ARMY PRESENCE IN SOUTH AUSTRALIA

‘MAINTAINING THE MOMENTUM’
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As the ‘Defence State’, South Australia has demonstrated a strong commitment to providing the right environment for service men and women and their families and assisting the Australian Defence Force with its plans to further develop presence and activity in the State.

This report looks specifically at Australian Army presence, which has had a distinguished association with South Australia, recently reinforced by the highly successful move of the 7th Battalion Royal Australian Regiment battle group of the 1st Brigade to ‘Horseshoe Barracks’ on the Defence ‘Super Base’ at RAAF Base Edinburgh in the Edinburgh Defence Precinct.

In addition, Defence is currently finalising the expansion and development of the Cultana Training Area which will provide one of the largest year-round training areas suitable for armoured, cavalry and mechanised manoeuvre and the operation of specialist capabilities such as Unmanned Aerial Vehicles and Armed Reconnaissance Helicopters.

To build on this success to date, the South Australian Government commissioned me to undertake a study into the ‘Retention and Attraction of Army Units and Activity in South Australia’ to identify further opportunities and additional support that could be provided by the State.

My intention was to examine what makes South Australia a suitable location for the Australian Army, review the factors which influence Army in considering an additional presence in the State, present options for increasing Army presence and make practical recommendations for the prioritisation of those moves.

It gives me great pleasure to present this report.

Stuart Ellis, AM

Director
Leading by Example Pty Ltd
23rd April 2012
M1A1 Abrams Main Battle Tanks from the 1st Armoured Regiment move through the Cultana Training Area, South Australia as part of battle group activities during Exercise Southern Reach in 2007.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACR</td>
<td>Armoured Cavalry Regiment</td>
</tr>
<tr>
<td>ADF</td>
<td>Australian Defence Force</td>
</tr>
<tr>
<td>ADFADS</td>
<td>ADF Air Defence System</td>
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<tr>
<td>AFV</td>
<td>Armoured Fighting Vehicle</td>
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<tr>
<td>AOSG</td>
<td>Aerospace Operational Support Group</td>
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<tr>
<td>APC</td>
<td>Armoured Personnel Carrier</td>
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<td>ARH</td>
<td>Armed Reconnaissance Helicopter</td>
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<td>ASLV</td>
<td>Australian Light Armoured Vehicle</td>
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<td>AWD</td>
<td>Air Warfare Destroyer</td>
</tr>
<tr>
<td>BFTA</td>
<td>Bradshaw Field Training Area</td>
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<tr>
<td>CAFS</td>
<td>Combined Arms Fighting System</td>
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<tr>
<td>C-RAM</td>
<td>Counter Rocket, Artillery and Mortar</td>
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<tr>
<td>CS&amp;ISTAR</td>
<td>Command Support and Intelligence, Surveillance, Target Acquisition and Reconnaissance</td>
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<tr>
<td>CTA</td>
<td>Close Training Area</td>
</tr>
<tr>
<td>CUTA</td>
<td>Cultana Training Area</td>
</tr>
<tr>
<td>DMO</td>
<td>Defence Materiel Organisation</td>
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<tr>
<td>DSTO</td>
<td>Defence Science and Technology Organisation</td>
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<tr>
<td>EDP</td>
<td>Edinburgh Defence Precinct</td>
</tr>
<tr>
<td>EEP</td>
<td>Enhanced Equipment Pool</td>
</tr>
<tr>
<td>EW</td>
<td>Electronic Warfare</td>
</tr>
<tr>
<td>Horseshoe Barracks</td>
<td>the Army Barracks at Edinburgh</td>
</tr>
<tr>
<td>HQ</td>
<td>Head Quarters</td>
</tr>
<tr>
<td>JACIT</td>
<td>Joint Amphibious Capability Implementation Team</td>
</tr>
<tr>
<td>JEWOSU</td>
<td>Joint Electronic Warfare Operational Support Unit</td>
</tr>
<tr>
<td>JORN</td>
<td>Jindalee Operational Radar Network</td>
</tr>
<tr>
<td>LHD</td>
<td>Landing Helicopter Dock</td>
</tr>
<tr>
<td>LWDC</td>
<td>Land Warfare Development Centre</td>
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<td>MBMTA</td>
<td>Mount Bundey Military Training Area</td>
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<tr>
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<tr>
<td>MBTA</td>
<td>Murray Bridge Training Area</td>
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<td>MEAO</td>
<td>Middle East Area of Operations</td>
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<tr>
<td>MRE</td>
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<tr>
<td>P&amp;EE</td>
<td>Proof and Experimental Establishment</td>
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<td>Protected Mobility Vehicle</td>
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<td>Regional Force Surveillance Unit</td>
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<tr>
<td>SOTG</td>
<td>Special Operations Task Group</td>
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<tr>
<td>SPG</td>
<td>Self-Propelled Gun</td>
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<tr>
<td>STA</td>
<td>Surveillance and Target Acquisition</td>
</tr>
<tr>
<td>SWBTA</td>
<td>Shoal Water Bay Training Area</td>
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<tr>
<td>TFTA</td>
<td>Townsville Field Training Area</td>
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<tr>
<td>UAV</td>
<td>Unmanned Aerial Vehicle</td>
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<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>WBTA</td>
<td>Wide Bay Training Area</td>
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<tr>
<td>WPA</td>
<td>Woomera Prohibited Area</td>
</tr>
<tr>
<td>YSTA</td>
<td>Yampi Sound Training Area</td>
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</table>
A soldier from the South Australian-based 16th Air Land Regiment leads a patrol of Australian and New Zealand soldiers on the streets of Dili, East Timor in 2009 as part of Operation ASTUTE, the ADF’s contribution to the International Stabilisation Force that assists the East Timorese government and the United Nations.
1. **Current Presence.** As the ‘Defence State’, South Australia is home to some 7,369 Regular and Reserve Australian Defence Force (ADF) and Department of Defence personnel and a significant portion of Australia’s Defence and defence industry capabilities. These include naval ship building and submarine maintenance, Army artillery, engineer and infantry and ground based air defence, RAAF maritime surveillance and aerospace operational support and the Defence Science and Technology Organisation (DSTO) research and development capabilities.

2. **Opportunities for Review.** At a time when there is an extensive review of ADF posture and Army is planning its force structure, South Australia offers a range of opportunities for Army that could be adopted over the next 10 years or so.

3. **Research.** The Study involved research and interviewing senior ADF, Defence and defence industry representatives seeking their views on the future Army presence in South Australia. This information was analysed against the existing studies and other influences currently shaping the Defence environment in Australia.

4. **Influences.** Those influences likely to impact future decisions regarding Army basing and activity include the 2009 Defence White Paper, the United States (US) Global Force Posture Review, the ADF Force Posture Review, Army’s Force Structure Review (Plan Beersheba) and the unequivocal support for Defence, the ADF and the Army from the South Australian Government. Lesser considerations are the current brigade battle rhythm, Army posture and employment post-Afghanistan, recurrent budget implications and the use of Enhanced Equipment Pools (EEP). All these factors are considered regarding their impact on South Australia together with the continuing negative impact of climatic issues on Army activity in Darwin.

5. **Army Presence in South Australia.** By the end of 2012, the 1st Brigade elements based in South Australia are planned to number some 1,200 soldiers plus more than 600 family members. Together with the 350 soldiers of the 16th Air Land Regiment and other Regular Army soldiers already based in the State, Army in South Australia will then comprise 5.8% of the Regular Army. These soldiers provide Army’s ground-based air defence and a mechanised battle group. In addition, 7.2% of the Army Reserve is based in South Australia as members of the 9th Brigade.

6. **Training Areas and Ranges.** An array of training areas support these capabilities, with a Close Training Area (CTA) within Horseshoe Barracks, the Murray Bridge Training Area (MBTA) 100 km to the south east and the Cultana Training Area (CUTA) three hours drive to the north. In addition, some 450 km north of Adelaide lies the massive Woomera Prohibited Area (WPA).

7. **Basing Principles.** In the 2009 Defence White Paper, the Government identified five strategic principles to guide future basing decisions. Briefly, these principles are that bases should:
   - be aligned with strategic requirements and ensure that critical capabilities are suitably dispersed,
   - maintain an urban and regional disposition,
   - be consolidated into fewer, larger and more sustainable multi-user sites,
   - be grouped near strategic infrastructure and industry, and
   - be located in ‘family friendly’ areas in order to improve retention.

The Study juxtaposed these principles with the South Australian environment and identified that the State was fully compliant with all five of these principles.
8. **Opportunities for Army.** Noting the strength of the State’s compliance to the Defence White Paper basing principles, the Study identified that the following units/capabilities have synergies with existing and planned ADF capabilities in South Australia that warrant consideration for relocation to Horseshoe Barracks:

- HQ 6th (Command Support and Intelligence, Surveillance, Target Acquisition and Reconnaissance (CS&ISTAR)) Brigade (from Victoria Barracks, Sydney),
- 16th Air Land Regiment (from Woodside),
- 20th Surveillance and Target Acquisition (STA) Regiment (from Brisbane), thereby concentrating ADF Unmanned Aerial Vehicles (UAV) assets and exploiting nearby training areas,
- Army Electronic Warfare (EW) capability, including 7th Signals (EW) Regiment (from Cabarlah), thereby concentrating ADF EW capabilities,
- additional elements of the 1st Brigade (from Darwin),
- elements of 16th (Aviation) Brigade (from Darwin, Townsville, Brisbane, Sydney and Oakey, and
- elements of the Land Warfare Development Centre (LWDC) (from Puckapunyal).

9. **CUTA.** The Study also identified that finalising the expansion of CUTA is fundamental not only to continued retention of existing Army presence, but also to the attraction of further Army activity and units to the State. This expansion has occurred much more slowly than desired or anticipated and so the Study devotes an entire chapter to this issue. Nonetheless, to enable the remainder of the Study to proceed, it is premised on the expectation that the expansion of CUTA will be completed in 2012 and the approved development completed in 2013.

10. **Other Initiatives.** In addition, other initiatives that would support these moves would include establishing an EEP at the Baxter site within CUTA and the establishment of a Combined Arms Fighting System (CAFS) Integration Centre and a Defence Technology Institute in Adelaide. With an anticipated increase in US armed forces presence in Australia, the expanded CUTA and the WPA offer unique opportunities for joint and combined exercising including live firing. Supporting the Army Reserve and cadet programs in schools are further areas in which South Australia as the Defence State, can promote the Army’s interests.

11. **Supporting Infrastructure.** Supporting these initiatives would capitalise on the potential which South Australia has to offer, including an evolving joint environment, a well-equipped state-of-the-art Army garrison at Horseshoe Barracks, an adjacent C-17 capable airstrip and supportive and accommodating local communities. Combined with the use of the electronically quiet WPA and the Proof and Experimental Establishment (P&EE) at Port Wakefield these offer impressive options for Army in South Australia.

12. **Financial Implications.** This Study necessarily focused on operational issues but clearly each of the recommendations has an impact on Defence resources and needs to be more deeply analysed. Preliminary subjective analyses suggest however, that the overall, long term impact of the proposed initiatives on Defence resources will be positive and well worth pursuing through thorough investigation and the development of individual business cases.
13. **Recommendations.** The Study concentrates on what the South Australian Government can influence, rather than generic limitations such as Defence capital funding which are not addressed. Specifically, this report recommends:

**Recommendation 1**
Defence SA supports Army in exploring options for relocating selected elements of 1st Brigade to Horseshoe Barracks (from Darwin).

**Recommendation 2**
Defence SA supports Army in examining the potential for relocating to Horseshoe Barracks:
- Headquarters 6th (CS&ISTAR) Brigade (from Sydney),
- 16th Air Land Regiment (from Woodside),
- 20th STA Regiment (from Brisbane), and
- Army EW capability, including 7th Signals (EW) Regiment (from Cabarlah).

**Recommendation 3**
Defence SA highlights to Army the benefits of relocating elements of 16th (Aviation) Brigade to Adelaide (from Darwin, Townsville, Brisbane, Sydney and Oakey).

**Recommendation 4**
Defence SA proposes to Army the relocation of the Force Development Group within the Land Warfare Development Centre (LWDC) to Adelaide (from Puckapunyal).

**Recommendation 5**
Defence SA highlights to Army the benefits of establishing the Combined Arms Fighting System Centre in Adelaide.

**Recommendation 6**
Defence SA encourages an increased level of US presence within Australia and fully explores all opportunities for the training of US personnel in South Australia.

**Recommendation 7**
Defence SA considers the establishment of a ‘Defence Technology Institute’ in Adelaide.

**Recommendation 8**
Defence SA promotes the establishment of cadet units based in schools in South Australia.

**Recommendation 9**
Defence SA promotes the Army Reserve elements based in South Australia.

**Recommendation 10**
Defence SA promotes the expanded CUTA as the most suitable year-round armoured, cavalry and mechanised manoeuvre training area in Australia and encourages the use of the expanded CUTA for Joint and Combined training opportunities.

**Recommendation 11**
Defence SA appoints a CUTA Project Officer to support the Commonwealth to accelerate the finalisation of the expansion and development of CUTA.

**Recommendation 12**
Defence SA supports Army in establishing an EEP of heavy vehicles and equipment at the Baxter site within CUTA.
Part of BAE Australia’s armoured fighting vehicle production line at Wingfield, Adelaide where seven variants of the M113A5 Armoured Personnel Carrier have been extensively rebuilt to provide greatly enhanced protection, lethality, mobility and habitability for Army’s mechanised force.
Support for Defence

14. Since 2003, the Government of South Australia has strongly recognised and promoted the prominence of Defence within the State’s economic and industrial base. South Australia has subsequently branded itself the ‘Defence State’ and has demonstrated an unwavering commitment to Defence for the long term.

15. To support this approach, the Government of South Australia established a stand-alone State Government agency ‘Defence SA’ led by a Chief Executive Officer reporting directly to the Premier as Minister for State Development and the Treasurer as Minister for Defence Industries and supported by a well-credentialed Defence SA Advisory Board led by General Peter Cosgrove AC MC.

16. With a staff of about 30, the mission of Defence SA is to “facilitate the development and growth of Defence and sustainable defence industries in South Australia” and the agency acts as the single point of contact for Defence and defence industry within the State Government.

17. South Australia has an impressive association with Defence including:

- The annual turnover of the defence industry in South Australia is $1.8 billion (2010–11) and a total of 26,882 people were employed in the defence sector in South Australia (30 June 2011).

- A total of 25% of the nation’s defence industry activity occurs in the State, and the national corporate headquarters of three of Defence’s largest eight contractors are located in South Australia (ASC, BAE Systems and SAAB) and another three (Australian Aerospace, Lockheed Martin and Raytheon) have a major presence in the State.

