About this Study

The Preliminary Infrastructure Planning Study for Charters Towers Hospital was commissioned by Queensland Health through the Project Services Department of Public Works on 24 March 2010. This study investigates future infrastructure for Charters Towers Hospital based on the options endorsed by Queensland Health’s Integrated Policy and Planning Executive Committee on March 2010.

This Preliminary Infrastructure Planning Study was undertaken from 24 May 2010 to 30 June 2010 and was prepared by GHD and sub-consultants under the direction of Queensland Health’s Planning and Coordination Branch. Every effort has been made by GHD and sub-consultants to investigate and document in sufficient detail—and within the timeframe—the infrastructure issues, gaps and requirements for Queensland Health in relation to Charters Towers Hospital’s future service provision.

Assumptions

The study has been prepared on the basis of available information both written and verbal that was provided prior to, during and post the site assessments. Information included:

Service profile information provided by Queensland Health. The study has been informed by:

- Hub and Spoke Definition Paper - March 2010
- Charters Towers Hospital Service Profile - May 2010
- Charters Towers Hospital’s registers and data including but not limited to – Asbestos Registers, Asset Registers, OH&S Registers, Incident forms, Maintenance Registers
- Verbal feedback from hospital staff and management teams during site assessments.
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1. Executive Summary

This study has been prepared in order to provide Policy, Planning and Asset Services in Queensland Health a summary of the key infrastructure issues and their impact (if any) on service delivery at Charters Towers Hospital. Information on the hospital will cover infrastructure actual and potential risks, general condition, functionality, and service profile requirements. Information contained in this study is to be used as a guide to assist key decision makers with the determination of prioritisation for infrastructure renewal at this site.

The infrastructure assessment involved the onsite assessment of all nominated structures (as determined by Queensland Health and documented in the Terms of Reference paper dated May 2010), the interviewing of key hospital and district staff and the reviewing of relevant documentation as it was made available. Considerations such as, existing staffing models and the recruitment and retention of staff were considered when formulating options. This study does not reflect on funding models, the adequacy of supply of medical equipment or supplies, or the systems and processes implemented for health service delivery. Further, where infrastructure and resulting operational risks were identified, GHD did not investigate mitigation strategies deployed or planned to manage risk impact.

The GHD team of consultants included a Clinical Health Planner, Architect, Mechanical and Electrical Engineer, Civil and Hydraulic Engineer, Structural Engineer, Building Certifier and a Quantity Surveyor. Analysis of the collective findings from each discipline formed the basis of the Option Analysis for Charters Towers Hospital. Options were discussed and developed in consultation with Queensland Health Policy, Planning and Asset Services and district hospital staff. Options have been developed to mitigate or reduce actual or potential infrastructure risks and to facilitate functional relationships between service departments in order to meet service profile obligations.

Charters Towers Hospital is a 25 bed facility that has been constructed in various stages over a 100 year period. The age of the buildings reflect their out-dated designs, layouts and general condition. Generally, buildings on this campus do not comply with building code requirements causing a number of concerns around fire safety, security, infection control, disability access and occupational health and safety.

Option 1: ‘Status Quo’ addresses the risks around security, fire and infection control. Option 1 addresses the actual or potential serious risk issues, and non-compliance to relevant building codes, Acts and/or Legislation. It does not address the overall operational functionality of the campus or the general condition and/or defects of the internal environment. Option 1 does not enable the existing infrastructure to comply with the Australasian Health Facility Guidelines. Cost estimations for Option 1 total $10 million.

Option 2: ‘Refurbishment’ is an extensive refurbishment of the most ‘at risk’ infrastructure being the Administration and Ward Blocks. The refurbishment will address risks identified in Option 1 as well as a number of the operational deficiencies throughout the campus. Option 2 involves the infilling between the Administration Block and Ward Block. Refurbishments include the extension of the existing Emergency, Outpatient, Pharmacy, and X-ray departments. It will include the building of a new endoscopy theatre, two maternity delivery suites, and will refurbish existing ward area to include an isolation room and a secure room for ‘at risk’ or aggressive patients. A fully operational kitchen would also be provided in this option. Primary Health services and Dental Services would be accommodated in a new building adjacent to the existing Primary Health building. Option 2 would ensure compliance with Australasian Health Facility Guidelines throughout the refurbished departments on campus. Cost estimations for Option 2 total $44 million.

Option 3 is a full rebuild of the entire hospital campus on the Greenfield land adjacent to the existing infrastructure of the Eventide Nursing Home. There are a number of options to consider for the placement of Primary Health Services which include:
Primary Health Services make use of the existing unused ward and clinical consulting areas on original hospital site in Gill Street.

Primary Health Services make use of the existing unused ward and clinical consulting areas located within the Eventide Nursing Home grounds.

Primary Health Services are moved into a purpose built facility co-located to the new hospital building.

In planning a way forward to address the issues identified at Charters Towers Hospital, consideration should be given to the sound condition and historic value of existing structures and the close proximity to the town centre. Cost estimations for Option 3 total $87 million.

For all options presented, critical consideration is given to the mitigation of actual or potential risks and the non-compliance to Building Codes, Legislation and Best Practice Guidelines. There are varying degrees of advantages and disadvantages with all Option strategies, however, only Options 2 and 3 addresses functional arrangements within departments in order to positively impact on operational efficiency and staffing models.

Staff accommodation is considered and costed separately to the refurbishment of the existing hospital infrastructure; however, it is discussed in line with the Options. It is proposed that the additional accommodation be constructed on the Greenfield land as detailed in the Concept Drawings. Information on the number and type (one or two bedrooms) of dwellings has been provided by Queensland Health’s Planning and Coordination Branch. Cost estimates for additional accommodation to the Charters Towers campus total $8 million.

Conclusions reached on the basis of this study should recognise the limitations inherent in such a study, including the limited field inspection time and the basic design analysis completed. Any funding decisions using the order of costs expressed in this study should include for an appropriate contingency given the level of detail informing those estimates.
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

Charters Towers Hospital is located approximately 137 kilometers from The Townsville Hospital located in Townsville Health Service District. Four Statistical Local Areas fall within the Charters Towers Hospital catchment area, being Charters Towers, Dalrymple, Flinders and Richmond (Queensland Health, Planning and Coordination Branch, Policy Planning and Asset Services, Charters Towers Draft Service Profile, 2010: 8).

