Preliminary Infrastructure Planning Study for Charleville Hospital

Volume 1 of 2

July 2010

Please note:

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About this study

The Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings was commissioned by Queensland Health through Project Services, Department of Public Works on 24 March 2010. This study, undertaken by Woodhead Pty Ltd, investigates future infrastructure for Charleville Hospital based on the options endorsed by Queensland Health’s Integrated Policy and Planning Executive Committee on 15 March 2010.

This Preliminary Infrastructure Planning Study undertaken from early April to mid June 2010 was prepared by Woodhead Pty Ltd and sub-consultants under the direction of Queensland Health’s Planning and Coordination Branch. Every effort has been made by Woodhead Pty Ltd and sub-consultants to investigate and document in sufficient detail, and within the timeframe, the infrastructure issues, gaps and requirements by Queensland Health in relation to the Charleville Hospital’s future service provision.

Assumptions

Several assumptions were made during the preparation of this study. The study has been prepared on the basis of available information provided with regards to the condition of existing buildings, the level of service to be provided within the new development based on service profile information provided by Queensland Health, bed numbers based on information provided by Queensland Health and information provided in sub-consultant’s studies.
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1 Executive summary

This study has been prepared on behalf of Queensland Health to assess the condition of Charleville Hospital to provide the future service requirements through to 2021/22 and beyond. The study provides three options for the future development of Charleville Hospital. Option 1 establishes the minimum requirements to allow the facilities to continue running in their current form (Status Quo), Option 2 provides a redevelopment option for the current site (Brownfield) and Option 3 proposes a major redevelopment or new build scheme (Greenfield).

For the preparation of this study assessments were made on the infrastructure of Charleville Hospital and ancillary buildings, including the condition of existing buildings, presence of asbestos, condition of building services, building life, compliance with relevant current codes and standards and site constraints. In identifying risks associated with infrastructure, mitigation strategies that may be in place at an operational level were not incorporated within the risk identification and assessment.

In preparing this study, inspections were carried out by structural and civil engineers, building surveyors, architects, hydraulic engineers, electronic engineers, mechanical engineers and electrical engineers. The assessments provided by the nominated professionals were used to assess the condition of the current facilities and develop the options for redevelopment.

The Charleville Hospital site currently consists of several existing buildings including the main Hospital constructed circa 1939, the allied health buildings constructed circa 1965 and Doctor’s residence constructed circa 1960. Issues with the current site infrastructure include compliance with current standards, provisions for persons with a disability, asbestos and the structural condition of the building.

Option 1: ‘Status Quo’ aims to address serious risks or infrastructure issues to allow the current services to be provided. It will not resolve the level 3 service requirements nor achieve full compliance of the facility to current standards. Broadly Option 1 will provide one common services building which will ensure the health services remain operational during flooding and to address a number of ancillary buildings which are in poor condition. This Option also seeks to relocate Community Health from current poor accommodation to a new build on site. Other improvements include relocation of staff accommodation from flood area and provision of new staff housing, upgrade of access points to provide appropriate disabled access, improvement to plant rooms and some improvement to fire protection. Option 1 is estimated to cost $7.846 million (Category 2 cost estimate at June 2010).

Option 2 seeks to address the risks and delivery of health services whilst maximising use of existing infrastructure. The option incorporates a significant percentage of new build as well as refurbishment of the existing building. Option 2 retains a two level building with continued reliance on vertical circulation for access to theatres and wards. Improvements to staff accommodation are also included in Option 2. Option 2 is estimated to cost $61.650 million (Category 2 cost estimate at June 2010).

Option 3 allows for a completely new build to be developed on the flood free portion of the site. The advantage of this option is minimum disruption to ongoing services during construction as well as achieving full compliance with current standards and potential for in-built flexibility within the design. The existing hospital building will be refurbished for activities such as administration and Community Health.

As with Options 1 and 2 improvement and additions to staff accommodation is included within this option. Option 3 is estimated to cost $68.190 million (Category 2 cost estimate at June 2010).
Options analysis has been incorporated within the study which reviews the benefits and risks of each option. It is important to note that Option 1 will not meet the level 3 services nor will it achieve full compliance to current standards. Option 2 and 3 provide viable solutions to address non compliance and future health services needs. Option 3 is considered to have less whole of life building costs given the significant proportion of new build, it also will present less risk in the long term due to removal of reliance on vertical circulation and core clinical services relocated to flood free portion of land.
2 Introduction

The Queensland Health Infrastructure Renewal Project for Rural and Remote Areas aims to define a rural model of health service delivery at specific service hubs across Queensland. Queensland Health have identified 12 rural health service hubs from where core health services will be provided—including service support to their associated health service partners (spokes).

Intrinsic to the Infrastructure Renewal Project for Rural and Remote Areas is the assessment of existing infrastructure, and identification of any subsequent infrastructure refurbishment or redevelopment requirements to adequately support identified rural health services.

The Preliminary Infrastructure Planning Study assesses the condition of the buildings and building services and the impacts on the delivery of health services for rural and remote Hospital sites in a number of ways including:

- inefficient and outmoded layouts
- lack of compliance with current building codes, accreditation and safety standards
- workplace health and safety issues
- staff recruitment and retention issues as a result of the work environment and staff accommodation
- inability to provide the required health services due to the age and quality of facilities.

As part of the study, options have been developed to address identified risks associated with the condition of the infrastructure and gaps in service delivery resulting from inadequate or non-existent infrastructure.

2.1 Objective

The key objectives of the study are to:

- provide a brief review of the adequacy of existing infrastructure arrangements and facilities as it relates to the core service requirements
- identify options for the future development of infrastructure to meet the core service requirements
- develop concept plans and options costing including:
  - provision of a cost effective and efficient concept plan
  - identification of the capital cost impacts of the preferred option
- undertake broad analysis across all options to assist Queensland Health determine a preferred option.
3 Study context

3.1 Locality

Charleville Hospital lies 744km to the west of Brisbane Central Business District approximately 9.5 hours drive.

Charleville hospital falls within the Southwest Health Service District of Queensland health hospital services. There are four other hospitals in the district within proximity of Charleville, these are: Augathella at 84km to the north and approximately 1 hour drive, Morven at 90km to the east approximately 1 hour drive, Cunnamulla at 200km to the south and approximately 2.5 hours drive and finally Quilpie at 211km to the west and approximately 3 hours drive.

3.2 Charleville Hospital site

The existing Hospital site is located approximately 1km south east of the town centre of Charleville with the main vehicular entrance being off King Street West. The address of the Hospital is 72 King Street, Charleville.

Bradleys Gulley bounds the site to the west, King Street West to the north and a train line to the east. The site itself is a significant parcel of open well maintained land with the Hospital buildings providing a major piece of the infrastructure within the Charleville township. The site profile is generally flat but gently slopes down from the adjacent railway line towards Bradleys Gulley to the west. Sparse vegetation covers the site and it is not anticipated that any tree clearing issues would exist in any redevelopment approach.

Approximately half of the current site sits within a high risk flood plain, with the latest flooding of the site occurring in early 2010. During times of flooding the current site can be cut off from the rest of the community and access to the site restricted.

The Hospital, based on consultation with staff, is well loved by the community of Charleville. Given the importance a Hospital has in the life of the community there is bound to be some emotional attachment to the buildings.

Volume 2, Appendix 13 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings contains a photographic survey of the Hospital buildings.

3.3 Charleville Hospital building history

Main Hospital building

The old main building was built in 1939 as a base Hospital for the region to replace an outdated existing Hospital. This building was designed in typical Art Deco style and the Hospital received an upgrade in 1980 to meet the current health services requirements of that time.
Current existing auxiliary buildings on the site include the following and are generally estimated to be aged accordingly:

- original Nurses’ quarters constructed prior to 1939 and renovated in 1979
- single storey Doctor’s Residence constructed prior to 1960
- Allied Health building constructed prior to 1965
- Coronies building constructed prior to 1970
- Morgue constructed prior to 1970
- sewing room and store constructed prior to 1970
- old Nurses’ quarters were converted to the Red Cross/Pathology building prior to 1980
- Dental Clinic constructed prior to 1980
- Physiotherapy/Occupational Therapy constructed prior to 1980 as a demountable building
- Community Health building original construction prior to 1980 with alterations and extensions
- Director of Nursing’s residence constructed prior to 1985
- laundry and clothing store constructed prior to 1995
- workshop constructed prior to 1995
- Waroona Nursing Home constructed 1998 (Not part of this assessment)
- new staff accommodation constructed in 2008. Currently being refurbished following flood damage and potentially relocated to a higher part of the site.

