

Campbelltown Hospital Redevelopment Stage 2

Final Business Case

Cost-Benefit Analysis


NSW Health Infrastructure

8 May 2018



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8 May 2018


Private and ConfidentialDear **Campbelltown Hospital Redevelopment Stage 2 – Cost-Benefit Analysis**

EY is pleased to present NSW Health Infrastructure (HI) with our cost-benefit analysis report for the Campbelltown Hospital Redevelopment Stage 2 project. This report is in response to EY's contract with you, dated 1 November 2017 ("the Contract").

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The Report may only be relied upon by HI pursuant to the terms and conditions referred to in the Contract. Any commercial decisions taken by HI are not within the scope of our duty of care and in making such decisions you should take into account the limitations of the scope of our work and other factors, commercial or otherwise, of which you should be aware of from sources other than our work.

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The attached Report provides the outcomes of our cost-benefit analysis.


Yours sincerely

Partner

Table of contents

1.	Executive summary.....	5
1.1	Project background.....	5
1.2	Project objectives and benefits.....	6
1.3	Options.....	7
1.3.1	Option analysis.....	8
1.4	Assessment of quantified costs.....	8
1.5	Assessment of quantified benefits.....	9
1.6	Cost-benefit analysis findings and results.....	11
1.7	Qualitative impacts and other factors.....	12
1.8	Conclusion and recommendations.....	12
2.	Project background.....	13
2.1	Health services overview.....	13
2.1.1	Campbelltown Hospital.....	13
2.1.2	Campbelltown Hospital Redevelopment Stage 1.....	14
2.1.3	Campbelltown Hospital Redevelopment Stage 2.....	15
2.2	Project drivers.....	17
2.2.1	Growth.....	18
2.2.2	Health Status.....	20
2.2.3	Patient Needs.....	21
2.2.4	Capability.....	23
2.3	Strategic context.....	25
2.4	Project objectives.....	27
3.	Project benefit identification.....	28
3.1	Benefit Conceptual Framework.....	28
3.2	High level assessment of project outcomes, benefits and indicators.....	28
3.2.1	Quantifiable benefits.....	33
3.2.2	Qualitative benefits.....	33
4.	Options.....	34
4.1	Options generation.....	34
4.2	Short-listed options.....	34
4.3	Approach to cost-benefit analysis.....	37
4.4	Key evaluation assumptions.....	38
4.4.1	Option timelines.....	39
5.	Assessment of Costs.....	40
5.1	Overview.....	40
5.2	Capital costs.....	40
5.3	Life-cycle capital maintenance.....	41
5.4	Operating costs.....	42
5.5	Results – quantifiable costs.....	43
5.6	Non-quantifiable costs.....	43
6.	Assessment of Benefits.....	45
6.1	Overview.....	45
6.2	Quantifiable benefit assessment.....	46
6.2.1	Improved patient health outcomes and general health benefits.....	46
6.2.2	Emergency department (ED) expansion benefits.....	48
6.2.3	Renal dialysis service expansion benefits.....	51
6.2.4	Mental health service expansion benefits.....	52
6.2.5	Improved Cancer services.....	53
6.2.6	Improved accessibility to services at Campbelltown Hospital.....	55
6.2.7	Residual value.....	56
6.2.8	Non-admitted patient services.....	57
6.3	Summary of findings.....	58
6.4	Qualitative benefits.....	58

6.4.1	Implementation of short stay models of care.....	59
6.4.2	Implementation of new and integrated models of care	59
6.4.3	Improved staff attraction and retention	60
6.4.4	Improved building amenity	60
6.4.5	Increased dynamic efficiency	61
6.4.6	Improved safety and reduced clinical errors.....	61
6.4.7	Improved environmental outcomes.....	62
6.4.8	Education, training and research benefits.....	62
6.4.9	Avoided costs of future expansion	63
7.	Findings and Results	65
8.	Sensitivity & Scenario Analysis.....	67
8.1	Sensitivity Assessments.....	67
8.2	Scenario Analysis	68
9.	Qualitative costs/benefits and distributional analysis	70
10.	Conclusions and Recommendations.....	71
	Appendix A – Summary of CBA Results.....	72

1. Executive summary

EY was engaged by NSW Health Infrastructure (HI), to conduct a cost-benefit analysis (CBA) for the Campbelltown Hospital Redevelopment Stage 2 project (“the Project”). The Project is at the Final Business Case stage.

In accordance with the *NSW Government Guide to Cost-Benefit Analysis* (TPP17-03) and *NSW Health Guidelines for the Economic Appraisal of Capital Projects* (GL2011_006) (“the Government Guidelines”), this report presents the options that have been considered and the cost-benefit analyses of these options.

1.1 Project background

Campbelltown Hospital is part of the South Western Sydney Local Health District (SWSLHD), which is responsible for providing and managing all public health services across the seven Local Government Areas (LGAs) of Bankstown, Liverpool, Fairfield, Campbelltown, Camden, Wollondilly and Wingecarribee. Campbelltown Hospital specifically serves the Macarthur region, covering 3,072 square kilometres and encompassing the three LGAs of Campbelltown, Camden and Wollondilly.

Campbelltown Hospital is a major metropolitan group B1 hospital, operating under a common executive management structure and with networked services with Camden Hospital. It provides a range of services at mainly role delineation level 5. It is also a teaching campus for the Western Sydney University Medical School.

In May 2017, the Local Health District Board approved the Project as the number one capital works priority over the next 10 years. The Asset Strategic Plan identifies the Project as a single phase development to be delivered within the 2017-2026 planning horizon to address the rapid population growth and future role of Campbelltown Hospital within the SWSLHD.

On 17 June 2017, it was announced the NSW Government will deliver the \$632 million Campbelltown Hospital Redevelopment Stage 2 project in the 2018 State Budget, including a boost to paediatrics and mental health services.¹ More specifically, the Project will include:

- Expanded paediatric services including more inpatient beds
- Enhanced mental health inpatient and community support services
- Additional Emergency Department (ED) capacity
- More medical imaging equipment including an additional CT scanner
- Additional capacity in intensive care
- More medical, surgical and maternity beds
- More clinical rooms and treatment spaces for ambulatory care.

This Funding Announcement follows on from the earlier NSW Government \$134 million capital works allocation which supported the Campbelltown Hospital Redevelopment Stage 1 project completed in 2015.²

¹ Media Release, NSW Government, 17 June 2017 <<https://www.treasury.nsw.gov.au/sites/default/files/2017-06/17062017%20-%20Media%20Release%20-%20Berejiklian%2C%20Perrottet%20and%20Hazzard%20-%20NSW%20Budget%20-%20%24632%20million%20upgrade%20for%20Campbelltown%20Hospital.pdf>>

² Final Business Case.

The Project aims to increase capacity and implement new models of care to meet the increasing and dynamic health care needs of the community.

On advice from the NSW Ministry of Health, planning to inform the Stage 2 redevelopment project commenced in early 2014. The planning process identified the requirement for Stage 2 to build on the Stage 1 redevelopment project and provide the capacity and shell space (to be developed in future with additional investment) required to meet service needs to 2026/27, as identified in the *Abridged Clinical Services Plan for Macarthur to 2031* (ACSP-M) and the *Enhanced Paediatric Capacity Plan 2031* (EPCP).

1.2 Project objectives and benefits

The development of the Final Business Case has been informed, inter alia, by the two primary Clinical Services Plans (mentioned above). As outlined in the Final Business Case the key project drivers to meet the identified Clinical Service Plan challenges are:

- Significant growth in population, age profile, and complexity of disease and poor health
- Health issues associated with the higher than state average health status indices and high rates of preventable hospitalisation
- The high incidence rate for all cancers within the Macarthur LGAs (which is higher than the NSW average)
- The provision of safe, accessible, equitable, high quality and efficient care close to home
- The rise in the demand for emergency medicine and ED presentations
- The high incidence of Mental Health issues in Macarthur region
- Significant growth in maternity services linked to the high projected birth-rates for the region
- Growth in paediatric services linked to significant population projections, and the need to support the Sydney Children's Hospital Network (SCHN)
- The projected increase in clinical services demand and subsequent need to increase the role delineation level of the Hospital and range and complexity of clinical services; expand physical infrastructure; and, enhance workforce capabilities to better meet identified needs
- Increased level of self-sufficiency in the provision of nominated clinical services (i.e. paediatrics, mental health, surgical sub-specialties)
- The need for enhanced models of care to achieve higher levels of service integration with other healthcare providers and facilitate the shift from inpatient to short stay, day only, ambulatory and/or community based care
- The provision of additional capability and capacity through enabling health infrastructure and technologies to address the significant projected growth in population and related health service needs, deliver innovative models of care, and develop a capable and effective workforce to meet the health challenges in Macarthur over the coming years.

The HI Benefit Conceptual Framework has been applied to Stage 2 of the Campbelltown Hospital Redevelopment Project. Benefits of the redevelopment were identified across the following areas:

- Better patient health and experience
- Better value for money

- Sustainability
- Accessible services
- Workforce
- Safety

A summary of project outcomes, benefits and indicators is presented in Section 4.1.

1.3 Options

- **Base Case:** The Base Case reflects a “status quo” or “keep safe and operating” scenario to keep Campbelltown Hospital in an operationally safe condition. This option does not respond to the CSP, but is provided as a baseline against which other options are assessed.
- **Long-list and Short-list of Options:** A long-list of options was developed with input from the LHD and local hospital representatives. The long-list of 11 options were evaluated against several criteria and four short-listed options in addition to the base case were selected for further assessment. Of the four shortlisted options, Option 2 was excluded from this CBA as it incorporates a larger extent of shell space, which is not regarded as meeting immediate service level requirements, and as such its full benefit would not be realised until this space is fitted out at a later date.

Option	Key Features
Option 1: Single new build with refurbishment of retained facilities	<ul style="list-style-type: none"> • Continued use of existing theatres and new theatre expansion • Clinical capacity built to 2026/27 • Cancer Services remain at their current capacity (2017)
Option 1.1: Single new build with refurbishment of retained facilities	<ul style="list-style-type: none"> • Continued use of existing theatres and new theatre expansion • Clinical capacity includes a mix of new capacity and expansion space to 2026/27 • Uplift in Cancer Services (Medical and Radiation Oncology) afforded through providing expansion space for some services
Option 2: Single new build, replacement of existing theatres and refurbishment (excluded from this CBA)	<ul style="list-style-type: none"> • All new theatres replaced existing afforded through expansion space for some services • Repurposing of existing theatres space for other services via major refurbishment • Clinical capacity includes a mix of new capacity and expansion space to 2026/27 • Cancer Services uplift in Medical Oncology only • Radiology therapy remain at their current capacity (2017)
Option 3: Two phase new build with refurbishment of retained facilities	<ul style="list-style-type: none"> • Continued use of existing theatres and new theatre expansion in the phase 1 build • Clinical capacity (including use of expansion space) to 2026/27 • Uplift in Cancer Services (Medical and Radiation Oncology) by providing expansion space facilities afforded through providing expansion space for some services

Source: Provided by NSW HI; Final Business Case.

The VMS Workshop (held on 27 November 2017) provided support for Option 1.1 to be the preferred option based on the highest final weighted ranking score.³

In developing Option 1.1, it was noted that fit-out of the shelled space in future will provide additional bed capacity to meet admitted in-patient activity growth to 2026/27 (adult, paediatrics, maternity and emergency).

³ Further details of this are contained in the Final Business Case, Table 13.

Therefore a scenario analysis is also included within this CBA (Option 1.1 Scenario) to inform the option assessment, refer to Section 8.2.

1.3.1 Option analysis

The Government Guidelines recommend CBA as the preferred analytical approach. Accordingly, a CBA is being used as the primary analytical approach for this project. This approach is supported by individual measures of the direct and indirect costs and benefits for the base case and project options. Costs and benefits have been quantified where possible. A qualitative approach has otherwise been taken. Our approach is explained further in Section 4.3.

[REDACTED]

1.4 Assessment of quantified costs

For the purpose of the CBA, the economic costs identified comprise:

- Capital costs
- Lifecycle capital maintenance (LCCM) costs
- Operating costs (include ongoing maintenance cost).

Capital costs include the construction costs of refurbishment and/or redevelopment under all the options.

In addition to the capital costs, an annual LCCM cost has been included in the analysis to capture whole-of-life costing associated with the capital developments under each option. Total annual LCCM costs were estimated to [REDACTED] of the total capital costs of each option.⁴

Operating costs, including both staff-related costs (e.g. wages and salaries, superannuation and worker's compensation) and non-staff-related costs (e.g. goods, services, and ongoing repairs and maintenance) have also been included under each option. Total annual operating cost estimates were provided by NSW HI (via email on 2 February 2018).

A detailed outline of the methodology and assumptions underpinning the estimation of the costs outlined above is contained in Section 5 of this report.

Table 1 provides a summary of the total quantifiable costs under each option (and each phase within each option) over the 20 year evaluation period in present value (PV) terms. The total incremental costs associated with each of the Project Options, over and above the Base Case, is also provided.

Table 1: Total quantified costs over 20 year evaluation period ([REDACTED])

Cost item	Base Case	Option 1	Option 1.1	Option 3
Capital costs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
LCCM ⁵	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Operating costs	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

⁴ NSW HI assumption

⁵ We have been advised that there are no Capital Costs and LCCM in the Base Case – Source: NSW HI

Total costs				
Incremental to base case				

The table above shows that Option 1 has the highest costs. As noted in Section 1.3 above, Option 1 delivers clinical capacity to meet CSP demand to 2026/27 in full upon commissioning and hence has higher operating costs than the other options. In comparison, Option 1.1 and Option 3 are built to include shell space / room for expansion to meet CSP demand in future years and hence have a lower operating cost initially.

1.5 Assessment of quantified benefits

Stage 2 of the Campbelltown Hospital Redevelopment Project is expected to deliver a range of benefits to the communities in Macarthur and across the SWSLHD and NSW. The following identified benefits have been quantified for the Project:

- Improved health outcomes and general health benefits through an increase in the capacity and range of services provided at Campbelltown Hospital, including:
 - Acute services
 - Mental health services
 - Emergency care
 - Cancer services
 - Renal dialysis services
- Improved accessibility for patients and carers through the establishment of required health services closer to home
- Residual value of health assets at the end of the evaluation period
- Non-admitted patient services (NAPS).⁶

A detailed outline of the methodology and assumptions underpinning the estimation of the benefits outlined above is contained in Section 6 of this report. The valuation of health benefits arising from increased service capacity as a result of the Project has been conducted in line with HI's methodology assessment template(s).

Table 2 provides a summary of the total incremental quantified benefits associated with each of the Project Options, over and above the Base Case, in PV terms.

Table 2: Total incremental quantified benefits over 20 year evaluation period ()

Benefit item	Option 1	Option 1.1	Option 3
Health:			
Inpatient			
Mental health			
Emergency care			
Cancer			
Renal			
Sub-total			
Avoided operating costs – NAPS			
Avoided capital costs – NAPS			

⁶ Note that the benefits associated with improved operational and productive efficiency have been captured within the operating costs of each option, as developed within the FIS. Non-admitted patient services (NAPS) benefits have been identified and quantified separately.

⁹ NSW Health Infrastructure

Residual value				
Avoided travel and time costs				
Total benefits				

The table above shows higher inpatient health benefits under Option 1 when compared to other options. This is due to the fact that acute services under Option 1 meet full CSP demand. In contrast, Option 1.1 and Option 3 have lower inpatient health benefits however deliver cancer benefits to address Group 1 service priorities.

1.6 Cost-benefit analysis findings and results

Based on the analysis of quantifiable costs and benefits outlined above, the incremental Net Present Value (NPV) and associated Benefit-Cost Ratio (BCR) of the proposed investment options for the Project have been calculated.

Table 3 presents the total discounted incremental quantified costs and benefits for the proposed Project Options, relative to the Base Case. All costs and benefits are presented in real terms (i.e. un-escalated).

Table 3: Summary of incremental results (██████████)

	Option 1	Option 1.1	Option 3
Incremental costs	██████	██████	██████
Incremental benefits	██████	██████	██████
Incremental NPV	██████	██████	██████
Incremental BCR	██████	██████	██████

Based on the analysis of the quantifiable costs and benefits undertaken within this CBA:

- Option 1 produces the highest incremental NPV (██████████) and BCR (██████) when compared to the Base Case
- While Option 1 has the highest incremental NPV and BCR result, we note that the estimation of project benefits above does not include the value of shell space / room for expansion built into Option 1.1 (and Option 3). ██████████
██████████ This is considered further through scenario analysis in Section 8.2, which demonstrates that if the shell space under Option 1.1 was fitted out in 2022/23, this scenario would provide the highest incremental NPV (██████████) and BCR (██████3)
- We note that the breadth of services addressed by Option 1.1 is greater than Option 1, especially when considering cancer services which are not addressed by Option 1 whatsoever. As a result, Option 1.1 delivers on all Group 1 service priorities to some extent, whereas Option 1 does not as there is no uplift in cancer services
- Given the higher than NSW average standardised incidence rate for cancer in the Macarthur region, there is a need for the Project to provide enhanced medical and radiation oncology. This is another qualitative factor to be taken into account when selecting the preferred option, and highlights the importance of cancer services in making the investment decision for the Project.

The positive economic return across all options is largely driven by the expansion in clinical inpatient services to meet the large expected growth in demand with strong regional population growth.

1.7 Qualitative impacts and other factors

In addition to the quantifiable/monetised costs and benefits outlined above, a number of other costs and benefits were identified which were not able to be quantified/monetised:

Qualitative benefits included:

- The implementation of short stay models of care across a range of clinical services including aged care, surgery, medical, emergency and paediatric care
- The implementation of new and integrated models of care
- Improved staff attraction and retention
- Improved amenity to patients, carers and staff from improvements to assets (i.e. improved value in use to patients, carers and staff)
- Increased dynamic efficiency
- Improved safety and reduced clinical errors / infection
- Improved environmental outcomes
- Education, training and research benefits
- Avoided cost of future expansion (construction of shell space / room for expansion in Options 1.1 and 3).

