Preliminary Infrastructure Planning Study for Biloela Hospital

Volume 1 of 2

July 2010

Please note:

This report contains confidential information intended for the exclusive use of Queensland Health. No confidentiality is waived or lost by mistaken transmission. Information contained within this report is valid as at the date of issue only.
About this study
The Preliminary Infrastructure Planning Study for the Biloela Hospital 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 Biloela 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 and 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 Biloela Hospital’s future service provision.

Assumptions
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-consultants reports.
Contents

1 Executive summary
2 Introduction
  2.1 Objective
3 Study context
  3.1 Locality
  3.2 Biloela Hospital site
  3.3 Biloela Hospital building history
  3.4 Existing built environment
  3.5 Biloela Hospital maintenance issues
    3.5.1 Building maintenance
    3.5.2 Landscape maintenance
    3.5.3 Normal waste management
    3.5.4 Chemical waste management
    3.5.5 Insects
    3.5.6 Asbestos
  3.6 Biloela Hospital development proposals
  3.7 Site constraints
    3.7.1 Heritage issues
    3.7.2 Town planning/designation issues
  3.8 Consultation
4 Health services
  4.1 Design and functionality of Biloela Hospital
    4.1.1 Current service provision of Biloela Hospital
  4.2 Future health services
  4.3 Infrastructure gaps
    4.3.1 Emergency Department services
    4.3.2 Inpatient/medical services
    4.3.3 Maternity services
    4.3.4 Surgical/peri operative
    4.3.5 Clinical support services
5 Inspection reports
  5.1 Method
  5.2 Exclusions
  5.3 Overlap
  5.4 Current site and infrastructure condition
    5.4.1 Structural survey report
    5.4.2 Building surveyor report
    5.4.3 Electronic engineer report
6 Current risks

6.1 Building life

6.1.1 Compromised patient care due to infrastructure conditions

6.1.2 Fire risks

6.1.3 Risk of accidents

6.1.4 Infection control risks

6.1.5 Health and safety risks

6.1.6 Security risks

6.1.7 Disadvantages to persons with a disability

6.1.8 Staff retention and dissatisfaction

7 Options

7.1 Staff accommodation

7.2 Option 1 – Status Quo (minimum requirements)

7.3 Option 2 – Refurbishment or expansion at existing site

7.4 Option 3 – significant redevelopment

8 Options analysis

9 Acronyms and abbreviations
List of Tables
Table 1: Current and future bed requirements for Biloela Hospital (bed projections) .......... 17
Table 2: Emergency Department treatment spaces required at Biloela Hospital............... 19
Table 3: Option 1 analysis ................................................................................................... 45
Table 4: Option 2 analysis ................................................................................................... 45
Table 5: Option 3 analysis ................................................................................................... 46
Table 6: Construction analysis ............................................................................................. 46

List of Diagrams
Diagram 1: Biloela Hospital building relationship ................................................................. 11
Diagram 2: Biloela Hospital Option 1 existing condition ....................................................... 33
Diagram 3: Biloela Hospital Option 1 Status Quo ................................................................. 34
Diagram 4: Biloela Hospital Option 2 refurbishment ............................................................ 39
Diagram 5: Biloela Hospital Option 2+ ................................................................................. 40
Diagram 6: Biloela Hospital Option 3 ................................................................................... 43
Diagram 7: Biloela Hospital Option 3 new build ................................................................. 44
1 Executive summary

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

For the preparation of this study, assessments were made on the infrastructure of the Biloela Hospital, including 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 facility and develop the options for redevelopment.

The Biloela site currently consists of several existing buildings including the main Hospital building Ward B constructed circa 1979, the Oral Health and Central Queensland Health Service District (the District) office buildings constructed circa 1960 and Doctor’s residence constructed circa 2006. Issues with the current site infrastructure include compliance with current standards, provisions for persons with a disability, asbestos and the condition of buildings.

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 new build facilities for Emergency Department, Community Health, Allied health, Physiotherapy and laundry services. Other improvements include new staff accommodation 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 $15.245 million (Category 2 cost estimate at June 2010).

Option 2 seeks to further address the risks and delivery of health services from the existing and integrate new build infrastructure. The option incorporates a significant percentage of new build as well as refurbishment of the existing building. Option 2 retains the original ward blocks and incorporates new facilities for Emergency Department, Imaging, Allied and Community Health, Theatres and Maternity. Option 2 also includes new staff accommodation and scope for future expansion. Option 2 is estimated to cost $59.450 million (Category 2 cost estimate at June 2010).

The Option 2+ shows the possibility of carrying this option in a sequence/staged approach arriving to a fully new built solution without having to fund the full value of this solution at once. The staging not only allows the hospital to meet the current predictions but also allows for expansion and flexibility in the use of the building fabric for future demand. (This option is not costed within this report)

Option 3 allows for a completely new build to be developed on the existing 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 demolished to allow scop for future expansion on the site.
As with Options 1 and 2 improvement and additions to staff accommodation is included within this option. Option 3 is estimated to cost $62.900 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 core clinical services relocation to new build facilities.
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

Located in the arable Callide Valley, Biloela is only an hour’s flight from Brisbane, less than two hours' drive to Rockhampton (which is only half an hour from the Capricom Coast) and closer to Gladstone and its nearby beaches.

Biloela Hospital falls within the Central Queensland Health Service District of Queensland Health. There are thirteen other hospitals in the District within proximity of Biloela, key facilities include: Rockhampton at 144km to the north and approximately 2 hours drive, Gladstone at 121km to the east approximately 1.35 hours drive and Moura at 65km to the west and approximately 1 hour drive.

3.2 Biloela Hospital site

The Biloela Hospital site is bounded by Hospital Street to the west, the Dawson Highway, and State Farm Road. The Community Health building is located on the corner of the Dawson Highway and Kariboe Street in the heart of Biloela. The current Hospital site is close to the centre of town and is bordered by local schools, sports facilities and residential allotments. The Hospital site is large with plenty of vacant space around the existing buildings with ample room for redevelopment.

Volume 2, Appendix 13 of the Preliminary Infrastructure Planning Study for the Biloela Hospital contains a photographic survey of the Hospital buildings.