- The State is also home to major Defence projects in Maritime, Land, Aerospace and Systems environments including Australia’s largest defence project the $8 billion Hobart Class Air Warfare Destroyer (AWD) project as well as the $3 billion Collins class submarine sustainment program, the $1 billion M113AS4 Armoured Personnel Carrier rebuild program and $1 billion AP-3C Orion maritime patrol aircraft upgrade and support program.

- Defence is well supported in South Australia by the State Government which has invested in major defence industry precincts including more than $300 million in ‘Techport Australia’, where the 9,300 tonne shiplift has the ability to support the construction and sustainment of the AWD and the maintenance and construction of submarines.

- Defence is also well supported by a dedicated defence industry organisation, the Defence Teaming Centre and relevant tertiary research initiatives at three local and two international universities.

18. South Australia is truly committed to supporting future Land projects. The State’s military vehicle manufacturing and sustainment capabilities are well established and supported by a strong automotive industry supplier base. Indeed, it is a little known fact that South Australia has produced more military vehicles than any other state in the last ten years. Local companies are currently leading in the manufacture and sustainment of two of Defence’s only three Armoured Fighting Vehicle (AFV) contracts. Through BAE at Wingfield, the State has one of Australia’s two main production lines for AFV (the M113AS4 Armoured Personnel Carrier (APC)) and through GDLS-A at Pooraka it is sustaining the Australians M1A1 Abrams Main Battle Tanks (MBT), the M88 Hercules Tank Recovery Vehicles and the Australian Light Armoured Vehicles (ASLAV).
19. For many years South Australia has hosted significant Defence capabilities including Army ground-based air defence, RAAF maritime surveillance and aerospace operational support and the DSTO research and development capabilities. At the end of 2011, there were over 3,180 regular ADF personnel based in South Australia including 80 RAN (0.6% of the Navy) and 1,795 RAAF (12.3% of the Air Force). The RAN and RAAF units based in South Australia are listed at Appendix 1. Table 1 indicates the number of Regular and Reserve personnel from each service in South Australia as at June 2011. The estimated economic contribution to South Australia of the Defence presence is some $500 million p.a.

20. The Defence presence in South Australia has been supported by the more than 25 sites listed at Appendix 2. It is not proposed that these sites be expanded but options to concentrate some elements at fewer sites are proposed.

### Table 1. Distribution of ADF Personnel across all States June 2011

<table>
<thead>
<tr>
<th></th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>SA</th>
<th>WA</th>
<th>Tas</th>
<th>NT</th>
<th>ACT</th>
<th>Overseas</th>
<th>Total</th>
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<tbody>
<tr>
<td>Navy</td>
<td>6,826</td>
<td>1,636</td>
<td>963</td>
<td>80</td>
<td>2,266</td>
<td>18</td>
<td>692</td>
<td>1,357</td>
<td>147</td>
<td>13,995</td>
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<tr>
<td>Army</td>
<td>6,371</td>
<td>3,354</td>
<td>11,333</td>
<td>1,305</td>
<td>863</td>
<td>88</td>
<td>3,470</td>
<td>2,176</td>
<td>272</td>
<td>29,502</td>
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<tr>
<td>Air</td>
<td>5,847</td>
<td>949</td>
<td>2,965</td>
<td>1,795</td>
<td>389</td>
<td>7</td>
<td>1,093</td>
<td>1,693</td>
<td>264</td>
<td>14,642</td>
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<tr>
<td>Total</td>
<td>18,684</td>
<td>5,949</td>
<td>15,261</td>
<td>3,180</td>
<td>3,512</td>
<td>113</td>
<td>5,525</td>
<td>5,226</td>
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<tr>
<th>Regular ADF Personnel³</th>
<th>Reserve ADF Personnel⁴</th>
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<tr>
<td>NSW</td>
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<td>Navy</td>
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<tr>
<td>Air</td>
<td>965</td>
</tr>
<tr>
<td>Total</td>
<td>7,094</td>
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</tbody>
</table>

19. Current Defence Presence
20. Aim
21. Scope
22. 23. The aim of this Study is to identify actions for Defence SA that would support the retention and attraction of Army units and activity in South Australia.

22. The focus of this Study is the Army presence in South Australia and it does not examine broader ADF, Defence and defence industry opportunities in the State except where these factors interrelate directly to the Army presence.

23. The Study was initiated by the South Australian Government before the Commonwealth Government announced the ADF Posture Review but during the development of Army’s Force Structure Review and the Army’s review of the role of the Army Reserve. To differentiate this Study from other Defence reviews it is referred to simply as the ‘Study’.
24. In analysing current and future Army activity and basing in South Australia, some impediments were identified, together with potential mitigation. The Study however, concentrates on what the South Australian Government can influence, rather than generic limitations such as Defence capital funding which are not addressed here.

25. The Study was developed for Defence SA by an external consultant who gained information through research and interviews with personnel who have responsibility or an interest in Defence in South Australia. Those interviewed are listed at Appendix 3.

Methodology

26. The Study explores the existing Army presence and level of activity and factors influencing its continued presence and expansion, together with limitations. It presents a holistic view of the Army presence and activity in South Australia now and into the future.

27. The Study approaches the problem through:

- identifying the existing Army presence and how it is currently supported to identify what is necessary to ensure that it remains in South Australia,
- identifying the existing influences that may expand or reduce Army presence in South Australia,
- as a result of the analysis, identifying opportunities and options over the next 10 years, and
- identifying limitations and commenting on how they can be addressed.

HMAS Newcastle berths at ‘Techport Australia’, the maritime precinct in Adelaide in September 2011 and where the collins class submarines were built and are serviced and where the Hobart class Air Warfare Destroyers are being built.
Soldiers from the South Australian 16th Air Land Regiment operate an RBS-70 Ground-Based Air Defence missile on deployment for Exercise Pitch Black in 2008.
CHAPTER 2: EXISTING ARMY PRESENCE

Army Presence in South Australia

28. As at 30 June 2011 South Australia was home to 1,305 regular soldiers or 4.4% of the Regular Army and it is anticipated that by December 2012 the number of Regular soldiers based in South Australia will be 1,700 (5.8%). In addition, there are more than 1,200 reserve soldiers or 7.2% of the Army Reserve based in the State. These personnel are posted to the following units:

- 1st Brigade
  - Headquarters 1st Brigade (Adelaide)
  - 102nd (Coral) Battery, 8th/12th Regiment
  - 9th Combat Engineer Squadron, 1st Combat Engineer Regiment
  - 7th Battalion, Royal Australian Regiment
  - Logistic Support Element, 1st Combat Services Support Battalion
- 6th (CS&lSTAR) Brigade
  - 16th Air Land Regiment
- 9th Brigade
  - Headquarters 9th Brigade
  - 3rd/9th Light Horse Regiment (South Australian Mounted Rifles)
  - 48th Field Battery
  - 3rd Field Squadron
  - 144th Signals Squadron
  - 10th/27th Battalion Royal South Australian Regiment
  - 9th Combat Service Support Battalion
  - Adelaide Universities Regiment
  - Australian Army Band (Adelaide)
  - Army Personnel Agency (Adelaide)
- 17th (Combat Service Support) Brigade
  - 3rd Health Support Battalion
- Other
  - Warrant Officer and NCO Academy (locating to new accommodation at Horseshoe Barracks)

1st Brigade (Adelaide)

29. In 2011, more than 700 soldiers from five units of the 1st Brigade together with an estimated 600 family members were re-located from Robertson Barracks, Darwin to the new Horseshoe Barracks on the Defence ‘Super Base’ at RAAF Base Edinburgh in the Edinburgh Defence Precinct. The number of soldiers at Horseshoe Barracks is planned to be 1,200 by December 2012.

30. The move to Adelaide was undertaken to provide year-round access to training areas, easy access to transport and deep maintenance support, posting options for soldiers in mechanised units who would otherwise be restricted to just Darwin and an attractive location for Army personnel and their families to live.

31. Horseshoe Barracks has several features that directly support the increased Army presence:

- a well-equipped state-of-the-art Army garrison with close training facilities for personnel and mechanised vehicles, including an indoor weapons range and sophisticated on site mechanised tactical training simulation and night fighting facilities,
- significant areas for further development to support additional Army units with the potential to leverage the newly constructed common user health, training, messing and fitness facilities on the base,
- support from local Reserve units to enhance capability,
- easy access to CUTA (one of only four the ADF Category 1 Training Area and Ranges\(^5\)) throughout the year,
- ready access to the massive WPA,
close proximity to an expanding Joint operations environment including the RAAF Aerospace Operational Support Group (AOSG), 92 Wing and No 1 Radar and Surveillance Unit,

immediate and direct access to a C-17 capable airfield for rapid deployment,

ready access to Port Adelaide and the existing Roll-on Roll-off facilities at Outer Harbor for embarking on amphibious ships,

close support from Defence research and development capabilities at DSTO Edinburgh, the largest Defence research and development centre in the southern hemisphere,

close proximity to a quarter of the nations’ defence industrial base,

support for soldiers and their families that comes naturally from being within a city with a pleasant climate and a population of more than 1.2 million,

families are readily accessible from elsewhere in Australia, feel comfortable, are able to participate in first class educational facilities and can pursue their own careers,

single members can have a full and viable social life, and

highly supportive State and local governments and general community.

32. Army’s presence at Horseshoe Barracks principally consists of:

a detachment from the Headquarters of 1st Brigade (known as HQ 1st Brigade (Adelaide)) under the command of Deputy Commander 1st Brigade,

102nd (Coral) Battery of 8th/12th Regiment currently equipped with 155mm towed artillery but expected to be equipped with 155mm Self-Propelled Guns (SPG),

9th Combat Engineer Squadron of 1st Combat Engineer Regiment,
• 7th Battalion, Royal Australian Regiment (RAR) equipped with the upgraded M113AS4 APC, and
• a Logistic Support Element of the 1st Combat Service Support Battalion.

Together, these units are capable of forming one of Army’s two mechanised infantry battle groups, of itself a major ADF capability. It is forecast that significant elements of the 7th Battalion RAR will deploy on operations to Afghanistan in late 2012.

16th Air Land Regiment

33. The 350-strong 16th Air Land Regiment is part of the 6th (CS&ISTAR) Brigade and has been based at Woodside in the Adelaide Hills since 1965.

34. The Regiment operates the RBS-70 Anti-Aircraft Missile System to provide the only ADF ground-based air defence capability and operates closely and regularly with the RAAF as part of the ADF Air Defence System (ADFADS)\(^6\). The Regiment is supported by dome simulators, one of which was upgraded in 2011. It conducts extensive training and live firing at the WPA often in conjunction with the RAAF.

35. From 2011, the unit has begun also operating the Giraffe Agile Multi-Beam 740 ground based radar system and has taken on the Army’s Counter Rocket, Artillery and Mortar (C-RAM) role. Over the years, the Regiment has deployed numerous contingents on operations overseas and currently has a team of 40 soldiers continuously in Afghanistan to provide the C-RAM protection for the Australian forces.

9th Brigade

36. The 9th Brigade is headquartered at Keswick Barracks and comprises some 1,200 Reserve soldiers based in South Australia and the Reserve units based in both South Australia and Tasmania. It forms part of the 2nd Division under Forces Command.

37. The 9th Brigade has recently sent contingents to the Solomon Islands and the Adelaide Universities Regiment undertakes national training of Reserve officers.

Training Areas and Ranges

38. South Australian-based Army units, Special Operations Command and Army units from the Darwin-based 1st Brigade use the existing Defence training areas and ranges in South Australia. This includes a range of specialist units operating UAV and EW assets. Apart from close training areas within barracks, these facilities are:

• Murray Bridge. The Murray Bridge Training Area (MBTA) occupies 4,200 ha (42sq km) and is located 100 km east of Adelaide and 10 km east of the Murray Bridge township. MBTA has small arms ranges up to 800 m and allows sub-unit training for both Regular and Reserve units based in South Australia, including national elements of Reserve Officer Training. While meeting the current needs of South Australia-based Army units, there are indications that the area may not be sufficient in the future. With a regular infantry battalion now resident in South Australia, there will be a requirement for some ranges to extend to 1,000 m to enable sniper qualifications to be completed at MBTA. Although the Commonwealth has not raised it as an issue, the South Australian Government should be prepared to support the Commonwealth in exploring options for the expansion of MBTA.
Map 4. Edinburgh Defence Precinct

- **Horseshoe Barracks**
- **RAAF Edinburgh**
- **DSTO Edinburgh**

Jan 2011

Legend:
- 0m
- 750m
- 1500m

- 102nd (Coral) Battery
- HO 1st Brigade (Adelaide)
- Weapons Training Simulation Centre
- Area health facility
- WO & NCO Academy
- Combined mess
- Sports Centre
- Battle Simulation Centre
- Night Fighting Training Centre
• **CUTA.** Located 300 km from Horseshoe Barracks, CUTA is a 50,000 ha (500 sq km) area in a north-south disposition adjacent to the coastline of Spencer Gulf between Port Augusta and Whyalla. It is one of just four ADF Category 1 Training Area and Ranges in Australia and is the one most suited for armoured, cavalry and mechanised manoeuvre and is available for training throughout the year. Due to its geographic similarity to current operational environments it is also used for pre-deployment Mission Rehearsal Exercise (MRE), particularly by the Special Operations Task Group (SOTG). An existing airfield within CUTA, together with civil airfields at Port Augusta and Whyalla, offer further opportunity for air mobile manoeuvre training options. CUTA is heavily utilised by both Regular and Reserve units and planning is well advanced to expand to the west. This will create a training area of around 210,000 ha (2,100 sq km) in 2012 and the approved development of this area is due to be completed in 2013. This is discussed in detail at Chapter 6. Once expanded, CUTA will provide Army with the opportunity to undertake battle group sized year-round armoured, cavalry and mechanised manoeuvre training, maximising the employment of platforms, weapons systems and sensors including supporting aviation and self-propelled artillery.

• **WPA.** Located around 450 km north-west of Adelaide and covering 12,700,000 ha (127,000 sq km) the WPA is the largest land-based range in the world and is a key asset in Defence capability development. It is used by Army to conduct numerous trials as well as training for specialised activities such as Special Operations, Counter-Improvised Explosive Devices, UAV and EW. It is also an area of potential economic importance in terms of its natural resources and some mining is already conducted in WPA. In 2010 the Commonwealth initiated a review into the long-term use of WPA and concluded that the Government favours multiple and use in Woomera to the maximum extent possible, subject to the primacy of Defence requirements.

**The Edinburgh Defence Precinct**

39. The Edinburgh Defence Precinct (EDP) occupies 1,170 ha (11.7 sq km) and is located 28 km north of Adelaide and includes the DSTO Edinburgh and the Defence ‘Super Base’ at RAAF Base Edinburgh.