Qualitative costs include:

- Disruption to existing hospital operations
- Disruption to local traffic and surrounding businesses during construction of the project
- Noise and air quality impacts during construction of the project.

1.8 Conclusion and recommendations

Based on the analysis undertaken within this cost-benefit analysis, Option 1 delivers the highest NPV and BCR. This is notwithstanding the qualitative factors discussed in Sections 1.6 and 1.7 above.

Sensitivity analysis has been undertaken to test the extent to which the results of our quantitative analysis are sensitive to different assumptions regarding discount rates, capital costs, operating costs and estimates of the clinical service health benefits generated by the Project.

We have also conducted a scenario analysis to determine the impact of the shell space / room for expansion included in Option 1.1, and the impact this would have on the result of the CBA if this space were to be fitted out. Based on the results of this scenario analysis, there is an increase in the BCR of Option 1.1, suggesting that if viewed holistically, and in the scenario where the shell space is fitted out, Option 1.1 would provide the highest BCR relative to the Base Case.

2. Project background

2.1 Health services overview

The South Western Sydney Local Health District (SWSLHD) is responsible for the provision and management of public health services across the seven Local Government Areas (LGAs) of Bankstown, Liverpool, Fairfield, Campbelltown, Camden, Wollondilly and Wingecarribee.

The public hospitals available within the SWSLHD include:

- Campbelltown Hospital
- Liverpool Hospital
- Camden Hospital
- Bankstown-Lidcome Hospital
- Bowral and District Hospital
- Fairfield Hospital

In addition to the public hospitals outlined above, SWSLHD's catchment area also includes a number of hospitals that are managed by the private sector including Campbelltown Private Hospital, Liverpool Day Surgery, Sydney South West Private Hospital and Southern Highlands Private Hospital.

2.1.1 Campbelltown Hospital

Campbelltown Hospital is in the SWSLHD. It is a major metropolitan group B1 hospital, operating under a common executive management structure and with networked services with Camden Hospital, providing a range of services at mainly role delineation level 5. It is a teaching campus for the Western Sydney University Medical School. The range of clinical services currently provided at Campbelltown Hospital include:

- Emergency Medicine
- Cardiac Diagnostic Service
- Surgical sub-specialties including general, ENT, ophthalmology, orthopaedics, breast and urology
- Medical care within a general medicine model with sub-specialty care on consultation including endocrinology, gastroenterology, neurology, immunology, aged care, renal medicine, respiratory, oncology, cardiology and rheumatology
- Inpatient paediatric medical and surgical care
- Adult and Paediatric Ambulatory Care Services
- Cancer therapy including radiation oncology, chemotherapy and haematology
- Intensive Care Unit/High Dependency Unit (ICU/HDU)
- Women's Services including antenatal, birthing, postnatal, Feto-Maternal Assessment Unit and Early Pregnancy Assessment Unit
- Mental Health⁷
- Drug Health
- Rehabilitation and Aged Care
- Imaging – MRI, CT, ultrasound and general radiography

⁷ The Campbelltown Mental Health Service provides a comprehensive integrated range of services to residents of the Campbelltown, Camden, Wollondilly and Wingecarribee LGAs with 66 beds (including PECC) at the Campbelltown Hospital Campus.

- Allied health services
- University Clinics
- Outreach case conferencing service is provided to GPs across Campbelltown/Camden

The first stage of the redevelopment of the hospital was completed in 2015 (“Campbelltown Hospital Redevelopment Stage 1”). Stage 1 provided for the immediate acute care needs of the Macarthur region as well as established some of the required building blocks for Campbelltown Hospital to operate as a tertiary referral hospital in future. The Stage 1 redevelopment only met approximately 40% of the additional capacity identified as required by 2021 in *A Clinical Services Plan for Macarthur to 2021* (the relevant CSP at that time).

Investigative works previously carried out by SWSLHD identified the need for an expansion of existing mental health services to meet current and future demand for mental health in the region. These works have not been undertaken to date. Outcomes from the paediatric planning process including potential paediatric/adult interfaces were also identified as part of the overall planning process for the Project, along with planning for future mental health services.

In December 2016, the Ministry requested that SWSLHD undertake an accelerated planning exercise to revise the previous clinical service planning to meet a new timeframe of 2031 and to inform planning for the Campbelltown Hospital Stage 2 Redevelopment and the next phase of planning for the Oran Park Integrated Health Hub.

Each of these interrelated projects are discussed below.

2.1.2 Campbelltown Hospital Redevelopment Stage 1

The *Clinical Services Plan for Macarthur to 2021* (CSP-M) was developed in April 2010 and outlined the clinical service direction and models of care required for the delivery of health services in Macarthur in 2016 and more broadly to 2021.

The CSP-M acknowledged the role of Campbelltown and Camden Hospitals as both a local facility and tertiary centre, within the broader context of a network of hospitals within South Western Sydney. The CSP-M recommended Campbelltown Hospital be developed into a principal tertiary referral hospital to satisfy the health requirements of a growing population catchment. Specifically, the CSP-M stated the need to “...*expand Campbelltown Hospital's overall capacity to a critical mass necessary to develop and maintain tertiary teaching hospital status and provide self-sufficiency in meeting the majority of care needs of increased population numbers.*”

Stage 1 of the Campbelltown Hospital Redevelopment, completed in 2015, included:

- 90 additional inpatient beds, with shell space for a further 30 inpatient beds
- An expanded ED and 7 bay Emergency Short Stay Unit (ESSU), 4 paediatric beds and 7 new sub-acute beds
- Two cardiac catheterisation laboratory/interventional suites
- Three new birthing suites and one refurbished suite
- An expanded paediatric outpatients unit
- Collocated ambulatory care, outpatients, antenatal and allied health consulting rooms and treatment spaces
- Expanded pathology and clinical information space
- An expanded loading dock

- An additional 248 car parking spaces, bringing the total number of on-site car spaces at the hospital to 1,225.

Stage 1 of the redevelopment (\$134m) was funded by the NSW Government. However, as outlined above, Stage 1 only meets around 40% of the additional capacity identified as required by CSP-M and does not address significant further service expansions required to meet projected need in the Cancer Therapy Centre, ED, inpatient wards or operating theatres.

2.1.3 Campbelltown Hospital Redevelopment Stage 2

On advice from the NSW Ministry of Health, planning to inform the Stage 2 redevelopment project commenced in early 2014. The planning process identified the requirement for Stage 2 to build on the Stage 1 redevelopment project and provide the capacity and shell space (to be developed in future with additional investment) required to meet service needs to 2026/27, as identified in the *Abridged Clinical Services Plan for Macarthur to 2031* (ACSP-M) and the *Enhanced Paediatric Capacity Plan 2031* (EPCP).

Given the magnitude of the future service activity projections for Campbelltown Hospital, the planning process for Campbelltown Hospital Stage 2 has involved an extended consultation process to identify current service gaps and prioritisation for service enhancements.

Building on Stage 1 of the Campbelltown Hospital Redevelopment Project

Based on current planning projections contained within the ACSP-M and EPCP, Campbelltown Hospital is facing a deficit in beds and supporting infrastructure following the completion of Stage 1 of the redevelopment.

Table 4 provides a summary of the current bed and infrastructure requirements that remain outstanding on completion of Stage 1, and that have been considered under Stage 2, in accordance with the ACSP-M.

Table 4: Campbelltown Hospital – summary of beds / beds equivalents and other infrastructure required

	Scenario		
	2016/17	2026/27	2031/32
Campbelltown Hospital			
Day Only			
Overnight			
Emergency Short Stay (ESSU)			
Hospital in the Home (Acute)			
Hospital in the Home (Paediatric)			
Total Acute Beds			
Mental Health			
Sub-acute			
Total Beds/Bed Equivalents			

Source: Abridged Clinical Services Plan for Macarthur to 2031, Table 57.

Stage 2 of the Campbelltown Hospital Redevelopment is consistent with the directions outlined in the SWSLHD Strategic & Healthcare Services Plan Strategic Priorities in Health Care Delivery to 2021 for enhancing clinical networks and growing “centres of excellence”. Key features of the service models proposed in the plan include:

- Proposed future models of care will reflect a reduction in the average length of stay in the short to medium term to 2021 but a marginal increase in length of stay up to 2026
- To meet projected demand, there will be an increase in short stay, ambulatory, outpatient and community based care
- There will be an increased utilisation of short stay models of care in a range of clinical services from aged care, surgery, medical, emergency and paediatric care
- Expansion of:
 - Integrated aged care and rehabilitation enablement models
 - Integrated assessment and care coordination for patients
 - Shared care arrangements between all service providers
- Investment and development of new roles, alignment of skills mix and staff profile to address workforce challenges and pressures
- Enhancement of a range of clinical services – vascular, palliative care/end of life care, haematology, neurophysiology, respiratory medicine, diabetes and endocrinology, infectious diseases and drug health
- Establish peripheral neurosurgery, vascular surgery and thoracic surgery.

Mental Health Services

There is a pressing need for the expansion and enhancement of mental health services and facilities at Campbelltown Hospital. The current lack of capacity results in difficult to manage mental health patients, spending extensive time in ED while awaiting beds, consuming significant staff resources in observation and care, with implications for optimising patient flow, disruption to the ED environment and the quality of care that can be provided in the acute phase of mental illness. A number of patients eventually require placement in facilities outside SWSLHD, especially as there are no mental health intensive care services currently available to manage the most difficult patients, resulting in the need for high-risk transfers to obtain this level of care.

The expansion to mental health services under the Project will:

- Enable a full range of mental health services including services for children and adolescents, young people, adults and older people
- Increase role delineation to level 5/6
- Integrate service models through models of care development and co-locating outpatient and inpatient mental health services with other general services in a new clinical service building.

Table 5 below provides the current and future bed profile for mental health services.

Table 5: Campbelltown Hospital Mental Health Inpatient Services – Current and Projected Demand (beds)

	2016/17	2026/27	2031/32
Acute Adolescent			
Psychiatric emergency care centre (PECC)			
Acute Adult – gender specific			

Mental Health Intensive Care Unit	[REDACTED]
Acute Adult	
Acute Youth	
Acute Older Persons	
Total Mental Health	

Source: Abridged Clinical Services Plan for Macarthur to 2031, Table 57.

Older Persons and Civil Secure Mental Health units have been considered in the planning (services and architectural) and are subject to other sources of funding proposed under the State-wide Mental Health Infrastructure Program.

Paediatric Services

One of the key components of the Project is to increase paediatric capacity in SWSLHD, to accommodate for projected increased demand. This need is evidenced through the following statistics relating to paediatric care in the SWSLHD:⁸

- The number of children aged 0-15 years is projected to increase by 32% by 2031
- 28% of 5-16 year olds in south west Sydney were overweight or obese
- One third of paediatric ED presentations are at Campbelltown Hospital
- The demand for paediatric services for SWSLHD children is projected to increase by 31% by 2031
- 34% of SWSLHD children currently travel to the Sydney Children’s Hospital Network (SCHN) for their care.

The vision for paediatric services in South Western Sydney to 2031 is to provide high quality and safe care and to have a high level of self-sufficient paediatric services where children and young people will receive the care they need locally in partnership with the SCHN who will continue to provide specialised services to SWSLHD’s sickest children.

Paediatric services provided on site will be enhanced to include chemotherapy, critical care, tertiary level outpatient services, surgery, transition to adult services, ambulatory care, cancer services and mental health services. Paediatric services at Campbelltown Hospital will develop into a comprehensive and integrated paediatric service. The model of care will involve improved local access to a more comprehensive and integrated paediatric service, becoming a regional paediatric centre for the south west of Sydney.

2.2 Project drivers

The Project Case for Change aligns with the NSW Government’s commitment to invest in the Project to provide additional capability and capacity through enabling health infrastructure and technologies to address:

- The significant projected growth in population and related health service needs
- Deliver innovative models of care with an ability to adapt to future needs
- Develop a capable and effective workforce

⁸ Enhanced Paediatric Capacity Plan 2031 (September 2017 Draft).

- Meet the health challenges in Macarthur over the coming years.

The key drivers for change have been broadly categorised into 4 areas:⁹

- Growth
- Health Status
- Patient Needs
- Capability

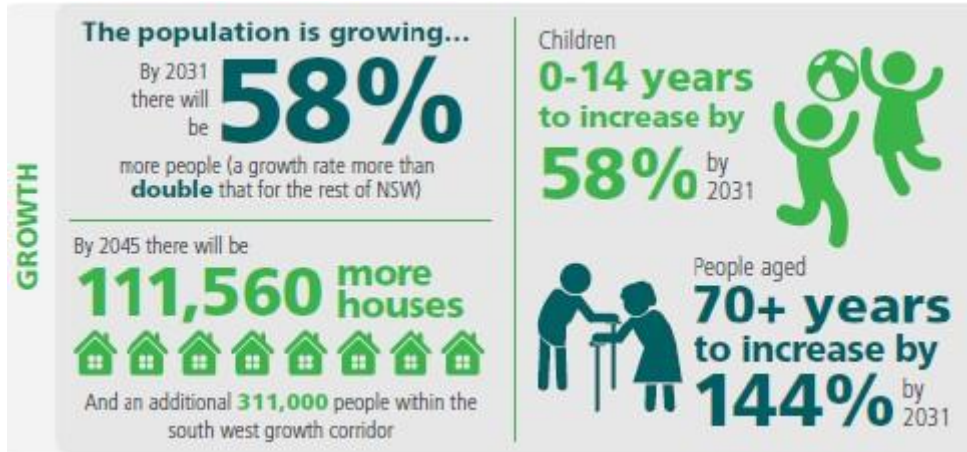
Further information on each of these key drivers is included in Sections 2.2.1 to 2.2.4 below.

2.2.1 Growth

The Challenge	Project Requirement
<p>The Greater Sydney Commission, Western City District Structure Plan (2036) - Urban Area South includes the Macarthur Priority Growth Area (PGA) which proposes a world-class health, integrated educational and retail services, and a more diverse range of housing, retail, commercial and other public developments</p> <p>The projected population growth aligns with the broader NSW State direction for growth in the Campbelltown-Macarthur area</p> <p>The significant growth in population impacts on all aged groups – children, adults, older persons and the range of socio-cultural groups in the Macarthur community</p> <p>Projected population growth will impact on Macarthur and the entire SWSLHD, placing a strain on the entire network of hospitals and health agencies in the District including Liverpool, Campbelltown / Camden and Bowral</p>	<ul style="list-style-type: none"> • Substantially expand the provision of services (range, capacity, and capability) to meet the significant growth in population, age profile and complexity of disease and poor health • Provide increased capacity and capability across the broad range of services to meet the projected growth in services including: <ul style="list-style-type: none"> • Emergency care (+80%) • Adult surgical inpatient (+17%) and shift towards day only (+600%) • Adult medical inpatient beds (+32%) • Medical oncology (+150%) • Paediatric inpatient (+220%) • Mental health inpatient (+30%) • Maternity (+107%) and • Renal, ambulatory and outpatient services

The CSP provides a graphic ‘snap-shot’ of some of the key drivers for change and key challenges facing Health in the Macarthur region over the 2016-2031 period.

⁹ Final Business Case, Section 2.3.1.



2.2.2 Health Status

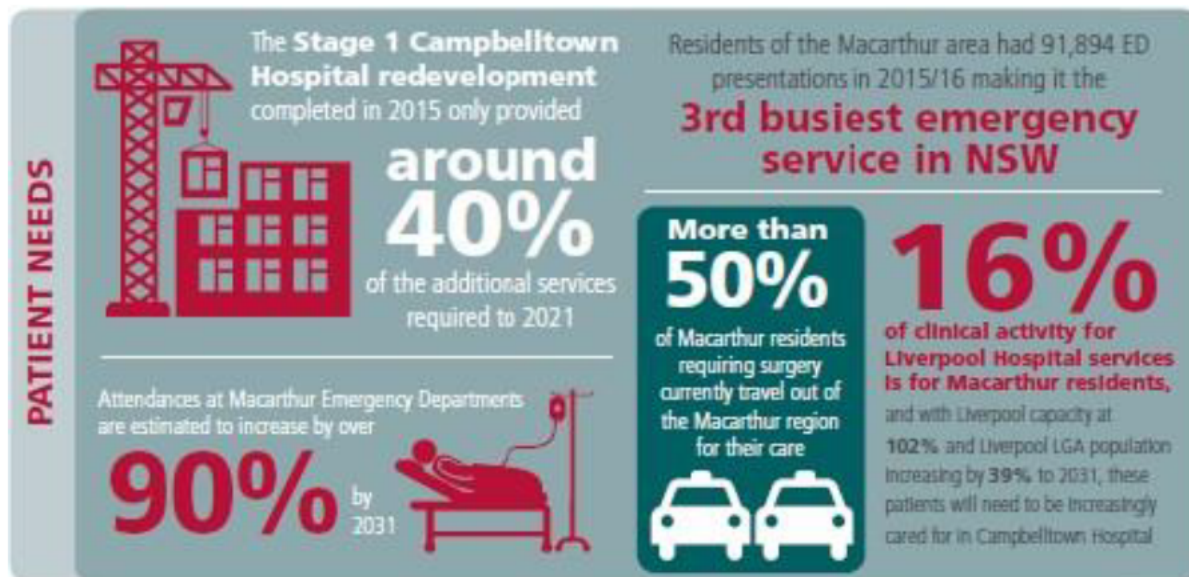
The Challenge	Project Requirement
<p>The 2011 Socio-Economic Index for all Areas (SEIFA), indicated that some of the poorest communities in NSW are located in the Macarthur region. This profile contributes to Campbelltown LGA and the region reporting a range of health status indices which are higher than the State average. This is demonstrated by:</p> <ul style="list-style-type: none"> • Poor lifestyle choices and behaviours impacting on the health status and well-being of local residents • Admission of patients presenting with co-morbidities and chronic health issues • Hospital readmission rates linked to a lack of behaviour change following treatment and care <p>Macarthur residents will benefit from targeted service development for disadvantaged groups through innovative service development strategies, partnering with the community, and designing services which improve timely access to services</p>	<ul style="list-style-type: none"> • Improve service access and patient flows to provide the right care for right people at the right time and location • Address the significantly high rates of preventable hospitalisation, high rates of obesity, cancer, renal disease and smoking related health issues • Overall increase in service capacity • Increase Mental Health services including new services • Develop new, responsive models of care in renal, ambulatory care and outpatient services and Hospital-In-The-Home (HITH)