3.3 Biloela Hospital building history

The current Biloela Hospital is a mix of different architectural styles built in different periods. These periods are as follows:

- existing Nurses’ quarters built in 1946
- existing Dental and Administration building was built in 1960
- existing operating theatre and x-ray wing was built in 1966 with a refurbishment in 1999
- main Hospital ward (south), kitchen and laundry constructed in 1970. The ward was originally a dedicated female and maternity ward
- new Community Health building was added to the existing post war weatherboard building in 1978
- northern ward block constructed in 1979 as a male ward to replace an existing male ward
- new doctors residence on the corner of the Dawson Highway and Hospital Road was constructed in 2006.

3.4 Existing built environment

The Biloela Hospital is a collection of various buildings built in different periods however Ward A could be considered the central Hospital building. A general overview of each building and its functions is provided below.

In addition to the report below, a photographic survey of the buildings at Biloela Hospital is contained in Volume 2, Appendix 13 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

The following diagram shows the current relationship and identification of the buildings at the Hospital site.
The Biloela Hospital is broken into many departments over numerous buildings across the site. A general overview of each building and its functions is provided below.

1 - Main Hospital building (Ward A)
This building houses the main Hospital reception, main meeting room, Emergency and Outpatients, Maternity, Pathology, and general wards. It provides direct access to Ward B, the kitchen block, Operating Theatre, and Imaging Department. A plan of this building indicating current uses is included in Volume 2, Appendix 12 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.
2 - Kitchen
The kitchen block provides the main delivery point for food into the Hospital. It also houses the staff lunch room, staff kitchen, staff change room, and two offices. It is in a pivotal position to service both Wards A and B.

3 - Operating Theatre (Ward A)
The Operating Theatre and Imaging Department are connected by a corridor to the Dental Clinic to the west and Outpatient Department to the east. It is also adjacent the emergency ambulance drop off point. This building underwent a refurbishment and upgrade in 1999 to remove asbestos. A plan of this building is provided in Volume 2, Appendix 12 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

4 - Ward B
This secondary Ward built in 1979 is commonly used for administration offices and storage. It also houses the Eye Clinic, Ultrasound, Mental Health consultants, and a Palliative Care area/ward. Refer to Volume 2, Appendix 12 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

5 - Plant room/Pharmacy (Ward B)
Located strategically between Wards A and B this building primarily houses the air-conditioning plant, the Private Automatic Branch Exchange (PABX) room and Pharmacy. Refer to Volume 2, Appendix 12 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

6 - Oral Health/District Office building
This building, originally built in 1960, facilitates a Dental Clinic on the northern end and administrative offices on the southern. The Dental Clinic consists of a waiting area (extended corridor), reception, one dental surgery, Central Sterile Services Department room, dental technicians room, store and toilet.

The administration zone consists of numerous rooms for offices and kitchen/staff room. The southernmost office is dedicated to the Director of Nursing.

7 - Staff accommodation
The staff accommodation is a detached building to the south of the Hospital site. It has gone through numerous renovations and adaptation over the years. The current configuration is as per the diagram including in Volume 2, Appendix 12 of the Preliminary Infrastructure Planning Study for the Biloela Hospital. Private quarters to the western end were inaccessible at the time of the audit. The building is deemed unsuitable by the Central Queensland Health Service District.

8 - Store
This building houses the bulk storage for the Hospital and surrounding district Queensland Health facilities. It is in a common delivery zone shared with the linen rooms, garden maintenance sheds and Morgue.

9 - Hospital Control Room/Physiotherapy (old laundry building)
The primary use for this building is now Physiotherapy and linen sort/store.

10 - Store
A basic tin shed used primarily to house medical records.

11 - Morgue
The Morgue is a one room building with an open shed on the western end. It is currently capable of holding two corpses.
12 - Doctor’s residence
Built in 2006 to replace the previous fire damaged Doctor’s residence. This building currently houses nursing staff from the Hospital and it is distanced from the main Hospital buildings but lies on a prominent and busy intersection of the Dawson Highway.

13, 14, 15 - Emergency drop off/visitors parking/staff parking
The external ancillary and access areas are currently utilised as primary parking and access for staff, patients and visitors to the site and facilities.

3.5 Biloela Hospital maintenance issues
Due to the age of the facilities maintenance is an ongoing issue for Biloela Hospital. Following consultations with the Central Queensland Health Service District staff several maintenance issues were raised as detailed below.

3.5.1 Building maintenance
Major maintenance issues are experienced due to the presence of asbestos and the inherent risks due to intervention this may cause and the age of some buildings, notably the District Health Building and the X-Ray Building.

Other maintenance issues have been identified by the Hospital:

- old vinyl floors
- plumbing reticulation - age
- electrical – very little body protection, availability of switchboard components, lack of capacity for any extra services.

3.5.2 Landscape maintenance
The Hospital has reported the expense of water and water restrictions as issues in landscape maintenance.

3.5.3 Normal waste management
Waste disposal is through the local town waste disposal system. The waste contractor collects 240 litre wheeled bins three times a week.

3.5.4 Chemical waste management
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 and white bins for pharmaceuticals.

Clinical and related waste disposal is covered by an outsourced contractor and storage required for one month period. Clinical waste is transported in yellow 240 litre wheelie bins to Rockhampton, clinical waste inclusive of sharps are sent to Townsville for treatment at an autoclave facility with treated waste then become landfill.

For treatment using high temperature incineration, related waste items include pharmaceuticals, body parts, cytotoxic waste and chemical wastes are sent to Brisbane. These are colour coded with use of bins and bags as outlined in Schedule 4 of the Environmental Protection (Waste Management) Regulation 2000.

3.5.5 Insects
Few insect problems are experienced by the Hospital.

Moths are deterred with yellow fluorescent lamps. Some verandas have insect screens. No doors are sealed.
3.5.6 Asbestos
The presence of asbestos is confirmed in a wide range of materials and buildings at Biloela Hospital. Maintenance and larger scale work is hampered by asbestos containing materials.

A survey of the site to identify asbestos was undertaken in 2006 with an asbestos register maintained by the Hospital.

3.6 Biloela Hospital development proposals
The Central Queensland Health Service District advised that there are no major capital works proposals/programs for this site.

3.7 Site constraints
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 and the size of the existing site.

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.

