

Final Business Case Evaluation Summary

Nepean Redevelopment Stage 2



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Infrastructure NSW

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About this report

The purpose of this report is to summarise the final business case for the redevelopment of Nepean Hospital (Stage 2).

In November 2016, the NSW Government announced a major redevelopment and expansion of Nepean Hospital with the Nepean Redevelopment (NR) Stage 1.

In March 2018, the NSW Government announced additional funding for the continuing redevelopment of the hospital campus, in response to the updated Nepean Hospital Clinical Services Plan 2018 – 2031 (CSP). This additional redevelopment effort is known as NR Stage 2.

NR Stage 2 includes a second clinical services building (Tower 2), major refurbishment of existing areas to provide an uplift to clinical services, clinical support, front of house and back of house services.

This project will deliver the following services indicated in the table below.

NR Stage 2 Scope	
Cardiac Catheter Labs (CCL)	Paediatric Inpatient and Day Only Unit
Combined Echocardiography Services	Clinical Support Services (Pathology, Pharmacy)
Coronary Care Unit (CCU)	Education & Training
Intensive Care Unit (ICU) & Close Observation Unit (COU)	Front of House (FoH), Transit Lounge
Interventional Radiology (IR)	Community Health
Medical Imaging: Radiology & Nuclear Medicine (MI)	Operating Theaters
Non-Clinical Support Services (i.e. Back of House)	Ambulatory and Outpatient services
Incentre Haemodialysis and Renal Inpatient Unit	

This business case summary has been prepared by Infrastructure NSW in accordance with the NSW Health Facility Planning Process and the NSW Treasury Guidelines for Capital Business Cases, and involved assessment from modelling, engineering and financial experts.

It builds on the analysis undertaken to develop the strategic business case and investment decision document for the project.

Strategic context

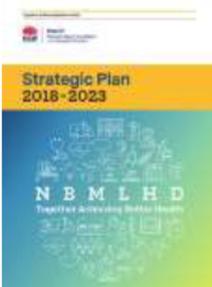
NBMLHD 2020 – 2021 Service Agreement

Nepean Blue Mountains Local Health District (NBMLHD) takes in 4 local government areas and is responsible for providing primary, secondary, and tertiary level health care.

Common health challenges in the region include:

- a growing population
- relatively large increases in the number of older people
- high smoking, obesity and stress levels
- increases in chronic illness statistics
- 58% of the population are overweight or obese
- high rate of diabetes
- a large urban Aboriginal and Torres Strait Islander community with poorer health outcomes than non-Aboriginal people
- socio-economic inequalities and poorer health outcomes.

The NSW Health and NBMLHD 2020 – 2021 Service Agreement includes a framework of policies, government priorities, national agreements and performance measures. NR Stage 2 supports several key strategic priorities of the service agreement to meet the region's challenges, as outlined in the following table.

	Alignment with Project
	<p>Ability to deliver and extend health and wellbeing activities with NBMLHD partners</p> <p>Provide person-centred care, the right care in the right place at the right time</p> <p>Focus treating people in the community and hospital avoidance</p> <p>Achieve self-sufficiency in service capability and provide world-class clinical care</p> <p>Preferred option is a staged approach to enable the project to be delivered within the available funds.</p> <p>Improve financial management through diligence, upgrading systems and technology and improving data collection and management</p> <p>Embrace new technologies and tools</p>
<p>NBMLHD Service Agreement 2020-2021</p> 	<p>Stage 2 will not only increase accessibility to services locally but will also deliver contemporary models of service delivery to provide efficient and high-quality clinical services</p> <p>Customise care to be culturally inclusive, age-appropriate and responsive to diversity</p> <p>The dedicated Aboriginal Health Consultation service enhance the capacity of local Aboriginal organisations including the Penrith Aboriginal Health Service to facilitate access to Nepean Hospital for Aboriginal people</p> <p>Integrated models of service delivery for clinical and non-clinical services and departments to enable efficient cost structures.</p> <p>Identification of the clinical infrastructure priorities</p> <p>Preferred option is a staged approach to enable the project to be delivered within the available funds.</p>
<p>NBMLHD Asset Strategic Plan, 2019-2020</p> 	<p>Delivery and expansion of health facilities to increase capacity in the constrained areas and replace/upgrade the building services to reduce risk and improve patient and staff safety with the assets that are the most appropriate and cost-effective means for meeting current and future service needs.</p> <p>Identify the basic relationships between the Service Delivery Strategy and the Capital Investment, Asset Maintenance and Asset Disposal.</p> <p>Assist the District to determine whether assets should be maintained or disposed of to continue their role in supporting service delivery</p>