2.2.3 Patient Needs

The Challenge	Project Requirement
Patient Needs & Self-sufficiency	
<p>Patient needs cover the broadest range of population needs and associated service needs</p> <p>The current situation is that Macarthur residents travel out of Macarthur for 40% of the inpatient care they receive and 50% for surgical care</p> <p>To objective to provide safe, accessible, equitable, high quality and efficient care as close to home as possible, underscores the need for Campbelltown Hospital to expand its range of services to better meet projected service demand</p>	<ul style="list-style-type: none"> • Increase clinical service capacity and capabilities to elevate levels of self-sufficiency from 60% to 80% • Improve self-sufficiency in the provision of acute medical and surgical services for residents in the catchment area • Reverse flows from other hospitals (i.e. Liverpool and from within the SCHN) • Support localised care outcomes within the Macarthur region and other LHD network hospitals (i.e. Camden, Bowral and Oran Park)
Emergency Medicine:	
<p>The combined ED of Campbelltown and Camden are reported as the third busiest emergency service in NSW</p> <p>These services rely on the downstream availability of supporting services within the network of hospitals</p> <p>ED attendances are estimated to increase significantly and capability across several streams needs to be established (e.g. Mental Health, Paediatrics, and Older Persons)</p>	<ul style="list-style-type: none"> • Deliver expanded emergency services at role delineation level 6 with an integrated service model for adult and paediatrics • Achieve Emergency Performance Treatment (EPT) targets • Enable the shift of ED activity to Campbelltown Hospital supported in preparation for an Integrated Primary Care Centre at Camden Hospital and the Oran Park Integrated Health Hub (both subject to separate funding)
Mental Health:	
<p>High incidence of Mental Health issues in Macarthur region represent significant challenges for Campbelltown Hospital in respect to the growing number of ED attendances; high inpatient admission rates; and subsequent bed occupancy rates</p> <p>Projected demand for mental health services exceeds the current number of mental health beds across all patient categories: adolescents, youth, adults and older persons</p>	<ul style="list-style-type: none"> • Enable a full range of mental health services including services for children and adolescents, young people, adults and older people • Increase in role delineation to level 5/6 • Integrate service models through models of care development and co-locating outpatient and inpatient mental health services with other general services in a new clinical service building • Establish new / additional services including: <ul style="list-style-type: none"> • Mental Health Intensive Care (+5 beds) • Older Persons Mental Health (+20 beds) • Civil Secure Unit (20 beds) <p>Note: Older Persons and Civil Secure Mental Health units have been considered in the planning (services and architectural) and are subject to other sources of funding proposed under the State-wide Mental Health Infrastructure Program</p>
Women's Services:	
<p>A high number of women of child-bearing age are projected to move into the Macarthur region which will contribute significantly to the number of babies and subsequent demand for paediatric services. These demand projections underscore the high impact on Birthing / Maternity and Special Care Nursery (SCN) / Paediatric services</p>	<ul style="list-style-type: none"> • Deliver expanded maternity services (including clinic spaces, special care nursing and birthing) at continued role delineation level 5 • Facilitate rooming-in policy as part of model of care • Enables service development with a women-centred, wellness centred, health promotion focussed on the delivery of services • Enhance maternity care options including the expansion of midwifery led models of care
Paediatric Services:	

The Challenge	Project Requirement
<p>The growth in paediatric services is linked to significant population projections related to family migration and increase in the number of women of child-bearing age within the region</p> <p>The socio-cultural and economic characteristics of the Macarthur region often impact on the health status of mothers (i.e. smoking in pregnancy) and the educational / skill level of mothers in respect to child care, and handling child health issues</p> <p>There is a growing number of ED paediatric presentations and hospital admissions across the region. The demand for paediatric services is increasing across the range of paediatric medical and surgical sub-specialties</p>	<ul style="list-style-type: none"> ED to operate an integrated service model for adult and paediatric patients with paediatric specific treatment spaces Improve self-sufficiency in the provision of paediatric services through the increase in services (capacity and capability) with the ability to reverse flows from SCHN
Cancer Services	
<p>The all cancers age standardised incidence rate for cancers (combined) is higher than NSW average for all Macarthur LGAs</p>	<ul style="list-style-type: none"> Expand the provision of cancer services Increase the role delineation to level 6 for both medical and radiation oncology Improve self-sufficiency for residents locally in the Macarthur region by reducing their travel times and time away from home



2.2.4 Capability

The Challenge	Project Requirement
Capability	
<p>In order for Campbelltown Hospital to more effectively meet projected clinical service demand, the role of the Hospital, range and complexity of services, physical infrastructure, and workforce capabilities need to be significantly expanded and enhanced</p> <p>These changes will positively impact on the ability for Macarthur patients to access care closer to home and relieve some of the pressure placed on Liverpool and other network hospitals in the region</p>	<ul style="list-style-type: none"> Transition from a level 4/5 to level 6 tertiary hospital facility Expand clinical services to include a wider range of surgical, medical subspecialties, maternity, paediatric and mental health services Expand the range of diagnostic and treatment facilities including new services (i.e. Nuclear Medicine) Increase workforce numbers and capabilities to align with the changes in role delineation, models of care, range and complexity of services and new technologies Expand and enhance the range of research and educational programs and activities to support proposed transitional service changes
Evolving Models of Care	
<p>Contemporary models of care aim to achieve higher levels of service integration with other healthcare providers and facilitate the shift from inpatient to short stay, day only, ambulatory and/or community-based care (i.e. hospital-in-the-home)</p> <p>Enhanced models of care in Macarthur will foster greater integration and collaboration between specialities as well as primary health care providers, health partners, networked hospitals and other health agencies</p>	<ul style="list-style-type: none"> Develop and expand the use of hospital-avoidance models of care Expand the use of minimally invasive medical technologies Increase the substitution of lower cost approaches to hospital inpatient care (i.e. ambulatory care, HITH, involvement with other health agencies in provision of care (i.e. NGOs, NDIS) Develop service delivery models that enhance responsiveness to patient and consumer needs (e.g. 'My Choice Menu', patient-centred technologies) Implement operational policies that increase throughput, utilisation efficiencies (e.g. scheduling systems)
Sustainable Services	
<p>Attracting and retaining skilled staff in an environment where there is a significant uplift in capacity and capability over a short period of time will be challenging for the SWSLHD</p> <p>Network impacts of enhancing services at Campbelltown Hospital may include internal competition for staff and resources</p> <p>Developing a capable and sustainable workforce is crucial, and with the growing population the opportunities for development of a skilled and available workforce can be leveraged</p> <p>Economic sustainability of services will rely on new ways of working, efficient and flexible models of service and robust, reliable infrastructure and systems to support care</p> <p>Higher volumes of certain activity will also provide economies of scale for sustainable, effective and safe clinical service delivery</p>	<ul style="list-style-type: none"> Higher capability infrastructure (buildings and technologies) to leverage available resources Consolidate building stock (and removal of non-fit-for-purpose buildings) Facilitate long-term development to enable future service changes and directions Create an operational / organisational platform for efficient service delivery and improved operational efficiency Enhance support services capacity and capacity through the use of technology and system design Enhance workforce capacity and capability through early engagement with local staff, network partners (i.e. SCHN) and range of research and education partners (i.e. Western Sydney University and others)
Service Integration and Collaboration	

The Challenge	Project Requirement
<p>Current facility and campus configuration has resulted in operational and physical fragmentation which limits the ability for Campbelltown Hospital services to fully benefit from seamless integration of services</p> <p>Service integration and collaboration provide unique opportunities to undertake joint planning; share core services and resources; strengthen working relationships and service partnerships; and, leverage the use of resources (staff, facilities, equipment and technologies)</p> <p>Integration requires effective collaboration with other service providers in support of new models of care or service delivery which will be achieved through collaborative planning</p>	<ul style="list-style-type: none"> • Remove barriers to service integration. Physical separation of some services is undermining opportunities for improved collaboration (i.e. mental health services) • Refine models of care and service delivery • Challenge and improve the organisational culture • Refine organisation-wide operational policies • Strengthen team building, joint research and education activities • Implement new ways of working (clinical and support / administrative)
Changing Technology and Service Capabilities	
<p>The development Campbelltown Hospital as a tertiary healthcare facility requires an expansion to the range of appropriate technologies to better support clinical activities, service providers, patients and the community</p> <p>The use of such technologies contributes to improved operational efficiencies (i.e. reducing lengths of stay, transitioning from inpatient to ambulatory care and community-based approaches to care including hospital-in-the home) and also enhanced operational performance reporting (including clinical outcomes, change management, financial performance, etc.)</p>	<ul style="list-style-type: none"> • Pursue opportunities for enhancing the range of available technologies • Enable emerging and future technologies to be adopted through flexible service and facility design (e.g., robotic surgery, pharma-solutions) • Enhance existing capability in: <ul style="list-style-type: none"> • Telemedicine / Tele-monitoring • Remote access • Roll-out of eMR2 • Non-invasive procedures • Hybrid imaging • Extend collaboration with eHealth, HealthShare and other providers
Investment in Education and Research	
<p>Research and education are key drivers for change and the future development of the Campbelltown Hospital as a tertiary hospital facility</p> <p>The Greater Sydney Commission, Western District Report emphasises that the evolution and maturity of a hospital to leverage the benefit of a closer partnership with education and research organisations will have a direct and ongoing benefit to the efficient delivery of effective services</p> <p>Education needs to underpin everything Campbelltown Hospital does to develop a skilled and capable workforce. The CHR Project will achieve the desired level of service integration and enhancement of service capabilities by fully committing to research and education</p>	<ul style="list-style-type: none"> • Be a leader at a tertiary health care level, research needs to embrace innovation, support evidenced-based practice and inform clinical practice to improve health outcomes • Collaborate with Campbelltown City Council around the innovative health, education and research precinct at Campbelltown • Explore opportunities to benefit from the relationship with university partners

2.3 Strategic context

The Project is identifiable within the context of existing NSW State Government and SWSLHD plans, policies and strategies, as outlined in the table below.

Table 6: Strategic alignment

Strategic Priority/Objective	Key Points	Alignment with Project
Premier's Priorities	<ul style="list-style-type: none"> Improving service levels in hospitals <ul style="list-style-type: none"> 81 per cent of patients through emergency departments within four hours by 2019 Delivering Infrastructure <ul style="list-style-type: none"> Key metropolitan, regional and local infrastructure projects to be delivered on time and on budget Improving government services <ul style="list-style-type: none"> Improve customer satisfaction with key government services every year, this term of government to 2019 	<ul style="list-style-type: none"> Expansion of emergency department and model of care for adults, children and persons with mental health issues Identification of clinical infrastructure priorities and efficient built forms to maximise the impact of capital investment. Increase in broad range of services capacity and capability in the Macarthur region to provide localised healthcare, reverse flows from Liverpool and SCHN, and support other hospitals in the Macarthur region
NSW State Priorities	<ul style="list-style-type: none"> Delivering Strong Budgets <ul style="list-style-type: none"> Expenditure growth to be less than revenue growth Cutting wait times for planned surgeries <ul style="list-style-type: none"> Increasing on-time admissions for planned surgery, in accordance with medical advice 	<ul style="list-style-type: none"> Integrated models of delivery and care for clinical and non-clinical services and departments to enable efficient cost structures (reflected in FIS) Expansion of surgical capacity and capability (additional theatres and inpatient / day only spaces) Introduction of surgical technologies to enhance service throughputs
NSW State Health Plan: Towards 2021	<ul style="list-style-type: none"> Keeping people healthy, provide world class clinical care and delivery truly integrated care Supporting and developing the workforce, supporting and harnessing research and innovation, enabling eHealth, designing and building future-focussed infrastructure Generating new evidence and translating knowledge into the delivery of a better health system and improve health 	<ul style="list-style-type: none"> Addressing the significantly high rates of preventable hospitalisation, and the high rates of obesity, cancer, renal disease and smoking related health issues Continue to collaborate with universities to attract, train and retain nursing and medical staff Embed different, new and evolving models of care in to the services (clinical and non-clinical) at policy setting operational level and through the functional briefing process
SWSLHD Strategic & Healthcare Services Plan	<ul style="list-style-type: none"> Building capacity to effectively service growing demands for health care Redesigning services bringing them closer to people and their communities Partnering with external partners to deliver public health care Enhancing service networks and growing centres of excellence Providing shared access to unified information for all the health care team Embedding education and research within service delivery 	<ul style="list-style-type: none"> Identification of clinical infrastructure priorities to provide capacity across broad range of high demand services whilst leveraging the benefits of Macarthur network of hospitals and the SCHN (complement not duplicate) Continued collaboration with universities and SCHN Embed ICT strategies for eMR2, eHealth NSW, HealthNet, eMeds, etc.
State-wide Mental Health Infrastructure Program	<ul style="list-style-type: none"> Two new services to be established on the Campbelltown Hospital campus are: <ul style="list-style-type: none"> Older Persons Mental Health Unit Civil Secure Mental Health Service as a state-wide referral service 	<ul style="list-style-type: none"> Full range of services including services for children and adolescents, young people, adults and older people Increase in role delineation to level 5/6 Integrated services model

Strategic Priority/Objective	Key Points	Alignment with Project
Campbelltown City Council Strategic Plan (2010-2020)	<ul style="list-style-type: none"> • Goal 1 - Quality Living: a healthy and safe community through planning advocacy and compliance • Goal 2 - Leadership: investment in strong leadership through training and development; and a collaborative and flexible approach that enhances, supports and continuously improves service quality • Goal 3 - City Planning: planning aligned to local needs and State Plans; and, an effective Development Plan that is sustainable and builds strong communities • Goal 4 - Environmental Responsibility: opportunities to conserve energy and resources are maximised • Goal 5 - Local Economy: business and industry partnerships which support growth in the local economy; advocacy for local employment; and, promotion of community, events facilities, and attractions to enhance the local economy 	<ul style="list-style-type: none"> • Significant increase in services capacity and capability across broad range of services • Workforce planning and research and education • Services align to the CSP through 2026/27 • Significant increase for employment and job opportunities locally in Campbelltown for clinical and non-clinical staff • Creation of local industry and business opportunities
Greater Sydney Commission Region Plan (Draft)	<ul style="list-style-type: none"> • Infrastructure supporting new developments • Working together to grow a Greater Sydney • Celebrating diversity and putting people at the heart of planning • Giving people housing choices • Designing places for people • Developing a more accessible and walkable city • Creating the conditions for a stronger economy • Valuing green spaces and landscape • Using resources wisely • Adapting to a changing world 	<ul style="list-style-type: none"> • Significant targeted capital investment • Aligned to the GSC concept of three cities • High level of community participation as demonstrated by the Visioning Workshop and Consumer Representation in planning • Providing jobs locally where housing is more affordable • Embedding the principle of greenspace within the master plan. i.e. the collaboration zone
Aboriginal Health Impact Statement	<ul style="list-style-type: none"> • To keep people healthy • To provide the health care that people need • To deliver high quality health care • To manage health services well 	<ul style="list-style-type: none"> • Improved service access and patient flows, and to provide the right care for right people at the right location • Address the significantly high rates of preventable hospitalisation, and the high rates of obesity, cancer, renal disease and smoking related health issues • Targeted service development for disadvantaged groups which improve timely access to services

2.4 Project objectives

The project objectives as identified in the Final Business Case are outlined below.

Project Objectives
To substantially expand the provision of services (range, capacity, and capability) to meet the significant growth in population, age profile and complexity of disease and poor health.
To improve service access and patient flows, and to provide the right care for right people at the right location.
To address the significantly high rates of preventable hospitalisation, and the high rates of obesity, cancer, renal disease and smoking related health issues.
To provide safe, accessible, equitable, high quality and efficient care as close to home as possible.
Enable the shift of all emergency department activity to Campbelltown Hospital.
Provide a full range of mental health services including services for children and adolescents, young people, adults and older people.
Provided expanded maternity services.
Improve self-sufficiency in the provision of paediatric services by the increase in services (capacity and capability) with the ability to reverse flows from within the SCHN.
Expand the provision of cancer services and facilitate the increase in role delineation to level 6 for both medical and radiation oncology.
Deliver contemporary and evolving models of care.
Deliver services integration, collaboration and sustainable services.