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. 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 and if 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 Central Queensland 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 Biloela Hospital

The current Biloela Hospital provides key healthcare services for the local rural community as set out below in 4.1.1 of this study. The current facilities however suffer from compromised departmental functionality issues including:

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

4.1.1 Current service provision of Biloela Hospital

The Hospital is within the eastern half of Queensland Health’s Central Queensland Health Service District and provides a range of services to the town of Biloela and its rural environs. The services currently provided by Biloela Hospital are listed below.

Hospital

- Medical
- Surgical
- Paediatric
- Obstetric
- Emergency Department
- Palliative Care
- Radiography
- Pharmacy.

Specialist services

- Visiting: Ophthalmologist
- General Surgery
- Obstetric and Gynaecology
- Mental Health
- Drug and Alcohol
- Orthopaedics.

Clinics available

- Dental
- Midwives
- Antenatal Clinic - weekly
- Venesection Clinic - weekly
- Women's health Clinic - twice monthly
- Red Cross Emergency Donor Panel - monthly.
Allied Health services
- Physiotherapy
- Speech and Occupational Therapy
- Social Work.

Outreach services
- Child Health
- Community Health
- Aboriginal Health
- Dental and Allied Health.

Other Aged services
- Long stay and respite residential care.

4.2 Future health services
Biloela is anticipated to provide a core level of services based on the Clinical Services Capability Framework Version 3.0. 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 Biloela Hospital are based on projected activity levels for services at the Hospital, and calculated using endorsed Queensland Health planning benchmarks. Biloela Hospital activity includes all residents accessing services at the Hospital (including those from the Statistical Local Area of Banana).

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. 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 Central Queensland 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 Biloela 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 Biloela Hospital (bed projections)

<table>
<thead>
<tr>
<th>Category A &amp; Bed</th>
<th>Projection 1: Endorsed Occupancy Rate</th>
<th>Projection 2: 70% Occupancy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate 2011/12</td>
<td>2016/17</td>
</tr>
<tr>
<td>A1. Overnight Beds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>medical and surgical (incl. palliative)</td>
<td>85%</td>
<td>9.3</td>
</tr>
<tr>
<td>paediatric</td>
<td>75%</td>
<td>0.8</td>
</tr>
<tr>
<td>maternity</td>
<td>6%</td>
<td>1.7</td>
</tr>
<tr>
<td>mental health - acute</td>
<td>85%</td>
<td>0.6</td>
</tr>
<tr>
<td>sub- and non-acute (SBNM) (included in medical beds)</td>
<td>90%</td>
<td>1.8</td>
</tr>
<tr>
<td>Emergency Department short stay</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ICU/ICU/HDU</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>CCU</td>
<td>0.9</td>
<td>1.0</td>
</tr>
<tr>
<td>total overnight beds</td>
<td>14.5</td>
<td>14.7</td>
</tr>
<tr>
<td>A2. Same Day Beds*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>medical (including obstetrics, paediatrics and oncology / chemotherapy)</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>surgical (including obstetrics and paediatrics surgery)</td>
<td>0.9</td>
<td>1.0</td>
</tr>
<tr>
<td>mental health</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>sub- and non-acute</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>total same day beds</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>A3. Bed Alternatives*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 2 recovery bays (chairs)</td>
<td>0</td>
<td>N/A (to be confirmed by District as this is local data - assume level of activity does not warrant these chairs)</td>
</tr>
<tr>
<td>Ambulatory Day Assessment Unit chairs</td>
<td>- N/A</td>
<td>- N/A</td>
</tr>
<tr>
<td>Chemotherapy chairs / trolleys</td>
<td>0</td>
<td>N/A (no visiting oncologist)</td>
</tr>
<tr>
<td>Renal Dialysis chairs / trolleys (self care) (renal dialysis benchmark currently being finalised TBA)</td>
<td>0</td>
<td>N/A (no visiting oncologist)</td>
</tr>
<tr>
<td>Emergency Department chairs / trolleys (for admitted patients that require a brief period of observation. Not counted in overnight beds and not considered as short stay beds)</td>
<td>Part of ED treatment space numbers – refer category B below</td>
<td>Part of ED treatment space numbers – refer category B below</td>
</tr>
<tr>
<td>total bed alternatives</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals for Category A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total A1 Overnight beds</td>
<td>25</td>
<td>multi-purpose beds</td>
</tr>
<tr>
<td>Total A2 Same day beds</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Total A3 Bed alternatives</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total beds</td>
<td>25</td>
<td>15.7</td>
</tr>
</tbody>
</table>

Source: Queensland Health
### Table 1: Current and future bed requirements for Biloela Hospital (bed projections)

<table>
<thead>
<tr>
<th>Category B: Emergency Department treatment spaces*</th>
<th>Current number</th>
<th>2011/12</th>
<th>2016/17</th>
<th>2021/22</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergency bays (observation areas) for Triage Categories 1–3</strong></td>
<td>No resuscitation bay (monitored beds used in ward) 2 observation/acute care beds</td>
<td>1 resuscitation cubicle with two trolley spaces for Triage Category 1 1 acute cubicle with two trolley spaces for Triage Categories 2–3</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td><strong>Consultation rooms for Triage Categories 4–5 (excludes treatment, plaster and eye rooms)</strong></td>
<td>2</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td><strong>Total emergency treatment spaces</strong></td>
<td>6 treatment spaces</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

| Category C: Operating/Intervention Rooms | |
|----------------------------------------|----------------|---------|---------|---------|
| Using Victorian Benchmarks |  |
| **Medical imaging** | 1 x-ray room 1 ultrasound room 1 processing room | No change | No change | No change |
| **Operating Theatre – major** | 1 major theatre | No change | No change | No change |
| **Operating Theatre – minor** (1900 same day surgical separations per theatre) | 0 (1 may be required if minor surgical needs are expected to increase, or if the District considers there are unmet needs that could be met by the engagement of extra surgeons) | - N/A | - N/A | - N/A |
| **Stage 1 recovery (less than 4 theatres), Requires 2 recovery bays per Operating Theatre** | 1 (currently requires 2) | 2 (increase to 4 recovery bays if a minor Operating Theatre is added) | No change | No change |
| **Treatement procedure rooms/delivery suites** | 1 main delivery suite 1 secondary delivery suite (small) | No change | No change | No change |
| **Maternity / women’s health / gynaecology consultation rooms + antenatal consultation room** | TBC by District 3 consultation rooms 1 child-friendly waiting room 1 multipurpose staff antenatal postnatal education room | No change | No change | No change |
| **Well Baby nursery cots** (1 nursery cot per 3 obstetric beds) | 2 cot spaces + 1 resuscitation bay/cot for back transfers/ low risk/qualiﬁed babies | No change | No change | No change |