• **DSTO.** DSTO is the lead agency charged with applying science and technology to protect and defend Australia and its national interests.

  - The DSTO facility at Edinburgh is the largest defence electronics research and development centre in the southern hemisphere and is home to 1,350 scientific, engineering and technical staff. It delivers advice and innovative solutions for Defence and other elements of national security and provides scientific support to Defence for major defence procurement projects.

  - Research across DSTO is inter-connected but DSTO Edinburgh has strengths in the areas of electronics, communications and modelling and analysis for maritime, land and air environments. The DSTO Research Divisions primarily supporting Army are based in Adelaide including those focused on Command, Control and Communications; EW; Radar; Intelligence, Surveillance and Reconnaissance; Land Operations and Weapons Systems.

  - Considerable research supporting Army is focussed on simulation and integration at a Combined Arms Team and Battle Group level, developing a battle management system ensuring soldiers, command and control, EW, intelligence surveillance and reconnaissance and weapon systems are fully integrated and focused on mission achievement.

  - With the DSTO Divisions relevant to the Land environment largely located in South Australia, Defence trials regularly occur in the State. Sensitive EW trials are conducted at WPA. The potential...
for additional trials, particularly using simulation, are extensive and are explored later in the Study.

- The 2009 Defence White Paper identifies that DSTO will also increase its investigation and application of key enabling technologies which will provide significant returns for development of the future force, including integrated ISR and EW. These enhanced capabilities are directly relevant to proposals presented later in this Study.

• **RAAF Base Edinburgh.** RAAF Base Edinburgh is home to the AOSG that provides support to the ADF, DMO, DSTO and close Allies and 1 Radar Surveillance Unit which controls the Jindalee Over-the-Horizon Radar Network (JORN) which provide long range surveillance of the approaches to Australia, and 92 Wing which operates the AP-3C Orion maritime patrol aircraft that provide surveillance throughout Australia’s airspace as well as other surveillance and reconnaissance capabilities.

- The base has recently undergone the most significant reconstruction of any military establishment across Australia with about $750 million spent on building Horseshoe Barracks to support the 7th RAR Battle Group and upgrading RAAF and jointly used facilities.

- It has also been proposed as the future home of the multi-mission unmanned aerial system (AIR 7000) and the Integrated Ground Environment, which with existing capabilities makes up the core of Australia’s future surveillance and reconnaissance capability.

• **Joint Electronics Warfare Operational Support Unit (JEWOSU).** JEWOSU is a tri-service staffed unit within AOSG located on the DSTO site at Edinburgh. It influences the ability of Australia to project air, sea and land power in defending Australia and its interests. JEWOSU streamlines the development, testing and delivery of EW capability for aircraft and ships, resulting in significant savings in time and resources. JEWOSU also provides EW operational support, systems advice to Defence Materiel Organisation (DMO) and self-protection-focused training with EW simulator and simulator support to Army.

**Further Growth**

40. No other location can boast all these qualities in support of Army. Even Lavarack Barracks in Townsville which is probably the closest rival to Horseshoe Barracks, does not have the Joint environment, close proximity to a Category 1 Training Area and Range, ready access to industry and the research facilities at DSTO nor the benefits of being within a capital city.

41. With the relocation of major elements of Army’s 1st Brigade to South Australia, the expansion and development of CUTA and with the scope for further growth of the Army at Horseshoe Barracks, it is timely to consider the opportunity for further expansion of Army presence in South Australia.
Australian light horsemen of the Australian Imperial Force riding Waler horses and typical of those who fought at the ‘Battle of Beersheba’ in Palestine on 31 October 1917.
CHAPTER 3: INFLUENCES

Considerations

42. There are a number of key considerations which have the potential to influence Army presence in South Australia, and are the ‘lens’ through which the Study examines future opportunities.

2009 Defence White Paper

43. The strategic outlook for ADF basing is drawn from the 2009 Defence White Paper which aims to achieve fewer and larger bases. This is discussed in detail in Chapter 4. This approach essentially seeks to generate operational benefits and cost savings for Defence through achieving economies of scale. Defence has therefore been pursuing options to reduce its estate and consolidate more elements at fewer sites.

44. Under this approach there could be closures of single-unit bases of relevance to South Australia. In particular the bases at Woodside, South Australia (16th Air Land Regiment) and Cabarlah, Queensland (7th Signals (EW) Regiment) are candidates for closure in the short to medium term, particularly as they will eventually require significant infrastructure upgrades.

45. Increasingly this will require joint basing solutions where two or more ADF Services and other Defence establishments are co-located. This has already been realised at the EDP.

46. On 22 June 2011, the Minister for Defence announced that the Government will undertake a review to assess whether the ADF is correctly positioned geographically to meet Australia’s present and future strategic and security challenges.

47. The ADF Posture Review is being undertaken by the Department of Defence and overseen by an expert panel made up of two national security specialists and ex-Secretaries of Defence: Dr Allan Hawke and Mr Ric Smith. Their recommendations will help provide a strategic context for the next Defence White Paper scheduled for the first quarter of 2014.

48. The Review addresses the range of present and emerging global, regional and national strategic and security factors which require careful consideration for the future, including:

- the rise of the Asia-Pacific as a region of global strategic significance,
- the rise of the Indian Ocean rim as a region of global strategic significance,
- the growth of military power projection capabilities of countries in the Asia Pacific,
- the growing need for the provision of humanitarian assistance and disaster relief following extreme events in the Asia Pacific region, and
- energy security and security issues associated with expanding offshore resource exploitation in our North West and Northern approaches.

49. The Review will build on the strategic and capability judgements contained in the Defence White Paper 2009 and be informed by the work currently underway in relation to base consolidation through which Defence is assessing basing requirements and developing options for changes to Defence’s estate over the next 25 years.
50. The presence of Army and the level of activity by Army in South Australia are being considered as part of the Review.

- With mineral deposits of world significance in South Australia, particularly uranium and copper, the critical ship and submarine construction and maintenance facility at Techport Australia, the location of the control centre for JORN and the secure basing of 92 Wing RAAF assets, the current Army presence and level of activity in the State appears warranted.

- While an increased level of Army presence and activity may not be justified on these grounds alone, there would be significant advantages in locating additional units in South Australia and concentrating joint capabilities. The Study is reminded that the Army's Mission is to 'win the Joint land battle'. No Army base in Australia presents a better opportunity to develop joint capabilities than Horseshoe Barracks on the Defence 'Super Base' at RAAF Base Edinburgh and adjacent to DSTO within the EDP.

United States Global Force Posture Review

51. Australia is currently working with the United States as part of the ongoing US Global Force Posture Review by the joint Australian-US working group. Media reporting indicates the US is likely to 'step-up cooperation with Australia on [tactical and theatre] missile defence'. In part, this is likely to be linked to the placing of Aegis missile defence systems in the AWD and to the capabilities of JORN. While not directly linked to the presence of Army in South Australia, other opportunities stemming from these considerations are expected and are discussed at Chapter 5.

Army Force Structure Review (Plan Beersheba)

52. Army's three Regular combat brigades are currently organised as:

- 1st Brigade (located in Adelaide and Darwin) provides Army's armoured, cavalry and mechanised capability with:
  - 8th/12th Regiment (equipped with 155 mm towed guns but planned to be equipped with 155 mm SPG),
  - 1st Armoured Regiment (equipped with the M1A1 Abrams Main Battle Tanks (MBT)),
  - 2nd Cavalry Regiment (equipped with ASLAV), and
  - 5th and 7th Battalions RAR (both mounted in their own M113AS4 APC).

- 3rd Brigade (located in Townsville) provides Army's light infantry capability with:
  - 4th Regiment (being converted from 105 mm to 155 mm 'towed' guns),
  - B Squadron 3rd/4th Cavalry Regiment (equipped with Bushmaster Protected Mobility Vehicles (PMV), and
  - 1st, 2nd and 3rd Battalions RAR (being 'foot' infantry relying on other capabilities to give them greater mobility and protection such as APC, PMV, CH-47D or MRH-90 battlefield helicopters, or amphibious ships).

- 7th Brigade (located in Brisbane) provides Army's motorised infantry capability with:
  - 1st Regiment (being converted from 105 mm to 155 mm 'towed' guns),
  - 2nd/14th Light Horse Regiment (Queensland Mounted Infantry) (equipped with ASLAV), and
  - 6th and 8th/9th Battalions RAR (both mounted in their own Bushmaster PMV).
53. As part of Army’s modernisation, the capabilities and specialties of the brigades has been reviewed and a new organisation was recently approved. It is understood that under Plan Beersheba, Army will re-organise over time to become three similarly organised and equipped multi-role manoeuvre combat brigades. This will allow the Army to adopt a 36 month force generation cycle whereby the brigades will rotate every 12 months between three stages:

- ‘Readying’ – pre-deployment,
- ‘Ready’ – on deployment or potentially on deployment, and
- ‘Reset’ – post-deployment.

54. As part of the plan, it is likely that the existing armoured, cavalry and mechanised elements of the three brigades will be re-allocated across the three infantry brigades such that a tank squadron, a cavalry squadron and an APC squadron are allocated to each brigade to form an ‘Armoured Cavalry Regiment’ (ACR).

55. While it is likely that the existing Adelaide-based units of 1st Brigade will remain in Adelaide, it is also likely that they will eventually be reorganised.

- This may simply mean that the APC currently issued to 7th Battalion RAR and the other Adelaide-based units will become part of the proposed 1st Brigade ACR and remain based at Horseshoe Barracks.

- It is also possible that some additional sub-units of the current armoured and cavalry units of 1st Brigade based in Darwin could relocate to South Australia where they would be closer to the units they support and from where they could train more readily at CUTA and WPA.

56. Plan Beersheba may present difficulties for units from the 3rd and 7th Brigades however, as they may now have an obligation to develop and maintain armoured, cavalry and mechanised skills. As the expanded CUTA training area will be the optimal
year-round location for this type of training within Australia, particularly for large scale manoeuvre, units from these brigades may need to travel annually to CUTA to complete their armoured, cavalry and mechanised training.

57. If a well maintained pool of heavy vehicles and equipment was stored at CUTA, perhaps under commercial arrangements, the soldiers from these brigades could instead ‘fly-in, train and fly-out’, optimising their training time at the most suitable armoured, cavalry and mechanised manoeuvre training area in the country. This would concentrate such training in the one location, potentially reducing operating costs across the three brigades, optimising the use of the opportunities at CUTA and enabling the available investment in such training facilities to be concentrated at CUTA, thereby achieving economies of scale for Defence.

58. It is unclear how the specialist capabilities of units of 6th (CS&ISTAR) Brigade, 16th (Aviation) Brigade and 17th (Combat Service Support) Brigade will be impacted by Plan Beersheba, if at all. The most likely outcome is that their units will be retained as complete units within their current brigade structure for individual and collective training but sub-units may be ‘shadow’ assigned to the individual combat brigades and deployed as necessary to support those brigades. If this is the case, then it can be expected that units of these Brigades will continue to support 1st Brigade when it trains at CUTA and also continue to train at CUTA themselves when they need to hone their skills in an area similar to the Middle East Area of Operations (MEAO).

Army Reserve

59. Plan Beersheba also promotes a ‘Total Force Concept’ where the Army Reserve becomes integral to the three-stage force generation cycle. Two Reserve brigades are now linked...
to each Regular Brigade in order to be able to generate a Reserve Battle Group every three years during the ‘Ready’ phase. The brigades also have specific continuing responsibilities to respond to natural disasters within the local community.

60. The major implications for the South Australia-based Reserve 9th Brigade is that, together with the Victoria-based Reserve 4th Brigade, it will be responsible for supporting 1st Brigade with the provision of a Battle Group which is ready to be called out for support once in every three years.

61. In any event, Plan Beersheba confirms the continued existence of the 9th Brigade as a formation based in South Australia. Hence, the impact on the State is likely to be minimal.

Army post-Afghanistan

62. The Study became conscious that Army was considering the impact of a lower level of operational commitment in Afghanistan post 2014 on activity and resourcing levels, including basing. While the Study was not made aware of any conclusions, it is possible a reduced overseas operational tempo will lead to greater conventional training demands including armoured, cavalry and mechanised capabilities. This may place greater pressure on CUTA in coming years and highlights the value of these facilities for Defence.

Financial Implications

63. A performance audit completed by the Australian National Audit Office in 1997 into the ‘Army Presence in the North’ concluded that:

“Relocation of units to Darwin causes additional costs to Army both in terms of the once-only costs of relocation and removals, higher facilities construction costs, and in higher operating costs in northern Australia. In 1997 it was estimated by the Australian National Audit Office that to base a soldier in Darwin costs Army approximately $15,000 to $16,000 per soldier per year more than basing a soldier in the south.”

64. The Report indicates that factors contributing to these higher operating costs in northern Australia included:

- higher unit cost of consumables such as electricity, water, food/rations etc,
- increased maintenance costs due to climatic and terrain conditions and lack of local maintenance infrastructure,
- increased consumption in comparison with southern basing such as electricity for year-round air conditioning, fuel/transport costs to move units to more distant training areas, higher freight costs, higher removal costs on posting,
- additional freight costs associated with transport of armoured vehicles for repair and transporting to suitable training areas, and
- additional allowances for personnel such as District Allowance, Remote Location Leave Travel allowance and the option of a full removal on posting resulting from a Ministerial decision in 1995.

65. Some 14 years later, it is likely to be considerably more costly to post soldiers to Darwin. Without access to Defence data it is not possible to know for sure but according to the CPI calculator provided by the Reserve Bank of Australia, the additional cost per soldier would now be in the order of $23,000 p.a. With the EDP able to accommodate more Army units and with an expanded CUTA available for training it is estimated that there would be an annual saving to Defence of $27.6 million for every 1,200 soldiers posted from Darwin to Adelaide.

Political Support

66. Defence has a high profile in South Australia and the State Government has offered an unprecedented level of political support over
the past 10 years. It has provided a priority to Defence initiatives in South Australia to a degree unequaled across Australia.

67. It is an effective model that has not been replicated anywhere else in Australia. This unequaled level of support makes the State a highly encouraging environment for growing Army presence in South Australia and for the soldiers and their families.

Proximity to Training Areas

68. While Army units generally undertake individual and some sub-unit training in barracks, they need to deploy to training areas to undertake other sub-unit and unit level training, and to exercise as part of major Army formations. The Study was advised that the distance in travelling to training areas is becoming an increasingly significant factor in basing considerations for Army.

69. Transportation costs for both rail and road and travelling time obviously increase the greater the distance from unit bases to training areas and so close proximity to relevant training areas is a critical basing consideration. For armoured, cavalry, mechanised and artillery units in particular, the relatively small number of rail and vehicle ‘tank transporters’ means that the distance from a suitable training area is a critical criteria for basing heavy vehicles and equipment such as the Abrams MBT and when introduced, the SPG.