Source: Final Business Case

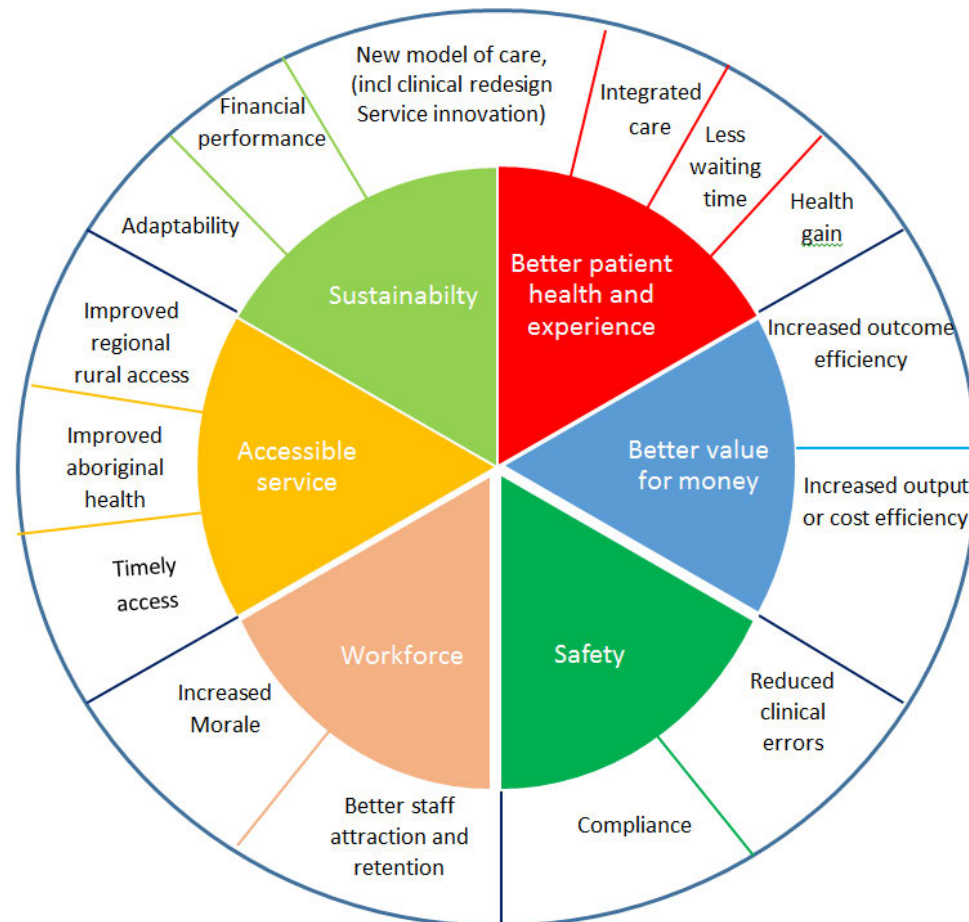
3. Project benefit identification

3.1 Benefit Conceptual Framework

HI has developed a conceptual framework for identifying and structuring the potential and expected benefits associated with a capital proposal (see Figure 1). This is a key step in the cost-benefit analysis during business case development and is an integral component of the benefits realisation and change management process.

Application of the conceptual framework captures early thinking on how the benefits relate to the problems/issues/challenges identified for the proposed project, how they are measured and linkage to service delivery outcomes.

Figure 1: Benefit Conceptual Framework Diagram



3.2 High level assessment of project outcomes, benefits and indicators

EY has applied the HI Benefit Conceptual Framework to the Project. Table 7 identifies project benefits in a manner that reflects NSW Health's Performance Management Framework. This benefits framework has been reviewed and amended by representatives from the SWSLHD.

Table 7: Benefit Identification and Indicators

Business Problem/Issue	Outcomes	Benefits	Indicators and Measures	Capital Scope of Project
Space constraints creating difficulties meeting growing clinical and operational demand	Better patient health and experience	<ul style="list-style-type: none"> Deliver clinical and support spaces 	<ul style="list-style-type: none"> Meet ETP Unplanned representations Avoidable admissions Reduced LOS Increased non-admitted NWAU Improved patient experience Increased research activity 	<ul style="list-style-type: none"> Increase in capacity for all key services New clinical services
Low levels of integration of research activity into current work spaces or practices		<ul style="list-style-type: none"> Deliver collaborative research, teaching and network partnerships 	<ul style="list-style-type: none"> Attract leading academics Achieve active staff and consumer participation in research activity 	
Low levels of paediatric clinical self-sufficiency		<ul style="list-style-type: none"> Delivery of regional paediatric centre for the south west of Sydney 	<ul style="list-style-type: none"> Increased paediatric services 	<ul style="list-style-type: none"> Delivery build to support regional paediatric centre for the south west of Sydney
Low levels of clinical self-sufficiency with inability for patients to access health care close to home		<ul style="list-style-type: none"> Delivery of tertiary level health care close to home 	<ul style="list-style-type: none"> Improved patient outcomes Enhanced patient experiences Increase in self-sufficiency levels 	<ul style="list-style-type: none"> Deliver build for transition to tertiary level hospital
Poor design of current clinical areas restricting delivery of contemporary models of care		<ul style="list-style-type: none"> Deliver innovative and responsive care Deliver new ways of working Deliver contemporary evidence based models of care 	<ul style="list-style-type: none"> Contemporary building design meeting AHFGS 	<ul style="list-style-type: none"> Utilizing principle of co-design Enhanced logistics across non clinical and support areas

Business Problem/Issue	Outcomes	Benefits	Indicators and Measures	Capital Scope of Project
Mental health services isolated on site and poorly designed		<ul style="list-style-type: none"> Deliver integrated Mental health services 	<ul style="list-style-type: none"> Integration Operating efficiencies Enhanced Models of care 	<ul style="list-style-type: none"> Integrated mental health services across site Addition of new MH services including Older persons unit and Civil Medium secure unit
Opportunities to improve the health outcomes and health experience of Aboriginal people are missed due to the limited ability to provide culturally appropriate environments and services		<ul style="list-style-type: none"> Deliver care enabled by culturally appropriate spaces 	<ul style="list-style-type: none"> Reduced waiting time Improved Aboriginal health performance indicators Integrated care Provide service closer to where people live 	<ul style="list-style-type: none"> Culturally appropriate and integrated spaces enabling recovery and wellness for all cultures
Poorly configured clinical services resulting in inefficient use of buildings as well as staff utilisation and practices	Better value for money	<ul style="list-style-type: none"> Deliver integrated health care with workforce, workplace and facility infrastructure efficiencies Deliver Generic room design 	<ul style="list-style-type: none"> Reduced RMR costs NWAU delivered with efficiency targets New ways of working 	<ul style="list-style-type: none"> Relocation of services for clinical efficiency & effectiveness Design standardisation of inpatient wards
Redundant ageing / high maintenance building stock		<ul style="list-style-type: none"> Delivery of contemporary and consolidated building stock 	<ul style="list-style-type: none"> Elimination of redundant building stock Reduced RMR 	<ul style="list-style-type: none"> Consolidated new infrastructure facilities that meets AHFGS across the campus

Business Problem/Issue	Outcomes	Benefits	Indicators and Measures	Capital Scope of Project
Ineffective and inefficient use of available technologies		<ul style="list-style-type: none"> Deliver technology solutions that facilitate workplace safety, work efficiencies, networking and options for care 	<ul style="list-style-type: none"> Reduction in patient complaints Reduction in clinical incidences Tele-health uptake Tele-monitoring uptake Enhanced environmental sustainability practices 	<ul style="list-style-type: none"> Imbed technology as enabler for health care delivery, safety & social connectedness
Low levels of clinical self-sufficiency	Sustainability	<ul style="list-style-type: none"> Deliver tertiary health across facility 	<ul style="list-style-type: none"> Meet new role delineation requirements 	<ul style="list-style-type: none"> Deliver uplift in capacity and complexity
Existing services not sufficient to meet demand		<ul style="list-style-type: none"> Delivery of Innovative Models of care Deliver care close to home 	<ul style="list-style-type: none"> Options for care 	<ul style="list-style-type: none"> Deliver new clinical services
Fractured clinical care		<ul style="list-style-type: none"> Deliver integrated sustainable evidence based ways of working 	<ul style="list-style-type: none"> Improved patient outcomes Enhanced patient experiences 	<ul style="list-style-type: none"> Enabled contemporary Models of care
Infrastructure that does not meet current standards or future demand		<ul style="list-style-type: none"> Deliver Infrastructure that meets current standards and future demands 	<ul style="list-style-type: none"> AHFGS met 	<ul style="list-style-type: none"> Infrastructure delivered within scope of project
Deficiencies in ambulatory/ outpatient services and spaces		Accessible Services	<ul style="list-style-type: none"> Deliver enhanced non-admitted options for clinical care Timely access to integrated care 	<ul style="list-style-type: none"> Increase in ambulatory NWAU targets (HITH) Health gain Timely access Improved patient experience Avoidable admissions Aboriginal health gain

Business Problem/Issue	Outcomes	Benefits	Indicators and Measures	Capital Scope of Project
Low levels of paediatric clinical self-sufficiency		<ul style="list-style-type: none"> Improved paediatric services across SWS 	<ul style="list-style-type: none"> Health gain Patient / carer experience Improved self-sufficiency 	<ul style="list-style-type: none"> Delivery of regional paediatric centre for the south west of Sydney
Growing demand for Mental Health services		<ul style="list-style-type: none"> Deliver uplift in mental health services Provision of new Mental Health units 	<ul style="list-style-type: none"> Health gain Patient /carer experience 	<ul style="list-style-type: none"> Integrated contemporary MoC for Mental Health services
Current staff capacity and capability unable to meet demands in projected role delineation	Workforce	<ul style="list-style-type: none"> Attract sustainable workforce Increase workplace culture Better staff attraction & retention Increased workplace efficiencies Increased cost efficiencies Strong network relationships 	<ul style="list-style-type: none"> Staff recruitment & retention Staff learning and development Recruitment times Student placements Staff experience surveys Reduced Workplace injuries and time lost Reduced excess leave balances Network satisfaction 	<ul style="list-style-type: none"> Project delivers new/refurbished technology enhanced research, education & training spaces Shared staff & support areas / functional adjacencies promote greater collaboration
Ageing & non-contemporary infrastructure impacts on patient and staff safety, reduces the ability to introduce new models of care and logistics efficiencies	Safety	<ul style="list-style-type: none"> Health gains Reduction in adverse events Increased operational efficiencies Reduced clinical errors Improved compliance Care/service enabled by technology 	<ul style="list-style-type: none"> Clinical incidents Standardised logistics Tele-health & tele-monitoring uptake rates Surveys Safety Indicators 	<ul style="list-style-type: none"> Deliver technology enabled work and patient technologies that reduce clinical incidents (including sentinel events) and near misses

Source: CHR Benefits Realisation, v1.0, 2 December 2017.

3.2.1 Quantifiable benefits

The Project is expected to deliver a range of benefits to the communities in SWSLHD and NSW. The following identified benefits have been quantified for the Project:

- Improved health outcomes and general health benefits through an increase in the capacity and range of services, including:
 - Acute services
 - Mental health services
 - Emergency care
 - Cancer services
 - Renal dialysis services
- Improved accessibility for patients and carers (i.e. travel time saved) through the establishment of services closer to home
- Residual value of health assets at the end of the evaluation period
- Non-admitted patient services (NAPS).¹⁰

For the purposes of the Final Business Case, and at the request of HI, the consumer/patient benefits of mortality and morbidity have been quantified, while amenity benefits have been addressed qualitatively.

3.2.2 Qualitative benefits

In addition to the quantifiable/monetised benefits outlined above, a number of other benefits have been identified which have not been quantified/monetised, including:

- The implementation of short stay models of care in a range of clinical services from aged care, surgery, medical, emergency and paediatric care
- The implementation of new and integrated models of care
- Improved staff attraction and retention
- Improved amenity to patients, carers and staff from improvements to assets (i.e. improved value in use to patients, carers and staff)
- Increased dynamic efficiency
- Improved safety and reduced clinical errors / infection
- Improved environmental outcomes
- Education, training and research benefits
- Avoided costs of future expansion (construction of shell space / room for expansion in Options 1.1 and 3).

¹⁰ Note that the benefits associated with improved operational and productive efficiency have been captured within the operating costs of each option, as developed within the FIS. Non-admitted patient services (NAPS) benefits have been identified and quantified separately.

4. Options

4.1 Options generation

A long-list of options was developed by HI with input from the LHD and local hospital representatives. The long-list of 11 options was evaluated against the following criteria:

- Alignment with the Capital Budget of \$632 million
- Range of Services provided to 2021/22, 2026/27 and/or 2031/32
- Clinical Infrastructure capacity – in full or in part
- Provision of Core (Group 1) clinical service priorities – in full or in part
- Achievement of clinical and operational efficiencies
- Program delivery timeframe
- Impact of construction on business continuity
- Overall alignment of the site for future development.

Four short-listed options in addition to the base case were selected for further assessment. Of the four shortlisted options, Option 2 was excluded from this CBA as it incorporates a larger extent of shell space, which is not regarded as meeting immediate service level requirements, and as such its full benefit would not be realised until this space is fitted out at a later date.

4.2 Short-listed options

The following high-level options were identified:

- Base Case – Keep safe and operating
- Option 1 – Single new build with refurbishment of retained facilities
- Option 1.1 – Single new build with refurbishment of retained facilities
- Option 2 – Single new build, replacement of existing theatres and refurbishment
- Option 3 – Two phase new build with refurbishment of retained facilities

The key features and the alignment of these options to objectives is outlined in the table below.

Table 8: Short-listed options

Option	Key Features	Alignment to Objectives
Base Case <i>Keep safe and operating</i>	<ul style="list-style-type: none"> • Maintain the status quo 	<ul style="list-style-type: none"> • Needs to be included in the short list of options for further evaluation
Option 1 <i>Single new build with refurbishment</i>	<ul style="list-style-type: none"> • Continued use of existing theatres and new theatre expansion • Clinical capacity built to 2026/27 	<ul style="list-style-type: none"> • Pro - Substantial expansion of most services (range, capacity, and capability) to meet the significant growth in population,

Option	Key Features	Alignment to Objectives
<i>of retained facilities</i>	<ul style="list-style-type: none"> Cancer Services remain at their current capacity (2017) 	<ul style="list-style-type: none"> age profile and complexity of disease and poor health. Con – Does not increase cancer (medical and radiation oncology) services to address higher incidence of cancers in Macarthur region and the need for patients to travel out of area for treatment.
Option 1.1 <i>Single new build with refurbishment of retained facilities</i>	<ul style="list-style-type: none"> Continued use of existing theatres and new theatre expansion Clinical capacity includes a mix of new capacity and expansion space to 2026/27 Uplift in Cancer Services (Medical and Radiation Oncology) afforded through providing expansion space for some services 	<ul style="list-style-type: none"> Pro - Substantial expansion of all services including medical and radiation oncology (range, capacity, and capability) to meet the significant growth in population, age profile and complexity of disease and poor health. Con – Does build shell space (adult inpatient beds) which requires later fit-out with separate funding.
Option 2 <i>Single new build, replacement of existing theatres and refurbishment</i>	<ul style="list-style-type: none"> All new theatres replaced existing afforded through expansion space for some services Repurposing of existing theatres space for other services via major refurbishment Clinical capacity includes a mix of new capacity and expansion space to 2026/27 Cancer Services uplift in Medical Oncology only Radiology therapy remain at their current capacity (2017) 	<ul style="list-style-type: none"> Pro – Provides 24 (of 30 required) new theatres and procedure spaces to replace all existing with new. Con – Though there is expansion of all services is does include a higher proposition of shell space (to offset the cost of new theatres) which requires greater later fit-out with separate funding and therefore only partially meets the demand for 2026/27. Does not increase radiation oncology services to address higher incidence of cancers in Macarthur region and the need for patients to travel out of area for treatment.
Option 3 <i>Two phase new build with refurbishment of retained facilities</i>	<ul style="list-style-type: none"> Continued use of existing theatres and new theatre expansion in the phase 1 build Clinical capacity (including use of expansion space) to 2026/27 Uplift in Cancer Services (Medical and Radiation Oncology) by providing expansion space facilities afforded through providing expansion space for some services Longer overall delivery program 	<ul style="list-style-type: none"> Pro - Substantial expansion of all services including medical and radiation oncology (range, capacity, and capability) to meet the significant growth in population, age profile and complexity of disease and poor health. Con – Though there is expansion of all services is does include a higher proposition of shell space (to offset the cost of new two buildings) which requires greater later fit-out with separate funding and therefore only partially meets the demand for 2026/27. Longer delivery program results in later delivery for some increased service capacity.

Source: Final Business Case, Table 12.

In developing Option 1.1, it was noted that fit-out of the shelled space in future will provide additional bed capacity to meet admitted in-patient activity growth to 2026/27 (adult, paediatrics, maternity and emergency). Therefore a scenario analysis is also included within this CBA (Option 1.1 Scenario) to inform the option assessment, refer to Section 8.2.

The following table shows how each of the short-listed options responds to the CSP, and also demonstrates shell space / room for expansion under each of the options where:

- the “2017” column represents the number of beds/places currently available in FY17 and is representative of the Base Case

- the “2027” column indicates the number of beds/places estimated as required to meet FY27 CSP demand
- the “Options 1, 1.1 and 3” columns indicate the beds/places provisioned under each of the short-listed options.

Table 9: Short-listed options service delivery capacity matrix

Service	2017	CSP 2027	Option 1	Option 1.1	Option 3
Emergency Department					
ED Short Stay					
Medical Imaging					
Nuclear Medicine					
Intensive Care Unit					
Theatres and Procedure Rooms					
Interventional Radiology, Endovascular, ERCP					
Cardiac Catheter Lab					
Surgical Day Only					
HVSS - EDO/Overnight					
HVSS - DO					
Paediatrics – Inpatient Units					
Paediatrics - Day Only					
Paediatrics - Ambulatory					
Paediatrics – Outpatients					
Mental Health - PECC					
Mental Health - Adolescent					
Mental Health - Adult					
Mental Health - Adult Observation					
Mental Health - ICU					
Mental Health - Acute Youth					
Women's Health - Maternity IPU					
Women's Health - Maternity DO					
Birthing					
Special Care Nursery					
Cancer – Medical Oncology					
Cancer – Linear Accelerators					
Adult – Inpatient Units (Medical)					
Adult – Inpatient Units (Surgical)					
Adult – Medical Day Only					
Adult - Ambulatory, Outpatient					
Renal (Satellite & In-Centre)					
Dental					

Source: Adapted from VMS Workshop (November 2017)

The benefit implication of the shell space / room for expansion is further discussed in Section 6.4.9, and for Option 1.1 is analysed in Section 8.2.

Interestingly Table 9 also provides a good indication of the trade-offs that were made when developing options.

