Economic Contributions of Naval Bases in Sydney

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Executive Summary

1.1 Introduction

RPS has been engaged by the Department of Defence (DoD) to review and update the Department of Defence report Economic Contributions of Naval Bases in Sydney by KPMG Econtech. The initial KPMG report was undertaken in 2011 (utilising 2006 Census data) and is now outdated, requiring additional information. The following naval facilities are considered in this assessment.

1. Garden Island Defence Precinct (GIDP).
2. HMAS Waterhen.
3. HMAS Watson.
4. HMAS Penguin.
5. Randwick Barracks.

RPS understands that the Commonwealth Government will use this knowledge to inform Defence interactions with various government and private sector agencies, ensuring Naval Bases and Defence Bases receive due consideration during key negotiations. Historically, the significant economic contribution of Naval activities has supported considerable investment into Defence facilities used by the Navy as well as new naval capabilities in the Sydney region.

1.2 Overview of Findings

The DoD owns, manages and invests in significant assets (land area and number of assets) throughout Australia. Specifically, the DoD and Royal Australian Navy (RAN) manage Garden Island, HMAS Waterhen, HMAS Watson, HMAS Penguin and the Randwick Barracks which generate $1.09 billion annually in direct expenditure (salaries paid, visitor spend, sustainment costs, operating costs and leasing costs) and employ around 6,019 full time equivalent (FTE) personnel at the bases.

Indirectly, base expenditure adds around $742.9 million to the Sydney Regional Economy and NSW State Economy and supports around 6,673 jobs through economic multipliers.

Directly and indirectly, the Naval presence in Sydney contributes around $1.83 billion annually to the regional economy and supports around 12,692 jobs.

Using Sydney's Gross Regional Product (GRP) of $400.9 billion\(^1\) in FY2016 as a reference point for GRP in FY2017, it is estimated that naval operations will contribute around 0.45% to the Sydney economy this financial year.

Almost $223.6 million worth of additional investment has been approved for Garden Island and around $1 billion worth of investment has been earmarked for Garden Island, HMAS Watson, and Randwick Barracks (unapproved investment).

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\(^1\) Australian Bureau of Statistics (ABS) - Australian National Accounts: State Accounts, Cat. No. 5220.0
1.3 Modelling Methodology

The economic impact of naval base activity to the Sydney regional economy is estimated by identifying the cumulative direct and indirect impact to Gross Regional Product (GRP) and to employment.

The economic multiplier of current investment activity has been produced using Input-Output (I/O) transaction tables and models developed by the University of Adelaide and the Australian Urban Research Infrastructure Network (AURIN). Data sources used include State and National Accounts and industry specific ABS and other agency data.

Input-Output (IO) analysis is used to identify the inter-industry relationships within a given economy through the purchasing patterns and uses of inputs by one industry for other industries, and other aspects of the economy such as households, external parties etc. Input-Output analysis is primarily used as a way to assess the direct and indirect impacts a stimulant could potentially have on one or many sectors of the economy.

The direct and flow-on impacts to the economy have been estimated based on two key measures:

- **Gross Regional Product (GRP):** The value of all outputs of an industry including taxes and subsidies on its final products after deducting the cost of goods and services inputs in the production process.
- **Employment:** Level of employment supported by the industry, and is expressed as full-time equivalent ("FTE") positions.

The output generated from economic activity at each base is measured through:

- **Direct impacts:** Operational expenditure made by the bases on wages and salaries, expenditure on intermediate goods and expenditure on local goods and services made by personnel or visiting RAN. The direct impacts of naval bases can be estimated in a relatively straightforward manner.
- **Flow-on impacts (indirect impacts):** the second and subsequent round effects of the increased level of purchases by personnel and the base. The second is the impact of additional spending by upstream businesses that supply goods and services to these businesses.