ADF Category 1 Training Areas and Ranges

70. While smaller training areas can support Army unit and sub-unit training, large training areas are required to support battle-group, joint and combined training. In 2007–2008 the Defence Strategic Training Areas and Ranges Review identified only four ADF Category 1 training areas and range in Australia.

- **Bradshaw Field Training Area (BFTA).** At 870,000 ha (8,700 sq km), 500 km south west from Darwin and bounded by the Victoria and Fitzmaurice Rivers and the Bonaparte Gulf, BFTA is the largest such training area. It is still under development but even when fully developed is criss-crossed by waterways and will continue to suffer from severe climatic restrictions preventing deployment of heavy vehicles and equipment throughout the wet season from October to May. This leaves only four months a year available for reliable exercising of heavy vehicles and equipment, which are the main types of vehicles of the units located in Darwin. With the recently announced deployment of a US Marine Air-Ground Task Force to Darwin for six months every year beginning with 250 troops in 2012 and building to 2,500 from 2017, the demands on BFTA during this short exercise season will be dramatically increased.

- **Yampi Sound Training Area (YSTA).** At 560,000 ha (5,600 sq km), 130 km north west from Derby and located on the coast, YSTA has significant limitations that prevent it being used by conventional Army forces. These include access, infrastructure, distance and severe restrictions on amphibious operations due to tidal flows. YSTA is remote from Army bases and is considered largely unavailable for armoured, cavalry or mechanised and amphibious exercises. Ironically, this limited use, combined with an almost total lack of Defence infrastructure and the removal of introduced animals, has helped to make YSTA a place of extremely high natural heritage value, further weakening the prospects for significant use by Army.

- **Shoal Water Bay Training Area (SWBTA).** At 274,000 ha (2,740 sq km) (with a further 180,000 ha (1,800 sq km) of coastal and marine areas available but with limitations) and 630 km north of Brisbane and 740 km south of Townsville SWBTA is the only year-round Category 1 training area and range available for significant exercises other than CUTA. Suited mostly for close country, dismounted and amphibious training, SWBTA has limited capability for armoured, cavalry and mechanised manoeuvre. The demands on SWBTA are significant with both
the US and the Singaporean Armed Forces having long-term agreements to use these areas for extensive exclusive periods as well as the ADF. Environmental conditions linked to the Great Barrier Reef limit amphibious manoeuvre at SWBTA and the increasing size and weight of future Army vehicles such as the 45-tonne Land 400 vehicles planned to replace the APC and ASLAV in the close combat role, the 50-tonne SPG and the large number of light, medium and heavy PMV, will place increasing pressures on land manoeuvre within SWBTA.

- **CUTA.** CUTA is suitable for armoured, cavalry and mechanised manoeuvre, special forces training and the deployment of specialist systems such as UAV and EW assets and remains available throughout the year. There is also some scope for limited amphibious exercising particularly when helicopter borne where the assault may be direct to the objective rather than to a beach head. CUTA has been described in Chapter 2 and is explored in detail at Chapter 6.

### Annual Brigade Training Rhythm

71. Each Regular Army brigade is now programmed to conduct a brigade-level training activity each year. This is a relatively recent development that will increase the demand on the Category 1 training areas and ranges.

72. Typically, the annual training rhythm of the brigades is:
   - January to April – individual and sub-unit level training,
   - May to June – unit level training,
   - August to October – Formation, Joint and Combined level exercises, and
   - November to December – courses for individuals, leave, removals and lower level maintenance and training activities in barracks.

73. In the case of the 1st Brigade, however, as the BFTA is unsuitable for armoured, cavalry or mechanised training from October through to
May and as CUTA has not yet been expanded, the Brigade is unable to match this pattern and is therefore misaligned to the rhythm of the remainder of the Army. This restricts the flexibility of the Army to deliver the capabilities required by Government. This is likely to continue until the CUTA expansion has been completed in 2012 and the expanded training area is sufficiently developed for Army in 2013.

**Darwin Basing**

74. Between 1989 and 2001, Army relocated some 2,300 soldiers from bases in New South Wales and Victoria to the newly constructed Robertson Barracks in Darwin. The purpose was to forward deploy Army assets to the area where they were more likely to operate, make use of better training opportunities and ensure the soldiers were acclimatised to and self-sufficient when operating in the north of Australia.

75. The units based in Darwin currently depend on the use of BFTA which has proven to be usable only during the dry season from May to October. Due to the additional need to restrict the movement of heavy vehicles and equipment over fragile environmental areas after any rain event, even in the dry season this can severely affect unit training programs. In addition, the tropical environment has particularly harsh effects on aircraft, vehicles, equipment and facilities resulting in higher levels of maintenance being required when there is little supporting defence industry available in Darwin.

76. The Study was advised that of those Army personnel currently posted to Robertson Barracks:

- 15% enjoyed the environment and were happy to stay,
- 30% were ambivalent, and
- 55% wanted to move.

77. The Study was also advised that:

- Many families were unwilling to be posted to Darwin and married soldiers saw the
posting as a hardship posting only to be accepted without family. This was because many spouses find difficulty gaining employment, educational opportunities are considered less optimal than in other States and Territories and the isolation of Darwin means that travel for family members supporting Defence families is expensive and difficult. This has led to large numbers of married soldiers posted to Darwin leaving their families in the southern states. In addition, when soldiers are posted to Darwin prior to deployment overseas, their families will often relocate to other States as they do not wish to remain isolated in Darwin.

- From a lifestyle perspective single soldiers find it challenging to develop and sustain a full social life in Darwin due to the isolation of the barracks, the high cost of living and the limited attractions in a city the size of Darwin.

In contrast, indications are that soldiers posted to Adelaide much prefer it to Darwin and that married soldiers, in particular, favour Adelaide as a location.

Fly-in/Train/Fly-out Methodology

78. The reluctance of soldiers and their families to live in Darwin impacts on the operational effectiveness of the units based there and upon the Army’s ability to recruit and retain effective soldiers. These impediments are not mitigated by training in other States as the families remain based in Darwin during that training.

79. The ‘fly-in/work/fly-out’ employment methodology whereby people from the populated south are flown to remote mining areas in the north is the reverse approach and has been successfully adopted by resource companies to attract and retain workers. It has also reduced the need to invest in developing larger towns around mining centres and has reduced the cost of having a workforce operating in remote areas.
A ‘fly-in/train/fly-out’ methodology may be a more suitable model for future Army training within Australia. The operational benefits and cost efficiencies of having forces based in the south but exercising in the north are supported by improved garrison considerations for families and higher retention for the Army. As this approach has become so dominant in the very geographic areas the ADF Posture Review has been asked to examine, the Study considers it warrants significant attention.

In the context of the Army, this approach may be adopted by basing soldiers and their families in the south such as in Adelaide and flying them to the north of Australia for exercising as and when required. It could also apply to soldiers based in Brisbane, Townsville or Darwin being flown to CUTA to conduct training utilising an EEP of heavy vehicles and equipment.

Enhanced Equipment Pools

The Study became aware that EEP are being trialled within Army whereby the maintenance, storage and security of quantities of equipment are outsourced to local contractors to enable savings in transportation, enhanced equipment maintenance and maximum equipment utility. Typically these equipment pools would be located near to where they are operated during exercises, delivering the most efficient approach to exercise logistics.

This concept is already used by the Singaporean Armed Forces at SWBTA and is well suited to CUTA. Existing practices with contractor maintenance and preparation could be adopted for Army. Further lessons and innovation could be gained from similar approaches overseas such as British Army mechanised training and exercising at Suffield in Canada.

The Baxter ex-immigration processing centre near the Eyre Highway in the north of the existing CUTA is a 500 m x 700 m secure facility with a double 6 m high electric fence. It is regularly used by Army Special Forces as an exercise base and it could readily become a secure equipment storage facility. There is ample space and some existing facilities could be enhanced to store heavy vehicles and equipment, with the required level of security. It is also close to Port Augusta and Whyalla which could be potential sources of tradesmen and service contractors and which provide access to rapid transport by air or sea.

Having a combat team or battle group of heavy vehicles and equipment stored at Baxter would minimise logistical demands for the movement of these vehicles and equipment. It would also overcome the problem of Army elements deploying for extended periods of training because of the cost of transporting their vehicles. This problem will only increase with the introduction into service of SPG, Land 400 close combat vehicles and more PMV. If these vehicles were maintained and stored on site at CUTA, training could be better tailored to meet Army’s objectives and would not be dictated by the limitations of road and rail transport.

Establishing an EEP of heavy vehicles and equipment at Baxter would also allow 3rd and 7th Brigade units to fly to and exercise at CUTA. With the adoption of the Plan Beersheba ‘like brigade’ model, Army’s heavy vehicles and equipment could be stored at CUTA where they would be used on exercise. While individual training could be maintained with a smaller number of heavy vehicles and equipment in brigade ‘home’ locations, combat team and battle group exercising would be able to occur throughout the year at an expanded CUTA using the EEP. This would reduce the need for new infrastructure at Brisbane and Townsville to accommodate heavy vehicles and equipment as a result of Plan Beersheba and maximise the use, flexibility and serviceability of those fleets.
Demonstrating the difficulties in moving heavy military equipment over long distances, local rail yard workers use large cranes to load a 68-tonne M1A1 Abrams Main Battle Tank of the 1st Armoured Regiment onto purpose built rolling stock at Berrimah rail yard in the Northern Territory for the long journey south to the Caltana Training Area, South Australia in 2008.
The Adelaide Central Business District viewed across the River Torrens from the Montefiore Bridge.
Basing Principles and Other Factors

87. In the 2009 Defence White Paper, the Government identified five strategic principles to guide future basing decisions and they are quoted below. While agreeing that these are major considerations for basing units, the Study considers that other factors also need to be considered. In particular, the proximity to suitable training areas, the level of support from the local community, the level of political support, the ability to undertake synthetic training and access to supporting industry should all be considered as factors when considering basing units or changing the level of activity. The Study has analysed all these principles and factors and concludes that South Australia is highly compliant.

Strategic Defensive Position

“Defence base locations should be aligned with strategic requirements and ensure critical capabilities are suitably dispersed for security reasons”.

88. There are major natural resources located in South Australia which are of national significance including the newly approved Olympic Dam mine. The shipbuilding and submarine maintenance facilities at Techport Australia, the control centre for JORN and the secure basing for 92 Wing are just some of the important Defence assets in South Australia. While these assets may be remote from any likely threat, the Army capabilities based in Adelaide are nonetheless well scaled and situated to protect them.

89. More importantly, the location of Adelaide provides the best available defensive posture, while also offering a centrally located and well protected mounting base for operations to the north and west. Adelaide is less exposed to any form of off-shore pre-emptive attack than any other Defence location in Australia.

- By road, Adelaide is 3,000 km from Darwin on our northern coastline, 2,700 km from Perth on our western coastline and 2,100 km from Brisbane on our eastern coastline.

As such, Adelaide affords a high level of security for force elements and facilities located there from any hostile force travelling by land and/or air.

- By sea, Adelaide offers similar defensive advantages, adding an additional six days steaming time for any hostile naval force from north of Australia.

Adelaide therefore provides a sound location in which to safely base Army capabilities, soldiers and their families.

90. Adelaide is also well placed on the Australian mainland for offensive operations as units based there can easily deploy elsewhere by accessing the excellent internal lines of communications to the west, north and east by rail, air, sea or road.

- Adelaide offers multiple runways for all aircraft types at Adelaide Airport as well as the C-17, A330 Multi Role Tanker Transport aircraft and B-747 capable runway adjacent to Horseshoe Barracks at RAAF Base Edinburgh.

- The units based in Adelaide also have access to international deep-water port facilities with substantial existing Roll-on Roll-off capabilities just 40 minutes away at Outer Harbor.

- In addition, Adelaide is directly connected by first class roads and standard gauge rail to Darwin, Perth and the eastern States.

91. The Study has already identified that the MBTA, CUTA and WPA are readily accessible from Horseshoe Barracks, and importantly, they all are available throughout the year. The relatively short distances from such highly effective training areas compares favourably with other basing options.

Urban and Regional Disposition

“Defence should maintain an urban and regional disposition to enable the continued provision of part-time capability into the future.”
92. Defence assets do not need to be permanently collocated with the strategic assets they are intended to protect. Indeed, with a vast area to protect and relatively few Defence assets, it would be foolhardy to even try, and those assets would inevitably be defeated in detail. Indeed, a force permanently deployed to a remote location, which itself may be highly exposed, would create a major defence vulnerability. This would especially be the case if the soldiers were deployed to such a location with their families that in turn needed to be protected.

93. Rather, establishing viable mounting bases some distance from potential threats drawing on the local population for support and deploying forward from a firm base when needed offers excellent defence of Australia and its interests. Indeed, a well sustained and supported force is likely to operate more effectively when deployed if their families are not likely to be subjected to attack. Building a strong base for the sustainment of a force deployed elsewhere is an effective way of subsequently projecting capability as required. While this approach relies on force elements located in southern Australia being familiar with northern Australia to maintain capability, this does not necessarily require the permanent basing of all those elements where one day they may need to fight.

94. The current basing of 92 Wing at RAAF Base Edinburgh epitomises this ‘base south and deploy north and west’ approach. From a secure and viable base in South Australia, the Wing has forward deployed the AP-3C Orion maritime patrol aircraft for many years. Australia has been able to effectively project its maritime surveillance capability across the air-sea gap to the north and west of Australia and maintained an effective and reliable strategic capability.
Fewer and Larger Bases

“Defence should consolidate units into fewer, larger and sustainable multi-user bases aimed at increasing the alignment of functions at Joint and Service level.”

95. Establishing Horseshoe Barracks within RAAF Base Edinburgh is the finest example of the Defence objective of consolidating units into fewer, larger and sustainable multi-user ‘super’ bases with the aim of increasing the alignment of functions at Service and Joint level.

96. This approach is not yet replicated at other major Army or RAAF bases in Darwin, Townsville, Brisbane or Sydney. Although Army is also establishing a presence at RAAF Base Amberley near Ipswich, this is a logistical and not a war-fighting capability. In addition, Horseshoe Barracks is the only location where war fighting Army elements can deploy using C-17 aircraft without leaving the base. The collocation with DSTO also offers unprecedented opportunities for Joint synergies within a Defence environment.

97. The construction of Horseshoe Barracks has received high praise from Army and its soldiers with the Barracks referred to as ‘best unit-sized Army facilities in Australia’. Planning for the future, the roads within the barracks have been purpose built to carry very heavy traffic including 68-tonne Abrams MBT and 50+ tonne SPG which is apparently not the case in Army barracks in Townsville or Brisbane. The new mess, sport and health facilities are jointly used by Army and RAAF personnel and have been designed for even larger numbers of service personnel. Land is also available within the EDP for the basing of additional Army units.