[Redacted text block]

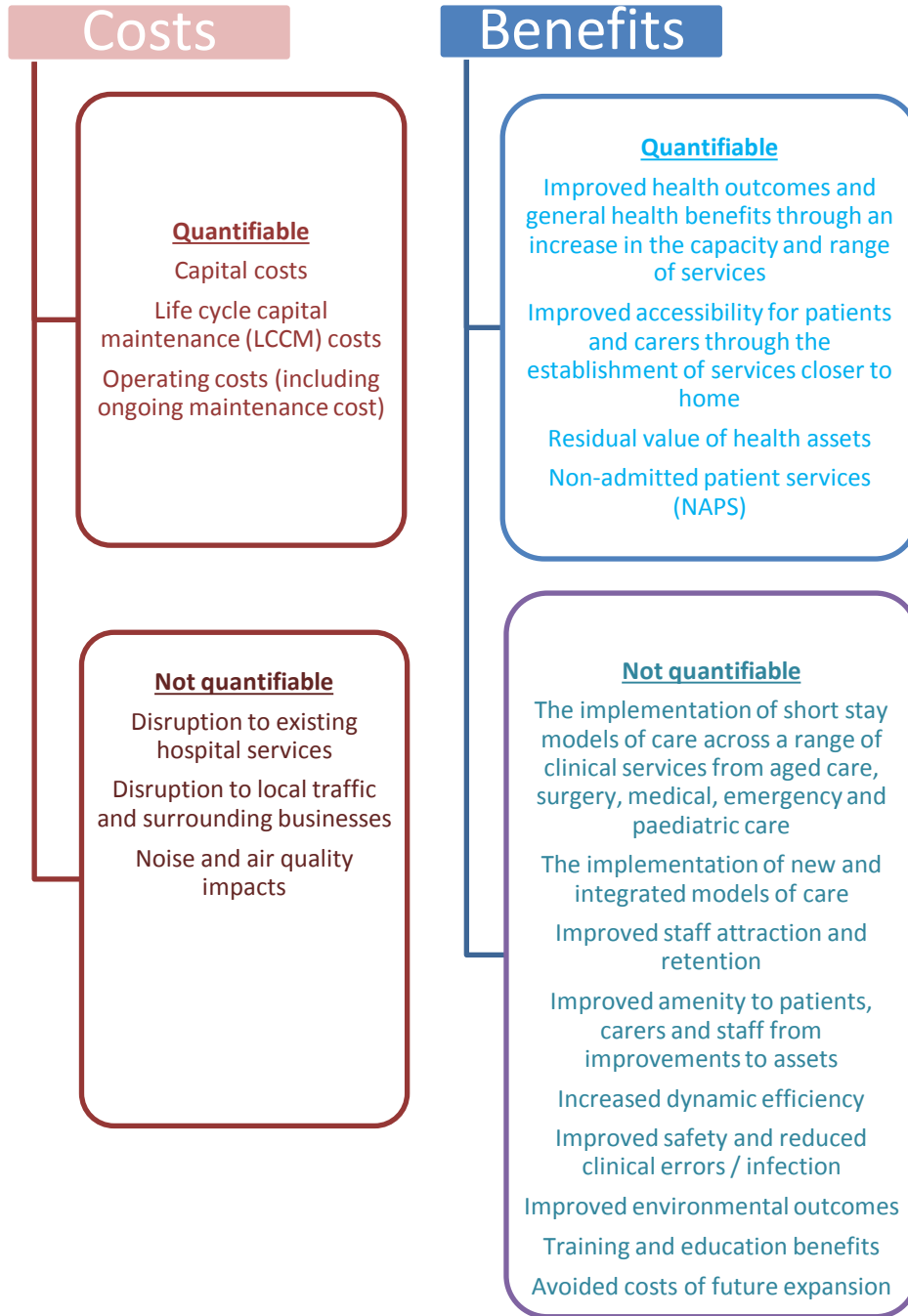
4.3 Approach to cost-benefit analysis

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]



4.4 Key evaluation assumptions

[Redacted text block]

- [Redacted text block]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

The specific assumptions used to estimate the costs and benefits of each option are outlined in Sections 5 and 6 respectively.

Table 10: CSP demand met by option

4.4.1 Option timelines

A summary of the construction and commissioning timeline for each option is provided in the table below. It has been advised that for Option 3, the Main ASB will commission adult acute and ED services while the Secondary ASB will commission mental health, paediatric acute and ambulatory services. Cancer services are commissioned in March 2023 under both Options 1.1 and 3.

Table 11: Option timelines – construction & commissioning

Component	Option 1	Option 1.1	Option 3
Enabling Works	Nov 2018 – Mar 2019	Nov 2018 – Jun 2019	Nov 2018 – Apr 2019
Main Works (Main ASB)	Apr 2019 – Jun 2021	Jul 2019 – Dec 2021	May 2019 – Sep 2020
Main Works (Secondary ASB)	N/A	N/A	Jan 2021 – July 2023
Refurbishment of existing and expansion of Cancer Therapy Centre	N/A	Mar 2022 – Mar 2023	Mar 2022 – Mar 2023
Demolition of existing (vacant post ASB)	Oct 2022 – Dec 2022	Oct 2022 – Dec 2022	Sep 2020 – Dec 2020

5. Assessment of Costs

5.1 Overview

In line with *NSW Government Guide to Cost-Benefit Analysis (TPP17-03)* and *NSW Health Guidelines for the Economic Appraisal of Capital Projects (2011)*, our assessment of the costs of the Project involved the:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Table 12: Summary of costs under assessed options

[REDACTED]

5.2 Capital costs

Capital costs include the construction costs of refurbishment and/or redevelopment under each of the options. Key capital cost items included under each project option include:

- Total building works
- Consultant fees
- Authority fees and charges
- LHD costs
- Furnishings, fittings and equipment
- Contingencies
- HI management costs.

Table 13 details the capital cash flows for each short-listed project option.

Table 13: Capital cost cash flow by option (\$'000, rounded)

Capital costs	ETC	Escalation	ETC (Excl. Esc)
Base Case			
Option 1			
Option 1.1			
Option 3			

Capital costs	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Total
Base Case									
Option 1									
De-escalated									
Option 1.1									
De-escalated									
Option 3									
De-escalated									

Note: The cash flow for Option 1.1 was further refined by AECOM as planning progressed, spreading the contingencies over the entire timeline.

As shown in Table , the real capital costs for the Project range between \$0 (Base Case) and \$ million (Options 1, 1.1 and 3). The NSW Government funding for the Project is \$632 million (nominal). It is important to note that the capital costs for FY17 and FY18 are sunk costs (i.e. costs which are already funded and have been incurred).

5.3 Life-cycle capital maintenance

In addition to the capital costs, an annual life-cycle capital maintenance (LCCM) cost has been included in the analysis to capture whole-of-life costing associated with the capital developments under each option. LCCM costs commence in the year post commissioning.

Table 14 outlines the annual LCCM costs for each of the short-listed options. LCCM costs are detailed in the following table.

Table 14: Estimated LCCM by option (\$m)

Lifecycle costs	LCCM per annum
Base Case ¹²	
Option 1	
Option 1.1	
Option 3	

¹¹ NSW HI assumption

¹² [Redacted]

Table 14 shows that life-cycle capital maintenance (LCCM) costs per annum are identical under Options 1, 1.1 and 3, given that the total capital cost is the same under each option.

5.4 Operating costs

Operating costs are defined as the ongoing costs associated with operating and maintaining the facilities and services under each project options, including:¹³

- Staff-related costs, such as wages and salaries, superannuation and worker’s compensation
- Non-staff-related costs, such as goods and services and repairs, maintenance and replacement (RMR).

HI has developed the Financial Impact Statement (which presents the operating costs of the Project Option) to support the FBC on behalf of the SWSLHD. These projections are made in terms of the Net Cost of Services (NCOS) impact of operating the facility (an input-based approach, based on resource costs required, e.g. staffing impacts).

For the purposes of the CBA, the operating costs for the other assessed options have been prepared on the same basis.

Differences between the operating costs of the different options relate to:

- Timing of the commissioning of services
- The capacity delivered under the option
- Volume of activity met under each option.

The table below outlines the expected operating costs (total expenses less depreciation) under the assessed options. Refer to the FIS for further information on the input-based build of operating costs.

¹³ SWSLHD

⁴² NSW Health Infrastructure

Table 15: Operating costs over 20 year analysis period (\$m, excluding escalation)

Total operating costs	Current	Projected										
	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27*	37/38*	
Base Case												
Option 1												
Option 1.1												
Option 3												

Source: HI/SWSLHD

* Note: operating costs are assumed constant for the remainder of the assessment period between these years

Table 15 demonstrates that operating costs:

- Are approximately \$ [redacted] million under the Base Case in 2017/18, increasing to \$ [redacted] million over the assessment period
- Increase to \$ [redacted] million upon commissioning in 2021/22 under option 1, then increase to \$ [redacted] million by 2026/27 after which they are assumed to remain constant
- Increase to \$ [redacted] million upon first full year of commissioning in 2022/23 under option 1.1, then increase to \$ [redacted] million by 2026/27 after which they are assumed to remain constant
- Increase to \$ [redacted] million upon commissioning in 2023/24 under option 3, then increase to \$ [redacted] million by 2026/27 after which they are assumed to remain constant



5.5 Results – quantifiable costs

The following table provides a summary of the total quantifiable costs under each option over the 20 year evaluation period in PV terms. The total incremental costs associated with each of the Project Options, over and above the Base Case, is also provided.

Table 16: Total quantified costs over 20 years analysis period (PV@ 7% discount rate, \$m, FY18)

Cost item	Base Case	Option 1	Option 1.1	Option 3
Capital costs				
LCCM ¹⁴				
Operating costs				
Total costs				
Incremental to base case				

As shown in the table above, Option 3 has the lowest incremental cost ([redacted] million), followed by Option 1.1 (\$ [redacted] million) and then Option 1 (\$ [redacted] million).

5.6 Non-quantifiable costs

In addition to the quantitative costs outlined above, the following costs were identified but not quantified:

¹⁴ We have been advised that there are no Capital Costs and LCCM in the Base Case – Source: NSW HI

- Disruption to existing hospital services
- Disruption to local traffic and surrounding businesses
- Noise and air quality impacts.

These costs will occur under all options (excluding the Base Case) during construction of the Project as all options include some level of construction or refurbishment. This is discussed in the table below.

Table 17: Impact of non-quantifiable costs by option

Disruption Cost	Option 1	Option 1.1	Option 3
Existing hospital services	<ul style="list-style-type: none"> • Hospital services will be disrupted, to some extent, particularly where refurbishment is involved (and service decanting is required). • It is expected that staff, patients and visitors will be impacted (to varying levels) for the duration of construction. 	<ul style="list-style-type: none"> • As per Option 1 • In terms of shell space construction is concerned – it would be expected short term disruptions would be similar to Option 1. However, this would be expected to be balanced (to some degree) by the avoided <i>future</i> disruption of services as no additional ‘new space’ (and construction) would be required when expansion is required. 	<ul style="list-style-type: none"> • As per Option 1 • As also with Option 1.1, the construction of shell space is included under this option and short term disruption of services would be expected during construction. However there will also be a future avoided cost upon the uptake of the shell space and when no future construction required at that stage
Local traffic and surrounding businesses	<ul style="list-style-type: none"> • Impacts commuters and nearby businesses for the duration of construction 	<ul style="list-style-type: none"> • As per Option 1 	<ul style="list-style-type: none"> • As per Option 1 • Length of time of construction is greater than other options, As such business disruptions might be expected over a longer period.
Noise and air quality impacts	<ul style="list-style-type: none"> • Impacts patients, staff and visitors for the duration of construction 	<ul style="list-style-type: none"> • As per Option 1 	<ul style="list-style-type: none"> • As per Option 1 • Length of time of construction is greater than other options hence a higher level of disruption may result.

6. Assessment of Benefits

6.1 Overview

The Project is expected to provide contemporary healthcare facilities suited to the current and future needs of the catchment population. The Project is expected to generate a range of benefits, as outlined in the Benefits Framework in Section 3.

In line with the NSW Government Guidelines, our assessment of the benefits of the Project involved the:

- Identification of the potential project benefits arising from each of the short-listed options
- Evaluation of those project benefits using both qualitative and quantitative analytical techniques:
 - The identification and assessment of benefits that were quantified in monetary terms are presented in Section 6.2 and 6.3
 - Qualitative benefits are assessed in Section 6.4.

Table 18: Summary of benefits assessed under options

Description	Benefits	Base Case	Option 1	Option 1.1	Option 3
Direct impacts	Improved patient health outcomes and general health benefits through an increase in the capacity and range of services	×	✓	✓	✓
	Improved accessibility for patients and carers through the establishment of services closer to home	×	✓	✓	✓
	Residual value of health assets at the end of the evaluation period	×	✓	✓	✓
	Non-admitted patient services (NAPS)	×	✓	✓	✓
Indirect impacts	The implementation of short stay models of care across a range of clinical services from aged care, surgery, medical, emergency and paediatric care	×	✓	✓	✓
	The implementation of new and integrated models of care	×	✓	✓	✓
	Improved staff attraction and retention	×	✓	✓	✓
	Improved amenity to patients, carers and staff from improvements to assets	×	✓	✓	✓
	Increased dynamic efficiency	×	✓	✓	✓
	Improved safety and reduced clinical errors / infection	×	✓	✓	✓
	Improved environmental outcomes	×	✓	✓	✓

	Training and education benefits	×	✓	✓	✓
	Avoided costs of future expansion	×	×	✓	✓

6.2 Quantifiable benefit assessment

The following benefits have been quantified for the Project:

- Improved health outcomes and general health benefits through an increase in the capacity and range of services, including:
 - Acute services
 - Mental health services
 - Emergency care
 - Cancer services
 - Renal dialysis services
- Improved accessibility for patients and carers through the establishment of services closer to home
- Residual value of health assets at the end of the evaluation period
- Non-admitted patient services (NAPS).¹⁵

The method of quantification of these benefits is presented in the following sections. All benefit values are expressed in constant FY18 prices unless otherwise stated.



6.2.1 Improved patient health outcomes and general health benefits

Assessing and quantifying benefits associated with investment in hospital infrastructure involving a range of health facilities and services is difficult, given the complexity in identifying the cause and effects in health outcome improvements. The following method is considered suitable to quantify health benefits to patients as a result of the capital investment in the Project, based on HI’s experience in the assessment of health benefits for other major health service redevelopment projects.

The clinical services health benefits of the Project include the:

- Reduction in pain and suffering for patients who would otherwise not be treated without the redevelopment
- Averting of mortality for seriously ill patients who would otherwise not be treated without the redevelopment.

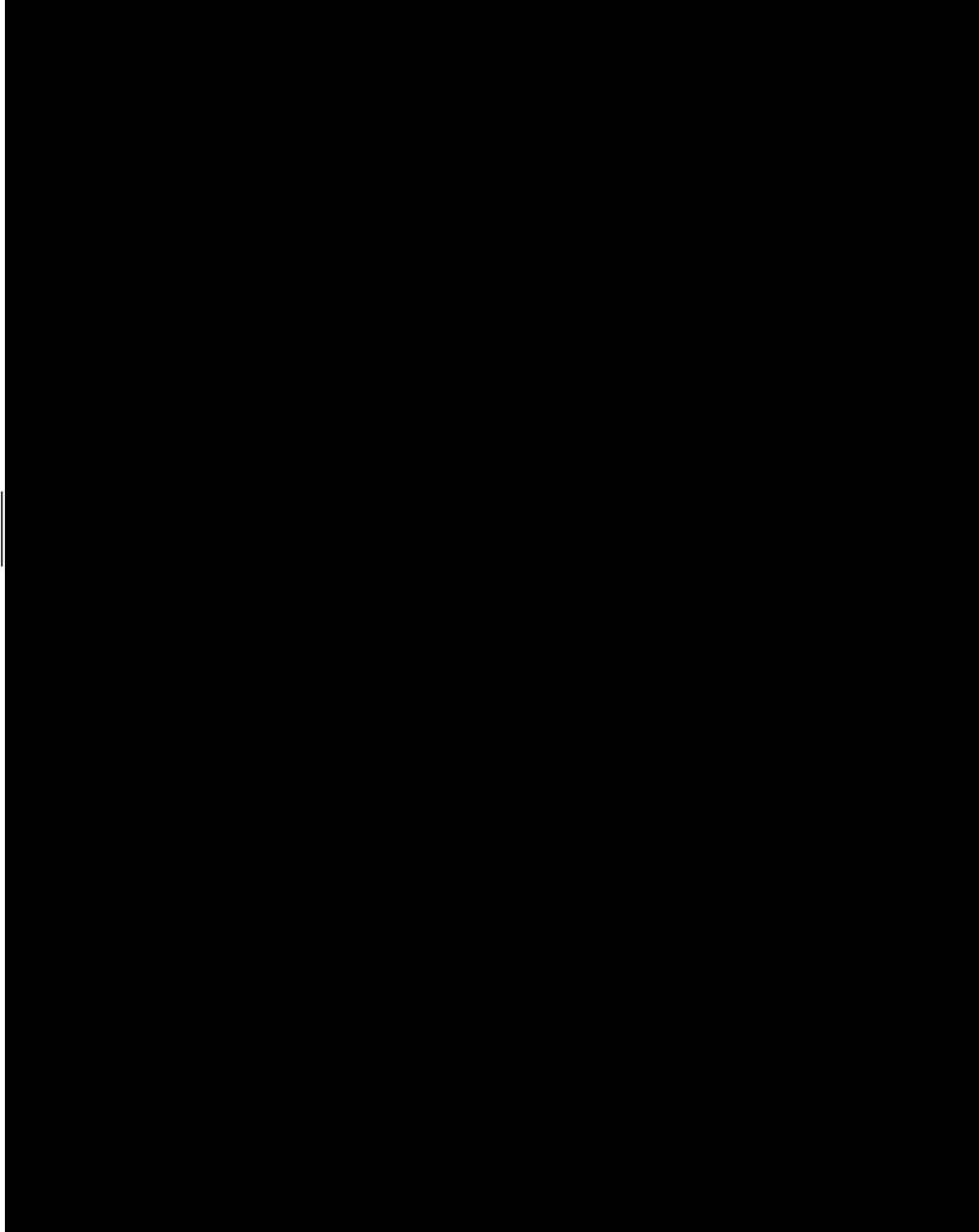
¹⁵ [Redacted]