3.4 Existing built environment

The Hospital building’s main entrance is celebrated in simple style with proportional form which can be seen at the entry driveway. The two storey building has a symmetrical form with two wings and the upper floor level is surrounded with a continuous balcony. It remains the dominant building on the site. All other buildings, apart from the old Nurses’ quarters, have been added to this central building as needed. The addition of the Waroona Nursing Home (1998) sits comfortably on the site to the left of the main access road and relies heavily on services from the main Hospital facilities.

In addition to this study, a photographic survey of the buildings at Charleville Hospital is contained in Volume 2 Appendix 11 of this study.
The following diagram shows the current relationship and identification of the buildings at the Charleville Hospital site.

*Diagram 1: Charleville Hospital building relationship*

Charleville Hospital is broken into many departments over numerous buildings across the site. A general overview of each building and its functions is provided below.

### 3.4.1 Main Hospital site buildings

#### 1 - Main Hospital building

The main building on the Charleville Hospital site provides the key clinical facilities for the site
2 - Waroona Nursing Home

Not part of this study however does rely heavily on the services of the Hospital to function particularly the kitchen facility.

3 - Corones building

Staff accommodation adjoining the old Nurses' quarters. Currently used for accommodation for clinical staff and students. Each unit contains living, kitchen, bedroom and en-suite.

4 - Old Nurses' quarters

This building is in poor condition and inappropriate for current living standards. While it is in great proximity to the main Hospital the rooms are inappropriately small and require shared amenities. Rooms are currently air-conditioned with split system units and have built in cupboards, hand basin with mirror, and a small desk/ dresser. The services are generally failing throughout and needs continual maintenance. It does not currently comply with the Building Code of Australia 2009 and desire to retain this building would require strong argument.

5 – Director of Nursing's residence

A detached house adjacent to the rail line used to house a senior member of staff. It is in good condition and functionally adequate with good proximity to Hospital.

6 - Morgue

Located at the rear of the site and removed from all other buildings. The morgue is deemed a security concern. A morgue closer to the main Hospital building would be more appropriate and a family/viewing room with amenities should be considered.

7 - Red Cross/Pathology

The current pathology building is located in isolation to the main Hospital building and is generally accessed off Francis Street to the west of the site. This building shares its function with the Red Cross accommodation. It is considered inappropriately distant from the main Hospital building and does not comply with current Building Code of Australia 2009 or lab standards.

S2F (architectural firm) have designed a new Pathology building which is proposed to be constructed adjacent the old Doctor's residence opposite the Waroona Nursing Home.

Upon completion the building will be significantly raised due to flood levels resulting in ramping to achieve disability access.

8 - New staff accommodation

At the time of this study the new staff accommodation was undergoing repairs following the floods in early 2010.

9 - Allied Health building

The building itself is in poor condition and inadequate for its function as base to out-lying communities. Further clinical space is required with multi-purpose consulting rooms. Accessibility is an issue with current ramps not complying with the disabled code. It is generally difficult to locate on site and staff would prefer centralised access to all Allied Health services.
3.4.2 Off Site buildings

Community Health building

The Community Health building is located on Eyre Street closer to the town centre. Present level of service unknown. The South West Health Service District advises that the building is in poor condition, the ceiling fell in due to roof leaking during the recent rains (March 2010).

Public Health building

The Public Health building is located with Community Health building on Eyre Street closer to the town centre and currently only occupies the ground floor with two independent units of accommodation above. This building is used primarily as an administrative building.

3.5 Charleville Hospital maintenance issues

Two primary maintenance issues have become apparent with this Hospital site. The first is the on-going challenge to provide an operational facility during times of severe flooding.

The second is trying to maintain an appropriately functioning facility around failing services and condemned building materials.

A significant amount of maintenance was required following the onset of local flooding which has occurred regularly (1990, 1997, 2008, and 2010 most recent). Flooding not only affects the functionality of the Hospital departments but also affects services required to make these departments operational. The ability to maintain services such as power, potable water, and sewerage in times of disaster is a fundamental requirement of any Hospital and in recent floods these services have been lost. Maintaining a working Hospital above the flood zone should be of highest importance.

Simple upkeep of the existing facility is becoming more difficult as current services continue to fail. Some of these difficulties are listed below:

- Maintenance of copper pipes throughout the building is becoming more limited as the pipes become too thin to braze. Leaks are occurring more frequently.
- Ward and office areas are serviced by local small split systems air-conditioners with limited air filtration and high maintenance costs. These become more inefficient with patient access to surrounding balconies, open windows and inappropriate seals to doors and windows.
- Accessibility to services throughout is generally poor or risky due to asbestos presence in walls, ceilings and floor tiles.
- Ability to upgrade or service equipment such as the operating theatre lights and the Central Sterilising Service Department sterilising unit is hampered by the need to remove the asbestos ceilings to gain roof access.
- Lighting and electrical networks throughout remain in fair condition as upgrade requires disruption of asbestos materials. The majority of the distribution switchboards are in fair condition and require continuing maintenance.
- The voice/data system is in fair condition.
- The external drainage infrastructure is vitrified clay pipes which suffers tree root blockages and requires continued maintenance.
- There is no back flow prevention in the hydraulics system.
• The main building has been in service for several decades, and while the structure appears to be in sound condition with little visible signs of distress resulting from foundation movement or corrosion, it is expected that the concrete in the structure may be nearing the end of its economic life. It is expected that a major refurbishment of the building may require structural upgrading. It is unlikely that the structure could be made compliant to current standards. Cracking of balcony slabs and the early signs of corrosion cracking can be observed in external portions of the building. Refer to structural engineer’s report provided in Volume 2, Appendix 3 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings.

• The aged roof system requires continued upkeep.

• User’s health and safety environment is compromised by non compliant egress routes.

• There is difficulty maintaining current Australian Standards and Building Code of Australia 2009 compliance.

• Many of the surrounding buildings face similar maintenance issues.

3.5.1 Building maintenance

Maintenance issues are experienced due to the presence of asbestos, age and dilapidation of the buildings.

Other maintenance issues relate to the age of the hydraulic reticulations systems, plumbing and drainage and the persistent damage due to flooding.

3.5.2 Landscape maintenance

There are no maintenance problems identified with landscaping on site.

Roads and parking were resurfaced during mid May 2010.

There is a combination of automatic and manual water sprinkler systems in use and presently only minimal water restrictions.

3.5.3 Normal waste management

Waste disposal is through the local town waste disposal system. The waste consultant removes a 3m waste skip three times per week. No problems have come to light with this service.

3.5.4 Chemical waste management

Charleville Hospital has Sterihealth as their consultant, and collections are monthly. Waste is stored in the old incinerator building north of the Morgue. The building has two deep freezers for storage. Clinical and related waste is transported in yellow 240 litre wheelie bins, cytotoxic in purple 240 litre wheelie bins, pharmaceutical and body parts yellow/orange lid or white bins for pharmaceuticals.

3.5.5 Insects

The most notable insect pests are red back spiders and locust.

3.5.6 Asbestos

The presence of asbestos is confirmed in a wide range of materials and buildings at Charleville Hospital. Maintenance and larger scale work is hampered by asbestos containing materials.

A survey of the site to identify asbestos was undertaken in 2006. A further survey is currently being undertaken.
3.6 Charleville Hospital development proposals

A new Pathology building is proposed to be constructed adjacent to the old Doctor’s residence opposite the Waroona Nursing Home.

The South West Health Service District advises that there are no other major capital works proposals/programs for this site.

3.7 Site constraints

The Hospital and future development of the existing fabric and infrastructure are constrained by the presence of large quantities of asbestos within the buildings internal fabric, the age of the current building stock, the sites current and future flood risks and the size of the available site outside of the flood plain.