| Category D: Consultation/Treatment/Procedure Rooms | |
|--------------------------------------------------|----------------|---------|---------|---------|
| **Multipurpose consultation rooms (ambulatory care), includes specialist and general practice, excludes Emergency Department activity** | - (currently no deﬁned Outpatient Department – old ward area is used) | 5 minimum, to meet demand for visiting specialist OPD clinics | 5 minimum, to meet demand for visiting specialist OPD clinics | 5 minimum, to meet demand for visiting specialist OPD clinics |
| **Allied health areas** | (data not available) | (data not available) | (data not available) | (data not available) |
| **Investigation rooms** | - N/A | - N/A | - N/A | - N/A |
| **Total consultation/treatment/procedure rooms** | 0 | 5 | 5 | 5 |

Data source: allM data using medium series 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 Biloela 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 means 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 Biloela Hospital based on the core set of Emergency Department treatment spaces required.

**Table 2: Emergency Department treatment spaces required at Biloela Hospital**

<table>
<thead>
<tr>
<th>Treatment spaces required for rural and remote hub hospitals</th>
<th>Existing spaces at Biloela Hospital</th>
<th>Needs met?</th>
<th>Current (Total) requirements, based on hub hospital requirements</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 of waiting area (conference room currently used as waiting area)</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>(monitored beds in ward currently used as resuscitation beds)</td>
<td></td>
<td>1 resuscitation space with two trolley spaces for Triage Category 1, with clear view from central staff desk required</td>
</tr>
<tr>
<td>• isolation and decontamination (1 room per 10,000 attendances - to be subtracted from total treatment places)</td>
<td>1 special precautionary room</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>0</td>
<td></td>
<td>1 psychiatric treatment space (could use one consultation room, provided mental health guidelines are met)</td>
</tr>
<tr>
<td>• consult/treatment room</td>
<td>2 consultation rooms used for both ED and CPD</td>
<td></td>
<td>2 multipurpose consultation rooms, to provide sufficient consultation rooms to manage Triage Categories 4–5</td>
</tr>
<tr>
<td>• examination room</td>
<td>1 quiet/grieving room (can also be used as an interview room)</td>
<td></td>
<td>1 quiet/grieving room (can also be used as an interview room)</td>
</tr>
<tr>
<td>• multipurpose room</td>
<td>1 procedural/treatment space required</td>
<td></td>
<td>1 procedural/treatment space required</td>
</tr>
<tr>
<td>• procedure and interview room (with telehealth facilities available)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total emergency treatment spaces</strong> (1 emergency treatment space per 1300 ED presentations (all ages) – allocated from total spaces for CSCF Levels 1–5)</td>
<td>4 (however, current ED spaces are dysfunctional and ward beds are required. There are no treatment rooms)</td>
<td></td>
<td>4* (4,676/1300 ACER ED presentations Triage Categories 1–5. Note: District advises number of presentations is an under-estimate of actual activity) (5 by 2021/22)</td>
</tr>
<tr>
<td>Plaster room</td>
<td>0</td>
<td></td>
<td>1 plaster room</td>
</tr>
<tr>
<td>Paediatric spaces (No requirement for a separate paediatric area until there are &gt; 16,000 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>(combined with outpatient and ward facilities)</td>
<td></td>
<td>As per requirements in the Australasian Health Facilities Guidelines*</td>
</tr>
<tr>
<td>Waiting room chairs (2 seats per patient treatment space)</td>
<td>30 (currently using conference room)</td>
<td></td>
<td>12 waiting room chairs (4 Emergency treatment spaces x 3) (15 required by 2021/22)</td>
</tr>
</tbody>
</table>

Based on CSCF v2.0 Emergency Care Centre requirements
Australian College of Emergency Medicine (ACEM) benchmarks applied
Data source: aHIM 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 Beds definition)

Source: Queensland Health
This page is left intentionally blank.
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 Biloela Hospital.

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 resuscitation facilities, isolation/decontamination room, triage desk, staff station, procedural/treatment room, plaster room and waiting room
- non compliance of observation, acute care bays, consultation rooms and quite/grieving room
- a special precautionary room is utilised for isolation however this is non compliant
- 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 entrance, operating facilities and dedicated emergency entrance.

4.3.2 Inpatient/medical services

Infrastructure deficiencies include:

- no dedicated Paediatric or Mental Health overnight facilities
- non compliance of general overnight beds (used for medical and surgical), maternity ward and maternity beds, 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 required 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
- secondary delivery room non compliant to Australian Health Facility Guidelines 2009
- no consultation rooms currently provided in Maternity department.

4.3.4 Surgical/peri operative

Infrastructure deficiencies include:

- current Operating Theatre non compliant with Australasian Health Facility Guidelines 2009 for space, functionality and associated facilities
- 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:

- no dedicated Pathology Department with facility
- fragmented and inefficient Imaging Department
- Lack of adequate staff living quarters on or close to site.

Further information and key infrastructure gaps refer to Volume 2, Appendix 16 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.
5 Inspection reports

5.1 Method

The site inspection for the Biloela Hospital and Community Health building was conducted on 12 April 2010. It involved the assessment of the structural and civil conditions by Cardno Alexander Browne, the services assessment (hydraulic, electronic, electrical, and mechanical) by Cushway Blackford and Associates, the building surveyor’s assessment by Philip Chun and Associates and the architectural assessment by Woodhead Pty Ltd.

5.2 Exclusions

A visual inspection included all buildings on each site. 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 consultant’s 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 Biloela Hospital.