Nepean Hospital Clinical Services Plan 2018 – 2031

Public health services in NBMLHD have grown considerably in recent years, with continuing improvement in the quality and range of health services provided. The Nepean Hospital Clinical Services Plan 2018 – 2031 (CSP) identifies several key drivers that support the case for capital investment in the project, including meeting the future healthcare needs of the Western Sydney Growth Area, significant population growth, population health issues and socioeconomic risk factors.

Internal drivers for change
Increasing activity in NBMLHD facilities and services.
Increasing acuity and chronicity in emergency department presentations.
Ageing infrastructure and facilities that are no longer fit for purpose and are expensive to maintain or upgrade to enable compliance with Building Code of Australia requirements.
Need to adapt and be able to develop and implement changing models of care to assist in deflecting the upward trend in acute service demand.
Capacity of facility to attract, grow and retain its own medical, nursing and allied health workforce and to recruit and retain appropriate staff, in relation to skills, qualifications and experience.
Capacity to support and deliver excellence in research, training and education.
Capacity to effectively harness future technologies (e.g. robotic platforms, remote monitoring), to support innovation in service provision and the ability to harness gains from implementation of telehealth related technologies with potential to improve remote service provision.
Capacity to meet and implement digital infrastructure requirements to support the roll out of state-wide information and communication technology platforms for patient care, management of patient flow, medical records and total asset and plant management.

External drivers for change
Growing and ageing population.
Relatively large urban First Nations population.
High levels of disadvantaged populations with unhealthy lifestyles and behaviours.
Large correction and custodial centre inmate population.
Announcement and development of the Western Sydney Airport, with associated industrial and residential growth.
Nomination of Penrith as a regional city and the Penrith Health and Education Precinct in the Plan for Growing Sydney, 2021 priority growth areas and precincts.
Workforce shortage for general practitioners and changes in the process for placement of registrars for training in general practice.
Inability to meet national targets and NSW key performance indicators (KPIs). The median wait times for category 3 elective surgery at Nepean Hospital is currently 344 days compared to the NSW average of 232 days. Nepean Hospital has the highest median wait time for category 3 cases in NSW.
Establishment of Nepean Blue Mountains Primary Health Network (NBMPHN), with shared boundaries with NBMLHD.
Limited private hospital capacity and lower levels of private health insurance within the NBMLHD catchment.

Project need

Over the next 20 years, as part of the Greater Sydney Commission's vision of a Metropolis of Three Cities, the Western City District Plan will drive growth in education, health, and industry sectors with employment hubs in Katoomba, Penrith, Richmond, and Windsor.

Penrith is a regional city of the Western District, housing The Quarter, Penrith, one of Sydney's largest health and education precincts. The Quarter is committed to becoming an international destination for investment and excellence in healthcare, medical research, world-class education, and related technology, where the world's best and brightest come together to collaborate.

Nepean Hospital is the Peer A1 tertiary referral hospital for the Nepean Blue Mountains Local Health District (NBMLHD), located in the Penrith Local Government Area (LGA).

