approved in the Noise and Vibration Management Plan committed to above:

D10 Wherever practical, and where sensitive receivers may be affected, piling activities are completed using bored piles. If driven piles are required they must only be installed where approved in the Noise and Vibration Management Plan.

D11 Public ways will at all time to be kept clear of any materials, vehicles, refuse, skips or the like.

D12 All waste disposal will occur in accordance with the *Protection of Environment Operations Act* and Regulations and EPA Environmental Guideline: Assessment, Classification and Management of Liquid and Non-liquid Wastes (1995).

All wastes generated by the project shall be beneficially reused, recycled or directed to a waste facility lawfully permitted to accept the materials.

D13 In the event of any damage being caused to any existing kerb, guttering, stormwater pit, footpath trees and/ or footpath during building operation, the proponent will repair or reimburse Council for the full costs of repairing and making good.

D14 Public reserves, public roadway or private property (other than subject site) will not be used for storage or disposal of building materials or waste or excavated materials.

D15 The design of facilities will permit effective, appropriate and safe use by all people, including those with disabilities and will be in accordance with:

- AS 1428 Part 1.
- The Building Code of Australia.

D16 Access and Safety protocols will be included in a CEMP to maintain access and use of the site during the redevelopment of the site to ensure the safety of work personnel and visitors.

D17 Roads and other traffic based elements will be designed and constructed in accordance with Australian Standards and/or the relevant standards of Parramatta City Council or RTA as applicable.

D18 Car parking and loading bays will be constructed in accordance with the relevant Australian Standards.

D19 In the event that any historical or Aboriginal relics are uncovered during excavations, all excavation and disturbance to the area will stop immediately and the Department of Environment and Climate Change will be informed in accordance with Section 91 of the *National Parks and Wildlife Act 1974*.

D20 The requirements of the relevant public authorities in regard to the connection to, relocation and/or adjustment of services affected by the construction of the proposed development will be complied with.

D21 The diversion of the existing services will be carried out in consultation with the Council and/or the relevant agency and in accordance with the necessary requirements.

D22 All buildings will be ventilated in accordance with relevant codes.

D23 All cooling towers and cooling and warm water systems will be operated and maintained in accordance with AS 3666:1995 (or AS 3666:2000) the Public Health Act 1991 and Public Health (Microbial Control) Regulation 2000.

## *6.4 Prior to Occupation or Commencement of Use*

O1 A Fire Safety Certificate will be provided to the Department for all the Essential Fire or Other Safety Measures forming part of application.

O2 Prior to occupation, one (1) full set of works as executed plans, and other supporting documentation will be submitted to the Department and Council for information purposes only.

O3 Prior to occupation of the relevant stages, the Plane Trees identified to be removed during construction will be replaced one for one at the applicants cost.

# 7. Conclusion

This report, together with the appended technical reports, comprises a comprehensive environmental assessment of the Children's Medical Research Institute Redevelopment. This report describes the process of site analysis and the details of the proposed development along with an assessment of the proposal against the Director- Generals Environmental Assessment Requirements issued on 23 September 2008.

The proposed development involves the stage demolition and erection of a new research facility for the CMRI which will provide state of the art research facilities into the future to enable the on going funding and recruitment of high quality research staff. The new five to six storey development will be built over five stages taking between 10 to 15 years depending on funding.

The building incorporates a high level of environmental initiatives which will provide a future proofing for the Institute and assist them in meeting their objectives in terms of an environmentally and economically sustainable facility.

The proposal demonstrates a high level of consistency with prevailing planning instruments including the provisions of the SEPP (Major Projects) and other relevant SEPPs and regional and local planning instruments.

The assessment concludes that the site is suitable for the proposal and that the implementation of the redevelopment of the Children's Medical Research Institute is consistent with the public interest.

Accordingly, we seek the Ministers favourable consideration of this application.