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 surveyor report

Key issues from the building surveyor report are provided in Volume 2, Appendix 4 of the Preliminary Infrastructure Planning Study for the Biloela Hospital. Items of note include:

- Ensure appropriate levels fire/smoke compartmentation (including fire/smoke doors) are achieved in main Hospital building in accordance with Building Code of Australia 2009 Part C2.5.
- Ensure appropriate levels of fire separation of equipment between main switchboards, batteries and a like (i.e. fire resistance level of 120/120/120) is achieved. Ensure adequate fire separation between single occupant units (Nurses’ quarters) Class 3 buildings, in accordance with Building Code of Australia 2009 Specification C1.1 is achieved.
- Ensure the current dimensions of exits and paths of travels are upgraded to provide compliant widths and heights within the building.
• Handrails/balustrades/ramps/stairway throughout rectified to meet compliance with *Building Code of Australia 2009* Part D.
• Ensure all exit door hardware meets compliance with *Building Code of Australia 2009* Part D2.20/21 provisions to ensure safe escape of occupants (i.e. all exit doors required to be readily openable without a key and by a single downward action).
• Ensure adequate sanitary facilities in particular those for people with disabilities are provided and meet compliance with *Building Code of Australia 2009* and *Australian Standard 1428.1* requirements.
• Fire/smoke alarm detection system upgraded to meet compliance with *Australian Standard 1670.1* specifications.
• A review of the fire safety installations should be undertaken to ensure all systems are being maintained in accordance with *Australian Standard 1851*.
• Signage throughout facility generally does not comply with current standards (i.e. illuminated exit signs, sanitary facilities, fire indicator panel, portable fire extinguishers, fire hose reels, etc).
• 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 the accessible car parking spaces, provision of tactile indicators, Braille and tactile signage and accessible sanitary facilities.
• Ongoing maintenance and rectification works should be undertaken to fire hydrants, fire hose reels and fire extinguishers to ensure compliance with current codes.
• Identification of hazardous material on site (such as asbestos) to be removed by suitably qualified contractors.

5.4.3 Electronic engineer report

Key issues from the electronic engineer report are provided in Volume 2, Appendix 6 of the Preliminary Infrastructure Planning Study for the Biloela Hospital. Items of note include:

- Hospital main data rack is located in the main Hospital building and is relatively new
- Voice/data system has recently been upgraded and is in good condition
- Nurse call system is very old and is in poor condition.

5.5 Building viability

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

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

- Main Hospital building – Ward A – good
- Kitchen – good structurally and in relation to size but facilities upgrade is essential
- Operating Theatre/x-ray – good (minor repairs warranted)
- Ward B – good (minor repairs warranted)
- Oral Health/District Office – poor, replacement essential
- Nurses’ quarters – poor, replacement essential
- Community Health building 1 – good structural condition
- Community Health building 2 – exceeded its useful life span.
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 several of the onsite buildings including the Oral Health building are in
poor condition and replacement of these facilities is essential.

Several key risks were found to be associated with the deterioration of the buildings and site
works. 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.
- Inadequate bed and disabled access to rooms due to door sizes and corridor widths.
- Minimum nursing working zones and room functional dimensions deemed insufficient
  based on current standards.
- Patient rooms lack en-suite facilities and adequate associated amenities.

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 1428.1.
- Smoke and fire doors not evident during Building Code of Australia 2009 survey.
- Fire and smoke detection equipment non compliant to Australian Standard 1670.1

6.1.3 Risk of accidents

The following accident risks are present in the current facility:

- Inadequate emergency escape routes.
- Lack of handrails to entrances and patient areas leading to increased risk of patient
  and visitor falls.
- Inadequate or lack of non slip floor surfaces in patient and staff wet areas.
- Deteriorating and damaged internal building surfaces.

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.
- Small size of patient rooms resulting in increased risk due to compromised minimum
  bed centres that elevate infection control risks between patients, based on evidence
  based design theories.
- 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.
• Lack of patient isolation rooms and or isolation facilities.

6.1.5 Health and safety risks
The following health and safety risks are present in the current facility:
• Deteriorating or damaged internal building surfaces.
• 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 2009 and Australian Standards.

6.1.6 Security risks
The lack of adequate lighting to external areas, entrances and parking are 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 compliment with Australian Standard 1428.1/2 including door sizes, corridor widths and clearance zones to clinical spaces.
• Height of signage non compliment for disabled facility users.
• Lack of tactile surface indicators at building entrances.
• Lack of adequate disabled car parking facilities.

6.1.8 Staff retention and dissatisfaction
The Central Queensland Health Service District reported several issues and concerns leading to difficulty with staff retention and satisfaction including:
• Loss of both current General Practitioners due to retirement in 2010.
• Lack of suitable staff accommodation.
• Unattractive site infrastructure.
7 Options

7.1 Staff accommodation

Queensland Health provides housing to staff who deliver essential services to rural, remote and regional centres. Biloela Hospital currently utilises 13 units of accommodation to provide appropriate, safe and secure housing for rural and remote officers.

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 Biloela 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 14 housing units of accommodation. Housing accommodation for Biloela Hospital includes:

- fourteen new units of accommodation to be built on site which includes replacement of 10 units of accommodation
- demolition of 10 units of accommodation due to poor standard and condition.

The footprint allowance and costing for the additional 14 units (including the replacement of substandard accommodation) has been based on accepted standards for Queensland Health staff housing as recently constructed at Roma Hospital refer to Volume 2, Appendix 15 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

Fourteen additional accommodation units containing a total of 20 beds in the following configuration.

- six x 2 bedroom units (queen sized self contained units) providing 12 bedrooms
- eight x 1 bedroom (queen size with en-suite) with shared facilities providing eight bedrooms
- or equivalent
7.2 Option 1 – Status Quo (minimum requirements)

7.2.1 Scope of this option

The Status Quo option does not resolve the Level 3 service requirements or full compliance of the facility to current standards. It does improve the infrastructure that allows the current service to be provided. The removal of asbestos in Wards A and B will generate a major disruption to the internal works and also has an impact on the cost.

Compliance with standards will be sought but not fully achieved, especially in relation to Australasian Health Facility Guidelines 2009 and access and egress.

The main feature for this option is that it incorporates a new build component as a necessary response to the very poor condition of the three buildings on site and the Community Health building in town. These are the staff accommodation, laundry/Physiotherapy and Oral Health buildings.

This option also provides a new Emergency Department in order to address the lack of suitable facilities for one of the main areas of demand.

Minor works are required within the current Emergency Department which is proposed to be used as administration offices. To prolong the effective life of the existing Operating Theatres some minor works are proposed, but full compliance with requirements for 2026 and beyond and would not be achieved without expanding the current footprint. The main wards and kitchen will be updated where possible to match current regulations but full compliance will not be achieved. Staff and visitor parking will be provided along the main road spine across the site.