The population of NBMLHD is expected to reach 466,650 by 2036, an increase of 90,600 people from 2016 with an average annual growth rate of 1.2%. Common health challenges in the region include a growing and ageing population, a large First Nations population, high levels of disadvantaged populations with unhealthy lifestyles and behaviours, and a large custodial centre inmate population.

Nepean Hospital provides district level as well as high-acuity inpatient and outpatient care. The hospital also has a role as a regional trauma service and provides supra LHD services in adult intensive care, neonatal intensive care, and high-risk maternity services.

The average operational occupancy rate of Nepean Hospital is 95%.

The projections in the CSP estimate that between 2017 and 2031:

- acute overnight episodes are projected to increase by approximately 50%
- acute day only episodes are projected to increase by approximately 40%
- acute paediatric overnight episodes are projected to increase by about 45%
- acute paediatric day only activity will continue to increase (much of this growth will be managed in the HiTH setting)
- ICU activity is projected to increase by approximately 75%
- COU activity is projected to increase by approximately 45%
- renal dialysis is projected to increase by more than 100%.

A key driver for the continuing redevelopment of Nepean Hospital is the lack of service capacity, clinical and non-clinical, on the campus to meet current and future needs of the catchment population.

Project objectives and design

Objectives

Building on the NBMLHD vision and strategic directions, the following Nepean Redevelopment project objectives have been developed and agreed through project governance:

- to improve the access, safety and quality of clinical services
- to increase clinical services capacity to meet the future project demand
- to enable contemporary models of care to improve health outcomes
- to enable for future flexibility, staged expansion and service enhancement
- to consolidate services to improve operational efficiencies
- to improve functional linkages and integration of services
- to meet workforce challenges, enhance multidisciplinary and specialist teams.

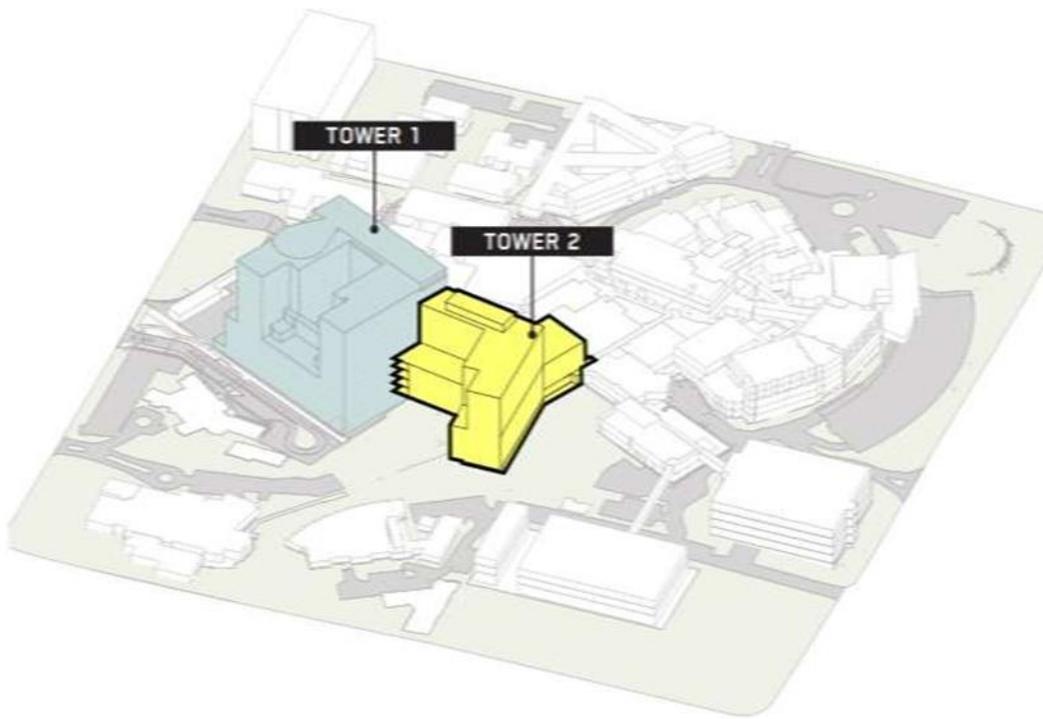
Design

The following universal design principles were developed to align with the NBMLHD key strategic direction and reflect the importance of the NR Stage 2 project.