3.7.1 Heritage issues

The Information Kit for the Infrastructure Renewal Project for Rural and Remote Projects prepared by Queensland Health notes no heritage listed facilities on the site. The main building being a pre-war 1939 building, is subject to demolition control per sustainable Planning Act 2009.

3.7.2 Town planning/designation issues

The Information Kit for the Infrastructure Renewal Project for Rural and Remote Projects prepared by Queensland Health notes that the site is not designated for community infrastructure. The implication is that any proposal for development or redevelopment on the site will require Town Planning advice to consider if a ‘Material Change of Use’ will occur as a result of proposed development – if so fees will be incurred. If a ‘Material Change of Use’ is deemed to occur, planning approval through the local authority may be required. Alternatively the site can be designated for community infrastructure or in the case of workers or staff accommodation can proceed through the public housing exemption process under Chapter 9 of the Sustainable Planning Act 2009.

3.8 Consultation

Consultation was undertaken with the nominated sub-consultants, the South West Health Service District staff and Queensland Health. The consultation process was used to inform options for redevelopment set out in this study.
4 Health services

4.1 Design and functionality of Charleville Hospital

The current Charleville Hospital provides key healthcare services for the local rural community as set out in 4.1.1 Current service provision of Charleville Hospital. The current facilities however suffer from compromised departmental functionality issues including:

- non compliant surgical facilities to Australian Health Facility Guidelines 2009 standards
- non compliant medical ward spaces to Australian Health Facility Guidelines 2009 standards including en-suites to patient rooms
- lack of compliant sanitary facilities to Australian Standard 1428.1/2 for disabled building users
- inadequate inter departmental relationships and the related staffing issues based on current evidence based design research.

4.1.1 Current service provision of Charleville Hospital

The Hospital lies within Queensland Health’s South West Health Service District and provides a range of services to the town of Charleville and its rural environs. The services currently provided by Charleville Hospital include:

Hospital services

- Medical
- Surgical
- Casualty
- Acute care
- Maternity
- Outpatients
- Dietician
- Pharmacy
- Dentist (on-site)
- Physiotherapist
- Occupational therapist
- Indigenous Health
- Social worker
- Pathology lab (on-site)
- Radiographer
- Speech Pathology
- Haemodialysis room

Visiting Services

- Gynaecologist and Obstetrician
- Sonographer
- Podiatrist
- Paediatrician
- Dermatologist
- Optometrist and Ophthalmologist
- Flying Surgeon
Capital works or recent improvements include:

- upgrade to air-conditioning for Theatre
- minor Outpatient Department refurbishment
- x-ray and Pharmacy purchase of new x-ray unit
- nurse call system, medical air, rural housing, maintenance shed, security lighting, pathway to Nurses’ quarters and rectification work to the Dental Clinic.

4.2 Future health services

Charleville Hospital is anticipated to provide a core level of services based on the Clinical Services Capability Framework V3. As a primary hub service, the facility will provide a minimum suite of Level 3 services in key areas including emergency, medical, surgical and birthing.

Bed requirements for Charleville Hospital are based on projected activity levels for services at the Hospital, and calculated using endorsed Queensland Health planning benchmarks. Where these are not available the Victorian Normative benchmarks (Australian College of Emergency Medicine) have been used. Charleville Hospital activity includes all residents accessing services at the Hospital.

Bed requirements were calculated using the Queensland Health recommended occupancy rates for rural facilities. Occupancy rates are a measure of bed utilisation in relation to total bed capacity of a service, ward or Hospital. Rural hospitals often have relatively low-average annual bed rates. These rates are low to allow for the impact of peak occupancy rates on days when visiting specialists are present. Peak occupancy rates are not always evident as bed counts are done at midnight and most of the visiting specialist activity is done as same day, only two or three days a week. In addition the endorsed benchmarks (85% occupancy rate) will not enable growth in services or efficient management of visiting specialists until there is infrastructure change or improvement. As a result the steering committee for the Infrastructure Renewal Planning Project for Rural and Remote Areas decided the previous occupancy rate of 70% for overnight activity in rural facilities should also be applied as a comparison for calculating future bed requirements. Bed projections identify the number of beds needed to support projected activity, and may not correspond with physical beds or the configuration of beds for different services as this is determined by the South West Health Service District see table 1.

Note that the count of beds for admitted care in Table 1 does not include Category B Emergency Department treatment spaces, which are used either predominantly or exclusively for non-admitted patients. Emergency Department treatment spaces are shown in table 2.
The following table shows current and future bed requirements for Charleville Hospital. They are categorised according to definitions in the Review of the More Beds of Hospital Strategy including overnight beds (medical/surgical beds, maternity and paediatric beds), same day beds and bed alternatives. Two sets of projections are shown:

1. Queensland Health endorsed statewide bed planning occupancy rates.
2. Seventy percent occupancy rate, as rural hospitals usually manage inpatient services at lower annual occupancy rates than metropolitan services, to accommodate peaks in occupancy when specialists visit.

Table 1: Current and future bed requirements for Charleville Hospital (bed projections)

<table>
<thead>
<tr>
<th>Item</th>
<th>Current</th>
<th>Projection 1: Endorsed Occupancy Rate</th>
<th>Projection 2: 70% Occupancy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A: Beds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1. Overnight Beds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overnight beds including:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>medical and surgical (incl. palliative)</td>
<td>24.0</td>
<td>75%</td>
<td>7.7</td>
</tr>
<tr>
<td>maternity</td>
<td>3.6</td>
<td>75%</td>
<td>0.7</td>
</tr>
<tr>
<td>mental health</td>
<td>-</td>
<td>80%</td>
<td>0.7</td>
</tr>
<tr>
<td>sub- and non-acute (GERM) (included in medical beds)</td>
<td>- N/A</td>
<td>90%</td>
<td>- N/A</td>
</tr>
<tr>
<td>Emergency Department short stay</td>
<td>- N/A</td>
<td>- N/A</td>
<td>- N/A</td>
</tr>
<tr>
<td>ICU/FAC/HDU</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>mental health, non-acute</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total overnight beds</td>
<td>30</td>
<td>multi-purpose beds</td>
<td>9.5</td>
</tr>
<tr>
<td>A2. Same Day Beds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>same day beds including:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>medical (including obstetrics, paediatrics and oncology/ chemotherapy)</td>
<td>3.1</td>
<td>2.4</td>
<td>2.7</td>
</tr>
<tr>
<td>surgical (including obstetrics and paediatrics surgery)</td>
<td>3.4</td>
<td>4.0</td>
<td>4.9</td>
</tr>
<tr>
<td>mental health</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>sub- and non-acute</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Total same day beds</td>
<td>6</td>
<td></td>
<td>7.4</td>
</tr>
<tr>
<td>A3. Bed Alternatives*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 2 recovery bays (chairs)</td>
<td>6 chairs</td>
<td>7 chairs. (Ensure Stage 2 recovery chairs and same day beds not double counted)</td>
<td>8 chairs</td>
</tr>
<tr>
<td>Antenatal Day Assessment Unit chairs</td>
<td>0</td>
<td>- N/A</td>
<td>- N/A</td>
</tr>
<tr>
<td>Chemotherapy chairs/ infusion: data will show levels of activity for charity, but District needs to inform numbers of chairs required according to numbers of chairs (cases scheduled for visiting oncologist)</td>
<td>0</td>
<td>- N/A</td>
<td>- N/A</td>
</tr>
<tr>
<td>Renal Dialysis chairs / beds: data will show levels of activity for charity, but District needs to inform numbers of chairs required according to numbers of chairs (cases scheduled for visiting oncologist)</td>
<td>5</td>
<td>currently 6 activity</td>
<td>No change</td>
</tr>
<tr>
<td>Total bed alternatives</td>
<td>42.6</td>
<td>30 multi-purpose beds</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Source: Queensland Health
<table>
<thead>
<tr>
<th>Item</th>
<th>Current number</th>
<th>2011/12</th>
<th>2016/17</th>
<th>2021/22</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category B: Emergency Department Treatment Spaces</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further details, see Table 2, page 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Emergency bays (observation areas) for Triage Categories 1-3</td>
<td>1</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>- 1 resuscitation cubicle with two trolley spaces for Triage Category 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 1 acute cubicle with two trolley spaces and observation beds for Triage Categories 2-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Consultation rooms for Triage Categories 4-6 (excludes treatment, plaster and eye rooms)</td>
<td>5</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Total emergency treatment spaces</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td><strong>Category C: Operating/Intervention Rooms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using Victorian Benchmarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Imaging</td>
<td>1 x-ray room</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>- 1 ultrasound room</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Theatre – major</td>
<td>1 major theatre</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>- (1100 overnight surgical separations per theatre)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Theatre – minor</td>
<td>0 (1 may be required if minor surgical needs are expected to increase, or if the District consists of unmet needs that could be met by the engagement of extra resources)</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>- (1000 same day surgical separations per theatre)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1 recovery (less than 4 theatres)</td>
<td>1 (currently requires 2)</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Requires 2 recovery bays per Operating Theatre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment procedure rooms/delivery suites</td>
<td>1 delivery suite</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>- (250 births per year &lt; 300 separations) + antenatal consultation room</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternity / Women’s Health / Gynaecology Consultation Rooms</td>
<td>1 antenatal clinic room (TBC by District)</td>
<td>2 consultation rooms</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>- antenatal consultation room</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well Baby nursery cot</td>
<td>2 cot spaces + 1 resuscitation bay for newborns / low-risk mothers (babies)</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>- (1 nursery cot per 3 obstetric beds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category D: Consultation/Treatment/Procedure Rooms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multipurpose consultation rooms (ambulatory care), includes specialist and general practice, excludes Emergency Department activity</td>
<td>0 (not Outpatient Department consultation rooms, currently use ED consultation rooms and triage)</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Allied health areas</td>
<td>(data not available)</td>
<td>(data not available)</td>
<td>(data not available)</td>
<td>(data not available)</td>
</tr>
<tr>
<td>Investigation rooms</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Total consultation/treatment/procedure rooms</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Data source: QH data using medium-term projections and Queensland Health Admitted Patient Data Collection (April 2010)