This option should only be considered as a short term strategy.

Main points within Option 1:

- Nurses’ quarters are replaced by new facilities on the east of the site creating an urban front to the streetscape and allowing for separation between services and residential areas.
- Theatre building is updated to expand the lifespan of the fabric. In doing so, the area is not increased and thus the service is not compliant with Australasian Health Facility Guidelines 2009 in number of components, relationships and area.
- The current Emergency Department zone within Ward A is refurbished to accommodate administration areas.
- Community Health Services is moved to site. These are grouped with Oral Health (existing building demolished due to poor condition) and Allied Health.
- A modern block at the end of Ward B replaces physiotherapy and the laundry rooms. Their position as well as Emergency Department allows the project to grow gradually to match Option 2 and Option 2+ if desired.
- Main access points where non compliant, are updated in order to comply with current regulations. The internal corridors and door widths cannot be updated because of the implications in cost and disruption.
- Ward A beds will not be updated to match current Australasian Health Facility Guidelines 2009, nor will the main Theatres.
- A new Emergency Department block will comply with the Level 3 requirements plus will provide for a suitable entrance/access for ambulance. A parking area for ambulances is provided as well as a canopy.
- Current visitor parking to be re-labelled as staff parking while current staff parking to be remodelled to become the visitor’s car parking alongside the central road spine.
- Doctor’s residence to stay as is in this option.
- There is little to no disruption to operations due to work on site.

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**

Compliance will only be pursued in the Emergency Department in this option. This implies, as per the Schedule of Accommodation, a total area increase of 413m². To achieve this, a new access road and parking for ambulances will need to be provided.

The remaining services will not comply with the target Level 3 service plan as described in 4.2 Future Health Services of this report.

**Compliance with Australasian Health Facility Guidelines 2009**

Compliance with *Australasian Health Facility Guidelines 2009* components (i.e. elements of a unit), room activity spaces and areas have been identified in the Appendices via a Schedule of Accommodation of existing accommodation and representative plans provided in Volume 2, Appendix 11 of the Preliminary Infrastructure Planning Study for the Biloela Hospital. The upgrade of services to meet current *Australasian 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 Operating Theatre suite. These will not and cannot be addressed in Option 1.

**Existing condition**

Existing condition of buildings means that the following buildings can no longer provide adequate facilities for a healthcare facility and must be replaced:

- Nurses’ quarters
- Physiotherapy/stores building
- Oral Health building, although it is deemed to be in a fair condition it has exceeded its economic life and replacement is recommended.
- Community Health building deemed to be in poor condition. This elevated timber building is at the end of its useful life. Need for the services to be located on site plus the current condition of building fabric 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 (Volume 2, Appendix 4 of the Preliminary Infrastructure Planning Study for the Biloela Hospital).

**Fire resistance and stability**

- No fire or smoke compartments indentified within the main buildings. This cannot be addressed without major intervention.
- Kitchen exceeds 30m² and as needs to be separated by a 60/60/60 compartmentation. This will not be pursued in Option 1.
- Generator and battery room require a 120/120/120 fire rated construction and fire rated and self closing doors. This issue must be resolved within Option 1.

**Access and egress:**

- Exit paths that are non compliant in the Oral Health building as well as in the stairs from the dock area and the Nurses’ quarters. These will be addressed in this Option 1, the dock area by demolition and the Nurses’ quarters by replacement. The compliance of the Oral Health building depends on the action on the overall building.
Door widths:
- In the Community Building (front entrance and rear offices) will be addressed by replacing the building on site.
- Doors at main building will not be able to be replaced unless major works occur. This is not feasible unless the asbestos is removed.
- Doors in the Physiotherapy and Nurses’ accommodation which are non compliant will be removed and replaced due to the demolition of the existing facilities.

Compliance with Australasia Health Facility Guidelines 2009:
- The main building corridors, although suitable for fire exit, they are not compliant from a healthcare planning point of view. No action can be taken in this case to replace the 1.8m corridor to a 2.2m wide corridor in Ward A where the main patient activity occurs. If this action were to be considered, major works to the internal layout are required. Not addressed in Option 1

Access to plant rooms:
- The ladder to the plant room in the central courtyard is non compliant. Replacement of this will achieve compliance. Action to be taken within this option. In doing so, the ladder will be provided with a handrail in Option 1.

Construction of exits:
- All electrical cupboards in corridors to be provided with smoke seals.
- Risers and goings in all external stairs of access are inconsistent with Part D of the Building Code of Australia. No action will be taken in this option regarding this. Landings to patient stairs are to be addressed. The balustrade to the rear stair and landing of the main building also needs to be replaced. All items not addressed in Option 1.

Access to buildings:
- The main building entrance needs to be redesigned to achieve compliance. Entrances to the Community Services building, Dental building and Nurses’ quarters will be demolished, thus compliance and remedial works not required.
- Disability access compliance will be achieved by modifying the entrances as detailed in point (Volume 2, Appendix 4 of the Preliminary Infrastructure Planning Study for the Biloela Hospital). The emergency ramp will be accomplished by complete redesign of the department and location.

Disabled facilities:
- Disabled toilets, currently used as storage space, will be vacated and reinstated as facilities for disabled visitors in Option 1.
- Signage and tactile indicators will be incorporated in accordance with Australian Standard 1428.21

Services and equipment:
- Fire hydrants do not cover the extent of the building. Upgrade required. Fire hose reels also need upgrade to comply with Australian Standard 1670.1.
- The smoke detection alarm is non compliant and will be brought up to standards in Option 1.

General exit lighting:
Will be rectified to ensure it is illuminated at all times and type of signage upgraded to comply with Australian Standard 2293.1 in Option 1.
Sanitary provision:
Provision does not comply with *Australian Standard* 1428.1 but this issue will not be addressed in Option 1.

Kitchen:
Cold rooms to kitchen areas to be upgraded to prevent risk of contamination for patients and staff.

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 cannot be considered in Option 1. Alternative power sources are not included in this Option 1.

Asbestos:
A decision whether to remove the asbestos from site is required. The recommendation in Option 1 is to address the issue and remove. The implications are the temporary decanting of services, patients and associated costs.