98. Within South Australia, further consolidation could be achieved by moving 16th Air Land Regiment from Woodside to Horseshoe Barracks thereby eliminating a single unit base and avoiding the impending cost of a mid-life infrastructure upgrade at Woodside. Doing so before the RBS-70 weapon system is upgraded or replaced through Project Land 19 Phase 7B (Ground Based Air and Missile Defence program) which is planned for decision in 2015 would mean any new facility and simulation requirements could be purpose-built to coincide with the move of the Regiment to Horseshoe Barracks.

99. The working accommodation at Horseshoe Barracks is state-of-the-art and includes simulation centres which have been purpose-built for 7th Battalion RAR and 102nd (Coral) Battery. Combined with potential facilities at CUTA and WPA, these simulation centres offer options for engagement in synthetic training and operational analysis. In future they could be readily linked with the existing simulation facilities at other Army locations and with 92 Wing and DSTO. This could offer an unprecedented opportunity for Joint synthetic training.

100. Recent international exercises such as Exercise Talisman Sabre 2011 highlight the opportunities to concurrently exercise a combination of real time, simulators representing military assets and simulated military activity to practise manoeuvre and command control, often in multiple theatres across national boundaries. With extensive new simulation facilities at Horseshoe Barracks, as well as at DSTO, these opportunities augur well for a highly sophisticated level of Army training in South Australia.

Strategic Infrastructure and Industry

“Defence should aim to group bases near strategic infrastructure and industry to promote knowledge sharing, innovation, and to maximise the effectiveness of industry support to the ADF.”

101. More than at any other major Defence base in Australia the location of the 1st Brigade units at Horseshoe Barracks means that Army is located adjacent to assets critical to the nation’s defence. These include such assets as DSTO, the control centre for JORN and the strategically critical Collins submarine maintenance facilities and AWD construction facilities at Techport Australia.
102. In addition, the Army is well located to protect the 25% of Australia’s defence industry capability that is located north of Adelaide including at the EDP and Technology Park.

103. With Defence and defence industry already well-established in South Australia, the degree of cooperation within the EDP would be difficult to envisage anywhere else in Australia. Industry in South Australia already assists Defence with EW research, communications, vehicle sustainment, counter-IED developments and many other capabilities relevant to Army. Building on this capability makes sense and generates a momentum that is in both the Army and industry’s interests. Exploiting this advantage by also locating Army’s EW and UAV assets in the EDP would provide even greater opportunities for support, thereby sustaining defence industry which would, in turn, provide better support for Army, Defence and Australia.

Family Friendly

“Where possible, Defence should locate bases in ‘family friendly’ areas which provide better employment, specialist medical and educational opportunities for families and with the potential to reduce posting turbulence in order to improve retention.”

104. As a smaller capital city, Adelaide has long been recognised as providing residents with a very attractive, affordable and liveable lifestyle. In South Australia barracks have been established in a secure area where service personnel are well supported, their families are happy and they can focus on developing Defence capability, while acknowledging that they may deploy anywhere in Australia or overseas.

105. With their families content, soldiers are happier and more likely to serve more effectively and for longer. Retention becomes a significant cost saving for the Army and, while this depends on civil employment trends, a soldier with a happy family is more likely to remain in the service for longer.

106. Compared to other capital cities median house prices in Adelaide are low as indicated in Table 2. In particular, when compared to Darwin, Adelaide provides an excellent opportunity for soldiers to purchase real estate and establish their families at an earlier stage of their life.

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<th>Table 2. Median House Prices Australia October 2011</th>
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107. Adelaide also offers soldiers and their families a very pleasant Mediterranean climate, relative ease in moving about the city and easy access to beaches and other recreational areas such as the wine districts of the Clare Valley, Barossa Valley, Coonawarra, McLaren Vale and the Adelaide Hills. The lifestyle is considered relaxed with an emphasis on being outdoors. With most soldiers recruited from the southern and eastern States, many soldiers and their families find the seasonal variations of Adelaide preferable to the tropical climate of Darwin.

108. The feedback from soldiers and their families who have recently arrived in Adelaide is that they are ‘delighted’ with the reception they have received and that the transfer from Darwin to Adelaide was essentially seamless. Soldiers were impressed with the available schooling, both public and private, the opportunities for spouse employment and overall community support. They said that State and local Governments were demonstrably welcoming of Defence personnel living in Adelaide. Within South Australia, there is unequivocal support at all levels of Government and from local
communities in and around Adelaide for an increased Army presence. Defence said their families considered Adelaide a very liveable city and the Study gained the impression these attributes were especially appreciated by those who recently arrived from Darwin.

109. South Australia has created a positive and responsive environment for Defence personnel that is not matched in other States. Unofficial comparisons between the move of 7th Battalion RAR from Darwin to Adelaide and that of 3rd Battalion RAR from Sydney to Townsville led to an assessment that South Australia provided the optimum level of planning and support. Adelaide has rapidly become a highly sought after posting and in the words of one commander, “My problem is quickly becoming how to extract people to other locations away from Adelaide postings, not how to get them there.”
The Giraffe Agile Multi-Beam 740 ground-based radar system operated by the South Australian-based 16th Air Land Regiment at the Multi-National Base at Tarin Kowt, provides protection for Australian and Allied forces from Rockets, Artillery and Mortars in 2011.
A Greater Army Presence

110. Compliant with the strategic basing principles, there are a number of options for an expanded Army presence in South Australia. The new common-user facilities at the Defence ‘Super Base’ at RAAF Base Edinburgh such as messing, medical and recreation amenities allow for greater numbers of service personnel in the future. In addition, there is sufficient land on and adjoining the EDP for the further expansion of the Army at Horseshoe Barracks. Together with the greater opportunity for training at the greatly expanded CUTA these factors provide significant options for Army to consider.

1st Brigade

111. As an armoured, cavalry and mechanised formation, the 1st Brigade suffers from severe restrictions on training in the north during the wet season. While an expanded CUTA would provide the Brigade with the best opportunity for all year heavy vehicle manoeuvre training in Australia there are significant constraints in regularly moving Darwin based units to CUTA.

112. The movement of the heavy vehicles and equipment from Darwin to CUTA is a logistical undertaking involving 43 hours by rail to Port Augusta plus additional transport by specialised low loader to CUTA. It is not only costly but it makes the soldiers and their assets relatively unproductive for a considerable period of time. While units of the Brigade have made the journey on a number of occasions, it would be significantly easier and a far better use of time if the units were based in Adelaide, thereby reducing the road travel to a much more manageable three hour journey.

113. With Plan Beersheba possibly distributing heavy vehicles and equipment across all three Brigades, an alternative may be to establish a pool of heavy vehicles and equipment at the Baxter facility within CUTA, and made available for training by the 1st, 3rd and 7th Brigades when required. This would enable the soldiers to fly in at the start of an exercise, train and then fly out at its conclusion thereby maximising the training value from the soldiers’ time and increasing the life of the equipment.

114. The 1st Brigade units which could potentially partly or fully relocate to South Australia include:

- **1st Armoured Regiment.** Equipped with 68-tonne Abrams MBT, this unit has the most to gain from relocating to South Australia. It would no longer have its ability to exercise throughout the year severely compromised by the wet season nor would it face complicated, time consuming and expensive logistic arrangements of moving armoured vehicles by rail and road to CUTA.

- **2nd Cavalry Regiment.** Also based in Darwin but equipped with the lighter 13-tonne ASLAV (but probably to be equipped with the 45 tonne Land 400 close Combat Vehicle in 2020), this unit faces similar training constraints due to environmental conditions and distance from training areas and would benefit from the shorter deployment time to CUTA from Adelaide. Due to its regular deployments to Afghanistan, the unit has not faced the same level of frustration as other units but as that operation starts to draw down, this may increase their training area concerns. With the implementation of Plan Beersheba, it is also possible that the unit will be split between the three Brigades. As part of this change, it is possible that a troop of ASLAV may be moved to Horseshoe Barracks or more practically, a squadron of the vehicles may be housed at CUTA as part of an EEP.

- **8th/12th Regiment:** Planned to be equipped with 47 tonne tracked 155 mm SPG, potentially with a tracked armoured ammunition loader of similar size, a battery of this unit is already to be based at Horseshoe Barracks. SPG are very large armoured vehicles which must be transported around Australia by special rail and road transporters. The unit will therefore face the same challenges as for the tanks of 1st Armoured Regiment. Having them closer to their primary training area...
will benefit the unit significantly. In addition, a SPG needs manoeuvre space similar to a tank and, with a gun range of over 50 km, also needs a very significant firing safety template. The distances to fully employ the capabilities of these weapon systems are not available at the Mount Bundy Military Training Area (MBMTA) in the Northern Territory, the nearest live firing training area to Darwin, and are only available at BFTA for limited periods of time. As it is likely that Australia will only procure 18 SPG then for operational, training and logistical reasons it would be logical to base the whole unit as a single capability in one location. Distributing these sophisticated weapons systems between the four different brigade bases across the country raises major support and logistical challenges that could all be avoided if centred on one location. Horseshoe Barracks offers a compelling case, with its purpose-built heavy vehicle infrastructure and with the option of an EEP at Baxter within an expanded CUTA.

- Other Support Elements. In addition to the units above, there would also need to be elements of Combat Support (such as engineers and signals) and Combat Service Support (including catering, transport, logistics and clerical) capabilities that will need to be established locally to support any additional combat elements in Adelaide.

Recommendation 1
Defence SA supports Army in exploring options for relocating selected elements of 1st Brigade to Horseshoe Barracks (from Darwin).

3rd Brigade
115. With 3rd Battalion RAR moving from Sydney to Townsville, the construction of new facilities at Lavarack Barracks and the proximity of the 232,000 ha (2,320 sq km) Townsville Field Training Area (TFTA) located 50 km West of Townsville and the close training
areas it appears unlikely that any element of this Brigade will be permanently moved to Adelaide.

116. The presence of the additional infantry battalion in Townsville from 2012 however and the increased use of TFTA for MRE by other units in addition to those of the 3rd Brigade, there is likely to be increased pressure on the availability of training areas for Townsville based units. This may mean elements of the Brigade will need to conduct training elsewhere which could lead to increased activity at CUTA.

117. This is even more likely if, as envisaged by Plan Beersheba, the Brigade is allocated armoured, cavalry and mechanised vehicles as these are not currently based in Townsville. In particular, the MBT and SPG may be too heavy for the roads within Lavarack Barracks and may have difficulty being transported to TFTA as the very few available specialised road and rail tank transporters will be widely dispersed supporting three brigades in four widely separated locations. Given the size of the range and the number of units required to use it, it is also doubtful if the SPG could be adequately exercised at TFTA further supporting the desirability of concentrating the SPG capability at Horseshoe Barracks.

6th (CS&ISTAR) Brigade

118. The 6th (CS&ISTAR) Brigade was re-raised on 1 March 2010 to command the Army’s Command Support and Intelligence, Surveillance, Target Acquisition and Reconnaissance (CS&ISTAR) units. Its headquarters is currently located at Victoria Barracks, Sydney and it forms part of the Army’s Forces Command. As a new brigade comprised of existing units located across Australia, the location of its headquarters in existing Army accommodation in Sydney was convenient as a short term measure. Some assets however will potentially need to move and concentrate as the Brigade’s capability matures.

119. In general, the units of the brigade will train as individual units or their sub-units will be

Soldiers of South Australian-based 16th Air Land Regiment, fire a RBS-70 missile at the live firing range in Woomera Prohibited Area, South Australia in 2009.
allocated to train with the infantry brigades. The Brigade itself is therefore unlikely to ever concentrate to exercise as a single formation.

120. Some units of the brigade are located where they need to exercise and operate such as the three Regional Force Surveillance Units (RFSU) – the 51st Battalion, Far North Queensland Regiment, Norforce (North-West Mobile Force) and the Pilbara Regiment. Others are located where they were based for historical reasons and could be relocated to South Australia. This became more compelling when the Study identified that both the 7th Signals (EW) Regiment and the 20th STA Regiment currently already exercise extensively in South Australia. An expanded CUTA will offer both units even greater exercising opportunities.

121. Locating key elements of 6th Brigade in Adelaide also avoids the otherwise over concentration of a large number of Army units in one small corner of the nation. There is strategic benefit in reducing the number of Army units in South East Queensland which otherwise creates a potential vulnerability. Moving to Adelaide, deploys Army capability across a wider area of Australia, promotes the development of joint capabilities and locates units much closer to the training areas of CUTA and WPA that they already regularly frequent to maintain their own capability.

122. Establishing such a technically oriented Brigade in South Australia, will also broaden the appeal of the Army in South Australia for recruitment and retention and it will also provide the Reserve with greater opportunities to work with some of the more technically advanced elements of the Army.

123. Having Army’s CS&ISTAR assets based in Adelaide would also make sense from an ADF perspective as much of the ADF’s other CS&ISTAR capabilities are also based in Adelaide including JORN, JEWOSU and the maritime and land surveillance operations of 92 Wing. There would be the opportunity...
to develop an ADF centre of excellence in CS&ISTAR training and operations and greater joint capabilities could be achieved.

124. These strategic, recruitment/retention and training benefits, as well as the co-location with DSTO and the industry that maintains and further develops these sophisticated capabilities, adds weight to the relocation of:

• **16th Air Land Regiment.** In line with the Defence basing principles, as the only unit based at Woodside, 16th Air Land Regiment is an obvious candidate for moving to a larger base.
  - Woodside barracks are due for a substantial facilities upgrade and moving the unit, while generating a one-off capital cost, would avoid further investment in a barracks facility which does not appear to have a long-term future.
  - With its traditional ground air defence role now expanded to include the C-RAM role, new and complex ground radar equipment is entering service. Together with the planned replacement of its ground air defence equipment and associated simulation from 2016, it would make sense to move the unit as this new equipment is brought into service.
  - WPA remains the ideal range facility for the unit's current RBS 70 weaponry and the nearby P&EE Port Wakefield facilities will assist in the introduction of the next generation of weapons for the Regiment.
  - As it operates extensively with the RAAF and makes considerable use of CUTA and WPA to practice its role, relocating to Horseshoe Barracks would be the logical place to move the unit and also would overcome the problems associated with its isolation from other Army units. Since it is already based in South Australia, retaining it in the State would also minimise the personnel and family issues when moving from Woodside.