*Definitions applied from More beds for hospitals – need reference
*Victorian Benchmarks applied – need reference

Source: Queensland Health
Table 2 shows Emergency Department treatment spaces required at Charleville Hospital. In rural hospitals a core number of Emergency Department treatment spaces are required regardless of the level of activity, despite the majority of Emergency Department presentations being Triage Categories 4 – 5. Rural hospitals must have the capacity to manage patients presenting in all Triage Categories. This mean that the range of treatment spaces essential for emergency patient care may be in excess of the activity-based requirements.

In rural facilities, treatment spaces can be used for a number of purposes. To reflect this, the left-hand column of the table identifies a core set of Emergency Department treatment spaces are required for rural and remote hub hospitals with associated benchmarks to be applied. The right-hand column shows current requirements for Charleville Hospital based on the core set of Emergency Department treatment spaces required.

<table>
<thead>
<tr>
<th>Treatment spaces required for rural and remote hub hospitals</th>
<th>Existing spaces at Charleville Hospital</th>
<th>Needs met?</th>
<th>Current treatment spaces required by Charleville Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triage room/desk. Requires clear view of waiting area (to categorise triage patients)</td>
<td>1 triage room/desk, with inadequate view</td>
<td>✗</td>
<td>1 triage room/desk with clear view of waiting area</td>
</tr>
<tr>
<td>Central staff desk/computer space. Requires clear view of Emergency treatment spaces</td>
<td>0</td>
<td>✗</td>
<td>1 central staff desk/computer space, with clear view of emergency treatment spaces</td>
</tr>
<tr>
<td>Emergency treatment spaces including:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• resuscitation space (1 resuscitation space required per 500 Triage Category 1 presentations)</td>
<td>1 resuscitation room with two trolley spaces for Triage Category 1 2 trolley spaces for Triage Categories 2–3</td>
<td>✗</td>
<td>1 resuscitation space with two trolley spaces for Triage Category 1, with clear view from central staff desk required 2 additional trolley spaces for Triage Categories 2–3 (can be used as observation beds)</td>
</tr>
<tr>
<td>• isolation and decontamination (1 room per 10,000 attendances - to be subtracted from total treatment places)</td>
<td>0</td>
<td>✗</td>
<td>1 isolation/decontamination room required</td>
</tr>
<tr>
<td>• psychiatric treatment space, requires 2 entry/exit doors (multipurpose room able to be used for mental health purposes)</td>
<td>1 multipurpose room</td>
<td>✗</td>
<td>1 psychiatric treatment space</td>
</tr>
<tr>
<td>• consult/treatment room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• examination room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• multipurpose room</td>
<td></td>
<td></td>
<td>2 consultation rooms used for both ED and OPD</td>
</tr>
<tr>
<td>• procedure and interview room (with toilet facilities available)</td>
<td>1 treatment room</td>
<td>✗</td>
<td>3 multipurpose consultation rooms to provide sufficient consultation rooms to manage Triage Categories 4–5 1 quiet/grazing room (can also be used as an interview room) 1 procedures/treatment space required</td>
</tr>
<tr>
<td>Total emergency treatment spaces (1 emergency treatment space per 1300 ED presentations (all ages) – allocated from total spaces for CSGF Levels 1–6)</td>
<td>6</td>
<td></td>
<td>4* (4934/1305 ADEMED presentations Triage Categories 1–5) (24 by 2021/22)</td>
</tr>
<tr>
<td>Plaster room</td>
<td>1</td>
<td>✗</td>
<td>1 plaster room</td>
</tr>
<tr>
<td>Paediatric spaces (No requirement for a separate paediatric area until there are &gt; 1,000 presentations)</td>
<td>0</td>
<td>✗</td>
<td>0 Does not require a paediatric treatment space</td>
</tr>
<tr>
<td>Clean and dirty rooms, utility rooms, and patient, public and staff toilet/bathroom facilities</td>
<td>TBC</td>
<td>?</td>
<td>As per requirements in the Australian Health Facilities Guidelines3</td>
</tr>
<tr>
<td>Waiting room chairs (3 seats per patient treatment space)</td>
<td>30</td>
<td>✗</td>
<td>30 waiting room chairs (15 Emergency treatment spaces x 3) (72 required by 2021/22)</td>
</tr>
</tbody>
</table>

Based on CSGF v3.0 Emergency Care Centre requirements  
Australian College of Emergency Medicine (ACEM) benchmarks applied  
Data source: aM projections and Queensland Health Admitted Patient Data Collection (April 2010)  
*For patients requiring a brief period of observation, excludes short stay ward beds and ED treatment bays for non-admitted patients (More Bodi definition)

Source: Queensland Health
4.3 Infrastructure gaps

The following information summarises the deficiencies in the existing infrastructure in meeting the projected service demand as highlighted in Section 4.2. Further detail on infrastructure gaps is incorporated in Volume 2, Appendix 16 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings 2.

In assessing and identifying infrastructure gaps the Australasian Health Facility Guidelines 2009 have been utilised to determine non compliance.

4.3.1 Emergency Department services

The Emergency Department is acutely deficient in a number of critical infrastructure spaces and requirements including:

- no dedicated isolation/decontamination room, staff station, procedural room or plaster room
- non compliance of observation, acute care bays and quite/grieving room
- lacking key department infrastructure including dirty utility, clean utility, equipment storage, hand wash bays and facilities for people with a disability
- significantly lacking in required department adjacencies including co-located ambulance services, operating facilities and adequate emergency entrance.

4.3.2 Inpatient / Medical services

Infrastructure deficiencies include:

- non compliance of general overnight beds (used for medical and surgical), maternity ward and maternity beds and same day beds with no dedicated en-suite facilities
- lacking key department infrastructure including clean utility, patient lounge, clean linen bay, disposal hold, general storage and hand wash bays
- lacking in requirement department adjacencies including direct access to surgical and medical imaging facilities.

4.3.3 Maternity Services

Infrastructure deficiencies include:

- lack of key associated services and storage to delivery suites
- No consultation rooms currently provided in Maternity Department.