No structural upgrade:
No upgrade is considered in this option. The buildings with critical life span are to be demolished.

Surfaces to wet areas:
Surfaces to wet areas, both for staff and patients, is to be upgraded to non-slip surface materials in Option 1.

Infection control:
Infection control risks will need to be addressed in Option 1 with a limited scope. Compliance with *Australasian 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 and will not be addressed in Option 1.

Signage:
Improved wayfinding is required to improve patient flows and diminish stress in the patient experience of the service. This will be addressed in Option 1.

Staff accommodation:
Accommodation to be demolished and replaced by units recommended in the Schedule of Accommodation provided in Volume 2, Appendix 11 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

Community Health building:
This building is to be moved to the Hospital 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.

7.2.2 Capital cost
Option 1 costs are based on the upgrading of existing building fabric and services and provision of new facilities to house Emergency Department and Allied and Community Health to allow for the continued provision of healthcare service. Category 2 cost estimates based of the aforementioned and including consultant fees and contingency allow for an estimated cost of $15.245 million.
7.2.3 Whole-of-life costs

Option 1 will address all key infrastructure issues and all works undertaken will improve the current facility. However, Option 1 continues to utilise the majority of the existing aged assets with minimal refurbishment. It can be expected that the running and maintenance costs of the current facilities will continue to increase into the future.

7.2.4 Advantages

The key advantage to the Status Quo option includes:

- Lower capital cost
- New build emergency department facilities
- New site access
- Integrated community health

7.2.5 Disadvantages

The key disadvantages to the Status Quo option includes:

- non compliance to Australasian Health Facility Guidelines 2009, Disability Discrimination Act 1992 (Commonwealth) and Building Code of Australia 2009 standards
- condition of current facilities
- presence of asbestos within ceilings, floors and walls and associated risks
- inadequate staff accommodation
- fragmented Hospital services
- inadequate interdepartmental functional relationships.
Diagram 2: Biloela Hospital Option 1 existing condition

Existing Site
Existing Condition
scale: 1-1000
Option 1
Proposed "status quo"

Key

- Dental/Admin demolished
- Nurses' quarters demolished
- Physio/L² demolished
- ED
- Community Health on site
- Allied Health on site
- Dental with Lab
- Plant-Store
- Laundry
- Physiotherapy
- Staff Accommodation
- Refurbishment to Admin area
- Upgrade to building fabric as per reports
7.3 Option 2 – Refurbishment or expansion at existing site

7.3.1 Scope of this option

This Option further addresses current risks and delivery of Level 3 services as expressed in the Queensland Health infrastructure renewal Service Profile for Biloela Hospital. In order to do so there is a significant percentage of new build. The removal of asbestos in the main ward buildings is required in order to proceed with refurbishment.

Option 2 addresses the main concerns related to wayfinding (access to site and entrance point to the Hospital) with a strategy also integrating new Emergency, Outpatient and Imaging Departments as well as strengthening the route across the site.

Wards A and B will be re-developed to achieve standards and increase their planned lifespan to a further 15 to 20 years. Ward A building is to be re-used for administration, further extending its current occupation, while Ward B will be redesigned to house all required bed numbers with a minimum aim for 70% single beds according to current best practice standards and guidelines.

The Operating Theatres will be replaced with a new facility providing the increase in the size required for the department to meet future demand. In doing so, it will be fully compliant with AHFG guidelines and include a Central Sterile Services Department facility.

The Community Health, Dental and Allied Health share one envelope and are co-located within the site. The Community Health component is brought into the site from its current town location. Options for the disposal of the existing Community Health site in town will need to be investigated. This will concentrate services and provide new improved facilities for this service.

New staff accommodation is, as in Option 1, developed to match requirements due to the poor condition of the current facility. The new build recreates the courtyard and linear approach currently on site and is developed in one storey.

The expansion area is shown in the attached drawings in Volume 1, Diagram 4 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

The Option 2+ presented shows the possibility of carrying this option in a sequence/staged approach arriving to a fully new built solution without having to dispose of the full value of this solution at once. The staging not only allows meeting the current predictions but also allows for expansion and flexibility in the use of the building fabric for future demand.

Both of these Option 2 variations allows for an area for future development or expansion as requested during consultation period.

Main points within Option 2:

- New staff accommodation provided to suit the needs presented on the east corner of the site. This has been achieved by using the proposed templates of prefabricated units. The ones used are thee units of six bedrooms and two units of two bedrooms. Their alignment creates an urban front to the streetscape while allowing for separation between services and staff accommodation areas.
- All buildings, except the main two Ward buildings A and B, are replaced by new construction, enabling a greater concentration of the services while accounting for segregation of flows.
- Car parking areas for staff and visitors are developed alongside the central road spine.
Ward B will be used as administration and upgraded to suit current regulations, although the external fabric will not comply with current Part J of the Building Code of Australia 2009.

Asbestos will be removed from Wards A and B. This will require significant disruption to these buildings and a decanting strategy.

The Theatres' building is refurbished to accommodate the laundry and stores while the Theatres are moved to a new block. The size of the demand in the proposed Schedule of Accommodation exceeds the existing departmental space provision. Refer to the Schedule of Accommodation in Volume 2, Appendix 11 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

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 and maintain a close relationship to the wards as requested by Hospital staff during consultation.

The kitchen is enhanced and the laundry is incorporated within the main body of the proposal, with the potential for external vehicular access.

The Morgue is relocated and has vehicular access off the main road spine.

Staging and decanting of this option is achievable without major disruption to the existing services. The main issue is around removal of asbestos.

Compliance with current regulation is significant due to the amount of new build and removal of most clinical elements from the main existing building.

Pathology is included within the refurbishment of Ward A.

A covered walkway connects the kitchen to Ward A.

External outdoor accessible areas are provided to main departments to allow landscaped areas to become intrinsic with the design and respond to evidence based design, thinking and research.

A stores building with vehicular access is also provided.

Future expansion areas are identified within the site.

### 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 Biloela Hospital. Option 2 provides approximately 1535m$^2$ of refurbishment of existing fabric and 5975m$^2$ of new build fabric. Category 2 cost estimates based of the aforementioned areas and including furniture, fittings and equipment, consultant fees and contingency allow for an estimated cost of $59.450 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 interdepartmental functional relationships.
- Expanded Hospital services to meet future demand.
- Removal of asbestos.
- Future expansion zones identified – allowance for evolution of infrastructure to replace all current services and meet future demands.
- New staff accommodation in close proximity to township and urban centre.