Figure 1 Townsville Health Service District (Charters Towers Service Profile, 2010)

Map source: Queensland Health, Planning and Coordination Branch, Policy Planning and Asset Services, Charters Towers Draft Service Profile, 2010: 8

The resident population is projected to increase slightly by three per cent by 2026 but shows significant percentage increases for the 70+ age group (104.2 per cent) (1472). Projections indicate that by 2026 the area with the largest growth will be within the Dalrymple (28.7%). The following table details projected population growth for Statistical Local Areas for the Charters Towers Hospital (Queensland Health, Planning and Coordination Branch, Policy Planning and Asset Services, Charters Towers Draft Service Profile, 2010: 8).
**Table 1: Charters Towers catchment projected population 2008 to 2026**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>3562</td>
<td>3216</td>
<td>2968</td>
<td>2783</td>
<td>2783</td>
<td>-21.9%</td>
</tr>
<tr>
<td>15-44</td>
<td>5874</td>
<td>5544</td>
<td>5250</td>
<td>5019</td>
<td>4822</td>
<td>-17.9%</td>
</tr>
<tr>
<td>45-69</td>
<td>4472</td>
<td>4823</td>
<td>5159</td>
<td>5307</td>
<td>5292</td>
<td>18.3%</td>
</tr>
<tr>
<td>70+</td>
<td>1412</td>
<td>1554</td>
<td>1937</td>
<td>2405</td>
<td>2884</td>
<td>104.2%</td>
</tr>
<tr>
<td>Total</td>
<td>15,320</td>
<td>15,137</td>
<td>15,314</td>
<td>15,514</td>
<td>15,781</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

Table source: Queensland Health, Planning and Coordination Branch, Policy Planning and Asset Services, Charters Towers Draft Service Profile, 2010: 8.

### 3.2 Charters Towers Hospital Site

Charters Towers Hospital is located on a 29 hectare block approximately 600 metres from the centre of town. It is framed by four streets, Mary, Boundary, High and Gill; site access is via Gill and Mary Streets. A large portion of the block is currently utilised for the existing campus. Four hectares of Greenfield land remains available for development.

**Figure 2 Charters Towers Hospital Site**

The entrance of the hospital is via the Administration Block that fronts Gill Street. It contains the Emergency Department, Outpatients Department, Dental Department, X-ray Department and Medical Records. The general wards, Operating Theatre, and Maternity departments are located behind in the Ward Block. The Primary Health Centre is located adjacent to the Ward Block.
3.3 Charters Towers Hospital Building History

The Charters Towers hospital was built over a period of time to meet the increasing needs of the district. The buildings are well-maintained and a number of the buildings hold significant heritage value, in particular the original Morgue and Isolation (tent) Ward. The current Ward Block was built in 1943 to accommodate main hospital functions. In 1947 the Administration Block was constructed adjacent (but separate to) the Ward Block. Original function for this building is unclear; however, today the area accommodates Emergency, Outpatient, Pharmacy, X-ray, Medical Records and Dental Departments. Over recent years minor refurbishments have been undertaken to the Operating Theatre, Emergency Department, Dental and General ward areas to improve the operational efficiency of health service delivery.

3.4 Existing Built Environment

The following site map details the existing infrastructure on the Charters Towers Hospital campus.

Figure 3 Charters Towers Existing Site Infrastructure

3.5 Charters Towers Hospital Maintenance Issues

The ongoing maintenance concerns reported by staff include:
3.6 **Charters Towers Hospital Development Proposals**

Upgrade of the communication systems is currently in progress.

3.7 **Site Constraints**

There are a number of site constraints that require consideration when analysing a way forward for the Charters Towers Hospital site. These include:

- The age, layout and condition of internal finishes of the buildings are considered to be poor and as such refurbishment would be extensive and would not necessarily address all of the issues associated with the current site.
- Disability access to and within the site is inadequate and requires extensive reconfiguration to address access concerns.
- Compliance to the Australasian Health Facilities Guidelines, building and fire codes is inadequate across the site and requires refurbishment to bring to required standard.

3.7.1 **Heritage issues**

After searching the National and State Heritage Registers it was found that there are no buildings on the Charters Towers Hospital campus site that are listed on the either of the registers. However, staff report that the Tent Ward and original Morgue had significant heritage value.

3.7.2 **Town planning / Designation Issues**

After searching the Department of Infrastructure and Planning’s community infrastructure database it was found that Charters Towers Hospital is not designated for community infrastructure. Proposals for development or redevelopment on this site will require Town Planning advice to consider if a ‘Material Change of Use’ is occurring as a result of the proposed development. Fees for these investigations would apply. If a ‘Material Change of Use’ is considered to be occurring planning approval through a Development Application to the local authority may be required. Alternatively the sites can be designated for Community Infrastructure or in the case of staff accommodation can proceed through the public housing exemption process under Chapter 9 of the Sustainable Planning Act 2009, (Information ‘Kit’ for the Infrastructure Renewal Project For Rural and Remote Projects, Project Services (IRPRRA)).
4. Charters Towers Hospital Health Service

4.1 Design and Functionality of Current Facility

Charters Towers Hospital was constructed in various stages over a 100 year period. The campus expanded to accommodate the health service requirements for the district. Buildings were designed fit for their purpose at the time of their construction, however, overtime original functions of many of the buildings have ceased and buildings adapted for alternate use. It is commonly found across the campus that building structures, designs and layouts no longer meet present functions or service requirements causing a number of building code non-compliances, operational inefficiencies and functional relationship issues. The current infrastructure does not meet the requirements of the Australasian Health Facilities Guidelines. Operational inefficiencies are detailed in Section 4.3, however, it is to be noted that across all departments the general condition of internal finishes, the condition of services, and the disability access is considered to be poor.
4.2 Future Health Services

Information on current and future bed requirements has been determined by Queensland Health’s Policy Planning and Asset Services and is summarised in the tables below (Charters Towers Service Profile 2010).

Note that the count of beds for admitted care in Table 2 does not include Category B Emergency Department treatment spaces, which are used either predominantly or exclusively for non-admitted patients.