• **20th STA Regiment.** Based at Gallipoli Barracks, Enoggera, Queensland, the 20th STA Regiment was raised in 2006 and is responsible for artillery spotting and tactical reconnaissance.
  - Comprising Surveillance and Target Acquisition (Radar) Battery and a UAV Battery, as well as service support, it is currently housed in modified 30-year-old buildings and has not yet had new facilities approved. The Regiment operates the Tier 3 Boeing ‘Scan Eagle’ UAV including deploying a detachment to the MEAO but is due to deploy the AAI Tier 3 ‘RQ-7B Shadow 200’ in 2012. This UAV is a significantly bigger aircraft and requires much greater support including a permanent airstrip for landing which is not available at Enoggera and so the unit will no longer be able to operate UAV from their barracks as they do now.
  - The Civil Aviation Safety Authority has concerns with the redundancy of UAV controlling and navigating systems and their potential failure over populated areas. Because of this, it has imposed restrictions on UAV flying in restricted airspace in Australia. This generally limits the UAV to flying over military training areas. The 20,000 ha (200 sq km) Wide Bay Training Area (WBTA) located 216 km north of Brisbane is the currently preferred military training area for the Scan Eagle UAV. However, even with this much smaller aircraft it has significant limitations including its small area, its location under a busy light aircraft traffic corridor and the significant restrictions on night operations.
  - Being based in Adelaide and having ready access to an expanded CUTA and WPA both with far less air traffic-based restrictions would be a significant benefit to further developing capability. The unit is already using CUTA for MRE prior to deploying to the MEAO and with the introduction into service of the larger ‘Shadow 200’ the proximity of P&EE Port Wakefield and the expanded CUTA and
WPA offer a far superior array of options to operate tactical UAV. The collocation with DSTO Edinburgh offers further research and operational enhancement opportunities that would not be as easily available if the unit remained in South East Queensland.

– In addition, the planned Tier 5 RAAF UAV (possibly the ‘Global Hawk’) is likely to be based at RAAF Base Edinburgh and, while they will be much larger than the Army UAV, there are likely to be synergies from operations, surveillance, training, maintenance and technical perspectives if the few ADF units involved in UAV are co-located at Edinburgh. Arguably the ADF is simply not large enough to operate these similar capabilities at disparate locations especially when the opportunity exists to co-locate them and benefit from operational, research and training synergies. Army would also benefit from having ready access to the military controlled airstrip at RAAF Base Edinburgh for in-barracks training.

– There is a further operational advantage in collocating 20th STA Regiment and 16th Air Land Regiment at RAAF Edinburgh, as there are potential synergies operating tactical UAV and C-RAM together.

• **7th Signals (EW) Regiment.** In the 2009 Defence White Paper the Government indicated that it placed a high priority on strengthening the ADF’s EW capabilities.21

– In particular, the Paper indicated that the Government would continue to develop its force level EW capability by establishing a Joint EW Centre through the collocation of a number of ADF EW organisations, aimed at growing a critical mass of personnel and expertise. This centre was intended to be responsible for training, research and development, countermeasure development, and the validation and verification of EW...
South Australia already hosts a significant proportion of that capability through the JEWOSU, DSTO, WPA and local industry and so the Paper said that subject to further evaluation, the new centre would probably be located in Adelaide.

- Less than three years later, this strategic approach remains valid. The Army’s EW capability is centred on 7th Signals (EW) Regiment which is located at the single unit base at Cabarlah, Queensland. There would be significant advantages if the unit was relocated to Edinburgh as it could combine with DSTO and the tri-service staffed JEWOSU to develop the ADF centre of excellence for EW training and capability development, make use of the CUTA and WPA areas for training and testing and leverage the expertise of the local industry. It would also allow for the elimination of a single unit Army base at Cabarlah. This would also mean the relocation of the small Joint Telecommunications School, which is the individual tri-service EW training school also located at Cabarlah.

- **HQ 6th (CS&ISTAR) Brigade.** With its units necessarily being based across at least five States and Territories, the geographic location of the brigade Headquarters is in a sense immaterial. However, if 7th Signals (EW) Regiment and 20th STA Regiment were moved to Adelaide to join 16th Air Land Regiment, then the centre of mass for the Brigade would clearly also be Adelaide. To exploit the full potential from these ADF assets it would make sense for their formation headquarters to also be based in Adelaide. Indeed, Adelaide is also more ‘central’ to the location of the Brigade’s three RFSU than anywhere on the eastern seaboard.

S-70A Blackhawk from the Sydney based 6th Aviation Regiment operating in support of the 10th/27th Battalion, Royal South Australian Regiment and the 12th/14th Battalion, Royal Tasmanian Regiment of the Reserve 9th Brigade on their annual combined arms training exercise ‘Rhino Charge’ held at Cultana Training Area in South Australia’ in 2009.
- The brigade headquarters could be established at Horseshoe Barracks or at Keswick Barracks, Adelaide where existing, Army facilities could readily and relatively inexpensively accommodate such a headquarters.

- The location of the brigade headquarters in South Australia would also enable the State’s growing Regular Army capability to be commanded and represented by a one-star Regular officer.

Recommendation 2
Defence SA supports Army in examining the potential for relocating to Horseshoe Barracks:

- Headquarters 6th (CS&ISTAR) Brigade (from Sydney),
- 16th Air Land Regiment (from Woodside),
- 20th STA Regiment (from Brisbane), and
- Army EW capability, including 7th Signals (EW) Regiment (from Cabarlah).

7th Brigade

125. The Study notes that the Gallipoli Barracks redevelopment project at Enoggera as a part of the Enhanced Land Force is continuing. Most of the 7th Brigade units located there have been built new facilities and accommodation and are therefore most unlikely to move to South Australia.

126. Starting to also concentrate the elements of 6th (CS&ISTAR) Brigade at Enoggera however, has led to a congested barracks environment. The relocation of 20th STA Regiment of 6th (CS&ISTAR) Brigade from their old accommodation in Enoggera to Horseshoe Barracks would help overcome this overcrowding and enhance the 7th Brigade’s barracks environment.

16th (Aviation) Brigade

127. 16th (Aviation) Brigade commands the Australian Army’s operational aviation units and is headquartered at Gallipoli Barracks, Enoggera, Queensland.

- **1st Aviation Regiment.** Equipped with Tiger Armed Reconnaissance Helicopter (ARH) the Regiment is based in new facilities at Robertson Barracks, Darwin, Northern Territory. While these are good facilities, the Tiger ARH project has struggled to meet its operational capability milestones and this is partly due to the unfavourable weather conditions in Darwin. While this has been most evident during the introduction into service phase, this is likely to continue to have an impact as the aircraft continue to operate in the north. Basing at least some of the elements of the unit at Horseshoe Barracks may alleviate many of these operational restrictions and increase the availability of the aircraft. Collocation with RAAF Aircraft Research and Development Unit at Edinburgh may also offer some technical and proficiency benefits. The ready access to the WPA and the expanded CUTA for the firing of live ammunition would also be beneficial. In addition, having elements of the unit based in Adelaide would mean that Tiger ARH could more frequently and more readily undertake realistic training with armoured, cavalry and mechanised elements from 1st Brigade at CUTA.

- **5th and 6th Aviation Regiments.** The 5th Aviation Regiment based at RAAF Base Garbutt, Townsville, Queensland is equipped with CH-47D Chinook, S-70A Blackhawk and MRH-90 helicopters. The 6th Aviation Regiment based at Holsworthy Barracks, Sydney, New South Wales is equipped with S-70A Blackhawk and Kiowa helicopters. There is no immediate benefit in permanently basing these units in Adelaide but there may be benefit in basing some elements in Adelaide on a rotational basis. This would allow the units to provide a higher level of aviation support to the 1st Brigade and elements of the SOTG training at CUTA. As the pressure on
Sydney air space increases, there also may be long-term benefits for the 6th Aviation Regiment to consider permanent basing of elements of the unit at Horseshoe Barracks.

**Recommendation 3**
Defence SA highlights to Army the benefits of relocating elements of 16th (Aviation) Brigade to Adelaide (from Darwin, Townsville, Brisbane, Sydney and Oakey).

**17th (Combat Service Support) Brigade**

128. The 17th (Combat Service Support) Brigade commands the Australian Army’s deployable operational level logistics units and is responsible for providing third line or ‘general’ support within an area of operations. It is made up of various logistical corps and trades and it encompasses both Reserve and Regular units dispersed around Australia. Headquartered in Sydney, its primary deployable command element is the Force Support Group.

129. The only unit of the Brigade located in South Australia is the Reserve 3rd Health Support Battalion which is based at Keswick Barracks in Adelaide. It is not envisaged that any of the other units of the brigade are likely to be relocated to South Australia.

130. The Battalion continues to make an important contribution supporting the ADF health services in Australia and overseas and based on the ongoing high level of support of the community of health professionals in South Australia, this is expected to continue. Furthermore, it is considered possible that there will be opportunities for an even greater level of cooperation between the State Government and the ADF which could see an expansion of the health support based in South Australia.
Land Warfare Development Centre

131. The Land Warfare Development Centre (LWDC) is the Army’s principal conceptual research institution. It supports the Chief of Army, Army Headquarters and the Army at large through a range of research, publication, conference and visiting fellow programs. Headquartered in Puckapunyal Victoria the LWDC comprises almost 400 staff in 15 locations around Australia.

132. LWDC is tasked to promote the wider understanding and appreciation of land warfare, provide an institutional focus for applied research into the study of land warfare and raise the level of professional and intellectual debate within the Australian Army. The LWDC research staff’s areas of interest cover a broad spectrum of topics relevant to the Army today and in the future. In doing so, the Centre works closely with the Land Operations Division of DSTO based at Edinburgh.

133. There appears to be a real opportunity for elements of the Centre and DSTO Edinburgh to work more closely to undertake deeper research into Army’s war fighting doctrine and to test various scenarios. Relocating the Force Development Group (one of the four LWDC directorates and with a keen interest in experimentation) to Adelaide, possibly based at Keswick Barracks or DSTO Edinburgh, could enhance force development and maximise the synergies between the two organisations. In addition, the new simulation capabilities established at Horseshoe Barracks, perhaps also linked to exercises taking place at CUTA, could be utilised to enhance this research capability and enhance integration.

134. Re-location from Puckapunyal to Adelaide would also better support the Centre’s staff who are largely mid-ranking officers with families. Being relocated to a capital city would provide a broad range of housing, education, spouse employment and family support benefits to the staff over and above those available at Puckapunyal.

Recommendation 4
Defence SA proposes to Army the relocation of the Force Development Group within the Land Warfare Development Centre (LWDC) to Adelaide (from Puckapunyal).

Combined Arms Fighting System Centre

135. As part of the current Army modernisation, two supporting integration centres have been established within Army being:

- The Land Network Integration Centre in Fyshwick is a physical centre to identify and resolve user issues found in the in-service communications, command and control and battlefield management systems.
- ‘Diggerworks’ within the DMO and DSTO in Melbourne is a virtual centre focussed on achieving integrated soldier combat systems.

It is understood that a third integration centre, the ‘Combined Arms Fighting System (CAFS) Centre’ has been considered but its’ establishment is on hold.

136. The Study was initially advised that because of the scale and complexity of modern military weapon, vehicle and information systems, it was proposed to establish an integration centre to integrate all those systems that make up the CAFS. Subsequently, the Study learnt that Army may be seeking to combine all Army and defence industry integration centres into one virtual ‘super’ integration centre.

137. The EDP offers an excellent opportunity to develop this concept and leverage the proximity of DSTO, the 7th Battalion RAR Battle Group, the simulation centres at Horseshoe Barracks, the local defence industry and the expanded CUTA. To develop this opportunity in the near term, Army could consider using Keswick Barracks or the now vacant office complex in suburban Felixstow in Adelaide until recently occupied by DMO for the AWD project.
Recommendation 5
Defence SA highlights to Army the benefits of establishing the Combined Arms Fighting System Centre in Adelaide.

US Army and US Marines in Australia

138. Together with the Australian Government the US Global Force Posture Review is considering future US presence in Australia. The Study understands that while it is less likely to have a direct impact on South Australia in the short term, there is potential for indirect benefits for South Australia.

139. A regular presence of US Marines in Australia in the form of a Marine Air Ground Task Force was announced during the conduct of the Study. The Study understands that permanent US basing in Australia is highly unlikely but training areas and some limited barracks facilities will be required over long periods.

140. With BFTA and MBMTA being limited by wet season restrictions, TFTA now being used by three battalions and SWBTA being in heavy demand by the ADF, US and the Singaporean Armed Forces, the options for more large scale exercises in those training areas are already limited. A 2010 feasibility Study into South Australian Defence training areas identified favourable options which were well received by US Pacific Command and US Joint Forces Command involving an expanded CUTA. This was before the potential added advantage of establishing an EEP storage facility at the Baxter site within CUTA was identified. South Australia should therefore actively promote training area opportunities for US forces and support any opportunities for US training in the State in whatever form that may take.

141. Greater US activity in northern Australia may, in turn, lead to the redeployment of some Australian Army elements to the south and/or greater use of CUTA by Darwin-based Army units. These secondary ‘knock-on’ effects are unlikely to be fully known in the short-term.
Recommendation 6
Defence SA encourages an increased level of US presence within Australia and fully explores all opportunities for the training of US personnel in South Australia.

Defence Technology Institute
“\textit{The battle of ideas is central to defence and security of Australia}.”

142. An opportunity exists for South Australia to exploit its Defence technological advantage. The State hosts a unique combination of DSTO and defence industry research and simulation capabilities which have already expanded into South Australia’s universities through physics and engineering programs. South Australia is well positioned to exploit these and develop an institute that generates research, promotes existing and future capabilities and highlights the role of technology within the Defence environment, perhaps initially with a Land focus, further promoting South Australia as the smart ‘Defence State’.

143. ‘Future Directions International’ based in Perth currently offers similar outcomes. Promoting a ‘two-ocean’ view for Australia, the Perth-based research body promotes consideration and debate of Indian Ocean as well as Pacific Ocean issues. This approach has generated an awareness of significant issues that otherwise may not have entered the public arena.

144. In South Australia, DSTO is not well placed to generate similar public discussion regarding Defence technology and industry because of security implications and its primary role of supporting Defence. The co-location of DSTO Edinburgh and the Defence Teaming Centre, as well as the existing defence industry within South Australia, however, generates the foundation to develop a dynamic national entity promoting both national and international discussion about defence technology.

145. In turn, the work of such an institute could help inform and influence leaders, policy makers and eventually Defence outcomes, highlighting security imperatives together with the economic benefits of Defence technology and the subsequent spin-offs into other non-Defence areas, including mining, manufacturing, emergency management and recreation. It could generate ideas, promote discussion, sponsor forums and develop papers. Work by Professor Peter Edwards at Flinders University, and his promotion of Fulbright Scholarships focused on Defence issues is an example of the existing work in South Australia that may be able to be harnessed into a Defence-focused technical ‘think-tank’.

Recommendation 7
Defence SA considers the establishment of a ‘Defence Technology Institute’ in Adelaide.