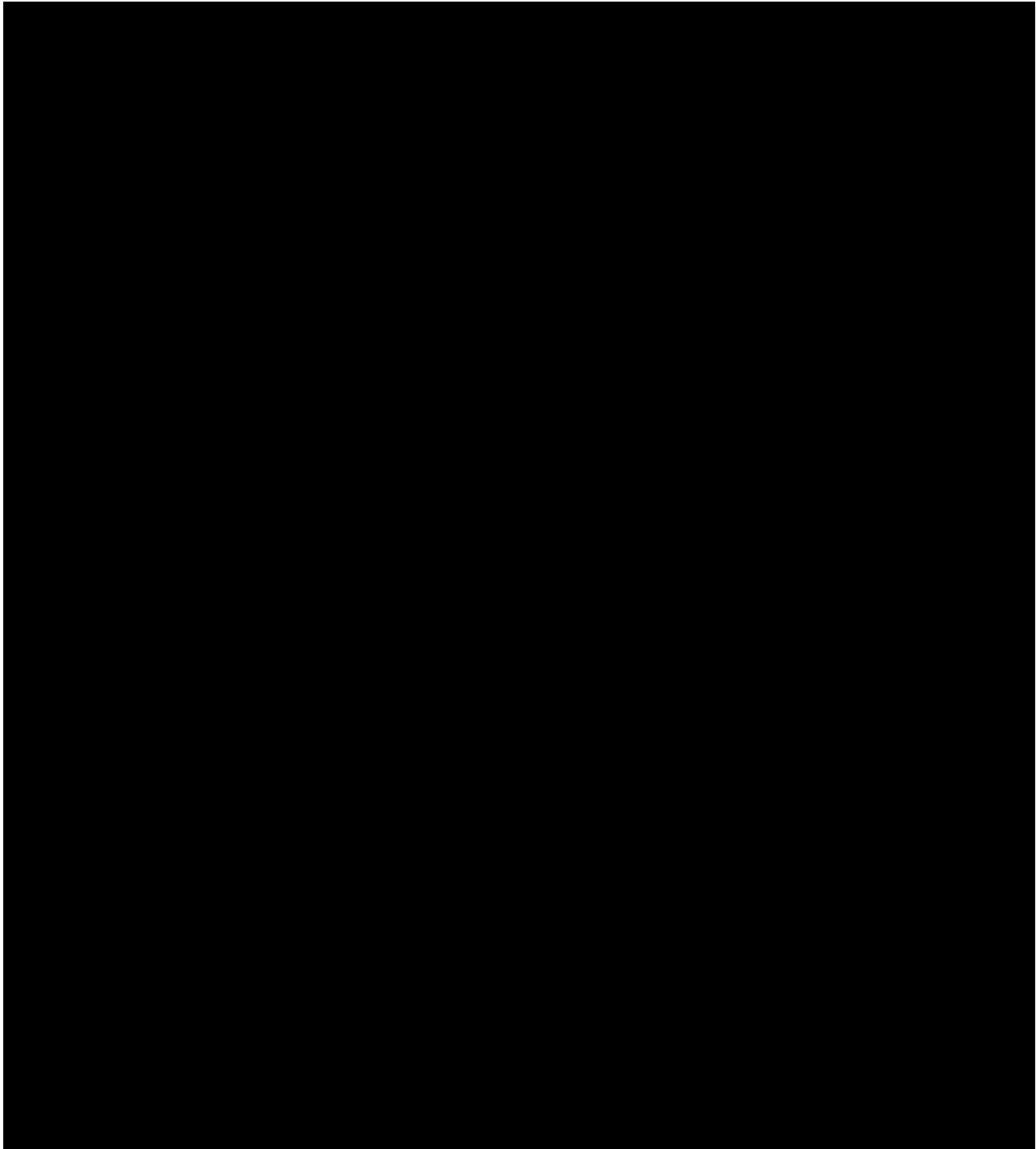
¹⁶ Provided by NSW HI

⁴⁶ NSW Health Infrastructure

The analysis, which involves estimating the dollar value of health benefits, is summarised below. As the Project's benefits encompass other benefits beyond patient health benefits, the result of the health benefit quantification exercise is a conservative estimate of the Project's total benefits.

Methodology





6.2.2 Emergency department (ED) expansion benefits

The ACSP-M identifies that existing ED spaces need to be expanded to facilitate increasing emergency presentations.

While at this stage the Campbelltown Hospital ED is meeting (and in some cases surpassing) national ED waiting time benchmarks,¹⁷ this performance will not be sustainable going forward without expansion of the ED due to the expected growth in population and resulting service demand.

The approach for estimating the benefits of expanding the capacity of an ED, in order to avoid ED overcrowding, is based on the findings from three Australian studies, outlined below. The medical literature evidences that overcrowding in the ED results in increased patient mortality. Options under the Project for expanding the ED capacity at Campbelltown Hospital will assist in meeting the projected demand for ED admissions and reduce the potential for overcrowding issues in the future.

In Sprivulis et al (2006), deaths on days 2, 7 and 30 after admission to the EDs of three 400 - 550 bed tertiary hospitals in the metropolitan Perth area between July 2000 and June 2003 were evaluated against an Overcrowding Hazard Scale. An increase in the patient mortality rate of 2.3 deaths per 1,000 emergency admissions was associated with overcrowded conditions by Day 30.

In Richardson (2006), a stratified group analysis survey in the Canberra Hospital (~600 bed tertiary hospital) ED in 2002-2004 was used to estimate the impact of overcrowding on patient mortality. The study concluded that ED overcrowding induces longer patient waiting time to treatment and may increase patient mortality rates.

In Geelhoed and de Klerk (2012), an intervention study was conducted based on hospital and patient data for three tertiary and three secondary hospitals in Perth, between 2007-08 and 2010-11. The study was designed to assess whether ED overcrowding was reduced after the introduction of the 4-hour rule in Western Australia and whether any changes in ED overcrowding have any correlation with significant changes in patient mortality rates. The study found at the three tertiary hospitals, at the same time that ED overcrowding decreased dramatically, the overall relative patient mortality rate fell significantly. At the three secondary hospitals, the improvement in ED overcrowding was minimal, and there was no decrease in the mortality rate.

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

¹⁷ Myhospitals.gov.au

¹⁸ As advised by NSW HI

⁴⁹ NSW Health Infrastructure

The following table outlines the estimated incremental benefit identified for the Project options over the evaluation period based on this approach, in PV terms.

Table 21: Incremental ED expansion benefits by option ()

Item	Incremental ED expansion benefits (\$'m)
Option 1	
Option 1.1	
Option 3	

6.2.3 Renal dialysis service expansion benefits

A key objective of the renal dialysis unit expansion is to improve the health outcomes of renal dialysis patients who otherwise would not receive treatment due to capacity constraints at the existing facility.

The renal dialysis patients receiving treatment are expected to:

- Possibly avert mortality caused by the renal failure clinical condition
- Experience a reduction in the disability (including pain and suffering) during the course of treatment.

According to Senthuran (2008), the average patient’s survival duration after the commencement of renal dialysis treatment is 4.5 years. In terms of the average End Stage Kidney Disease (EKSD) patient who does not receive treatment, modelling by the Australia Institute of Health and Welfare (AIHW) assumes that patients with renal failure would live for one year if left untreated (AIHW, 2007). Therefore, in this method it is assumed that there will be additional survival of 3.5 years gained by renal dialysis patients after receiving treatment.

[Redacted Table Content]

Table 22: 'New' renal dialysis patients under each option

Option	Incremental Chairs	Incremental Patients
Option 1	█	█
Option 1.1	█	█
Option 3	█	█

Source: NSW HI – Assumptions v3 Workbook

The formula used for estimating the health benefits of expanding renal dialysis services is:

[Redacted Formula]

Based on this approach, the estimated incremental benefits associated with expanding the renal dialysis unit at Campbelltown Hospital under the Base Case and Project Case are presented in the table below, in PV terms.

Table 23: Renal expansion benefits value [Redacted]

Option	Renal expansion benefits (\$'m)
Option 1	█

Table 25: Incremental mental health benefits by project option

Option	Incremental mental health benefits (\$'m)
Option 1	[REDACTED]
Option 1.1	[REDACTED]
Option 3	[REDACTED]

6.2.5 Improved Cancer services

The methodology for estimating cancer service health benefits is built on the modelling approach developed by HI and its economic consultant for radiotherapy treatment services.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Disability Weights

Different disability weights for cancer disease were obtained, based on each stage/phase of the disease. The weights were obtained from the Australia Institute of Health And Welfare (AIHW) report, The Burden of Disease Study, 2016. D [REDACTED]

Duration of Controlled Phase

[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[Redacted text block]

Five Year Cancer Survival Rates and Median Age at Diagnosis by Cancer Type

[Redacted text block]

Estimating Health Benefits of Cancer Treatment

[Redacted text block] d.

[Large redacted text block]

Radiotherapy Services - Curative (radiotherapy or chemotherapy only)

[Redacted text block]

Radiotherapy Services - Curative (Adjuvant treatment)

[Redacted text block]

Radiotherapy Services - Palliative Radiotherapy

[Redacted text block]

Chemotherapy Services



Based on the methodology outlined above, the incremental cancer benefits under each of the Project Options over the 20 year evaluation period have been estimated and presented in Table 26, in PV terms.

Table 26: Incremental cancer benefits by project option [redacted]

Option	Incremental cancer benefits (\$'m)
Option 1	[redacted]
Option 1.1	[redacted]
Option 3	[redacted]

The above table demonstrates that Option 1 does not address the need for cancer services, and hence delivers no benefit. The difference in benefits between Option 1.1 and Option 3 primarily relates to the number of chemotherapy treatment spaces/chairs. Under Option 1.1, the capacity increases to 25 chairs by 2021/22, whereas under Option 3, the capacity reaches 18 chairs by 2022/23.

6.2.6 Improved accessibility to services at Campbelltown Hospital

In the absence of the Project, Macarthur residents would be required to travel to other hospitals to receive treatment, most commonly by car. It is most likely that these patients are accompanied and visited by carers/friends during treatment.

A direct benefit of the Project is improved accessibility (and avoided travel costs) to health services for patients (and their carers) that would have otherwise travelled to other hospitals for treatment due to capacity constraints at Campbelltown Hospital. Without an expansion in services, this outflow of patients will grow, as will the travel costs incurred by carers/friends. These travel costs include:

- [redacted]
 - [redacted]
 - [redacted]
 - [redacted]
- [redacted]
 - [redacted]
 - [redacted]
 - [redacted]

The following formula was applied to estimate the improved accessibility benefit under each Option:



The following assumptions were made:¹⁹

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

Table 27 provides the estimated incremental improved accessibility benefits to patients and relatives/friends under the proposed Project Options, in PV terms.

Table 27: Incremental improved accessibility benefits by option [Redacted]

Item	Incremental accessibility benefits (\$'m)
Option 1	[Redacted]
Option 1.1	[Redacted]
Option 3	[Redacted]

6.2.7 Residual value

The residual value of the remaining life of the assets at the end of the evaluation period was calculated on the following assumptions:²¹

- [Redacted]

¹⁹ These assumptions were provided by HI as part of the Campbelltown Assumptions workbook.

²⁰ This has been escalated to reflect 2017/18 values based on ABS CPI statistics

²¹ NSW HI assumptions

- [REDACTED]
- | [REDACTED]
- | [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Table 28: Residual value by option [REDACTED]

Item	Residual value (\$'m)
Option 1	[REDACTED]
Option 1.1	[REDACTED]
Option 3	[REDACTED]

6.2.8 Non-admitted patient services

Non-admitted patient services (NAPS) encompasses services provided to patients who do not undergo a formal admission process and do not occupy hospital beds. NAPS generate a wide range of benefits for the health system and patients. [REDACTED]

- | [REDACTED]
- | [REDACTED]
- | [REDACTED]
- | [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Table 29: Avoided costs – NAPS by option [REDACTED]

Item	Avoided operating costs	Avoided capital costs	Total avoided costs – NAPS (\$'m)
Option 1	[REDACTED]	[REDACTED]	[REDACTED]
Option 1.1	[REDACTED]	[REDACTED]	[REDACTED]
Option 3	[REDACTED]	[REDACTED]	[REDACTED]

6.3 Summary of findings

The following table sets out the incremental quantifiable benefits over a 20-year analysis period associated with each project option.

Table 30: Total quantified benefits over 20 years analysis period ()

Benefit item	Option 1	Option 1.1	Option 3
Health:			
Inpatient			
Mental health			
Emergency care			
Cancer			
Renal			
Sub-total			
Avoided operating costs – NAPS			
Avoided capital costs – NAPS			
Residual value			
Avoided travel and time costs			
Total benefits			

6.4 Qualitative benefits

As outlined in Section 3.2.2, in addition to the quantified benefits outlined above, the Project is expected to generate other benefits which were not able to be quantified, including:

- The implementation of short stay models of care across a range of clinical services from aged care, surgery, medical, emergency and paediatric care
- The implementation of new and integrated models of care
- Improved staff attraction and retention
- Improved amenity to patients, carers and staff from improvements to assets (i.e. improved value in use to patients, carers and staff)
- Increased dynamic efficiency
- Improved safety and reduced clinical errors / infection
- Improved environmental outcomes
- Training and education benefits
- Avoided costs of future expansion (construction of shell space / room for expansion in Options 1.1 and 3).

Each of these is discussed in greater detail below.

6.4.1 Implementation of short stay models of care

The Project is expected to facilitate a movement towards short stay, ambulatory, outpatient and community based care.

Specifically, there will be increased utilisation of short stay models of care in a range of clinical services from aged care, surgery, medical, emergency and paediatric care – for example, the Emergency Short Stay unit is expected to increase from 10 to 15 beds by 2031/32 with no model of care changes, and 10 to 30 beds under the scenario case as outlined in the ACSP-M.

The increasing implementation of short stay models of care aligns with the expected demand for surgical/procedural day procedures - projected to increase by 46% over the next decade with demand for procedures requiring an overnight stay increasing by 24%.²²

This is set to deliver a number of benefits:

- More efficiently meet the needs of Macarthur residents and the large growth in day only and shorter stay surgical and endovascular procedures projected over the next decade
- Allows for patients to undergo diagnostic tests, initiate treatment options and then be discharged to be followed up by ambulatory / outpatient based services or other service providers (e.g. GP's), resulting in shorter, more intense interactions between patients, families and health care providers.

6.4.2 Implementation of new and integrated models of care

The Project will facilitate the establishment of new and integrated models of care (beyond the short stay models of care discussed above), including the establishment of:

- Integrated aged care and rehabilitation enablement models
- An enhanced palliative / end of life care model
- New models of care for surgical services
- New models of care for the emergency services

In broad terms, the development of integrated models of care can deliver a series of benefits. The table below discusses the potential benefits of each new model of care:

Table 31: Benefits of different models of care

Model of care	Benefits
Integrated aged care and rehabilitation enablement models	<ul style="list-style-type: none"> • Aims to maximise patient independence and minimise ongoing health care needs • Integrate assessment and care coordination of patients to create a better flow of patients across the continuum and between settings • Assist in meeting the growing demand for care needs of an ageing population
Enhanced palliative / end of life care model	<ul style="list-style-type: none"> • Enhanced quality of life by managing pain and other distressing symptoms for people • Provides an integrated framework for palliative and end of life care including specialist palliative care and primary health care services by linking services to ensure seamless care at the end of life.

²² Surgical & Procedural Care in South West Sydney – Service Development Directions to 2021 p. 9

Model of care	Benefits
New models of care for surgical services	<ul style="list-style-type: none"> Improved integration and efficiencies between specialties such as plastics and oncology Greater utilisation of community nursing / GP's and a resulting more efficient allocation of resources Increased networking (and knowledge sharing benefits) between hospitals.
New models of care for emergency services	<ul style="list-style-type: none"> Triage and registration will be streamlined to facilitate an efficient process that does not itself create a barrier to further assessment and clinical care Adoption of the resuscitation model of care, acute care model of care to promote efficiency and improved medical procedures Adoption of the flexible early ED Senior assessment and streaming model of care which focuses on early diagnosis, clinical management planning and a disposition decision for patients

6.4.3 Improved staff attraction and retention

As previously discussed, the ageing of the current workforce and the need to deliver increasingly flexible and innovative health services is leading to pressure to provide an appropriately skilled and adequately sized workforce.

The Project is expected to improve the attractiveness of Campbelltown Hospital and its ability to attract and retain specialist staff. This, in turn, is likely to improve staff morale and increase development opportunities as a result of:

- Amenity improvements for staff
- Reduced clinical errors
- Investment and development of new roles
- Better alignment of skills mix and staff profile to address workforce challenges and pressures
- Increased fostering of relationships with the education and research sectors
- Increased multi-skilling for staff
- Improved workplace health due to the establishment of new facilities, as well as the increase in capacity of the mental health unit (i.e. reduced chances of acute patients causing harm to themselves or the workforce).

6.4.4 Improved building amenity

Building amenity is a measure of the benefits derived from the use of a building, which tend to increase when improvements are made to the functionality and quality of the building. In general, improvements in building amenity tend to be reflected in both:

- An increase in the market value of the building
- An increase in the “consumer surplus” that existing users derive from the use of that building (i.e. the value of the benefits that individuals derive from the use of a building over and above what they have to pay to use that building).

The improvement in building amenity is expected to be experienced by all patients, staff and visitors of the redeveloped Campbelltown Hospital.

Additionally, research has shown that improved facility design has positive impacts on patient health and well-being. For example, Lawson and Phiri (2003) tested the proposition that the hospital architecture and the physical environment may contribute to patients' sense of wellbeing and may aid actual recovery. Field investigation was undertaken in two hospitals, one a general hospital and the other a mental health ward. Multi-method research was used, in strictly controlled conditions, using samples of patients in old and new wards. The authors found that remodelled wards could result in reduced treatment times and medication, as well as improved patient behaviour (particularly in a mental health unit).