The following table shows current and future bed requirements for Charters Towers Hospital. They are categorised according to definitions in the Review of the More Beds for Hospital Strategy including overnight beds (medical/surgical beds, maternity and paediatric beds), same day beds and bed alternatives (Attachment C). Two sets of projections are shown:

1. At Queensland Health endorsed state-wide bed planning occupancy rates
2. At 70 per cent 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 2: Current and future bed requirements for Charters Towers Hospital (Bed projections)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A: Beds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1. Overnight Beds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overnight beds including:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• medical and surgical (incl. palliative)</td>
<td>25</td>
<td>85%</td>
<td>15.0</td>
<td>16.9</td>
<td>19.2</td>
<td>70%</td>
<td>18.2</td>
</tr>
<tr>
<td>• paediatric</td>
<td>0</td>
<td>75%</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>70%</td>
<td>0.4</td>
</tr>
<tr>
<td>• maternity</td>
<td>0</td>
<td>75%</td>
<td>0.6</td>
<td>0.5</td>
<td>0.5</td>
<td>70%</td>
<td>0.6</td>
</tr>
<tr>
<td>• mental health - acute</td>
<td>0</td>
<td>75%</td>
<td>0.6</td>
<td>0.7</td>
<td>0.7</td>
<td>70%</td>
<td>0.7</td>
</tr>
<tr>
<td>• sub- and non-acute (GEM) (included in medical beds)</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>• Emergency Department short stay</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>• ICU/ICU/HDU</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>• CCU</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>• neonatal (NICU/SCN)</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>• mental health - non-acute</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Total overnight beds</td>
<td>25 multi-purpose beds</td>
<td>16.6</td>
<td>18.5</td>
<td>20.7</td>
<td>19.9</td>
<td>22.3</td>
<td>25.1</td>
</tr>
<tr>
<td>A2. Same Day Beds*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same day beds including:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• medical (including obstetrics, paediatrics and oncology/chemotherapy)</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• surgical (including obstetrics and paediatrics surgery)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• mental health</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• sub- and non-acute</td>
<td>-</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total same day beds</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.2</td>
<td>1.4</td>
</tr>
</tbody>
</table>
### Projection 1: Endorsed Occupancy Rate

<table>
<thead>
<tr>
<th>Item</th>
<th>Current</th>
<th>Projection 1: Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2011/12</td>
</tr>
<tr>
<td>A3. Bed Alternatives*</td>
<td></td>
<td>X minimum to meet demand for day surgery lists TBC by District</td>
</tr>
<tr>
<td>Antenatal Day Assessment Unit chairs</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Chemotherapy chairs/trolleys</td>
<td>0</td>
<td>chairs (no visiting oncologist)</td>
</tr>
<tr>
<td>Renal Dialysis chairs/trolleys (self care)</td>
<td>0</td>
<td>(currently 0 activity)</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 – see category B below.</td>
</tr>
</tbody>
</table>

### Totals for Category A

<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>Total A1 Overnight beds</td>
<td>25</td>
<td>multi-purpose beds</td>
<td>16.6</td>
<td>18.5</td>
</tr>
<tr>
<td>Total A2 Same day beds</td>
<td>7</td>
<td></td>
<td>1.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Total A3 Bed alternatives</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total beds</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2 continued: Current and future bed requirements for Charters Towers Hospital

<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>Category B: Emergency Department treatment spaces*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Emergency bays (observation areas) for Triage Categories 1–3</td>
<td>1 resuscitation room with two trolley spaces</td>
<td>1 resuscitation cubicle with two trolley spaces for Triage Category 1</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>• Consultation rooms for Triage Categories 4–5 (excludes treatment, plaster and eye rooms)</td>
<td>2 consultation rooms used for both ED and Outpatients</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Total emergency treatment spaces</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

**Category C: Operating/Intervention Rooms**

**using Victorian Benchmarks**

<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>Medical imaging</td>
<td></td>
<td>1 x-ray room</td>
<td>1 x-ray room</td>
<td>No change</td>
</tr>
<tr>
<td>Operating Theatre – major (1100 overnight surgical separations per theatre)</td>
<td></td>
<td>1 major theatre</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Item</td>
<td>Current number</td>
<td>2011/12</td>
<td>2016/17</td>
<td>2021/22</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Operating Theatre – minor (1900 same day surgical separations per theatre)</td>
<td>0 (a space is currently used for endoscopies, but it is not a theatre)</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Stage 1 recovery (less than 4 theatres), Requires 2 recovery bays per Operating Theatre</td>
<td>2 recovery bays</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Treatment procedure rooms/delivery suites (250 births per room &lt; 300 separations) + antenatal consultation room</td>
<td>2 delivery suites (dysfunctional in size and layout, located separate to other maternity services)</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Maternity/women’s health/gynaecology consultation rooms + antenatal consultation room</td>
<td>2 consultation rooms (located with Community and Child Health)</td>
<td>3 consultation rooms 1 child-friendly waiting room 1 multipurpose staff/antenatal/postnatal education room</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>Well Baby nursery cots (1 nursery cot per 3 obstetric beds)</td>
<td>0</td>
<td>2 cot spaces + 1 resuscitation bay/cot for back transfers/low risk qualified babies</td>
<td>No change</td>
<td>No change</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>2 consultation rooms used for both ED and Outpatient activity</td>
<td>7 (based on current Outpatient activity)</td>
<td>No change</td>
<td>No change</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><strong>Total consultation/treatment/procedure rooms</strong></td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>
4.3 Infrastructure Gaps

The following information summarises the functionality of each of the departments and highlights the deficiencies that contribute to the inefficiency of the department. The ‘non-compliance’, ‘lack of’ or ‘inadequate provision’ statements are in reference to one or more of the following: Australasian Health Facility Guidelines | Building Codes of Australia | Schedule of Australian and New Zealand Standards | Infection Control Best Practice Guidelines | Medical Records – Management and Disposal Guidelines | Fire Act | Occupational Health and Safety Act | The Privacy Act 1988 | The Drug and Poisons Act 1981 | Disability Discrimination Act (Commonwealth). For further information refer to Function Table in Volume 2.