4.3.4 Surgical/Peri Operative

The current facility lacks key departmental infrastructure, including: holding bays, anesthetic induction room, scrub, clean up and set up room.

4.3.5 Clinical support services

Infrastructure deficiencies include:

- Currently no dedicated Pathology Department with facility (New Pathology facility currently under development on site)
- Fragmented and inefficient Imaging Department.
5 Inspection reports

5.1 Method
The site inspection for Charleville Hospital and Community Health building was conducted on 8-9 April 2010. It involved the assessment of the structural and civil conditions by Cardno Alexander Browne (Cardno), the services assessment (hydraulic, electronic, electrical, and mechanical) by Cushway Blackford and Associates, the building surveyor’s assessment by Philip Chun and Associates (Philip Chun) and the architectural assessment by Woodhead Pty Ltd.

5.2 Exclusions
A visual inspection included all buildings on each site except the interiors of:

- Director of Nursing’s residence
- Dental Clinic
- vacant Doctor’s residence.

Some areas were off limits due to staff and patient movements including parts of the staff accommodation.

5.3 Overlap
There is some overlap between building specialist reports where the same problem has been identified by different specialists. This occurs where the architect has identified issues pertaining to other consultants’ reports – Building Code of Australia 2009, structural and services.

5.4 Current site and infrastructure condition
During the inspections carried out by the various specialist sub-consultants key existing infrastructure issues were identified by the various disciplines including:

5.4.1 Structural survey report
Key issues from the structural survey report are provided in Volume 2, Appendix 3 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings.

Items to be considered from a structural perspective for any upgrade to the existing structural shell would include the following:

- remaining durable life of concrete elements of the structure
- compliance with earthquake requirements
- compliance with wind loading requirements
- compliance with fire rating requirements.

5.4.2 Building survey report
Key issues from the building survey report are provided in Volume 2, Appendix 4 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings.

Main Hospital

- Appropriate levels fire /smoke compartmentation were not achieved.
- Separation of equipment between main building and lift motor/plant/main switchboards and the like required via construction achieving a fire resistance level of 120/120/120.
- Internal stairway is required to be a fire isolated stairway.
- Handrails/balustrades/ramps/stairway throughout do not meet compliance.
- Sanitary facilities in particular those for people with disabilities, do not meet compliance with *Building Code of Australia 2009* and *Australian Standard 1428.1* requirements.
- Fire/smoke alarm detection system does not comply with *Australian Standard 1670.1* specifications.
- Exit signage should be upgraded to ensure compliance with *Australian Standard 2293.1* is achieved.
- Passenger lift does not meet compliance with *Australian Standard 1735.12*.

**Nurses’ quarters (two buildings)**

- No evidence of fire separation between single occupant units.
- Handrails/balustrades/ramps/stairway throughout do not meet compliance.
- Sanitary facilities in particular those for people with disabilities, do not meet compliance with *Building Code of Australia 2009* and *Australian Standard 1428.1* requirements.

**General items**

- Access throughout entire Hospital precinct generally does not comply with current codes and standards. The buildings should be rectified to ensure facilities and features are accessible for a person with a disability. This includes accessible car parking spaces, provision of tactile indicators, Braille and tactile signage and accessible sanitary facilities.

**5.5 Building viability**

The various buildings within the main site are in varying condition and state of repair dependent on age and current level of use.

A brief summary of major building conditions at Charleville Hospital follows:

**Main Hospital Site**

- Main Hospital building is over 70 years old with upgrades carried out in 1980. The building is often flooded on the lower levels and the impact of this event sequence on the structure is unknown. However structural degradation can be observed in external portions of the building and the building can be considered as nearing the end of its economic life.
- Coronos building is over 40 years old and in adequate condition.
- Nurses’ quarters - adequate structural condition with some evidence of damp problems.
- Mortuary building is over 40 years, fair condition with access requiring an upgrade.
- Red Cross/Pathology is over 30 years old and in adequate condition for short term continued use.
- Allied Health is over 55 years old and in adequate structural condition.
- Dental Clinic is approximately 30 years old and in fair condition.
- Single storey Doctor’s residence is over 50 years old, in adequate structural condition and vacant due to recent flood damage.
- Laundry and clothing store is in a fair condition.
- Physiotherapy/Occupational Therapy is over 25 years age and in sound condition.
- Sewing room and store is in poor condition.
- Workshop building is in sound condition.
- Undercover vehicle shelter - recent structures have been added to the site and are in good condition.
- Demountable staff accommodation is approximately two years old and remediation of flood damage is preceding sound condition.
6 Current risks

6.1 Building life

The estimated remaining life of the current site infrastructure cannot be accurately determined from the information provided by Queensland Health and the nominated sub-consultants. However condition of the buildings based on structural surveys are listed below:

- Main Hospital building – fair
- Nurses’ quarters – fair
- Corones building – fair
- single storey Doctor’s residence – fair
- Allied Health – fair
- Dental Clinic – good

Several key risks were found to be associated with the deterioration of the buildings and site. The associated risks include security, fire, health and safety and disadvantages to building patrons with a disability.

6.1.1 Compromised patient care due to infrastructure conditions

The following compromises to patient care are present in the current facility:

- Facilities were deemed to be difficult to transverse and departmental functional relationships inadequate, leading to adverse patient interdepartmental transfers, increased risk of patient incidents, and increased risks to infection control.
- Outpatient Department inefficient to provide adequate levels of care due to interdepartmental relationships and functionality.
- Detached Hospital services including Community and Public health services.
- Inappropriate available administration space to support clinical staff
- Patient rooms lack en-suite facilities and adequate associated amenities based on Australian Health Facility Guidelines 2009.

6.1.2 Fire risks

The following fire risks are present in the current facility:

- Current facility deemed to be non compliant in respect to fire compartmentation and separation.
- Limited provision of fire safety equipment including access to fire hose reels and fire fighting equipment. Fire hydrants non compliant with Australian Standard 428.1.
- Smoke and fire doors not evident during Building Code of Australia 2009 survey.
- Lack of enclosed and protected internal vertical escape routes.
- Inadequate separation of plant and equipment from clinical buildings.

6.1.3 Risk of accidents

The following accident risks are present in the current facility:

- Inefficient patient movement due to Hospital interdepartmental flows.
- Lack of handrails to entrances and patient areas leading to increased risk of patient and visitor falls.
- Balcony on level 1 is not enclosed.
- Non slip floor surfaces in patient and staff wet areas.
- Fire and smoke alarm detection equipment not compliant with *Australian Standard 670.1*.

### 6.1.4 Infection control risks

The following infection control risks are present in the current facility:

- Lack of clinical hand wash facilities within clinical zones.
- Size of patient rooms resulting in increased risk due to compromised bed centres based on evidence based design research.
- Percentage of single rooms to allow for isolation and control of spread of infection.
- Lack of dedicated en-suite facilities.
- Insufficient departmental support facilities including clean and dirty utilities, disposal holds, and sanitization facilities.
- Risk of infection via flood contamination and loss of building services.
- Presence of asbestos.

### 6.1.5 Health and safety risks

The following health and safety risks are present in the current facility:

- Current facilities lie in high risk flood zones.
- Lack of handrails to entrances and patient areas.
- Presence of asbestos.
- Non compliance with current regulations including *Australian Health Facility Guidelines 2009*, *Building Code of Australia* and *Australian Standards*.

### 6.1.6 Security risks

The lack of adequate lighting to external areas, entrances and parking present security risks in the current facility.

### 6.1.7 Disadvantages to persons with a disability

The following disadvantages to persons with a disability are present in the current facility:

- Access to and around the facility non compliant with *Australian Standard 1428.1/2* including door sizes, corridor widths and clearance zones to clinical spaces.
- Current lift facility non compliant for disabled access and provides insufficient turning circle distances.
- Height of signage non compliant for disabled facility users.
- Lack of tactile surface indicators at building entrances.
- Non compliant sanitary facilities to *Building Code of Australia 2009* and *Australian Standard 1428.1*.

### 6.1.8 Flood Risk

- Risk of isolation of site during flooding.
- Risk to patient safety due to lack of adequate escape routes during flooding.
7 Options

7.1 Staff accommodation

Queensland Health provides housing to staff who deliver essential services to rural, remote and regional centres. Charleville Hospital currently utilises 30 units of accommodation to provide appropriate, safe and secure housing for rural and remote staff.