Army Cadets
146. The Study identified the generic benefits of school cadets in the development of girls and boys interested in Defence and also the linkages of school cadet programs to increased Defence recruiting and interest in the defence industry.

147. While some community based Cadet Units are already in place around the State, unlike most other States, there are no public or private school-based cadet units in South Australia. In implementing a truly holistic approach to South Australia being the ‘Defence State’, the Study proposes that the South Australian Government reviews how it can actively promote the benefits of school based cadet units to South Australia schools.

Recommendation 8
Defence SA promotes the establishment of cadet units based in schools in South Australia.
Army Reserve

148. The Army Reserve has a large presence in South Australia comprising 7.2% of the total organisation. More significantly, at the end of 2012 it will form 42% of the total Army presence in the State. Formed into the 9th Brigade it comprises a Headquarters and several major armour, artillery, engineers, signals and infantry units. It is primarily based in the historic Keswick Barracks but has sub-units in locations across Adelaide and throughout the State.

149. Under Plan Beersheba, it is now linked with 1st Brigade and as well as providing a capability to respond to natural disasters within South Australia, in conjunction with the Victoria based Army Reserve 4th Brigade, it must also contribute to a Reserve Battle Group every three years. In line with the expanding role of the Reserve, the 9th Brigade has recently deployed a significant contingent to the Solomon Islands.

150. While a long standing and important part of the Army presence in South Australia, the Army Reserve has not always necessarily gained the recognition this presence deserves. It is likely that as the Defence State, the State could do more to support the Army Reserve organisation and the part-time soldiers and their families that form its core.

Recommendation 9
Defence SA promotes the Army Reserve elements based in South Australia.

A M1A1 Abrams Main Battle Tank from the 1st Armoured Regiment fires at targets from alongside a gun line of 155mm M198 Howitzers from 8th/12th Regiment for a heavy battle group activity at the Cuitana Training Area, South Australia during Exercise Southern Reach in 2007.
Looking East towards Spencers Gulf from within the existing Cultana Training Area, South Australia.
CHAPTER 6: CULTANA TRAINING AREA

Importance

151. The proximity and utility of training areas is becoming an increasingly fundamental factor in determining the success of Army basing decisions. The primary training area for Army in South Australia is CUTA and its adequacy will be decisive when assessing the potential for basing additional Army units in South Australia.

152. The current size of CUTA is inadequate for use by a mechanised battle group. The expansion of CUTA was therefore initiated by the South Australian Government in 2003 when it suggested an expanded CUTA as the 1st Brigade’s wet season training area. It was clear that finalisation of the planned expansion would also generate a very attractive offering to the ADF with a range of single service and joint options for exercising.

153. The importance of this project to Army and therefore its importance to Army’s existing and expanded presence in South Australia, cannot be over emphasised. Without the expansion it is unlikely that CUTA will remain an ADF Category 1 Training Area and Range or that Army will have further interest in expanding its presence in South Australia. Indeed, contrary to the promise of an expanded CUTA, failure to complete in a timely manner may mean that CUTA is instead seen as a liability by Defence.

154. Finalisation of the CUTA expansion is therefore the key to future Army development in the State. In military terms, the expansion of CUTA is the ‘vital ground’ for South Australia.

Completion of the Expansion

155. To effect the completion of the expansion, there are a range of issues that must be resolved and a series of subsequent matters that require completion before the extended facility can be used by Army. While the Study has not been briefed on existing project planning, which should account for these issues and much more, they are listed here to highlight the range and diversity of considerations that still require resolution. This is not an exhaustive list.

- Agreements. A range of agreements and other planning issues are yet to be finalised including:
  - Indigenous Land Use Agreement. An Indigenous Land Use Agreement has been concluded with the main local indigenous groups, but remains six months away from final execution.
  - Miscellaneous Lease for Defence Purposes. The transfer of lands from local pastoralists to Defence under the Miscellaneous Lease for Defence Purposes is yet to be concluded. A recent Senate Estimates Committee hearing indicated progress had been made but no time frame for concluding the agreement was mentioned.
  - Environmental. The land use on the existing CUTA site and planning the expanded CUTA to ensure appropriate rotation and revegetation needs to be planned and monitored. This includes finalisation of the Environmental Impact Statement and associated public consultation process. It will also involve improving the pastoral land currently leased by graziers which has been allowed to deteriorate due to the expected transfer to Defence.
  - Community Expectation Management. To ensure success, the local communities of Port Augusta and particularly Whyalla need to be brought on side. They need to better understand what they will gain from the expansion as well as what they perceive they will lose. This may be helped if Defence was to make it clear how the regional economy will be stimulated, this may be through local purchasing, the use of local contractors in support of Defence activity related to the development and ongoing use of CUTA and the establishment of an EEP of heavy vehicles and equipment at Baxter.
Map 5. The Cultana Training Area in South Australia

Map 6. The Current and Planned Cultana Training Area
PLANNED CULTANA TRAINING AREA (2,100 sq km) in total

CULTANA TRAINING AREA (500 sq km)

Baxter Centre

Amphibious Landings

Point Lowly

Whyalla Conservation Park

Whyalla

PORT AUGUSTA

SPENCER GULF

IRON KNOB

EYRE HWY

LINCOLN HWY

IRON KNOB WHYALLA ROAD

LINCOLN HWY

KNOB WHYALLA ROAD

LINCOLN HWY
- **Mining access.** In such a large area rich in minerals, it is likely that mining interests will need to be considered and accommodated. There are already proposals for an ammonia nitrate mine in the south of the training area.

- **Transport Issues.** There are a diverse range of transport issues that need to be resolved.
  - **Air Space Adjustment.** The domestic traffic approaches to Whyalla from over the proposed CUTA expansion need to be rerouted to an over-the-sea approach.
  - **High Level Interstate Air Traffic.** The flight paths of high level interstate air traffic needs to be monitored to ensure Defence activity at CUTA does not interfere with flights to and from Perth.
  - **Local Airstrips.** Options to enhance local airstrips to support military traffic into and out of CUTA need to be examined.
  - **Wharf facilities.** Options for the military use of local wharf facilities at Whyalla or Port Augusta need to be considered.
  - **Road Access.** The management of existing road routes through the expanded CUTA, their control when Defence activity crosses these roads and the limits any future road incursions through, or on the boundary of CUTA, including along the coastal strip needs to be planned.

**Completion of the Development**

156. Once the ‘expansion’ has been completed an initial investment of over $50 million to undertake basic works under the Enhanced Land Force program has already been approved. These works need to be completed prior to Army being able to make full use of the expanded CUTA. While some planning has been completed, the Study was unable to view detailed plans nor a detailed schedule for their completion.
• **Minor Retail Facility.** A new 500 Explosive Pallet Space Minor Retail Facility will be located on the existing training area and constructed in accordance with Defence standards. The works will include a contractor’s office located with Range Control and all engineering services to support the new facility.

• **Permanent Camp Accommodation.** New camp accommodation would comprise accommodation blocks, kitchen and dining facilities as well as ablutions and administrative and logistic support areas. The facility will have integrated stores area and hard standing.

• **Urban Operations Training Facility.** A new urban operations training facility will be provided that is capable of supporting up to a Battle-Group-sized force with both mounted and dismounted units. The proposed facility will have instrumented simulation capabilities.

• **Field Firing Training System Range.** A new training range will be constructed to allow for armoured vehicle live firing.

• **Environmental Sustainability Works.** A range of works will be completed to improve fencing, road and water crossing structures for controlling storm water run-off, highway and railway passes, infrastructure service crossings and cattle grids.

**Progress**

157. Defence has advised that once the expansion is approved, it would take a further 12–18 months to complete the above works and prepare the expanded range for ongoing use. Hence, under current planning, even if the expansion was completed in mid-2012, it would not be until late 2013 at the earliest that a mechanised battle group could exercise at CUTA.

158. While progress appears to have been made in the later part of 2011 this may be illusory as it is occurring after a long period of relatively little movement. There still seems to be no target dates except ‘mid-2012’ for the
completion of the expansion and 2013 for the completion of the subsequent development.

159. This is not to criticise the existing support provided by any individual or organisation in the State or Commonwealth Governments but simply to point out that without a clear objective, there is no target date against which to measure progress or with which to galvanise action. The Study has identified that project timeframes and definitive target dates are not clear to many stakeholders. This is highly undesirable and unhelpful in progressing the project to rapid completion.

160. While formally the responsibility of the Commonwealth to complete, the State has a clear interest in seeing the project finalised. The expansion of CUTA is so critical to the success of Army in the State that it warrants greater State resources and priority. As a first step, given the importance to its mission, Defence SA should have greater involvement in the project, exploiting its political capital with Defence.

161. It is also suggested that Defence SA appoint its own project officer to work with the various State and Commonwealth Government participants to support the completion of both the CUTA expansion and subsequent development. Through this partnership with Defence the remaining impediments will be minimised and CUTA will become operational more quickly. The types of activities to be performed by this project officer would include:

- communicating the project plan with stakeholders including the date when the training area will become fully operational, threats to that date and mitigation of those threats,
- looking for ways to undertake the above works concurrently so the expanded CUTA is ready for use by Army at the earliest opportunity,
- examining ways for Army to establish with industry an EEP of heavy vehicles and equipment at Baxter,
- providing the necessary State Government assistance to the Commonwealth to resolve the numerous issues identified above,
- determining what additional features the ADF and Allied forces are seeking that will enhance CUTA and make it more appealing, and
- developing the opportunities for local and regional industry to contribute.

Recommendation 9
Defence SA promotes the expanded CUTA as the most suitable year-round armoured, cavalry and mechanised manoeuvre training area in Australia and encourages the use of the expanded CUTA for Joint and Combined training opportunities.

Recommendation 10
Defence SA appoints a CUTA Project Officer to support the Commonwealth to accelerate the finalisation of the expansion and development of CUTA.

Recommendation 11
Defence SA supports Army in establishing an EEP of heavy vehicles and equipment at the Baxter site within CUTA.
M777 155mm Light Weight Towed Howitzers of the Adelaide-based 102nd (Coral) Battery fire at the Cultana Training Area, South Australia in 2012. Using improved munitions with the XM201156 Precision Guidance Kit, the gun has an effective range of 30 km with an unprecedented degree of accuracy.
A soldier from the Adelaide-based 7RAR, on patrol during a combined-arms battle group live-fire assault to prove the war-fighting skills of the battle group as part of Exercise Predator’s Strike in 2011.
CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

162. This Study set about identifying and exploiting the synergies that have been generated through existing and new Army units and their activities occurring in South Australia. The arrival of major elements of the 1st Brigade has highlighted the possibilities and this is linked to an unprecedented level of support for Defence at the State Government level.

163. Care has been taken to ensure the Study has not pre-empted the series of reviews currently being completed by Defence, noting that all may have direct and indirect impact on the Army presence in South Australia. The Study does, however, note the guidance of the 2009 Defence White Paper, acknowledging it will remain current through to 2014 when the next White Paper is due.

164. The benefits of South Australia presenting a secure defensive position in the context of defending the Australian mainland are highlighted by the Study. It notes the benefits and efficiencies of base consolidation and identifies that the EDP offers an excellent opportunity for this to occur. The Study also highlights the particular strengths of Adelaide for an Army garrison which present very favourably within a national context.

165. An expanded CUTA, which is readily accessible and available throughout the year, will become the favoured training area for armoured, cavalry and mechanised manoeuvre and the report highlights the opportunities presented as well as emphasising the need for the expansion and development to be finalised.

166. This Study necessarily focused on operational issues but clearly each of the recommendations has an impact on Defence resources and needs to be more deeply analysed. Preliminary subjective analyses suggest however, that the overall, long term impact of the proposed initiatives on Defence resources will be positive and well worth pursuing through thorough investigation and the development of individual business cases.

Recommendations

167. The Study makes the following recommendations:

Recommendation 1
Defence SA supports Army in exploring options for relocating selected elements of 1st Brigade to Horseshoe Barracks (from Darwin).

Recommendation 2
Defence SA supports Army in examining the potential for relocating to Horseshoe Barracks:
- Headquarters 6th (CS&ISTAR) Brigade (from Sydney),
- 16th Air Land Regiment (from Woodside),
- 20th STA Regiment (from Brisbane), and
- Army EW capability, including 7th Signals (EW) Regiment (from Cabarlah).

Recommendation 3
Defence SA highlights to Army the benefits of relocating elements of 16th (Aviation) Brigade to Adelaide (from Darwin, Townsville, Brisbane, Sydney and Oakey).

Recommendation 4
Defence SA proposes to Army the relocation of the Force Development Group within the Land Warfare Development Centre (LWDC) to Adelaide (from Puckapunyal).

Recommendation 5
Defence SA highlights to Army the benefits of establishing the Combined Arms Fighting System Centre in Adelaide.
**Recommendation 6**
Defence SA encourages an increased level of US presence within Australia and fully explores all opportunities for the training of US personnel in South Australia.

**Recommendation 7**
Defence SA considers the establishment of a ‘Defence Technology Institute’ in Adelaide.

**Recommendation 8**
Defence SA promotes the establishment of cadet units based in schools in South Australia.

**Recommendation 9**
Defence SA promotes the Army Reserve elements based in South Australia.

**Recommendation 10**
Defence SA promotes the expanded CUTA as the most suitable year-round armoured, cavalry and mechanised manoeuvre training area in Australia and encourages the use of the expanded CUTA for Joint and Combined training opportunities.
Recommendation 11
Defence SA appoints a CUTA Project Officer to support the Commonwealth to accelerate the finalisation of the expansion and development of CUTA.

Recommendation 12
Defence SA supports Army in establishing an EEP of heavy vehicles and equipment at the Baxter site within CUTA.
A 105mm M2A2 Howitzer from the Army Reserve 48th Battery, 9th Brigade based at Keswick Barracks fires a traditional salute from Adelaide's Monterfiore Bridge on Australia Day 2009.
APPENDICES

Appendix 1
RAN and RAAF Units in South Australia

Appendix 2
Defence Properties in South Australia

Appendix 3
Persons Interviewed
HMAS Collins constructed at Techport Australia in Adelaide, exercising off the West Australian coast in 2007.
APPENDIX 1: RAN AND RAAF UNITS IN SOUTH AUSTRALIA

RAN

1. The units of the RAN operating in South Australia are largely linked to the AWD ship build and Collins Class submarine maintenance projects and the Joint EW capabilities at Edinburgh. They are:
   • Navy Headquarters, Keswick Barracks, and
   • Navy Reserve Dive Team, Port Adelaide.