4.3.1.1 Department - Emergency
- Inadequate provision of security for staff – no CCTV, no surveillance
- Inadequate provision of security for medical equipment
- Inadequate provision of security for medical records
- Lack of storage
- Inadequate provision for patient observation
- Inadequate disability access
- Lack of privacy
- Lack of consulting rooms
- Obstruction of corridors from equipment or medical supplies
- Overcrowding of work areas
- Poor ambulance access
- Inadequate provision of a nurse call system
- Inadequate supply of medical gases to treatment beds
- Inadequate number of power outlets
- Poor access to other departments

4.3.1.2 Department - Outpatients
- Inadequate provision of security for staff – no CCTV, no surveillance
- Inadequate provision of security for medical equipment
- Inadequate provision of security for security medical records
- Lack of storage
- Inadequate disability access
- Lack of available consulting rooms
- Insufficient air conditioning
- Inadequate earth leakage protection
- Inadequate nurse call system
- Inadequate number of power outlets
- Compromised infection control – no provision of an isolation room
- Inadequate patient waiting area

4.3.1.3 Department – Medical Records (Primary Storage)
- Inadequate flooring material for strength and deflection
- Insufficient storage
- Overcrowding of work area
4.3.1.4 Department – Medical Records (Secondary Storage)
• Inadequate provision of fire detectors
• Area not fire separated
• Lack of storage

4.3.1.5 Department – Front of House (entrance)
• Inadequate disability access
• Lack of seating for visitors or patients
• Toilet amenities inadequate – no disability access
• Inadequate provision of security for staff – no CCTV, no surveillance

4.3.1.6 Department – Endoscopy Theatre
• No purpose built Endoscopy Theatre
• Inadequate patient waiting area – pre operative
• Lack of storage
• Lack of privacy
• No private receiving area in theatre

4.3.1.7 Department – X-ray
• Overcrowding of work areas
• Lack of storage
• Heavy X-ray door – difficult for staff to use

4.3.1.8 Department – Dental
• Overcrowding of work areas
• Lack of storage

4.3.1.9 Department – Operating Theatre
• Inadequate layout of department
• Lack of storage
• Lack of privacy – receiving patients
• Compromised infection control
• Inadequate office space
• Overcrowding CSD department – no sterile storage in department
• Inadequate patient waiting area – pre operative
• No receiving area for patients
• Obstruction of corridors
• Inadequate nurse call system

4.3.1.10 Department – Maternity
• Overcrowding of work areas
• Lack of storage
• Lack of privacy
• Separated from Operating Theatre
• Inconsistent nurse call system
• Separated from maternity rooms in main ward area

4.3.1.11 Department – General Wards
• Inadequate provision of security for staff – no CCTV, no surveillance
- Security for medical equipment – inadequate
- Security medical records – inadequate
- Lack of storage
- Inadequate provision for patient observation
- Inadequate disability access
- Infection control – no provision of an isolation room
- Lack of privacy
- Obstruction of corridors
- Overcrowding of work areas
- Inadequate nurse station for staff – not secure
- Inadequate bathrooms
- Inadequate nurse call system
- Inadequate fire detectors
- Insufficient supply of medical gases to treatment beds
- Inadequate air conditioning to wards
- No visitor toilet on medical ward

4.3.1.12 Department – Primary Health Services
- Overcrowding of work areas
- Inadequate provision of privacy
- Inadequate work stations
- Lack of storage
- Inadequate disability access
- Inadequate provision of security for staff – no CCTV, no surveillance
- Security for medical equipment – inadequate
- Security medical records – inadequate
- Building does not meet codes for fire safety

4.3.1.13 Department – Administration
- Inadequate storage
- Inadequate office space
- Overcrowding of work areas
- Insufficient air conditioning
- Inadequate power outlets
- Inadequate provision of security for staff – no CCTV, no surveillance
- Lack of security for records

4.3.1.14 Department – Pharmacy
- Overcrowding of work areas
- Inadequate storage
- Inadequate layout of space
- Inadequate provision of security for staff – no CCTV, no surveillance
- Inadequate power for computers
5. Inspection Studies

5.1 Method

The campus assessment of Charters Towers Hospital was undertaken on the 20 April 2010. An entry meeting was conducted with local and district staff prior to the assessment of the site and infrastructure. A site orientation tour was conducted with local and district health managers followed by a detailed inspection of each area within every building. Hospital staff were questioned on service issues related to their work area. Feedback to key district and site personnel on the team’s findings was provided in the exit meetings held prior to departure of the hospital.

The GHD team of consultants covered the areas of Clinical Health Planning, Architecture, Mechanical Engineering, Electrical Engineering, Civil Engineering, Structural Engineering, Hydraulic Engineering, Building Certification and Quantity Surveying.

Analysis of the collective findings from each discipline formed the basis of the Option Analysis for Charters Towers Hospital. Options were discussed with key personnel from Project Services, Queensland Health Policy, Planning and Asset Services, hospital managers and onsite managers for client and stakeholder input. Options have been developed to mitigate or reduce actual or potential infrastructural risks and to facilitate functional relationships between service departments in order to meet service profile obligations.

5.2 Exclusions

- Auditing and inspections were only sufficient for a general overview and impression of the hospital, facilities, departments and individual areas, supported by general discussions with staff.
- No in depth testing or analysis of the design and functionality, materials and finishes, medical flows, drawings and site plans, compliance and impression of findings.
- No removal of linings and ceiling tiles, access hatches, furniture, storage items to obtain behind impressions.
- Inspection sufficient for a general overview of site and building services condition only.
- No testing of services or materials was undertaken.
- No linings were removed or buried services excavated during the inspection. Only existing visible services were examined.
- Elevated services (e.g. contained within ceiling spaces) were only inspected from ground level or other safe vantage points.
- No calculations or design were undertaken to verify capacities, equipment sizing, etc.
- No interruption of the system operation was undertaken for the inspection. All items were inspected while working in their normal operation.

5.3 Overlap

Overlap in issues identified by GHD primarily pertained to the areas of fire safety, infection control, disability access and occupational health and safety. The overlap of issues have been recognised and accounted for in the cost for rectification.
5.4 **Current Site and Infrastructure Condition**

Charters Towers Hospital is made up of a number of structures that vary in age and that were constructed over a 100 year period. The buildings and services are well-maintained; however, functional arrangements of service departments are compromised due to out-dated layout and configuration of the original structures. During the site visit the GHD team identified a number of issues in the existing infrastructure that are impacting on the health and safety of staff, patients, and visitors and that impact on the operational flow of health service delivery. The main issues identified are detailed below.

5.4.1.1 **Clinical**
- Compromised operational flow for the delivery of medical and clinical services in the Emergency department, medical and surgical wards is due to:
  - the layout of existing structures and separation of departments
  - the lack of disability access across the hospital campus
  - the deficiency in storage areas - inadequate storage across all service areas within Charters Towers Hospital leading to risks in safety of staff and to breaches of legislation. Areas compromised for storage space include Medical Records (primary and secondary storage), General Wards, Pharmacy, Operating Theatre and the Emergency Department.
- Inadequate security provision for staff, in particular, after hours.
- Inadequate provision of privacy to patients and staff.
- Compromised ability to maintain effective infection control practices.