The provision of appropriate, safe and secure staff housing in rural areas is broadly acknowledged as a vital element in the ongoing attraction and retention of staff and the provision of safe and sustainable health services.

In relation to the Charleville Hospital site, the provision of appropriate housing has been flagged as an essential element to ensure the ongoing viability of the health service.

As a result all options (Options 1 - 3) detailed below include the provision of an additional 22 units of accommodation. Housing accommodation for Charleville Hospital includes:

- twenty two new units of accommodation to be built on site which includes replacement of 19 units of accommodation
- demolition of 19 units of accommodation due to poor standard and condition.

The footprint allowance and costing for the additional 22 units (including the replacement of substandard accommodation) has been based on accepted standards for Queensland Health staff housing (recently constructed at Roma Hospital).
7.2 Option 1 – Status Quo (minimum requirements)

7.2.2 Scope of this option

The Status Quo Option does not resolve the Level 3 service requirements nor full compliance of the facility to current standards. It does however improve the infrastructure that allows the current service to be provided. The flooding of the site remains as the main risk allowing less than a half of the site to be redeveloped, however option 1 addresses building services ensuring continued operation in times of flooding.

The removal of asbestos cannot be addressed in Option 1 as this would generate a major disruption to the internal works and compliance with standards will be sought but not fully achieved, especially in relation to Australian Health Facility Guidelines 2009 and access and egress. An extra lift will need to be provided to allow the current services to run efficiently.

In order to function, the existing buildings on the perimeter will be demolished and concentrated into a single building along with the integration of Community Health onto the site. A walkway to connect the main kitchen to the Nursing Home has been requested by the South West Health Service District and facility user but further studies should assess the suitability of this as a long term solution. This option should only be considered as a short term fix of the current service model.

Main points within Option 1:

- Staff accommodation are re-located to the south east corner of the site away from the flooding zone.
- The scattered facilities that are currently in fair or poor conditions are to be replaced by one common service buildings allowing for concentration of activities and improved links to the main building.
- A new road on the eastern side (parallel to the railway) is designed in order to diminish the risk of isolation in conjunction with crossing over the railway.
- Community Services are to be moved to site. In response to users concerns/comments the location of this service is in close proximity to King Street west and away from the remaining services.
- The main access points are updated in order to match the current regulations. The internal corridors and door widths cannot be updated because of the implications in cost and disruption.
- The main ward rooms will not be updated to match current Australian Health Facility Guidelines 2009, nor will the main theatres.

The description below details the points targeted in order to improve the existing condition and extend the possibility of use of the existing fabric in the short term.

- Compliance with service Level 3 will not be pursued in this option. This implies that all services within the current facilities will not achieve the required Level 3 service plan as described in section 3.2 Charleville Hospital Future Health Services.
- Areas of non compliance with Australian Health Facility Guidelines 2009 components (e.g. elements of a unit), room activity spaces and areas have been identified via a schedule of accommodation of existing accommodation (Volume 2, Appendix 11 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings) and representative plans (Volume 2, Diagrams 2 - 4 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings) correction of these issues will not be possible in Option 1.
• The upgrade of services to meet current *Australian Health Facility Guidelines 2009* standards for room size, departmental and room adjacencies and functional room activity spaces would imply major redevelopment within the existing envelopes from the wards to the Maternity Suites. These will not and cannot be addressed in Option 1.

• Existing condition of buildings means that the following buildings can no longer provide adequate facilities for a healthcare facility and must be replaced:
  - Sewing room/stores.
  - Doctor’s residence.
  - Main Hospital facilities are deemed to be nearing the end of their economical life and if reused the level of services provided within the main facility will require assessment.
  - Community Health buildings are deemed to be in sound condition but require general repairs and maintenance including the roof. Need for the services to be on site plus the current condition of building fabric and requirement for repairs make the relocation of services to the main Hospital site an essential component of Option 1.
  - If any existing building is to be altered in more than 50 percent of its footprint, compliance with current standards is mandatory (refer to building surveyors report, Volume 2, Appendix 4, section 1.13)

• Fire resistance and stability:
  - No fire compartments indentified within the main buildings. This cannot be addressed in Option 1.
  - Kitchen exceeds 30m² and needs to be separated by a 60/60/60 compartmentation. This will not be pursued in Option 1.
  - The lift due to age and construction was deemed not to achieve suitable levels of fire separation and fire shaft construction. This cannot be addressed in Option 1.
  - Plant rooms were deemed not to comply with the required 120/120/120 fire separation. This issue must be resolved within Option 1.
  - Penetration in service cupboards is deemed not to achieve the required two hour fire protection. This issue must be resolved within Option 1.

• Access and egress:
  - Internal staircase deemed not to meet the standards and requirements for a safe egress route. The internal stairs will need to be enclosed as it connects two storeys of the patient care areas. This will need to be addressed in Option 1 to allow the facility to perform in the case of an emergency evacuation.
  - Access lift motor rooms non compliant. Compliant access ladder/stairs to *Building Code of Australia 2009* and *Australian Standard 1657* standards must be provided in Option 1.

• Construction of exits:
  - Risers and goings to external stairs to main Hospital inconsistent with Part D of the *Building Code of Australia 2009*. Replacement of external access stairs to comply with current standards to be undertaken during Option 1.
  - Balustrades to external verandah non compliant. To be replaced in Option 1 if access to verandah is to be maintained.
  - Maintenance required to door hardware. Option 1 will repair or replace all non compliant door hardware.

• Access to buildings:
  - Access to all existing buildings was deemed not to be suitable for a person with disabilities. This will require addressing in accordance with *Australian Standard 1428.1* in Option 1.
- Passenger lifts, ramps and stairs are inadequate for a person with disabilities. Wherever possible circulation spaces will need to be upgraded to current standards during remedial works in Option 1.

- **Disabled facilities**
  - Accessible car park spaces of minimum 3.2m clear and associated signage not provided. Spaces to be provided in Option 1.
  - Persons with disability sanitary facilities currently used as storage will be reinstated as facilities for disabled visitors in Option 1.
  - No tactile indicators evident within and around facility. Tactile indicators to be provided in Option 1 in accordance with Australian Standard 1428.21.

- **Services and equipment:**
  - No evidence on site of water booster assembly or associated signage in accordance with Australian Standard 2419.1. Upgraded in Option 1.
  - Fire hose reels non compliant. All fire hose reels to be installed in accordance with Australian Standard 2441 in Option 1.
  - Signage to portable fire fighting equipment non compliant. All signage to be relocated or installed at 2m above finished floor level in Option 1.

- **General exit lighting will be rectified to ensure it is illuminated at all times and type of signage upgraded in accordance with Australian Standard 2293.1 in Option 1.**

- **Sanitary provision did not comply with Australian Standard 1428.1 but this issue will not be addressed in Option 1.**

- **Energy efficiency is not achieved in the existing buildings due to their construction date and condition. A real assessment needs to be undertaken to see if there is any scope of improvement beyond addressing the mechanical components. This would mean major works that would be unable to be considered in Option 1. Alternative power sources are not included in Option 1.**

- **Asbestos: a decision whether to remove the asbestos from site is required. The recommendation in this Option 1 is to address the issue and remove all asbestos. The implications are the temporary decanting of services and associated costs.**

- **Surfaces to wet areas both for staff and patients to be upgraded to non slip surface materials in Option 1**

- **Infection control risks need to be addressed in Option 1 with a limited scope. Compliance with Australian Health Facility Guidelines 2009 within bedrooms and the addition of en-suites will not be achieved. Clinical hand washing facilities identified in the risks section will be added as the only item within the infection control list. Serious consideration to this point is required. The works as a consequence would be significant and would call for an Option 2 scenario.**

- **Signage to improve wayfinding is required to improve patient flows and diminish stress in the patient experience of the service. This would be addressed in option 1**

- **Staff accommodation to be demolished and replaced by the units recommended in the schedule of accommodation (Volume 2, Appendix 11 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings) and staff accommodation (Volume 2, Appendix 15 of the Preliminary Infrastructure Planning Study for the Charleville Hospital and Ancillary Buildings).**

- **Community Health building to be moved to site. No data has been received on capacity required or demands for future provision. This will need to be addressed in detail to allow accurate assessment of cost and service provision.**
7.2.3 Capital cost
Option 1 costs are based on the upgrading of existing building fabric and services to allow for the ongoing provision of healthcare services form the existing facilities. Category 2 cost estimates based of the aforementioned and including consultant fees and contingency allow for an estimated cost of $7.846 million.