RAAF

2. Air Force units operating in South Australia are based at RAAF Base Edinburgh, with a small element at the Woomera Test Facility. They are:
   • Aerospace Operational Support Group
     – Information Warfare Wing
     • Joint EW Operational Support Unit
     • 87 Squadron
     • 462 Squadron
     – Air Systems Development and Test Wing
     • Aircraft Research and Development Unit
     • Aircraft Systems Engineering Squadron
     • Aircraft Stores Compatibility Engineering Squadron
     • Institute of Aviation Medicine
     – Woomera Test Range
   • 41 Wing
     – 1 Radar Surveillance Unit – Jindalee Over the Horizon Radar (JORN) Network
   • 44 Wing
     – Detachment – Air Traffic Control
   • 92 Wing
     – 10 Squadron – P-3 Operations
     – 11 Squadron – P-3 Operations
     – 292 Squadron – P-3 Training
   • 1 Airfield Defence Squadron
   • 4 Expeditionary Health Squadron
   • 24 Squadron
   • RAAF Cadets – various locations across the State
A trial of the Hyshot scramjet held at Woomera Test Range Facility led by the University of Queensland in 2006.
Edinburgh Defence Precinct

1. The EDP includes Defence Science and DSTO Edinburgh (280 ha) and RAAF Base Edinburgh (890 ha) and is located approximately 28 km north of Adelaide. The precinct is to the north of the junction of Bagster Road and Commercial Road and extends as far west as Heaslip Road. Together with the State Government Edinburgh Parks Development, the precinct forms the entire suburb of Edinburgh. The closest major urban centres are Elizabeth (two km north-east) and Salisbury (five km south). The site is surrounded by a mix of land uses including residential, manufacturing and rural development.

   - DSTO, Edinburgh. The DSTO facility at Edinburgh is the largest defence electronics research and development centre in the southern hemisphere and is home to 1,350 staff.

   - RAAF Base Edinburgh. Located in the EDP, RAAF Base Edinburgh is home to the AOSG and 92 Wing which operates the AP-3C Orion maritime patrol aircraft. The base has recently undergone significant reconstruction with about $750 million spent on building Horseshoe Barracks to support the 7th RAR Battle Group and upgrading RAAF and jointly used facilities. The base has also been proposed as the future home of the RAAF multi-mission unmanned aerial system (AIR 7000) and the Integrated Ground Environment.

Radar Facility – St Kilda

2. The 219 ha St Kilda Receiving Site is 11 km east of the Edinburgh situated adjacent to the intersection of St Kilda Road and Radar Road, St Kilda and is utilised by DSTO for radio and radar research projects.

Naval Yard – Birkenhead

3. The Birkenhead Naval Yard occupies less than one ha and is situated on the Gawler Reach of the Port River at 10 Jenkins Street. It is 13 km north west of the Adelaide GPO. The yard comprises working accommodation, a boat shed, a wharf, boat ramp and bitumen hard standing. It accommodates a Navy Reserve Diving Team and a Navy Cadet Training Ship.

Air Warfare Destroyer Systems Centre

4. Located at ‘Techport Australia’, the Hobart Class AWD Systems Centre is the hub of the AWD project accommodating AWD Alliance partners (the DMO, shipbuilder ASC Pty Ltd and Raytheon Australia and capability partners Navantia, the US Navy and Lockheed Martin Corporation. The Alliance is managing the design, schedule, budgets and major procurements of the AWD project.

The Proof & Experimental Establishment – Port Wakefield

5. The P&EE at Port Wakefield is located 100 km north of Adelaide, nine km south of the Port Wakefield town ship and is situated on the coast of the Gulf of St Vincent. The establishment conducts weapons research and testing for the ADF. It is the only range in Australia where projectiles can be fired into a coastal area and, because of coastal tides, be retrieved relatively undamaged for assessment and review.

Air Force Cadet Depot – Gawler

6. Air Force Cadet Unit Gawler occupies one ha and is situated on Gawler River Road.
Army – Barracks

7. Army has five Barracks to support Regular and Reserve training in South Australia:

- **Horseshoe.** Horseshoe Barracks are located on Defence ‘Super Base’ at RAAF Base Edinburgh within the EDP and provide working accommodation and training areas for the 1st Brigade units located at Edinburgh.

- **Keswick.** Keswick Barracks is a roughly triangular area of 12.8 ha adjacent to the south and west parklands and bounded by Anzac Highway to the north west, Maple Avenue to the south and a main railway line to the east.

- **Warradale.** Warradale Barracks occupies 23 ha and is located on the corner of Oaklands and Morphett Roads, Warradale.

- **Hampstead.** Hampstead Barracks occupies 7.2 ha and is located on Muller’s Road, Greenacres.

- **Woodside.** Woodside Barracks is located in the Adelaide Hills, 35 km east of the Adelaide by road (27 km direct). The 170 ha property is divided into three distinct areas:
  - the ‘Inverbrackie Village’ of 23 ha comprising 80 Defence houses now owned by Defence Housing Australia and used by the Department of Immigration,
  - the military cantonment of 60 ha, comprising working accommodation, workshops, a gymnasium, indoor swimming pool, messes and living-in accommodation, sealed and unsealed roads, car parks, sporting fields, lawns and gardens, and
  - the CTA of 87 ha consisting of hills and bushland with sealed and unsealed roads and a defunct 25 m rifle range.
Army – Multi User Depot

8. Army has seven Multi-User Depot to support Reserve training in South Australia:
   - **Berri.** The Berri depot occupies four ha and is situated on Crawford Terrace.
   - **Elizabeth North.** The Elizabeth North depot occupies 36 ha and is situated on Broadmeadows Road.
   - **Kadina.** The Kadina depot occupies one ha and is situated on Francis Street.
   - **Mt Gambier.** The Mount Gambier depot occupies four ha and is situated on Sherperdon Road.
   - **Pt Lincoln.** The Pt Lincoln depot occupies four ha and is situated on Flinders Road.
   - **Pt Pirie.** The Pt Pirie depot occupies one ha and is located on Warnertown Road.
   - **Victor Harbor.** The Victor Harbor depot occupies one ha and is located in Maude Street.

Army – Cadet Unit Depot

9. Army has two Army Cadet Unit (ACU) to support Cadet training in South Australia:
   - **Murray Bridge.** The Murray Bridge depot occupies one ha and is situated on Caroline Street.
   - **Clare.** The Clare depot occupies four ha and is situated at the intersection of Beare, Hope and Powell Streets.

Training Areas and Ranges

10. There are five training areas and ranges to support ADF training in South Australia:
   - **Woomera Prohibited Area.** Located around 450 km north-west of Adelaide and covering 12,700,000 ha (127,000 sq km) the Woomera Protected Area (WPA) is the largest land-based range in the world. Bound to the south by the Trans Australian Railway, the east by the Woomera to Roxby Downs road, the west by the 280 north line from the township of Watson and the north by a more ad hoc line passing through the northern sections of the Tallaringa Conservation Park and Coober Pedy and in part following the Oodnadatta Track. Approximately two-thirds of the WPA is State Crown land covered by pastoral leases issued by the South Australian Government. The land to the west of longitude 133 degrees is owned by the Maralinga Tjarutja Aboriginal community. A small region to the north is owned by the Pitjantjatjara community. There are small parcels of Commonwealth land. Water for the complex is serviced by the Defence-owned Port Augusta-Woomera Pipeline. WPA comprises a number of separate precincts including the Woomera village itself, Camp Rapier (Woomera West), the Woomera Airbase Technical Area, RAAF Woomera (a bare-base airfield capable of operating aircraft up to Boeing 747 heavy jets and fast-jet aircraft such as the F-18). The major areas are:
   - **Woomera Test Range.** The Woomera Test Range is the area stretching from the township of Woomera village in the south east, to Maralinga in the west and beyond Coober Pedy in the north. It comprises specialist test and evaluation sites, space launch facilities, demolition areas, an EW site, and a fully instrumented air weapons range. Other areas include specialised target sites and live-firing ranges. It has been used as an international testing ground for missiles and space related activities since the end of World War II because of its unique attributes. The range hosts a wide spectrum of ground, air and space activities for Australian and international government and commercial organisations. Defence has recently committed to a major defence modernisation program for this capability.
   - **Woomera Village.** Occupying an area of 4,715 ha Woomera village is located on Commonwealth land approximately 180 km north west of the main regional township of Port Augusta and some
450 km north of Adelaide. The village comprises a fully serviced, integrated self-contained purpose built community.

- **Nurrungar.** The Nurrungar area consists of the 1,553 ha of Commonwealth land. The only buildings are situated on a 3.3 ha site 12 km to the south of Woomera Village. Nurrungar no longer forms part of the WPA and is managed as a separate training area.

- **Cultana Training Area.** Located 380 km from Adelaide, the Cultana Training Area (CUTA) occupies 50,000 ha (500 sq km) in a north-south disposition adjacent to the western coastline of Spencer Gulf between Port Augusta in the north to Port Bonython, near Whyalla to the south. It is planned to expand to the west and create a training area of 210,000 ha (2,100 sq km) in an east west disposition. It is a major training facility used year round by Army for armoured/mechanised manoeuvre and weapons training and is 1st Brigade’s main wet-season training area. The expansion will accommodate combined arms training for battle group sized mechanised formations, joint live firing exercises and to manoeuvre the Abrams MBT as well as other soon to be acquired Army assets such as the UAV and the SPG. CUTA includes:
  - **El Alamein.** El Alamein Range is a 113 ha sub-site located on the old Port Augusta to Whyalla Road 300 km north of Adelaide and 13 km south west of Port Augusta. Situated at El Alamein are the Range Headquarters, working accommodation, transit accommodation, kitchens and ablution blocks as well as sealed and unsealed roads, a landing strip, car parks, lawns, gardens and a number of fixed firing ranges.
  - **Baxter.** The former Baxter Immigration Reception and Processing Centre is located within the El Alamein Range and provides accommodation in support of Army training.
• **Murray Bridge.** The Murray Bridge Training Area occupies 4,200 ha and is located 100 km east of Adelaide and 10 km east of the Murray Bridge township.

• **Coomunga Rifle Range.** The Coomunga Rifle Range known as Coomunga Range is located on Range Road 20 km North West of Port Lincoln.
A soldier of the Adelaide-based 10th/27th Battalion Royal South Australia Regiment prepares to patrol on Guadalcanal in 2007 in support of Operation Anode, the ADF contribution to the Australian-led mission to assist the Solomon Islands Government.
APPENDIX 3:
PERSONS INTERVIEWED

LTGEN David Morrison
Chief of Army

MAJ GEN Paul Brereton
Head Cadets, Reserve and Employer Support

MAJ GEN John Calligari
Head of Army Modernisation

MAJ GEN Michael Milford
Head of Joint ICT Operations

MAJ GEN Craig Williams
Commander 2nd Division

BRIG David Coghlan
Commander 6th Brigade

BRIG Tim Hanna
Previous Deputy Commander 2nd Division

BRIG Craig McCarthy
Commander 9th Brigade

BRIG Fergus McLachlan
Commander 1st Brigade

BRIG Mal Rerden
Director General Land Development

AIRCDRE Noel Derwort
Commander Aerospace Operational Support Group

AIRCDRE Tracey Smart
Deputy Commander Joint Health Services

LTCOL Doug Langreh
Deputy Commander 1st Brigade

LTCOL John McLean
Commanding Officer 16th Air Land Regiment

Dr Richard Brabbin-Smith
Ex Chief Defence Scientist

Mr Chris Burns
CEO Defence Teaming Centre

Mr Ben Coleman
Assistant Secretary Strategic Policy

Mr Robert Hill
Retired SA Senator and Defence Minister

Mr Peter Jennings
Deputy Secretary Strategy

Mr Graham Lacey
Director Estate Strategic Planning

Mr Steve Quinn
Chief Land Operations Division DSTO
Commandos from 1st Commando Regiment clear a mock village as part of their Mission Rehearsal Exercise in the Cultana Training Area, South Australia prior to their deployment overseas in 2009.
Foreword

1 ‘Horseshoe Barracks’ are the Army Barracks on the Defence ‘Super Base’ at RAAF Base Edinburgh in the Edinburgh Defence Precinct. They are named after the Horseshoe Fire Support Patrol Base located on the hill shaped like a horseshoe situated 8 km south-south-east of 1st Australian Task Force at Nui Dat and 1 km north of the village of Dat Do, in Phouc Tuy province South Vietnam. The base was occupied by Australians between 6 March 1967 and 3 June 1971 including at one time or another, by the units of 1st Brigade now resident in Adelaide, namely, 102nd (Coral) Battery, 9th Combat Engineer Squadron and 7th Battalion RAR during their tours of service in South Vietnam.

Summary

2 Commonwealth of Australia, Defence Annual Report 2010–11 page 276. More arrived in South Australia from Northern Territory after June 2011 and more still will arrive in 2012 as the move of the 1st Brigade elements is completed.

Chapter 1

3 Ibid.

4 Ibid.

Chapter 2

5 CUTA is one of just four ADF Category 1 Training Areas and Ranges in Australia. These training areas were so designated by Defence in 2007–2008 as a result of the Defence Strategic Training Areas and Ranges Review. This certification informs investment and capital works across Defence facilities and is further discussed later in the Study. The others are Bradshaw Field Training Area in Northern Territory, Yampi Sound Training Area in Western Australia and Shoal Water Bay Training Area in Queensland.

6 Air Defence is defined as all measures designed to nullify or reduce the effectiveness of hostile air action, and ADFADS is a joint capability consisting of an integration of assets such as aircraft, ground or ship-based air defence weapons, and surveillance and target acquisition devices.


Chapter 3

8 Ibid. pages 121–122.

9 The recently approved Olympic Dam mine is the world’s largest uranium reserve and is to become the world’s largest open cut mine.

10 The Australian, Friday 16 September 2011 page 4.


12 Ibid. page 22.

Chapter 4


14 Ibid. pages 121–122.

15 Ibid. pages 121–122.

16 Ibid. pages 121–122.

17 Ibid. pages 121–122.

18 Ibid. pages 121–122.

19 Australian Property Monitors as reported in www.news.com.au at 2.33 pm on 27 October 2011.

20 Brisbane median house prices had been substantially higher than Adelaide up until the recent flooding events.
Chapter 5


22 Ibid. page 83.

23 Ibid. page 83.


28 In military language, the definition of the ‘vital ground’ on the battlefield is that ground which is of such importance that it must be held for the success of the mission.
Soldiers from 2nd Commando Regiment practice fast roping drills from an Australian Army Black Hawk helicopter from the 6th Aviation Regiment in the Cultana Training Area, South Australia, as part of their Mission Rehearsal Exercise in preparation for an overseas deployment in 2009.
Soldiers of the Adelaide-based 7th Battalion, Royal Australian Regiment, troop their colours on Torrens Parade Ground, Adelaide on 10 September 2011.
Army Presence in South Australia: 'Maintaining the Momentum'

2012