1.4 Terminology

**Direct Impact**

The activity which directly results from operational expenditure made by the bases on wages and salaries, day-to-day running costs and leasing values as well as expenditure made by visiting RAN. The direct impacts of naval bases can be estimated in a relatively straightforward manner.

**Indirect Impact**

Indirect or flow-on impacts are the result of two factors. The first is the impact of consumer spending by people who are employed at each base as well as spending made by the base itself (1st round multipliers). The second is the impact of additional spending by upstream businesses that supply goods and services to the businesses impacted by first round multipliers and so-on. Economic growth and employment is generated in various other industries through economic multipliers.

**Value Add**

Value added measures the total value of the activities of all businesses and organisations in an industry.
It is the total value of goods and services provided by the business, less the goods and services that the businesses purchase as intermediate inputs. Value add is equivalent to wages and salaries plus profit.

Employment

Employment is measured in terms of units of full-time equivalents (FTEs). Full-time equivalents are the number of people employed (including working proprietors). By convention, FTEs are calculated on the basis that two people employed part-time equals one person employed full-time. The ABS labour force survey defines full-time employers persons as those who usually work 35 hours or more per week.
1.5 Contribution by Base

The key findings of the report indicate that the combined contribution of Naval Bases has a significant economic and employment boost to the local economies surrounding each base as well as to the broader Sydney and NSW economy.

Garden Island Defence Precinct

GIDP is the primary naval base on the East Coast of Australia. Garden Island has supported naval activities since 1788 and used by Royal Navy ships since the 1850’s, prior to the establishment of the RAN in 1911. GIDP comprises almost 150 major and minor buildings including the Fleet Base East facilities and berths, the Captain Cook Dock, HMAS Kuttabul and Fleet Headquarters.

Key figures

Study Area

- The local economic impact of GIDP has been defined as the Garden Island Study Area. In 2015, the population of the Garden Island Study Area is 31,680.
- There are 22,779 workers in the Garden Island Study Area.
- Compared with Greater Sydney, there are a much higher proportion of National Government jobs (14.7% vs 3.7%) reflective of the workforce profile of the GIDP and its employment and economic influence on the local economy.
- As at 2016, there were 2,031 actively trading businesses in the Garden Island Study Area.

GIDP Personnel

- The median annual personal income for Defence Personnel in Garden Island was calculated at approximately $71,500. This was greater than the median of the Garden Island Study Area and much higher than Greater Sydney. This suggests that disposable incomes may also be higher (supporting retail expenditure) especially considering the young age profile and marital/family status of Defence workers.
- As of 2017 there are approximately 3,497 full time employees at the GIDP, the majority (94%) serve in an active Military Capacity.
- There are approximately 4,500 visiting sailors and ancillary personnel to the GIDP every year.

Economic and Employment Contribution

- It is projected that full time personnel spend around $48.9 million on retail related items each year. Visitors generate approximately $13.3 million in retail expenditure per annum.
- Total expenses at the GIDP in 2017 have been calculated at $845 million per annum (salaries, visitor spend, sustainment expenditure, operational expenses, leasing of property).
- The indirect employment contribution is estimated at 4,745 FTE jobs.
- The total annual direct economic contribution to Gross Regional Product (GRP) is projected at $534.2 million.
- It is projected that major investment at the GIDP over the next decade equating to $500 million (approved and unapproved) will indirectly add $328.7 million in GRP and generate 2,757 jobs in the Sydney regional and NSW economy.
Figure 1.1 Garden Island Defence Precinct – Key Figures

Garden Island Defence Precinct

3,497 FTE workers at GIDP in 2017

Annual Visitor Expenditure $13.3 million

$48.9 million Average Annual Garden Island Personnel Expenditure on Retail

Total GIDP Annual Expenditure $845 million

4,745 FTE Indirect Jobs from Current Operations (Excluding jobs at the base)

Indirectly Injects $534.2 million Annually to Sydney GRP (Gross Regional Product)