7.2.4 Whole-of-life costs
Option 1 will address all key infrastructure problems and all works undertaken will improve the current facilities and be carried out to the highest of standards, however Option 1 continues to utilise the majority of aged assets with minimal refurbishment. It can be expected that running and maintenance of the current facilities will continue to increase into the future.

7.2.5 Advantages
The key advantages to the Status Quo option include:

- lower initial capital investment costs
- Ability for facilities to remain operational during flooding
- upgrade of support infrastructure
- upgrade and installation of new site emergency access.

7.2.6 Disadvantages
The key disadvantages to the Status Quo option include:

- non compliance to Australian Health Facility Guidelines 2009, Disability Discrimination Act 1992 (Commonwealth) and Building Code of Australia 2009 standards
- condition of current facilities
- continuing and increasing maintenance cost
- presence of asbestos within ceilings, floors and walls and associated risks
- inadequate staff accommodation
- fragmented Hospital services
- inadequate Interdepartmental functional relationships
- current infrastructure still within high risk flood zone
- failing infrastructure and building services.
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7.3 Option 2 – Refurbishment or expansion at existing site

7.3.1 Scope of this option

Option 2 further addresses the risks and delivery of Level 3 services and in order to do so there is a significant percentage of proposed new build for core clinical services. However the fact remains the existing building is at the end of its structural life and use for clinical services would not be an advisable investment. However following the removal of asbestos as a first step the building would then be able to be used for administration on the ground floor and Community Health with plant on the upper floors connecting to the new build providing the core clinical services. This means theatres and the wards would still be located on level 1 and depend on vertical circulation for access.

The new staff accommodation will be provided at the same time the existing is re-located to the south east side of the site. A new access road and connection across the railway will connect the site to the town in times of flooding.

A new Emergency Department, Imaging and Outpatient Department in ground floor with an improved relationship and access are provided. The wards (all in Level 1) are in the new build while the theatres expand towards the new build area allowing for the Central Sterilising Service Department and support areas to be improved. Compliance with current standards is greatly improved throughout the development. The penalty in the cost of keeping the original building can be challenged.

Main points within Option 2:

- New staff accommodation provided to suit the needs presented. This has been achieved by using the proposed templates of prefabricated units. The ones used are three units of six bedrooms and two of two bedrooms. There is space for expansion allocated within the area for future need.
- All buildings except the main building are replaced by new construction, allowing for a greater concentration of the services while accounting for segregation of flows.
- Car parking areas for staff and visitors are developed.
- A new entrance road towards the east side is provided in order to avoid isolation during times of flood.
- Anticipated that infrastructure work by third parties will occur in order to prevent isolation in times of flooding to and from town.
- Provides a new entrance fully compliant and user friendly in between the two main bodies of the proposal.
- Outpatient Department/Emergency Department and Imaging are clustered together to enhance their synergy.
- The kitchen is enhanced and the laundry is incorporated within the main body of the proposal yet with external vehicular access possible.
- Allied Health, Pathology and the Morgue are brought into the main buildings. The Morgue has vehicular access as well and incorporates all required components.
- Administration is located within the ground floor of the main existing building. It must be noted that the life expectancy of this building is almost overdue and significant work needs to be done in order to allow its use. The first issue is the removal of asbestos.
- Staging and decanting of this option is achievable without major disruption to the existing services. The main issue is around the theatres enlarged footprint.
- Two lifts plus stairs are provided in order to ease the movement from ground floor to level 1.
The services are grouped in one block with vehicular access and in close proximity to the main services buildings.

Family accommodation is provided in close proximity to the main building.

Compliance with current regulation will significantly improve due to the amount of new build and the removal of clinical elements from the main existing building.

External outdoor accessible areas are provided to main departments in the ground floor.

A walkway connecting the main existing building and the kitchen to the Waroona Nursing Home is provided as requested.

The main disadvantage of this option is as mentioned, being split in two levels depending on mechanical means for vertical circulation and impeding the access to the outdoors.

7.3.2 Capital cost

Option 2 costs are based on the provision of refurbishment and expansion of existing infrastructure to meet the future service requirements of Charleville Hospital. Option 2 provides approximately 5046m² of refurbishment of existing fabric and 3618m² of new build fabric. Category 2 cost estimates based of the aforementioned areas and including FF+E, consultant fees and contingency allow for an estimated cost of $61.650 million.

7.3.3 Whole-of-life costs

All new build stock will be designed and built to maximise opportunities of performance in energy, water, waste, etc while attending to the detail design in order to minimise maintenance requirements and guaranteeing the lasting qualities of the fabric and systems. While considering refurbishment, although the pursuit of quality and performance is the main objective it must be mentioned that the maintenance cost and issues due to the overall aging of buildings and systems not replaced will have an impact in recurring costs as well as continued maintenance.

Option 2 maximises use of existing infrastructure and incorporates extension and some significant refurbishment. It can be expected that significant maintenance issues and costs will be reduced and effectively the operational life of the facilities will be extended over the short to medium term.

7.3.4 Advantages

- Improved inter-departmental functional relationships.
- Expanded Hospital services to meet future demand.
- Removal of asbestos.
- Relocation of key services to avoid high risk flood zones.
- New/relocation of staff accommodation.
- Ability of facilities to remain operational during flooding.
- Improved emergency access during flooding.

7.3.5 Disadvantages

- Re-use of existing buildings and remaining life span of current infrastructure
- Cost of upgrading existing infrastructure to meet current standards.
- Decant difficulties due to asbestos removal.
- The main disadvantage of this option is as mentioned, being split in two levels depending on mechanical means for vertical circulation and impeding the access to the outdoors.
- Higher / continued maintenance costs due to two level development requiring mechanical means of vertical movement.
- Locality of proposed refurbishment will not address the issue of removing the proposed development from the site flood plain.
Diagram 4: Charleville Hospital Option 2 refurbishment – ground floor
Diagram 5: Charleville Hospital Option 2 refurbishment – level 1
7.4 Option 3 – significant redevelopment

7.4.1 Scope of this option

Option 3 allows for a completely new build to be developed on site. The advantage of this version is minimum disruption to ongoing services during construction and a seamless decanting. In addition full compliance with current standards and potential for in-built flexibility to the design must be considered.

The main constraint, once again, is the existing site due to the flood plain/line that compromises almost half the site and traps the proposal between the water and the railway, with the railway having disruptive effects on the healing experience the facility will strive to achieve.

The existing building will be kept in this option and once more dedicated to office based activities such as administration on level 1 and Community Health on the ground floor. The new build also presents the advantage of allowing for all services to be developed in a single storey enhancing the contact with the environment and views as well as diminishing the dependence on mechanical means of vertical movement.

The staff accommodation is provided to the south east corner of the site co-located with the relocated Nurses’ quarters.

Main points within Option 3:

- Brand new Hospital facility.
- Full compliance with current regulations and Australian Health Facility Guidelines 2009 standards.
- Possibility to define the adjacencies and relationships between the different departments to suit needs and models of care.
- Opportunity to revisit and update models of care that can influence and innovative the building/physical solution.
- Opportunity to incorporate evidence based design principles to the design.
- Efficiency and improved performance of systems that allow for a responsible position on energy consumption/production, sustainable issues and energy production.
- Assumption that infrastructure required to make the site viable (emergency road over railway, sewer, etc) would be maximised.
- The disadvantage of this option relies mainly in the fact that the site floods and a 1/50 year to 1/100 year occurrence has done so three times in the last ten years. A site elsewhere in town that does not flood would be a desirable option but would require Waroona Nursing Home to become independently sufficient.
- Only half of the site can be utilised due to the flood plain.
- The access road is located to the east of the site in order to aid in the prevention of isolation during flooding times.
- The staff accommodation is provided in similar fashion to Option 2 and co-located with the moved existing Nurses’ quarters towards the south east of the site.
- The main building is presented to be re-used in non clinical activities. The cost of upgrading and reinforcing the structure to extend the life span of the building needs further dialogue and consideration.
- Parking for staff and visitors provided.
- A drop off area by the main entrance provided.
• The ambulance entrance is free from physical barriers and there is an adjacent area for ambulance parking.
• The building develops around a courtyard that provides not only daylight to a narrow plan but also an essential relationship with landscape and nature.
• Concentration of services with easy access for staff and patients is achieved.
• Single storey facility that provides all services on ground floor with access to landscaped areas and views.