5.4.1.2 **Architectural**
- The hospital was developed with little master planning which has led to a number of inefficiencies and wastage of site. This has resulted in lack of disability access and fire egress of various departments and their individual areas.
- The condition of internal finishes is generally poor. This includes flooring materials, condition and integrity of walls and ceilings surfaces, doors, bathrooms amenities etc.
- The circulation around the hospital compromises staff work flows, pedestrian access and egress, vehicle access, car parking and security.
- Many of the departments are in excess of 40 years old and some areas contain asbestos. The presence of asbestos throughout the campus will hinder future refurbishments.

5.4.1.3 **Structural**
- Capacity of timber floors may be lacking in the Medical Records Department.

5.4.1.4 **Mechanical**
- Inadequate air conditioning is provided in some key areas such as offices and consulting rooms.
- Generally the filtrations of the air-conditioning systems are of poor quality.

5.4.1.5 **Electrical and Communications**
- Lack of adequate power supply due to the age and inadequacy of the main switchboard.
- Potential for loss of electronic information in the Pharmacy Department (the computer terminal not being connected to essential power circuit).
5.4.1.6 **Hydraulics**
- Tap ware and associated services are in average to poor condition and generally lack maintenance. No Queensland Health recommended water saving (flow restrictors) devices are fitted.
- Fire hoses are well past the recommended effective life date.
- Corrosion of copper water services presents an ongoing maintenance issue.

5.4.1.7 **Building Certification**
- Numerous fire separation issues are prevalent within the hospital infrastructure.
- Generally dimensions of exits do not comply with relevant standards.
- Some exit doors have incorrect door hardware, are kept locked and are unable to be opened in an emergency.
- Disabled access to the buildings is generally poor, and not in accordance with relevant building codes and standards.
6. Current Risks

6.1 Building Life

The buildings that make up the Charters Towers Hospital campus are considered to be structurally sound. However, the hospital buildings fail to meet the requirements of the Australasian Health Facility Guidelines or service profile requirements due to their age and the physical separation of essential services and departments. A number of the existing buildings are not designed to carry out their current functions and as such are presenting a number of building code non-compliances as well as health and safety, fire, security and infection control risks.

The GHD team identified a number of extreme, high and medium rated risks using the AS/NZ 4360 Risk Management Framework (refer to Volume 2). Risks are directly related to the condition of the services and existing infrastructure and include:

- **Compromised Patient Care** - issues compromising overall patient care include:
  - poor layout of existing departments
  - lack of disability access
  - inadequate provision of suitable storage areas for medical equipment and supplies
  - inadequate security for staff, patients and visitors, equipment and medical records
  - inadequate provision of privacy
  - compromised ability to maintain effective infection control practices (lack of isolation rooms and poor condition of general surfaces).

- **Fire Risks** – across the hospital campus there are numerous fire separation issues in the existing infrastructure. Generally dimensions of exits do not comply with relevant standards, and overall, disability access is non-compliant to building code requirements.

- **Risk of Accidents** – staff, patients and visitors are at risk of sustaining an injury as a result of an accident due to one or more of the following:
  - poor disability access
  - inadequate provision of suitable storage areas for medical equipment and supplies
  - inadequate security for staff
  - poor configuration of existing departments
  - overcrowding of work areas.

- **Infection Risks** – best practice in infection control is compromised due to:
  - lack of correctly configured isolation rooms (as per AHFG) - Emergency Department and General Ward
  - inadequate provision of toilet amenities for public use in the General Ward
  - overall poor condition of internal surfaces.

- **Security Risks** – staff, patients, visitors and medical equipment are exposed to security risks due to:
  - inadequate provision of security and monitored surveillance systems across the site (including staff car parking areas)
  - lack of secure storage for medical records and for medical equipment
  - lack of secure double barrier entry to the main entrance and Emergency Department (after hours is most at risk).

- **Health and Safety Risks** – health and safety risks are present due to:
– poor disability access
– inadequate provision of suitable storage areas for medical equipment and supplies
– inadequate security for staff
– the poor configuration of existing departments
– overcrowding of work areas.

• **Disadvantage to Persons with Disability** – non compliances to building codes and standards in relation to disability access include:
  – inadequate configuration of toilet amenities
  – inadequate access within and outside the campus
  – inadequate dimensions of corridors and exits
  – inadequate provision of car parking areas suitable for disabled persons.

• **Staff, Patient and Visitor Dissatisfaction** – factors contributing to staff, patients’ and visitors’ dissatisfaction include:
  – overcrowding of staff work areas and patient waiting areas
  – inadequate configuration of the service departments (in particular: Emergency Department, Outpatients Department, Medical Ward, Medical Records, Maternity Ward and the Primary Health Centre)
  – inadequate provision of security for staff; patients, visitors and equipment
  – inadequate provision of safe and secure parking areas
  – poor disability access across the site.

• **Excessive Running Costs** – ongoing repair and maintenance costs are directly related to the age of the existing infrastructure and related services.

• **Failure of Building Services Systems** – mechanical and electrical (for example, electrical systems and nurse call systems) services are inadequate and are impacting on staff and patient safety in terms of the provision of a secure and safe environment.

• **Legal Action Risks** – potential risk of personal injury and/or adverse medical condition to staff, patients or visitors related to:
  – poor arrangement of departments and overcrowding of work areas
  – poor disability access
  – inadequate provision of security
  – lack of privacy.

Further details on the issues contributing to the identified risks are contained in Volume 2 – Building Life Risk.
7. Options

7.1 Staff Accommodation

Queensland Health provides housing to staff who deliver essential services to rural, remote and regional centres. Charters Towers Hospital currently utilises 25 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 Charters Towers 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 (Option 1 through to 3) detailed below include the provision of an additional 21 units of accommodation.

The footprint allowance and costing for the additional 21 units (including the replacement of substandard accommodation) has been based on accepted standards for Queensland Health staff housing (recently constructed at Roma). Cost estimates for additional accommodation total $8 million.

The staff accommodation has been reviewed with a total provision of 2,000m² of accommodation and broad order of costs of $8 million if coinciding with the construction of the hospital to utilise any benefits of having Tier 1 contractor on-site to build this accommodation.