6.4.5 Increased dynamic efficiency

“Dynamic efficiency” refers to the ability of a market to continue to operate efficiently over time, even when there are significant changes in the requirements of consumers, production technologies and relative prices and costs. That is, “dynamic efficiency” refers to the ability of a market to adapt to change over time, while still operating in an efficient manner.

In addition to improving the technical and allocative efficiency of the health system, the proposed improvements to the facilities at Campbelltown also have the potential to improve the dynamic efficiency of the health system by increasing its flexibility to be adapted to suit future changes in:

- Community needs (which will require changes to current levels and patterns of service delivery)
- Technology (which will alter the “technical efficiency” of alternative approaches to the provision of health care services)
- Changes in costs (which will alter the “cost effectiveness” of alternative approaches to the provision of health care services).

6.4.6 Improved safety and reduced clinical errors

Unsafe patient care due to clinical errors leads to increased rates of patient morbidity and mortality. However, much of it is amenable to intervention.

Clinical errors can result from a number of factors:

- Improper drug treatment
- Medical devices – manufacturer related errors, user errors and use or design errors
- Surgical and anaesthesia errors
- Health care related infections
- Unsafe injection practices
- Unsafe blood products.²³

The Project provides an opportunity to reduce the rate of clinical errors, and improve overall patient safety through:

- The attraction of increasingly specialised and trained staff, who are less likely to make clinical errors

²³ World Alliance for Patient Safety, Summary of the Evidence on Patient Safety: Implications for research, World Health Organisation, accessed 21 August 2014, http://www.who.int/patientsafety/information_centre/20080523_Summary_of_the_evidence_on_patient_safety.pdf

61 NSW Health Infrastructure

- A redeveloped hospital will facilitate the future investment in innovative (and potentially safer) equipment and models of care
- Improved staff morale.

6.4.7 Improved environmental outcomes

The new buildings associated with the redevelopment are expected to be designed to comply with the most current Ecologically Sustainable Designs (ESD) and relevant Australian Standards, which will have the potential to reduce carbon emissions and environmental impacts of operations.

The environmental benefits from the proposed Project are expected to include:

- Enhanced building amenity
- Improved environmental performance of new buildings and upgraded facilities that result in lower energy consumption and greenhouse gas emissions
- Increased use of sustainable construction materials where appropriate.

6.4.8 Education, training and research benefits

Campbelltown Hospital and Western Sydney University have a long-standing and mutually beneficial relationship which is in the interest of patients and the broader Macarthur community to extend.

Recent partnerships between the NSW Government and University have delivered the Macarthur Clinical School at the hospital.

The Western Sydney University Clinical School at Campbelltown Hospital was established in 2007. A new Clinical School building was opened on the Campbelltown Hospital campus in March 2017. It is estimated that over the next decade, the Western Sydney University School of Medicine will develop to accommodate an increased number of medical students. With this development, there will be an increased need for clinical placement at Campbelltown Hospital.

While the education and training facilities described are already in existence, the new hospital facilities established through the Project will support and further enhance these facilities through attracting higher quality staff, and giving greater opportunities for student and research activities within the expanded hospital.

Strength in health and medical research is an essential component of a high quality health service. Research is an important component of teaching and Macarthur health services will expand their current role in teaching of medical and nursing and allied health students and in postgraduate clinical training. Research productivity and access to research facilities helps to attract and retain high quality clinical staff and population health staff and researchers and research students.

There will be a strong emphasis on the promotion of translational research which assists in the translation of knowledge into practice.

There should be a large number of Clinical Academic Units that integrate with and lead Clinical Academic Streams across the Academic Health Science Partnership. Every major clinical service should have a significant Academic lead and an externally recognised research profile.

A health, education and research precinct in Campbelltown has been proposed with Campbelltown City Council leading the consultation for this proposed initiative. It is considered that such an initiative is vital for the continued development of the Macarthur region.

Education and training

By 2031, it is expected that with changing models of care, teaching activities will need to continue to evolve to ensure that students have continued access to quality patient material. This will include expanding the opportunities for students to work in outpatient and ambulatory settings as the focus on chronic disease shifts to hospital avoidance, multidisciplinary/integrated practice and preventative medicine. Programs operated between universities will be increasingly intercalated and be delivered in multidisciplinary and interprofessional models which reflect real life practice. With an increasing acuity of patients in tertiary hospitals and reduced access to scarce resources such as operating theatres, simulated learning facilities will be increasingly necessary for selected methods of teaching.

The new building is not just a clinical school for the University students but allows for training of the entire hospital workforce through the Clinical Education and Workforce Development (CEWD) on site. Further opportunities the school offer include effective interprofessional learning, for example doctors and nurses training together for shared educational topics or hospital administrative and allied health staff completing leadership and management training together, sharing ideas and visions. Further opportunities include hospital staff training for their roles, support of postgraduate higher degree qualifications such as PhDs and all forms of training in between. This latter group of University and hospital staff completing higher degrees will represent an additional highly trained workforce the hospital can utilise for service development. A highly skilled postgraduate workforce is representational of the opportunity to become the fabric of our hospital-University partnership for the next decade and beyond.

Research

The Macarthur Clinical School and partnership with Western Sydney University is well positioned to meet the vision of an expanding research base. The School of Medicine at Western Sydney University has the capacity to support PhD candidates as well as other higher degree students and clinical fellows, through the facilities on site at Campbelltown Hospital and at the Campbelltown University Campus. This expanding group of academics increases opportunities to integrate with and lead Clinical Academic Streams across Academic Health Science Partnerships and builds our future educational and academic workforce. SWSLHD's vision is to develop each clinical service to have an Academic lead and with that, a significant externally recognised research profile.

A Clinical Trials Unit has been created as part of the new Macarthur Clinical School building. This will allow for increased capacity with clinical trials to run within the Macarthur region and begins building for the future vision of Campbelltown Hospital being a centre of excellence for patients to visit to access clinical trials in multiple specialties.

A Western Sydney University led research institute is being developed on the Campbelltown Hospital campus in conjunction with external partners. The research institute is part of the Local Health District's strategy to develop a high profile research network within the South West region of Sydney to collaborate and compete with national and international research groups. This research institute will foster development of clinical and academic research in medical, educational and physiological fields and will strongly enhance the reputation of the hospital network and our research partners both domestically and internationally.

6.4.9 Avoided costs of future expansion

Each of the options have been developed within a capital cost ceiling of \$632 million. As mentioned in Section 4.2, the development of the options was carried out to reflect different priorities and delivery timeframes. As a result, there will be avoided costs of future expansion, given the construction of shell space / room for expansion in Options 1.1 and 3. This is highlighted in Table 11, from which it is evident that:

- Option 1 delivers all infrastructure upfront (note: it does not deliver an uplift in cancer services), and hence does not include any expansion or shell space

- Option 1.1 allows for expansion in perioperative, maternity, adult and paediatric inpatient units and dental, in order to meet the 2026/27 requirements of the CSP
- Option 3 allows for the same expansion as Option 1.1, as well as further expansion in intensive care unit, surgical day only, paediatrics inpatients and medical oncology

As Options 1.1 and 3 have space constructed without equipment, this shell space / room for expansion may have a possible alternative use in the meantime. In the medium to longer term, the key potential benefit is likely to be the reduction in future expansion costs (from reduced mobilisation costs and external construction costs for a new build/extension).



7. Findings and Results

Based on the analysis of quantifiable costs and benefits undertaken within this CBA, the incremental Net Present Values of the proposed Project options have been calculated.

Table 32: Summary of incremental results ()

	Option 1	Option 1.1	Option 3
Incremental costs	█	█	█
Incremental benefits	█	█	█
Incremental NPV	█	█	█
Incremental BCR	⌋	⌋	⌋

In addition to the quantitative costs and benefits outlined above, a number of other impacts were identified which were not able to be quantified. These impacts included:

Qualitative benefits

- The implementation of short stay models of care across a range of clinical services including aged care, surgery, medical, emergency and paediatric care
- The implementation of new and integrated models of care
- Improved staff attraction and retention
- Improved amenity to patients, carers and staff from improvements to assets (i.e. improved value in use to patients, carers and staff)
- Increased dynamic efficiency
- Improved safety and reduced clinical errors / infection
- Improved environmental outcomes
- Education, training and research benefits
- Avoided costs of future expansion (construction of shell space / room for expansion in Options 1.1 and 3).

Qualitative costs

- Disruption to existing hospital operations
- Disruption to local traffic and surrounding businesses
- Noise and air quality impacts.

8. Sensitivity & Scenario Analysis

8.1 Sensitivity Assessments

A series of sensitivity assessments have been run on the cost-benefit analysis detailed in Section 8. These sensitivities have been conducted on perceived major risk factors and are consistent with the Government guidelines. The sensitivities which have been analysed include:

- Discount rate – [REDACTED]
- Capital cost – [REDACTED]
- Operating cost – [REDACTED]
- Value of a statistical life year – [REDACTED]
- Cancer benefits – [REDACTED]

Table 33 presents the results of the discount rate sensitivities.

Table 33: Discount rate sensitivity analysis

Discount rate	[REDACTED]		[REDACTED]	
	NPV	BCR	NPV	BCR
Option 1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 1.1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

Table 34 presents the results of the capital cost sensitivities.

Table 34: Capital cost sensitivity [REDACTED]

Capital costs	[REDACTED]		[REDACTED]	
	NPV	BCR	NPV	BCR
Option 1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 1.1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

Table 35 presents the results of the operating cost sensitivities.

Table 35: Operating cost sensitivity [REDACTED]

Operating costs	[REDACTED]		[REDACTED]	
	NPV	BCR	NPV	BCR
Option 1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 1.1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

Table 36 presents the results of the health benefits sensitivities.

Table 36: Value of a statistical life year sensitivity ([REDACTED])

Value of a statistical life year	[REDACTED]		[REDACTED]	
	NPV	BCR	NPV	BCR
Option 1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 1.1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

Table 37 presents the results of the cancer model sensitivities.

Table 37: Cancer model sensitivity ([REDACTED])

Radiotherapy – proportion of currently unmet demand receiving treatment elsewhere	[REDACTED]		[REDACTED]	
	NPV	BCR	NPV	BCR
Option 1 (no impact)	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 1.1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Option 3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

8.2 Scenario Analysis

Given the significance of the value of shell space / room for expansion, in addition to identifying the qualitative benefit, we have conducted a scenario analysis to examine the impact to overall costs and benefits in the instance where this shell space is fitted out at a later date under Option 1.1. The assumptions and conditions for this scenario analysis are:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

The outcome of the scenario analysis is shown in the table below.

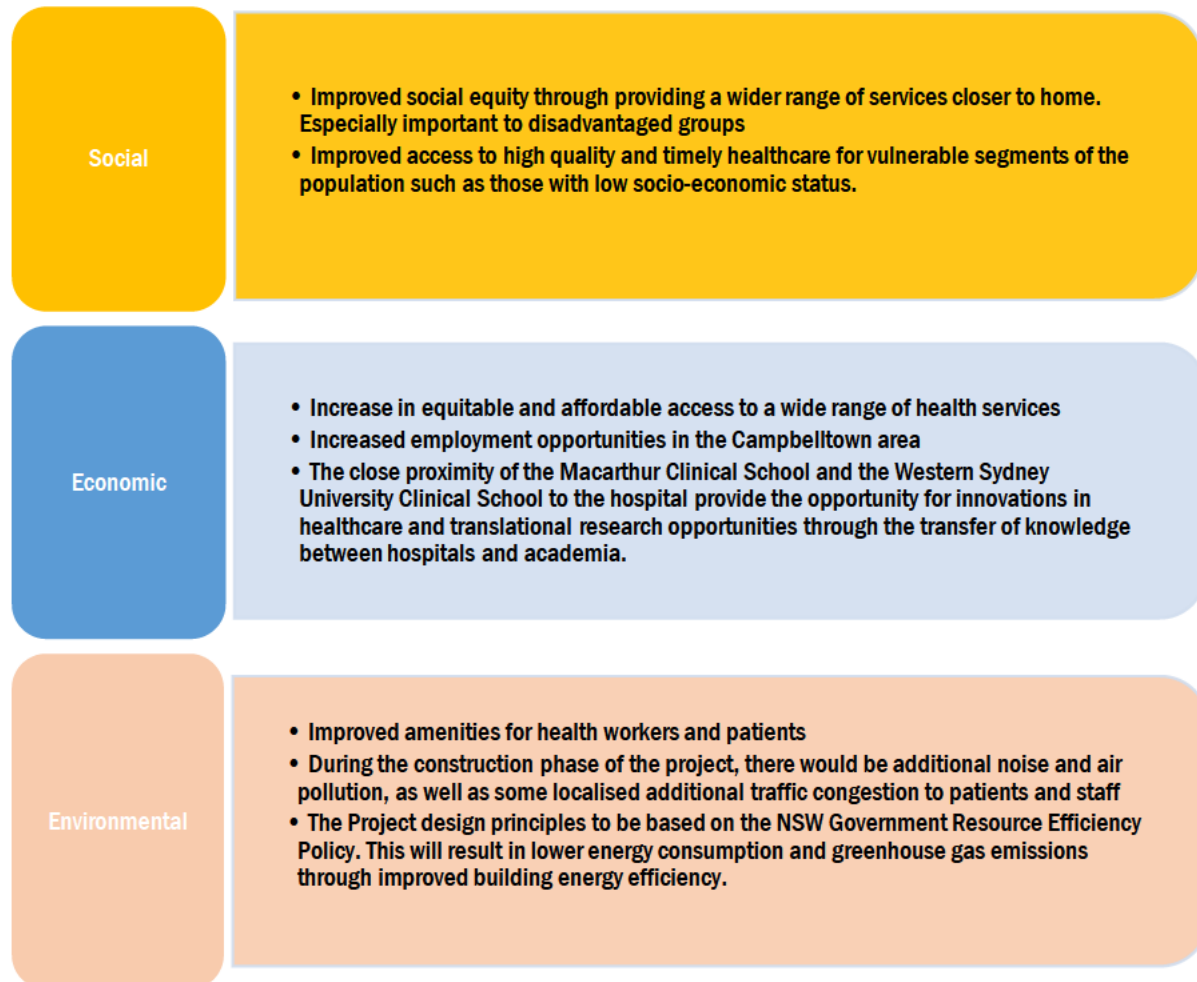
Table 38: Scenario analysis results

	Option 1.1 (Scenario)
Incremental costs	[REDACTED]
Incremental benefits	[REDACTED]
Incremental NPV	[REDACTED]
Incremental BCR	[REDACTED]



9. Qualitative costs/benefits and distributional analysis

Based on the costs and benefits identified and assessed in the analysis above, the following figure provides a summary of the key social, economic and environment impacts on patients, the health system (SWSLHD and NSW state-wide), workforce, the community and other parties.



10. Conclusions and Recommendations

Campbelltown Hospital is a 460 bed²⁴ major metropolitan group B1 hospital in need of expansion of its clinical capability and capacity. It is the major partner in a network of clinical services with Camden Hospital, and provides a range of services at mainly Role Delineation Level 5. It is also a teaching campus for the Western Sydney University Medical School.

Land releases in south-western Sydney and other factors are projected to increase the population served by Campbelltown Hospital by 58% in the period from 2016 to 2031, with much of the hospital catchment predicted to exhibit the highest rates of growth in the Sydney metropolitan area. The existing Campbelltown Hospital facilities are at capacity, and the completed Stage 1 redevelopment does not address shortages in many key clinical and support services, necessary for a properly functioning health service.

Based on the analysis undertaken within this cost-benefit analysis, it has been determined that for the proposed capital redevelopment, all assessed options as well as the scenario case (subject to additional funding of fit out costs) generate a positive Net Present Value (NPV) and Benefit Cost Ratio (BCR). [REDACTED]

Among the options (excluding the scenario), Option 1 delivers the highest incremental NPV and BCR result. We note however that the difference between BCR and NPV results for the options are marginal and given the margin for estimation error, the quantitative results are very similar.

Option 1 does not provide an uplift in cancer services, which is a core (Group 1) Clinical Service Priority. When taking this, as well as other qualitative factors including the shell space / room for expansion into account, Option 1.1 delivers a higher ranked scenario in the instance where this shell space is fitted out at a later date. Therefore, Option 1.1 is assessed as the preferred option, noting that:

- It will deliver significant enhancement to cancer services to tackle the higher incidence rate of cancer in the Macarthur region relative to the NSW average
- Subject to additional fit-out of shell space / room for expansion (at a cost of \$42m) in the future, the potential incremental health benefits are significant as reflected in the highest incremental NPV (\$1,442m) and BCR (1.73) of Option 1.1 (Scenario) when compared with Option 1 and other options.