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.
This page is left intentionally blank.
7.4 Option 3 – significant redevelopment

7.4.1 Scope of this option

This alternative allows for a completely compliant new build to be developed on site. The advantage of this version is minimum disruption to ongoing services during construction and a seamless decanting as shown in the stages drawing in Diagram 7 of the Preliminary Infrastructure Planning Study for the Biloela Hospital.

In addition to full compliance with current standards the potential for in-built flexibility to the design to absorb change and demand must be considered. User interface and consultation to achieve the maximum clinical efficiency while achieving an improved performance must be sought in order to provide the best possible facility.

The main entrance and car parking are re-located in order to maximize flexibility in the numbers of car parking spaces and provide a wayfinding spine across the site. The staff accommodation, as per previous options, is located towards the north corner of the site with plenty of options for expansion.

Once the main building is completed demolition of the existing fabric will allow for a further expansion area that will enable future proofing of the site.

A separate access for services and a clear identification of the main entrance and ambulance/Emergency Department entrance is one of the main advantages of this option.

Main points within Option 3:

- New facility.
- Full compliance with current regulations and Australasian Health Facility Guidelines 2009.
- Possibility to define the adjacencies and relationships in between the different departments to suit needs and Models of Care.
- Opportunity to revisit and update Models of Care that can influence an innovative building/physical solution.
- Opportunity to incorporate evidence based design principles to the design.
- Efficiency and improved performance of systems that allow for a responsible take on energy consumption/production, sustainable issues and energy production.
- The central road spine proposed over the existing one divides the current buildings from the new built area creating zones that can be used to ease any disturbance during construction.
- The staff accommodation is provided in similar fashion to Option 2.
- Parking for staff and visitors is provided.
- A drop off area by the main entrance is provided.
- The ambulance entrance is free from physical barriers and there is an adjacent area for ambulances clearly identifiable.
- The building is developed around two courtyards that provide not only daylight to a narrow plan design but also a relationship with landscape.
- Concentration of services (e.g. laundry, kitchen, etc) 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.
- Services can be accessed independently without disturbing the flow of patients and staff (e.g. kitchen, stores, Morgue, etc).
- Rehab/Allied Health and Community Health can have, as shown in the Option 3 drawing, an independent access.
- The expansion area is not only where the existing buildings are currently located once they are demolished, but at the north west corner of the site as well.
- The staff accommodation has the potential of expansion as presented.

7.4.2 Capital cost

Option 3 costs are based on the provision of new build facilities to meet the future service requirements of Biloela Hospital. Option 3 provides approximately 7510m² of new build fabric. Category 2 cost estimates based of the aforementioned areas and including furniture, fittings and equipment, consultant fees and contingency allow for an estimated cost of $62.900 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.

Option 3 incorporates significant new build components. This option would effectively 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.
- Improved site access.

7.4.5 Disadvantages

- Option 3 is the most costly solution.
## 8 Options analysis

### Table 3: Option 1 analysis

<table>
<thead>
<tr>
<th>Option features</th>
<th>• Existing site and infrastructure conditions 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>• Improved Emergency Department functions</td>
</tr>
<tr>
<td>Risks</td>
<td>• Departmental functional inadequacies</td>
</tr>
<tr>
<td></td>
<td>• Reduced clinical functionality</td>
</tr>
<tr>
<td></td>
<td>• Staff morale / recruitment and retention</td>
</tr>
<tr>
<td></td>
<td>• Inadequate site way finding</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>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 $15,245,000</td>
</tr>
</tbody>
</table>

### Table 4: Option 2 analysis

<table>
<thead>
<tr>
<th>Option features</th>
<th>• Reuse and adaption of current facilities / infrastructure</th>
</tr>
</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>Assumptions</td>
<td>• Asbestos removal</td>
</tr>
<tr>
<td>Criticality</td>
<td>• Construction phasing due to asbestos removal</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 $59,450,000</td>
</tr>
</tbody>
</table>
Table 5: Option 3 analysis

| Option features                  | • New facilities on eastern side of site  
<table>
<thead>
<tr>
<th></th>
<th>• New site layout</th>
</tr>
</thead>
</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 |
| Risks                            | • Cost of providing new facilities    |
| Assumptions                      | • Staged construction – phased development to lower single stage cost |
| Criticality                      | • N/A                                  |
| Resource implications            | • New staff accommodation              |
|                                  | • Improved staff morale / recruitment and retention |
| Cost                             | • Overall indicative cost of Option 3 $62,900,000 |

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>
</tr>
</thead>
<tbody>
<tr>
<td>Bicela</td>
<td>Front of house reception</td>
<td>100.1</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>ED / OPD</td>
<td>413.4</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Inpatient / Medical Services</td>
<td>746.8</td>
<td>Refurb</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>maternity</td>
<td>395.2</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Surgical</td>
<td>405</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Peri Oprative</td>
<td>180.9</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>CSSD</td>
<td>123.2</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Rehab Allied Health</td>
<td>312.5</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Pathology</td>
<td>118.75</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Mediocl Imaging</td>
<td>215.8</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Pharmacy</td>
<td>153.75</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Mortuary</td>
<td>96.25</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Kitchen</td>
<td>96.25</td>
<td>Refurb</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Staff Accom Shared</td>
<td>133.75</td>
<td>Refurb</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Shared Accom</td>
<td>208.75</td>
<td>Refurb</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Staff Accm</td>
<td>1545</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Community Health</td>
<td>375</td>
<td>New Build</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>External Accommodation</td>
<td>770</td>
<td>50R/50N</td>
<td>New Build</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td>1118.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Area</td>
<td>7507.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Acronyms and abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GST</td>
<td>Goods and Services Tax</td>
</tr>
<tr>
<td>PABX</td>
<td>Private Automatic Branch Exchange</td>
</tr>
<tr>
<td>U of A</td>
<td>Units of Accommodation</td>
</tr>
<tr>
<td>MSRPP</td>
<td>Medical Superintendents with Right of Private Practice</td>
</tr>
</tbody>
</table>