7.2 Option 1 – Status Quo

7.2.1 Scope of this Option

The Charters Towers Hospital is well-maintained and structurally sound; however, the site proposes much operational inefficiency due to the layout and functional arrangement of various departments. The following is recommended to mitigate the identified risks and to improve operational flow of health service delivery. This Option also provides for the provision of a kitchen in the existing infrastructure to service the Hospital’s catering requirements.

7.2.2 Area of concern - Compromised Patient Care Related to Infrastructure Inefficiencies

- Install CCTV cameras into the resuscitation room of the Emergency Department - CCTV is also to be provided in the waiting areas, entry doors and corridors from the waiting areas.
- Provide storage cupboards to the resuscitation room.
- Provide storage areas for medical equipment and remove all equipment stored in corridors.
- Provide private area for medical/clinical staff to sit and write in medical charts (possibly in triage room).
- Review to widen covered ambulance drop-off area.
- Provide sound proofing to the maternity suites. The maternity delivery suites are not sound proof and are adjacent not only to the preparation and waiting area for patients going to theatre but to other health clinic services.
- Relocate the waiting area for patients seeking after hours emergency care to foyer (entry) area of general ward. This would require reconfiguration of the layout in this area. Consideration for patient observation needs to be taken into account.
- Provide an isolation room (with ensuite) in the general ward.
• Provide storage areas for equipment in the Operating Theatre.
• Review the location of the maternity delivery suites. The area is not building code compliant for fire separation.
• Reconfigure the Operating Theatre to provide a private area for receiving patients.
• Reconfigure the Operating Theatre to provide an endoscopy theatre.
• Increase storage areas across the hospital. There are inadequate storage areas for equipment and medical supplies.
• Provide air-conditioning services to the sterile stock storage room adjacent to CSD.

7.2.3 Area of Concern - Primary Health Care Centre

• Refurbish and reconfigure the building to expand waiting room areas. There is inadequate waiting room area to accommodate patient flow.
• Reconfigure layout of services in the Primary Health Care centre. There is inadequate provision of private consulting rooms, administrative areas and storage areas causing overcrowding of work spaces and inefficiencies in work flow.
• Reconfigure internal layout to provide private areas for undertaking sensitive consultations. There is compromised patient privacy and confidentiality due to the open office plan layout in some of the community service offices.

7.2.4 Area of Concern - Fire Risk

• Upgrade the fire panels and fire detection system. These are of the non-addressable type and are recommended to be upgraded to addressable type.
• Upgrade of some of the detectors as many are from the original installation.
• Upgrade and appropriately locate the fire hose reels. Location of fire hose reels is non-compliant.
• Replace fire hoses for nurses quarters and main ward block.
• Install more fire hydrants.
• Service the main switchboard.
• Upgrade the electrical cupboards. Electrical cupboards switchboards etc are to have non-combustible linings fitted to the inside face of the doors and smoke seals.
• Specific to Eventide kitchen – correct the Fire Evacuation Plan - some ambiguity with regards to direction to exits in the kitchen facility. Provide fire extinguishers as per code requirements.
• Refit the exit door in the Primary Health Care Building to ensure it opens in the direction of egress.
• Provide fire separation to birthing suites.
• Review and upgrade the duplex units used for staff accommodation. There appears to be no fire separation to the ceilings between the staff duplex units.

7.2.5 Area of Concern - Disadvantage to Persons with a Disability

• Provide onsite disability car parking areas/access to the hospital.
• Refurbish toilet disabled toilet amenities in order to comply with standards (Disabled facilities are incorrectly configured and circulation spaces, grab rails and controls are incorrect).
• Install inward opening doors to disable facilities with lift-off hinges.
• Install Braille/tactile signage to toilets, lifts or other accessible areas. Way-finding for people with vision impairments is non-existent.
• Install tactile ground surface indicators at changes of slope, stairs or ramps.
7.2.6 Area of Concern - Security Risks
- Provide security surveillance and monitoring to external entries/exits/car parks etc.
- Review and upgrade the duress alarm system to ensure the personal safety of staff.

7.2.7 Area of Concern - Health and Safety Risks
- Install a pendant with gas and suction outlets as well as electrical power outlets into the Operating Theatre.

7.2.8 Area of Concern - Failure of Building Services Systems
- Upgrade nurse call bell system. The nurses call system is the original system and is not reliable.
- Install additional fuel storage. The emergency power system has only sufficient fuel for 12 hours of operation.
- Rewire the emergency lights and illuminated Exit lights to individual circuits in the Ward Block.
- Upgrade the medical air and vacuum systems (it is currently programmed to be implemented in 2011).
- Upgrade of the systems to provide sufficient oxygen and suction outlets.
- Repair and/or replace the Main Switchboard.
- Upgrade all computers in the pharmacy department so they are on the essential power.
Figure 4 – Option 1

1. INSTALL CITY CANSITTE INTO REGISTRATIONS ROOM. EMERGENCY DEPARTMENT, WAITING AREAS, ENTRY DOORS & CORRIDORS.
   AREA = 595m²

2. PROVIDE PRIVATE AREA FOR MEDICAL, CLINICAL STAFF TO SIT IN (CLINICAL or MEDICAL NOTES IN THE TRADE ROOM).
   AREA = 5m²

3. WIDEN COVERED AMBULANCE DROP-OFF AREA TO ACCOMMODATE TWO AMBULANCE BAYS, PARTIALLY DEMOLISH EXISTING RAMPS AND CONSTRUCT A NEW EFFECTIVE AMBULANCE DROP-OFF AREA.
   AMBULANCE AREA = 155m²
   ROAD AREA = 550m²

4. PROVIDE SOUNDS PROOFING TO BIRTHING SUITES TO ELIMINATE NOISE OF BIRTHING COMING FROM THE SUITES.
   AREA = 55m²

5. INSTALL THE WAITING AREA FOR PATIENTS SEEKING AFTER-HOURS EMERGENCY CARE TO FAVOR ENTRY AREA OF GENERAL WARDS.
   CONSTRUCT A NEW GLASS ENTRY Foyer WITH HIGH RAMPS AND STEP ACCESS.
   AREA = 85m²

6. EXTEND AND UPGRADE EXISTING KITCHEN AREA TO COMPLY WITH CURRENT STANDARDS, INSTALL NEW FURNITURE AND FITTINGS INCLUDING COOL AND FREEZER ROOMS.
   AREA = 340m²
7.2.9 **Capital Cost**
The immediate concerns for the Hospital as noted in Option 1 have been costed individually to arrive at a broad order of costs totalling $10 million plus $8 million for staff accommodation. This estimate of costs takes into account provision for staging and decanting (due to the disruptive nature of refurbishments on an operational hospital), furniture, fittings and equipment. A detailed breakdown is included in the appendix.