Currently supporting jobs in various industries
Top three industries:

- Manufacturing: 1,177
- Public Administration and Safety: 784
- Administrative and Support Services: 159
Economic Contributions of Naval Bases in Sydney

HMAS Waterhen

Located on Sydney’s Lower North Shore, HMAS Waterhen is located approximately 5 kilometres from the Sydney CBD. HMAS Waterhen was commissioned in 1962 and is the Navy’s leading establishment for Mine Warfare. As of 2010, Waterhen is home to the Australian Navy Mine Warfare and Clearance Diving Group, consisting of Clearance Diving Team One, Six Huon class minehunters, several minor and commercially operated support vessels. The base was redeveloped through a $70 million modernisation program in the mid-1990s.

Key figures

Study Area

- The local economic impact of HMAS Waterhen has been defined as the Waterhen Study Area. In 2015, the population of the Waterhen Study Area is 31,467.
- There are 50,583 workers in the HMAS Waterhen Study Area.
- National Government jobs comprise 2% of jobs in the study area with, Defence related jobs in the Waterhen Study Area is a little over 1%. The study incorporates the major employment zones of North Sydney and St Leonards. The impact on the micro economy surrounding the base however is significant.
- As at 2016, there were 3,840 employing businesses in the Waterhen Study Area with two thirds of them small businesses employing 1-4 people. These businesses are often exposed to changes in consumption spending.

HMAS Waterhen Personnel

- The median annual personal income for Defence Personnel at HMAS Waterhen is calculated at approximately $71,500. This is equal to the median of the Waterhen Study Area and much higher than Greater Sydney. This suggests that disposable incomes may also be higher (supporting retail expenditure) especially considering the young age profile and marital/family status of Defence workers.
- As of 2017 there are approximately 750 full time employees at HMAS Waterhen, the majority serve in an active Military Capacity.

Economic and Employment Contribution

- It is projected that full time personnel generate almost $10.6 million in retail expenditure per annum.
- Total expenses are calculated at just over $61.1 million in 2017 (salaries, operational expenses, leasing).
- The total indirect employment contribution is estimated at 455 FTE jobs.
- The total indirect economic contribution to the base in Gross Regional Product (GRP) is projected at over $49.3 million.
- At this stage there is no known short term future investment for the base.
Figure 1.2 HMAS Waterhen – Key Figures

- **750 FTE workers at Waterhen in 2017**
- **$71,500** 2011 Median Annual Personal Income of Waterhen Personnel
- **$10.6 million** Average Annual HMAS Waterhen Personnel Expenditure on Retail
- **Total HMAS Waterhen Annual Expenditure** $61.1 million
  (Salaries, operational expenses, leasing values)
- **455 FTE Indirect Jobs from Current Operations**
  (Excluding jobs at the base)
- **Indirectly Injects $49.3 million Annually to Sydney GRP**
  (Gross Regional Product)

Currently supporting jobs in various industries
Top three industries:
- Public Administration and Safety: 30
- Transport, Postal and Warehousing: 4
- Administrative and Support Services: 3
HMAS Watson

HMAS Watson is located at Sydney’s South Head approximately 11.6km from the Sydney CBD. HMAS Watson is the main RAN maritime warfare training establishment, home to the Training Authority Maritime Warfare (TAMW) and part of the Fleet Command. The role of the base is to prepare Officers to go to sea, providing basic and advanced training to junior and senior sailors in the Combat System Category and Junior Seaman Officers in ships manoeuvres, navigation and tactics. Military presence commenced at the site in 1871 with the development of artillery along the coastline to defend Sydney. The first barracks were built in 1877 by the NSW Artillery with the RAN established training facilities in 1942.