7.4.2 Capital cost
Option 3 costs are based on the provision of minor refurbishment and expansion of existing infrastructure and new build facilities to meet the future service requirements of Charleville Hospital. Option 3 Provides approximately 1084m² of refurbishment of existing fabric and 6590m² of new build fabric. Category 2 cost estimates based of the aforementioned areas and including FF+E, consultant fees and contingency allow for an estimated cost of $68.190 million.

7.4.3 Whole-of-life costs
All new build stock will be designed and built to maximise opportunities of performance in energy, water, waste, etc while attending to the detail design in order to minimise maintenance requirements and guaranteeing the lasting qualities of the fabric and systems. While considering refurbishment, although the pursuit of quality and performance is the main objective it must be mentioned that the maintenance cost and issues due to the overall aging of buildings and systems not replaced will have an impact in recurring costs as well as continued maintenance.

Option 3 incorporates significant redevelopment and new build components. This option would effective extend the operational life of the facility with an anticipated improved performance in the running and maintenance costs.

7.4.4 Advantages
• Optimal interdepartmental functional relationships.
• Compliance with Part J and Queensland Health energy efficiency guidelines.
• New build infrastructure.
• Removal of Hospital services from high risk flood plain.
• Community Health facilities relocated on site in conjunction with main Hospital services.
• Support for aged care facility, site synergy between old and new facilities.
• Investment in new build infrastructure rather than investment in refurbishment of ageing infrastructure.

7.4.5 Disadvantages
• Highest capitol costs
• New facilities still located on current site, risk of isolation due to flooding.
• Flooding still present on current site.
• Site constraints of current site due to flood plain.
• Proximity of rail line to new build facility.
Diagram 7: Charleville Hospital Option 3 – ground floor
Diagram 8: Charleville Hospital Option 3 – level 1
8 Options analysis

Table 3: Option 1 analysis

<table>
<thead>
<tr>
<th>Option features</th>
<th>• Existing site and infrastructure retained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale</td>
<td>• Minimum impact</td>
</tr>
<tr>
<td></td>
<td>• Minimum cost</td>
</tr>
<tr>
<td>Benefits</td>
<td>• Temporary solution to future clinical service requirement</td>
</tr>
<tr>
<td>Risks</td>
<td>• Departmental functional inadequacies</td>
</tr>
<tr>
<td></td>
<td>• Loss of essential building services during flooding</td>
</tr>
<tr>
<td></td>
<td>• Staff morale / recruitment and retention</td>
</tr>
<tr>
<td></td>
<td>• Flood contamination</td>
</tr>
<tr>
<td>Assumptions</td>
<td>• Current services can be maintained in current facilities</td>
</tr>
<tr>
<td>Criticality</td>
<td>• Asbestos removal from current facilities</td>
</tr>
<tr>
<td></td>
<td>• Short term solution to providing future clinical services</td>
</tr>
<tr>
<td></td>
<td>• Flood risk prevention</td>
</tr>
<tr>
<td>Resource implications</td>
<td>• Risks to staff retention/recruitment and morale</td>
</tr>
<tr>
<td></td>
<td>• Heavy resourcing due to fragmented services</td>
</tr>
<tr>
<td>Cost</td>
<td>• Overall indicative cost of Option 1 $7,489,000</td>
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</table>

Table 4: Option 2 analysis

<table>
<thead>
<tr>
<th>Option features</th>
<th>• Reuse and adaption of current facilities/infrastructure</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• New build construction</td>
</tr>
<tr>
<td></td>
<td>• Improved departmental functions and way finding</td>
</tr>
<tr>
<td>Rationale</td>
<td>• Maximised use of retainable existing infrastructure</td>
</tr>
<tr>
<td></td>
<td>• Low level use of inadequate current infrastructure</td>
</tr>
<tr>
<td>Benefits</td>
<td>• Improved departmental functionality</td>
</tr>
<tr>
<td></td>
<td>• New / expanded clinical services and departments</td>
</tr>
<tr>
<td>Risks</td>
<td>• Asbestos removal</td>
</tr>
<tr>
<td></td>
<td>• Two level service model perpetuation</td>
</tr>
<tr>
<td></td>
<td>• Access during flooding</td>
</tr>
<tr>
<td>Assumptions</td>
<td>• Construction phasing due to asbestos removal</td>
</tr>
<tr>
<td></td>
<td>• Two level building service model is acceptable</td>
</tr>
<tr>
<td>Criticality</td>
<td>• Asbestos removal from current facilities</td>
</tr>
<tr>
<td>Resource implications</td>
<td>• New staff accommodation</td>
</tr>
<tr>
<td></td>
<td>• Improved staff morale/recruitment and retention</td>
</tr>
<tr>
<td>Cost</td>
<td>• Overall indicative cost of Option 2 $61,650,000</td>
</tr>
</tbody>
</table>

Table 5: Option 3 analysis

<table>
<thead>
<tr>
<th>Option features</th>
<th>• New facilities on eastern side of site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• New site layout</td>
</tr>
</tbody>
</table>
Rationale
- Avoidance of inherent problems of decanting departments during construction
- Improved site access

Benefits
- New build facility to current standards and regulations
- Optimised departmental functionality
- Clinical services removed from flood zone impact
- Improved building life expectancy

Risks
- Cost of providing new facilities
- Still within proximity of flood plane
- Ability to upgrade site access and service infrastructure

Assumptions
- Site access and service infrastructure upgrade

Criticality
- N/A

Resource implications
- New staff accommodation
- Improved staff morale/recruitment and retention

Cost
- Overall indicative cost of Option 3 $68,190,000

Table 6: Construction analysis:

<table>
<thead>
<tr>
<th>SITE</th>
<th>DEPARTMENT</th>
<th>AREA/M2 (WITH CIRC)</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
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</thead>
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<tr>
<td>Charleville</td>
<td>Front of house reception</td>
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<td>New Build</td>
<td>New Build</td>
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<td>ED / OPD</td>
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<td>Inpatient / Medical Services</td>
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<td>Refurb</td>
<td>New Build</td>
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<tr>
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<td>maternity</td>
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<td>Refurb</td>
<td>New Build</td>
</tr>
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<td></td>
<td>Surgical</td>
<td>405</td>
<td>60R/40N</td>
<td>New Build</td>
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<tr>
<td></td>
<td>Peri Operative</td>
<td>180.9</td>
<td>60R/40N</td>
<td>New Build</td>
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<tr>
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<td>CSSD</td>
<td>123.2</td>
<td>60R/40N</td>
<td>New Build</td>
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<tr>
<td></td>
<td>Rehab Allied Health</td>
<td>289.25</td>
<td>Refurb</td>
<td>Refurb</td>
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<td>Pathology</td>
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<td>New Build</td>
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<td>Medical Imaging</td>
<td>197.21</td>
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<td>New Build</td>
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<td>Pharmacy</td>
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<td>Mortuary</td>
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<td>New Build</td>
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<tr>
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<td>Kitchen</td>
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<td>60R/40N</td>
<td>New Build</td>
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<td>Staff Accom Shared</td>
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<td>Staff Accom</td>
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<td>70R/30N</td>
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<td>50R/50N</td>
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<td>Total Area</td>
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9  Acronyms and abbreviations

Acronym List

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>GST</td>
<td>Goods and Services Tax</td>
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<tr>
<td>U of A</td>
<td>Units of Accommodation</td>
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