7.2.10 **Whole of Life Costs**
Option 1 does not address the recurrent or maintenance aspects of the hospital. The typical age of the existing facility determines that significant costs would be required to re-engineer the building and services into usable functioning facility. Many of the building structures are over 50 years old and while the maintenance has been kept up-to-date, the demands on the buildings to meet the models of care compromise its ability to achieve efficient recurrent costs. It must be noted that in comparison to other regional hospitals, the Charters Towers site has been maintained and for another function (council, community etc) these buildings would service the township for another two to three decades.

7.2.11 **Advantages**
The advantages of this option are that the serious risks identified in the assessment of the campus would be mitigated and/or reduced to a safe level. It is the lowest capital cost option.

7.2.12 **Disadvantages**
The disadvantages of Option 1 are that the option does not address the operational flow issues or the inefficiencies in the functional arrangements of the departments. It does not alleviate staff dissatisfaction with overcrowded work areas nor will it address the ongoing maintenance issues associated with ongoing deterioration of existing structures. Option 1 does not allow for cost effective staffing models nor does it address non-compliance to the Australasian Health Facilities Guidelines.

7.3 **Option 2 – Refurbishment or Expansion at Existing Site**

7.3.1 **Scope of this Option**
*Option 2* includes a refurbishment of the most ‘at risk’ infrastructure concentrating on addressing the risks identified in Option 1 as well as a number of the operational deficiencies throughout the campus.

It is proposed that the following refurbishment be undertaken:

- Infill building between Administration Block (currently holding Emergency, Outpatients, X-ray, Pharmacy, Medical Records and Dental services) and the Ward Block to join to the general ward and theatre building. This would include:
  - Extension of the existing theatre to include an endoscopy theatre, a patient receivable and anaesthetic preparation room, a pre operative waiting area, and increased storage areas for sterile stock and general medical equipment and supplies.
  - Provide two maternity delivery suites adjacent to Operating Theatres.
  - Refurbish the general ward to increase storage areas for medical equipment and supplies, to provide a secure nurse station, to provide an isolation room, to provide code compliant bathroom amenities for patient use, to provide code compliant toilet amenities for visitor use, to provide a secure room for managing patients with challenging behaviours, to provide two extra offices for local and district management use.
  - Expand emergency department to create a functional layout between the triage room, resuscitation room and patient waiting area, and to provide a clinical nurse station.
Expand outpatients department to increase patient waiting area, to provide two additional consulting rooms (one being an isolation room), and to provide a plaster room with appropriate exhaust/ventilation services.

Create a new medical records area that accommodates existing and secondary storage requirements.

Extend pharmacy to increase space and to improve the layout and security of the department.

- Refurbish the Level 1 existing maternity suites and pre operative waiting area to create office and clinical areas for Primary Health Services. Refurbish the toilet amenities for patients and staff.
- Refurbish the Primary Health Building (including addressing the issues identified in Option 1) to create functional spaces for service delivery and to increase storage space across the department.
- Construct a fully equipped kitchen to service the catering requirements of the hospital.
Figure 5 – Option 2
7.3.2 Capital Cost

Option 2 costings comprise both refurbishing the existing hospital facilities and providing a new primary health centre. Option 2 does not include any of costs in Option 1. This option provides approximately 4,300m² of new and refurbished facility within the existing hospital site plus a new Primary Health Centre of 2,400m². The broad order of costs for this option totals $44 million. Approximately 50 percent of this cost is the new primary health centre. This estimate of costs takes into account provision for staging, decanting, furniture, fittings and equipment. A detailed breakdown is included in the appendix.

The location and factors affecting construction of this size facility in Charters Towers has been taken into account. A review of local suppliers and manufacturers in the area has been undertaken, and while some local trades are available, it is envisaged a Tier 1 contractor and similarly sized subcontractors from Townsville (120 mins drive) would be required to deliver a project of this significance. Charters Towers, despite being close to a major city, faces the challenge of obtaining skilled labour due to local mining operations and the growth in Townsville construction works.

7.3.3 Whole of Life Costs

The new facility should be designed with Green Star developments at the time of construction and it would be anticipated the all new facility would produce significant efficiencies in recurrent costings and ongoing capital expenditure. The weather in regional locations of Far North Queensland would require diligent investigations to contend with humidity, high rainfall, wind (cyclones), heat and availability of skilled maintenance personnel in regional locations.

7.3.4 Advantages

**Option 2** will address the departments that are most ‘at risk’ and compromised by the existing infrastructure. It will reduce risks to staff, patients and visitors and will increase general efficiency throughout the departments (Emergency and Outpatient Departments, Pharmacy, Medical Records, Maternity Delivery Suites, Operating Theatre, Medical Ward and Primary Health Services). It will have a positive impact on staff and patients’ safety and satisfaction levels. It will allow for cost effective staffing models, and will ensure compliance with Australasian Health Facilities Guidelines. It is expected that services will be able to be continued out of the departments through planned decanting and prioritisation and scheduling of building works. Option 2 is considered a reasonable strategy due to the sound condition of existing structures, the accessible location of the hospital to the community, and the historical value of the campus.

7.3.5 Disadvantages

**Option 2** will not resolve a number of building code non-compliances, identified infrastructure risks and functional inefficiencies across the departments. It does not address the ongoing maintenance issues associated with deterioration of existing structures (for example cracking in rendered brick walls). There will be impact on the departments (due to decanting and noise) during the refurbishment.
7.4 Option 3 – Significant Redevelopment

7.4.1 Scope of this Option

Option 3 is a full or staged rebuild of the entire hospital campus on the available Greenfield land adjacent to the Eventide Nursing Home. It is proposed that the existing unused wards and clinical areas be refurbished and used for selected Primary Health services. Hospitality services would be provided by the Eventide Nursing Home (Catering and Laundry services). The provision of a helipad is also included in this option.

This option would require extensive community and district consultation for appropriateness of the location for the new hospital and for the appropriateness of the change-of-use of the existing hospital buildings.