Key figures

Study Area

- The local economic impact of HMAS Watson has been defined as the Watson Study Area. In 2015, the population of the Watson Study Area is 46,944.
- There are 7,821 workers in the HMAS Watson Study Area.
- National Government jobs comprise 7.6% of jobs in the Watson study area with Defence related jobs comprising the bulk of these jobs at 7%. This is almost double the Greater Sydney average for National Government jobs (3.7%) and indicates the importance of Defence employment in the study area.
- As at 2016, there were 5,844 actively trading businesses in the Watson Study Area with two thirds of them small businesses employing 1-4 people. These businesses are often exposed to changes in consumption spending.

HMAS Watson Personnel

- The median annual personal income for Defence Personnel at HMAS Watson is calculated at approximately $65,000. This is greater than the median of the Watson Study Area and Greater Sydney but lower than other bases.
- HMAS Watson is the main RAN maritime warfare training establishment. The role of the base is to prepare Officer go to sea, providing basic and advanced train to junior and senior sailors and junior Seaman Officers. The number of junior staff may explain why incomes are slightly lower, relative to other Naval bases.
- As of 2017 there are approximately 762 full time employees at HMAS Watson, almost all serving in an active Military Capacity.

Economic and Employment Contribution

- It is projected that full time personnel generate almost $12.4 million in retail expenditure per annum.
- Total expenses at the base are calculated at just over $67 million in 2017 (salaries, operational expenses, leasing).
- The total indirect employment contribution is estimated at 541 FTE jobs.
- The total direct economic contribution to the base in Gross Regional Product (GRP) is projected at over $59.2 million.
- It is projected that major investment at the HMAS Watson over the next decade equating to around $167.5 million will indirectly add $126.1 million in GRP and support 1,058 jobs in the Sydney regional and NSW economy. Note – this investment is yet to be approved.
Figure 1.3 HMAS Watson – Key Figures

- **762 FTE workers at Watson in 2017**
- **$64,999 2011 Median Annual Personal Income of Watson Personnel**
- **$12.4 million Average Annual HMAS Watson Personnel Expenditure on Retail**
- **Total HMAS Watson Annual Expenditure $67 million** (Salaries, operational expenses, leasing values)
- **541 FTE Indirect Jobs from Current Operations (Excluding jobs at the base)**
- **Indirectly Injects $59.19 million Annually to Sydney GRP (Gross Regional Product)**
- Currently supporting jobs in various industries:
  - Top three industries:
    - Public Administration and Safety: 300
    - Professional, Scientific and Technical: 56
    - Administrative and Support Services: 56
HMAS Penguin

HMAS Penguin is located at Balmoral at Middle Head in Sydney Harbour. It is approximately 10km from the Sydney CBD and surrounded by sections of the Sydney Harbour National Park and Sydney Harbour. The base is part of the Navy’s Fleet Command and was commissioned on 14 July 1942. Its primary role is to provide trained personnel to the Fleet and is home to the ADF Diving School, the RAN Hydrographic School and the RAN Medical School. Resident units at the Base include Maritime Operational Health Unit, Submarine and Underwater Medicine Unit, Recompression Chamber Facility, 1 Commando Company, ADF Centre for Mental Health and the Penguin Health Centre. The site is approximately 17.6 hectares.

Key figures

Study Area

- The local economic impact of HMAS Penguin has been defined as the Penguin Study Area. In 2015, the population of the Penguin Study Area is 69,917 with 16,658 workers.
- National Government jobs comprise 2.2% of jobs in the Penguin study area with Defence related jobs comprising the majority of these jobs at 2%.
- As at 2016, there were 3,094 employing businesses in the Penguin Study Area with nearly 80% of them small businesses employing 1-4 people. These businesses are often exposed to changes in consumption spending and the base presents an important generator of local expenditure.

HMAS Penguin Personnel

- The median annual personal income for Defence Personnel at HMAS Penguin is calculated at approximately $71,500
- The Penguin Study Area is an affluent area, however there are a very limited number of major base employment nodes such as that provided by HMAS Penguin.
- As of 2017, it is calculated there are approximately 391 full time employees at HMAS Penguin, with 85% serving in an active Military Capacity.