The NR Stage 2 is an extension of the Stage 1 Tower 1 and will consist of an additional new acute services building, Tower 2, and refurbishment of non-clinical and clinical services. The NR Stage 2 provides significant enhanced acute services, as well as a new campus main entry and drop-off spaces to transform the face of the current Nepean Hospital Campus.

The preferred concept option for the NR Stage 2 includes a new acute building (Tower 2), which will connect into North Block on levels 1 and 2.



Capital cost

The cost plan for the affordable option of \$450 million has been developed in compliance with Health Infrastructure Cost Planning Standards for infrastructure projects over \$10 million based on the scope of the project preferred option.

Options identification and assessment

The NR Stage 2 options development considered:

- the Nepean Redevelopment project objectives and principles
- non-capital solutions
- the NR Stage 1 key drivers and delivered scope
- projected demand for services
- clinical services priorities
- the base case, full CSP and SBC options.

Following long and short list options development for the NR Stage 2 Strategic Business Case (SBC), and further planning and schematic design development, a preferred amended final business case option, option 11.6, was developed to align with the affordable budget and clinical service priorities of the project.

These 4 options were then examined in the newly amended final business case for the Nepean Redevelopment Stage 2.

- The **base case** reflects the ‘keep safe and operating’ scenario to keep Nepean Hospital in an operationally safe condition. The base case option does not respond to the CSP or address the key driver, which is lack of clinical and non-clinical capacity at Nepean to meet the service demand projects for the NBMLHD community.
- A **full CSP option**: an indicative schedule of accommodation using AusHFG HPU and NSW Health area benchmarks was developed and tested for affordability. At the time of review (2018), the end total cost of the full CSP option was \$1,245,180,428.
- The **SBC (amended) preferred option**: The original option, post-SBC, has been subject to extensive review, generating an amended preferred option more fully reflecting the CSP scope through limited infrastructure asset upgrades and expansions. However, the recommended amendments stipulated by this new option threaten the capital budget, rendering this approach infeasible.
- The **FBC (amended) preferred option** (summarised on the following page) aligns with project objectives, provides the agreed CSP priorities for clinical services, and fulfils the requirements of the alignment with NR Stage 1 and the zonal masterplan. Additionally, this amended option will realise numerous service and delivery optimisations and ensure greater future-proofing protection while repurposing existing infrastructure on-site to maintain affordability and continuity of service.

Summary Option 11.6c Amended preferred Option		
Tower 2	Tower 1	Repurpose
<ul style="list-style-type: none"> Paediatric IPU and day only Renal incentre HD and ambulatory Care Intensive Care Unit End of trip facilities Transit lounge Front of house Medical Imaging and Nuclear Medicine (exc. MME) Interventional Radiology Distributed Clinical Support Education and Training Services <i>Kitchen – full fit out, new</i> 	<ul style="list-style-type: none"> 2 IPUs on Level 7 Coronary Care, Cardiac Cath Labs and Cardiac Echo services on Level 5 Endoscopy procedure rooms Clinical Support ED Resus OT and recovery bays Nuclear Medicine (exc. MME) <p>Refurbishment</p> <ul style="list-style-type: none"> Essential Capital Upgrades for North Block <i>Category D services including Ambulatory/outpatient and allied health services</i> Pathology Pharmacy Back of house services including loading dock, linen, mortuary and waste 	<ul style="list-style-type: none"> Expanded sub-acute inpatient and outpatient services <p>Community Health</p> <p>Future proofing:</p> <ul style="list-style-type: none"> <i>Warm shell Renal IPU 12 beds</i> COU beds CCL Library Procedure rooms Interventional radiology Retail

Economic evaluation

The 2020-21 NSW Budget Paper No. 3 – Infrastructure Statement, committed a funding allocation of \$450 million for the commencement of the Nepean Redevelopment Stage 2.