There are a number of Options for the existing Charters Towers hospital buildings that include:

- Refurbish buildings for Primary Health Services.
- Refurbish buildings and lease to private medical consulting clinics and associated health services.
- Refurbish buildings and lease for the potential functions of administration, conference or training rooms.
- Sell off site – to reduce ongoing capital expenditure for maintenance and repair of buildings.

Staff accommodation is to be considered separately to the refurbishment of the existing hospital infrastructure. It is proposed that the accommodation be constructed on the Greenfield land as detailed in the Concept Drawing for Option 3.
Figure 7 - Option 3 Charters Towers Option for Existing and Proposed Sites
7.4.2 Capital Cost

Option 3 provides for an all new facility, constructed on the current greenfield site adjacent Eventide Nursing Home providing approximately 9,900m$^2$ of new facility. The broad order of costs for this option is $87 million. This estimate of costs takes into account provision for construction in regional area, staging, decanting, furniture, fittings and equipment. A detailed breakdown is included in the appendix.

The location and factors affecting construction of this size facility in a regional location such as Charters Towers has been taken into account. A review of local suppliers and of the skilled labour force in the area has been undertaken, and apart from typical concrete, steel and roofing suppliers, all other materials would be freighted onto site. It would be expected that most of the labour would be supplied from Townsville. A Tier 1 contractor would be required to deliver a project of this significance.

The staff accommodation has been reviewed with a total provision of 2,000m$^2$ of accommodation and broad order of costs of $8 million if coinciding with the construction of the hospital to utilise any benefits of having Tier 1 contractor on-site to build this accommodation.

7.4.3 Whole of Life Costs

The new facility should be designed with Green Star developments at the time of construction and it would be anticipated the all new facility would produce significant efficiencies in recurrent costings and ongoing capital expenditure. The weather in regional locations of Far North Queensland would require diligent investigations to contend with humidity, high rainfall, wind (cyclones), heat and availability of skilled maintenance personnel in regional locations.

7.4.4 Advantages

Option 3 will provide for better management the hospital’s ongoing operating expenditure through reducing energy, staffing, and maintenance requirements. It will improve the overall efficiency and safety of health service delivery to the Charters Towers and surrounding Statistical Local Areas and will be a positive influence in attracting medical staff to the region. This option also utilises structurally sound unused built environments avoiding wastage in resources and reducing unnecessary capital expenditure.

7.4.5 Disadvantages

The location of the proposed hospital is 1.2 kilometres from the town centre, which may impact on ease of access for some community and staff members. The construction phase may have some negative impact on nursing home staff and residents in terms of noise and vehicular movement. There is a significant increase in capital expenditure in undertaking Option 3.
### 8. Options Analysis

**Table 3: Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option features</strong></td>
<td>Undertake refurbishments to mitigate actual and potential risks associated with infrastructure at Charters Towers Hospital.</td>
<td>Undertake refurbishments to mitigate risks and to improve functionality of the ‘at risk’ departments.</td>
<td>Rebuild of entire hospital campus Greenfield land located at the Eventide Nursing Home site.</td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>To mitigate actual and potential risks associated with infrastructure at Charters Towers Hospital.</td>
<td>To mitigate risks and to improve service delivery out of the most ‘at risk’ departments in Charters Towers Hospital.</td>
<td>The existing hospital’s layout and design does not meet the requirements of Australasian Health Facilities Guidelines, causing a number of inefficiencies and risks across the departments.</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td>Staff, visitor and patient safety around the Fire, Occupational Health &amp; Safety, Infection Control, and Disability Access risks.</td>
<td>Staff, visitor and patient safety, improved functional arrangements of ‘at risk’ departments – the refurbished infrastructure will comply with Australasian Health Facility Guidelines.</td>
<td>To provide better management the hospital’s ongoing operating expenditure through reducing energy, staffing, and maintenance requirements. New build will ensure compliance to Australasian Health Facilities Guidelines, building codes and legislation.</td>
</tr>
<tr>
<td><strong>Risks</strong></td>
<td>This option does not address ongoing expenditure for maintenance of failing infrastructure nor does it address the functional arrangements of the departments. Existing Infrastructure is does not comply with the Australasian Health Facility Guidelines.</td>
<td>Disruption to service delivery due to decanting of departments during refurbishment. This option does not address ongoing expenditure for maintenance of aged infrastructure.</td>
<td>High capital investment and will require significant upfront financial commitment. Existing hospital infrastructure may become redundant and as such a potential financial burden in ongoing maintenance and repair costs. New hospital location is 1.2 kilometres from the town centre.</td>
</tr>
<tr>
<td><strong>Assumptions</strong></td>
<td>Critical – in order to comply with building codes, to maintain effective infection control, to provide disability access, to provide a safe environment for staff, patients and visitors.</td>
<td>Existing Infrastructure is does not comply with the Australasian Health Facility Guidelines.</td>
<td>Existing Infrastructure is does not comply with the Australasian Health Facility Guidelines.</td>
</tr>
<tr>
<td><strong>Criticality</strong></td>
<td>Moderate capital investment.</td>
<td>Critical – in order to comply with building codes and Australasian Health Facility Guidelines, to maintain effective infection control, to provide disability access, to provide a safe environment for staff, patients and visitors.</td>
<td>Critical – in order to comply with building codes and Australasian Health Facility Guidelines, to maintain effective infection control, to provide disability access, to provide a safe environment for staff, patients and visitors.</td>
</tr>
<tr>
<td><strong>Resource implications</strong></td>
<td>To mitigate actual and potential risks associated with infrastructure at Charters Towers Hospital. Capital Investment - $10 million</td>
<td>Capital Investment - $44 million</td>
<td>Capital Investment - $87 million</td>
</tr>
<tr>
<td></td>
<td>Staff Accommodation - $8 million</td>
<td>Staff Accommodation - $8 million</td>
<td>Staff Accommodation - $8 million</td>
</tr>
<tr>
<td><strong>Total Resource Implications</strong></td>
<td>$18 million</td>
<td>$52 million</td>
<td>$95 million</td>
</tr>
</tbody>
</table>
9. **Acronyms and Abbreviations**

Throughout this study various terms, definitions and abbreviations are used in relation to findings and are contained in the following list:

- **CSD** – Central Sterilising Department
- **CCTV** – Closed Circuit Television
- **AHFG** – Australasian Health Facility Guidelines
- **SSO** – Switch Socket Outlets
- **HEPA** – High Efficiency Particle Filter
- **BCA** – Building Codes of Australia
- **MATV** – Multiple Access Television