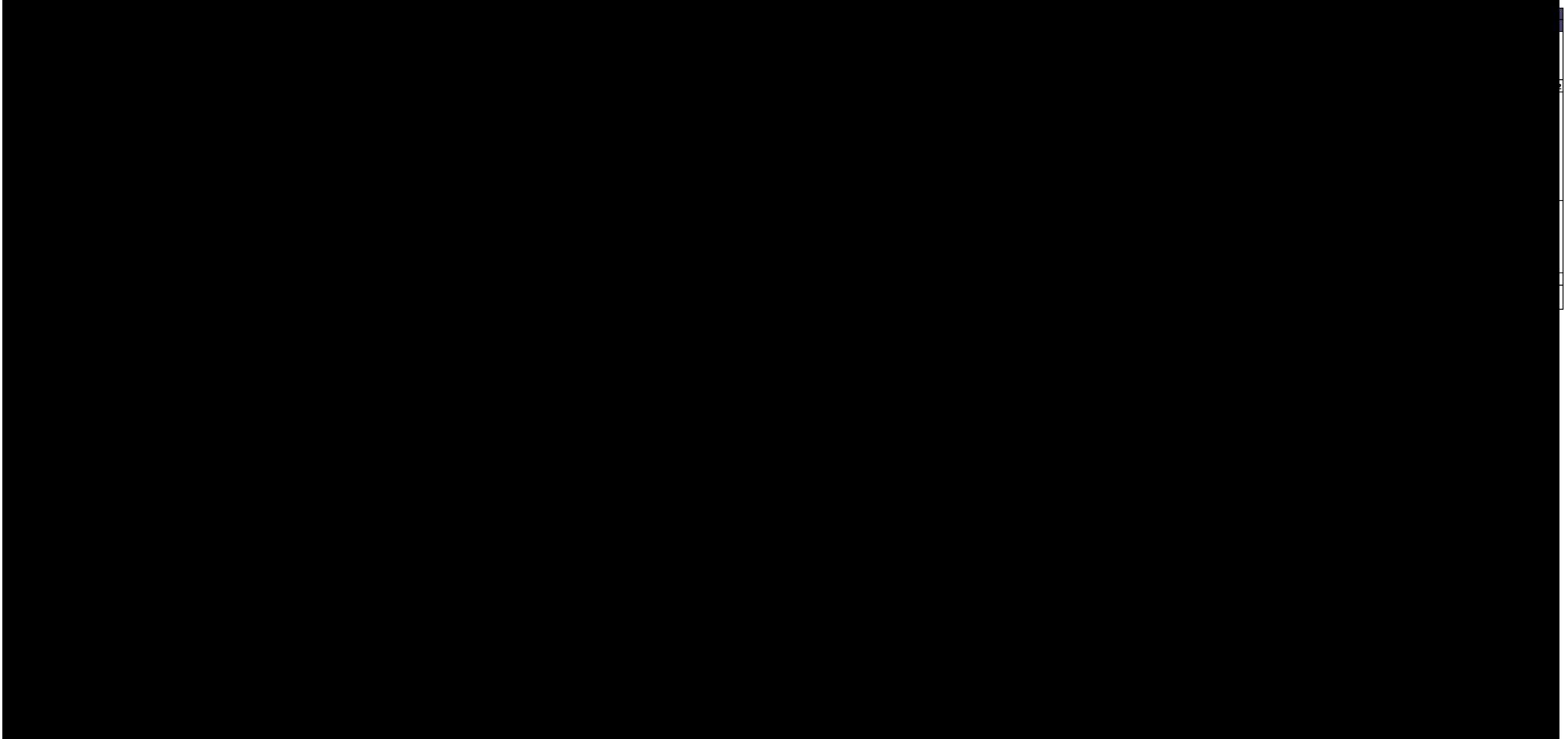
Sensitivity analysis has been undertaken to test the extent to which the results of our quantitative analysis are sensitive to different assumptions regarding discount rates, capital costs, operating costs and estimates of the clinical service health benefits generated by the Project.

²⁴ 2016/17 bed numbers, refer to Table 5.

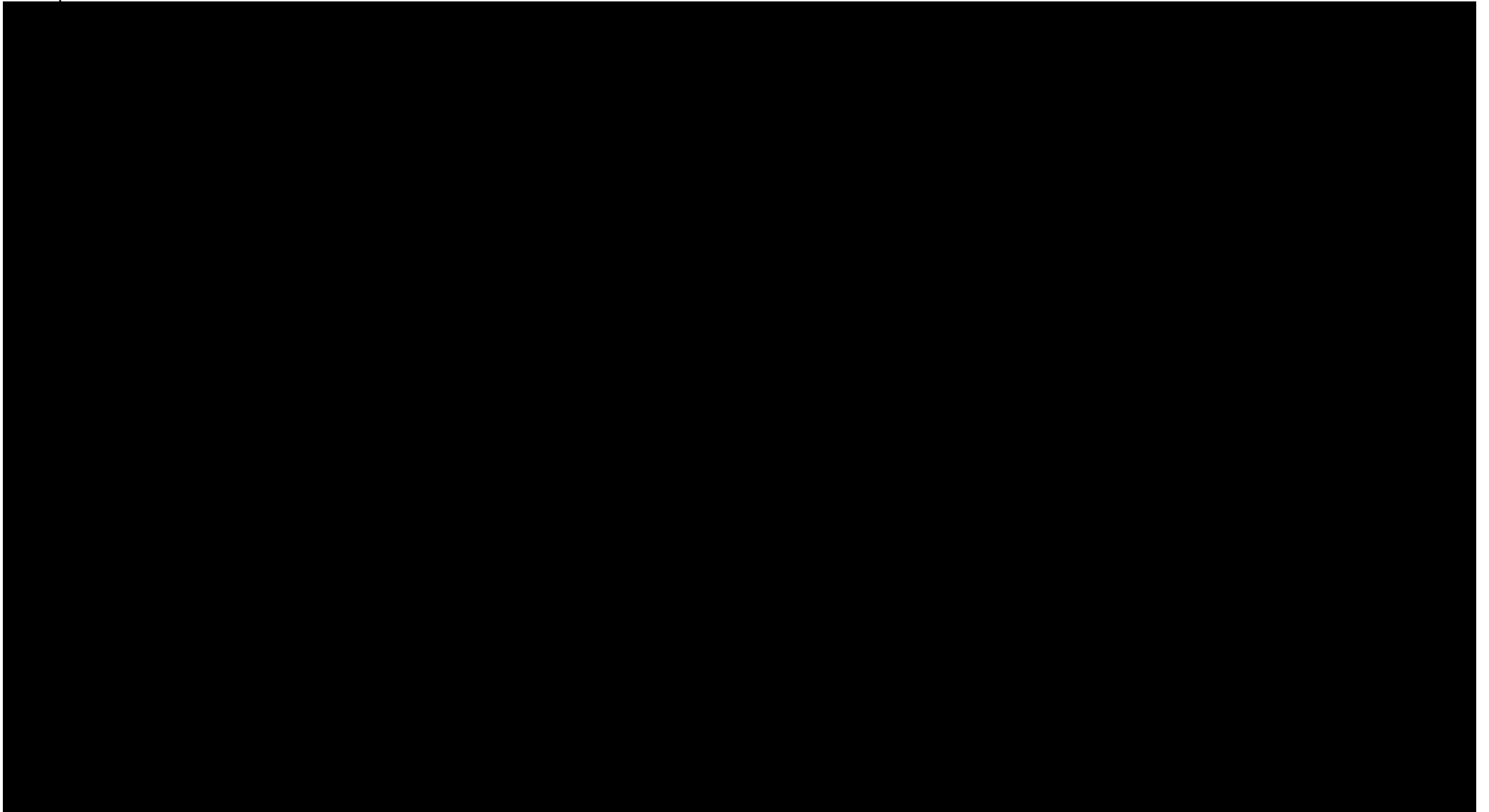
⁷¹ NSW Health Infrastructure

Appendix A – Summary of CBA Results

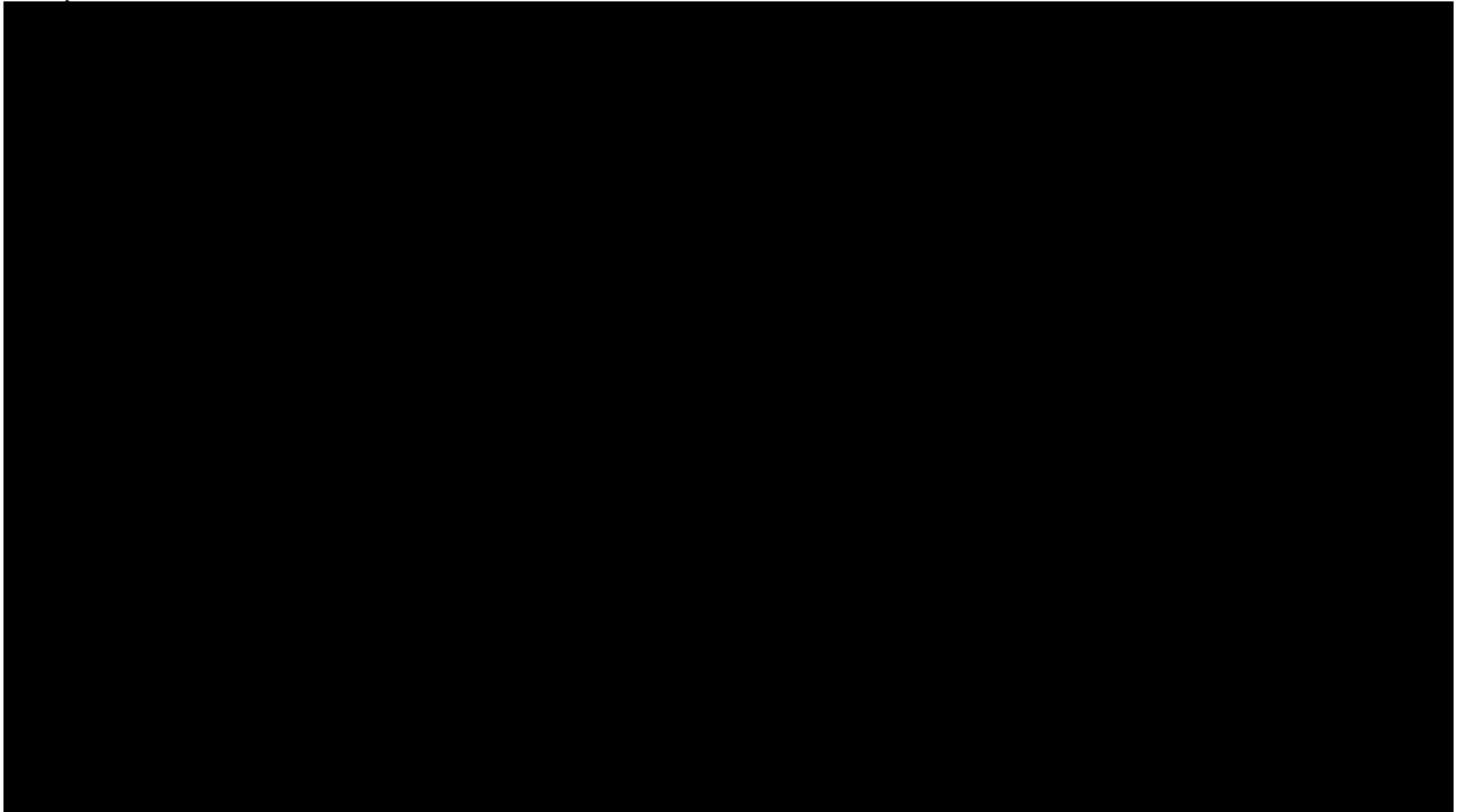
Base Case



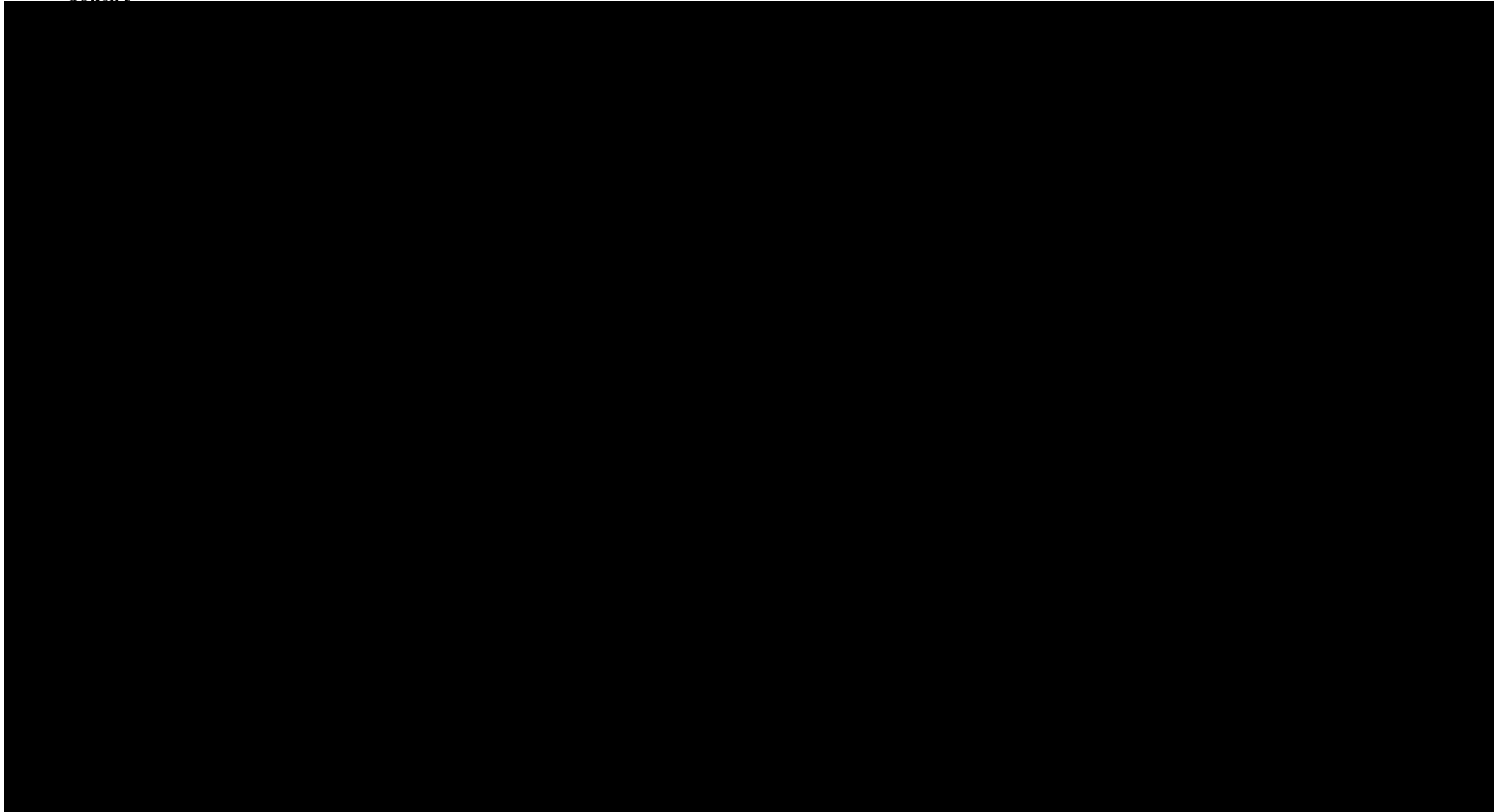
Option 1



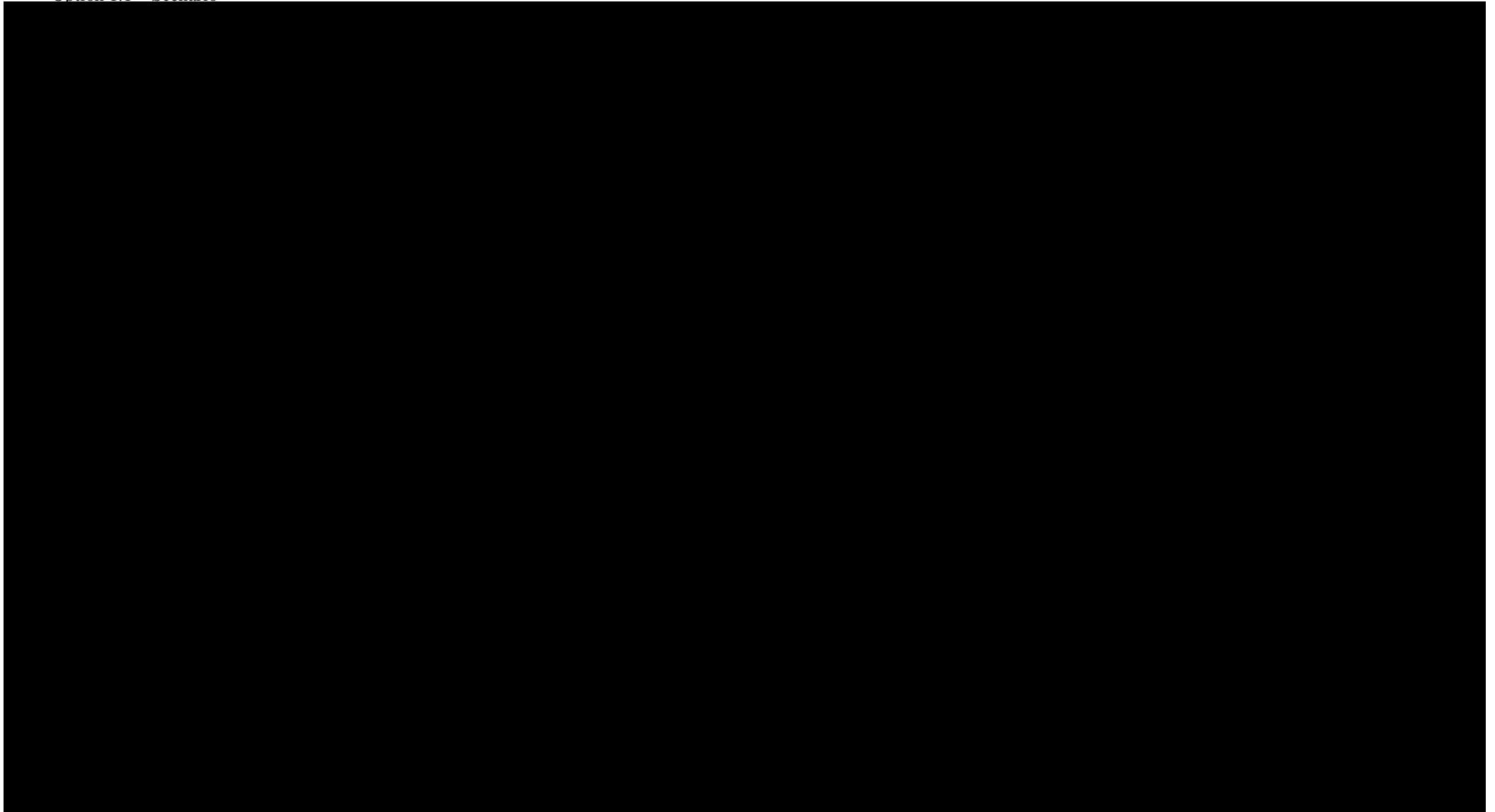
Option 1.1



Option 3



Option 1.1 – Scenario



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