The full cost plan for the affordable option of \$450 million has been developed by MBM based on the scope of the project preferred option.

Costed risk

The costed risks for NR Stage 2 have been valued at \$15 million, falling within ranges recommended by both NSW Treasury and the Health Infrastructure Cost Planning Guidelines.

Capital cash flow

The capital cash flow for the preferred option is presented below. The cash flow for the NR Stage 2 reflects fast-tracked funding to deliver a fit-out of Tower 1 areas.

2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Total
12.16	89.09	58.01	146.71	89.44	54.59	450.00

The cash flow will continue to evolve as detail design development progresses. As part of the total asset management process, Ministry of Health and Health Infrastructure will undertake portfolio level analysis to ensure that final allocations closely align to the project needs while staying within the approved capital program limits.

The outcomes of the analysis

A cost benefit analysis was undertaken for the project in accordance with NSW Treasury and NSW Health Guidelines for Economic Appraisal, and was informed by the FIS and cost plan.

Based on the analysis of quantifiable costs and benefits, an incremental net present value (NPV) for the project was established.

The NR Stage 2 CBA was applied across the base case (option 1), the amended SBC option, and the amended FBC preferred option. The results of the CBA indicate that the amended FBC preferred option achieves the highest net benefits, while also meeting the available budget for the project.

The project will generate significant health benefits for the Penrith catchment area and improve long-term access to healthcare.

Furthermore, despite a slight increase in estimated total costs since the SBC phase, the amended preferred option (option 11.6) returns a more favourable BCR (SBC = 1.37, FBC = 1.59), driven by an increase in the value of estimated health benefits arising from the project.

The following table shows the results for the amended FBC preferred option.

	Preferred project option
Incremental costs (\$m)	882.6
Incremental benefits (\$m)	1,401.1
Incremental NPV (\$m)	518.4
Incremental BCR	1.59

Deliverability

Procurement

The procurement models considered the complexity of the project, and the risk profile for Health Infrastructure and NMBLHD.

The project delivery strategy is driven by program, risk, statutory planning approvals, the need to keep the existing hospital operationally functional, and to ensure a timely completion.

The project will be delivered under a design finalisation and construct (DF&C) procurement method to reduce construction risk and to enable the successful contractor to finalise the design in partnership with Health Infrastructure and provide industry expertise and a value for money outcome. It is recommended that a DF&C procurement model be used.

The strategy has resulted in 4 packages of work: package 1A, 1B, 2 and 3.

Key risks and mitigation

The governance plan provides the mechanisms for project planning and procurement activities in accordance with Health Infrastructure's Project Delivery Framework and the Treasury Gateway Review Guidelines.

Key risks associated with the project include:

- Post Covid-19 learnings resulting in changes to the design and scope. Where possible, design should be flexible to enable changes without impacting the service or reducing service provisions.
- Demolition of existing buildings adjacent to the acute hospital services causes service disruption and patient safety. Monitoring sensors to be positioned adjacent to work site to monitor EPA regulated levels.

The Infrastructure NSW view

The final business case articulates an affordable option to deliver the Nepean Redevelopment Stage 2, proposing an option that incorporates stage 1 and stage 2, and builds on the significant social infrastructure projects, programs and initiatives that provide for the people of greater western Sydney and surrounds.

The final business case builds previous planning assumptions as outlined in the IDD, strategic business case and issues raised by the gateway review.

Infrastructure NSW has a high level of confidence that the project is being effectively developed and delivered in accordance with the Government's objectives.

Infrastructure NSW has found that the need for investment is well articulated through evidence-based scientific studies and demonstrated alignment with Government policies. The options have been well considered and the chosen option is deemed appropriate.