Economic and Employment Contribution

- It is projected that full time personnel generate almost $4.6 million in retail expenditure per annum.
- Total expenses at HMAS Penguin in 2017 have been calculated at $43.3 million per annum (salaries, operational expenses, leasing of property).
- The total indirect economic impact from the base is calculated at almost $37.1 million in 2017.
- Current operations are expected to support an additional 338 jobs (i.e. through economic multipliers).
- Minor demolition works equating to around $133,500 are expected to contribute around $90,000 further to the Sydney regional economy and support temporary work during the demolition time-period. Note - this investment is yet to be approved.
Figure 1.4 HMAS Penguin – Key Figures

HMAS Penguin

391 FTE workers at Penguin in 2017

$71,500 2011 Median Annual Personal Income of Penguin Personnel

$4.6 million Average Annual HMAS Penguin Personnel Expenditure on Retail

Total HMAS Penguin Annual Expenditure

$43.3 million (Salaries, operational expenses, leasing values)

338 FTE Indirect Jobs from Current Operations
(Excluding jobs at the base)

Indirectly Injects $37.1 million Annually to Sydney GRP (Gross Regional Product)

Currently supporting jobs in various industries
Top three industries:
- Public Administration and Safety 179
- Administrative and Support Services 34
- Professional, Scientific and Technical 33
Randwick Barracks

Established in 1981, the 45 hectare Randwick Barracks site is located 7km south east of the Sydney CBD. Randwick Barracks is predominantly an administrative facility for Army personnel and includes accommodation and facilities such as a pool, tennis court and grassed areas.

In mid-2016, the Chief of Navy opened the new $85 million Navy Training Systems Centre at the site, revolutionising the way that the RAN prepares marine and electronic technicians for their roles in the fleet. Of particular importance, is the ability of the new centre to train seamen in the new Canberra Class amphibious ships and the Hobart class destroyers that the RAN now uses. The centre has the capacity to train up to 300 students at a time using simulation and modern training systems.

Key figures

Study Area

- The local economic impact of Randwick Barracks has been defined as the Randwick Study Area. In 2015, the population of the Randwick Study Area is 76,407 with 29,819 workers.
- National Government jobs comprise 4.0% of jobs in the Randwick study area with Defence related jobs comprising 1%. There are a number of major institutions in the Randwick Study area including the University of New South Wales, Randwick Racecourse and the Randwick Health Precinct.
- As at 2016, there were 3,404 employing businesses in the Randwick Study Area with 75% of them small businesses employing 1-4 people. These businesses are often exposed to changes in consumption spending and the base presents an important generator of local expenditure.

Randwick Barracks Personnel

- The median annual personal income for Defence Personnel at Randwick Barracks is calculated at approximately $91,000
- As of 2017, it is calculated there are approximately 619 full time employees at Randwick Barracks, with 87% serving in an active Military Capacity.

Economic and Employment Contribution

- It is projected that full time personnel generate almost $8.7 million in retail expenditure per annum.
- Total expenses at Randwick Barracks in 2017 have been calculated at $75.7 million per annum (salaries, operational expenses, leasing of property).
- Current operations are expected to support an additional 338 jobs (i.e. through economic multipliers).
- Indirectly, the economic contribution of the base to Sydney GRP is projected at $63.15 million.
- Projected future investment which is expected to cost in the order of $480 million is projected to support 2,695 additional jobs and add around $307.7 million to GRP. Note – this investment is yet to be approved.
Figure 1.5 Randwick Barracks – Key Figures

**Randwick Barracks**

- **619** FTE workers at Randwick in 2017
- **$91,000** 2011 Median Annual Personal Income of Randwick Personnel
- **$8.7 million** Average Annual Randwick Barracks Personnel Expenditure on Retail
- **Total Randwick Barracks Annual Expenditure** $75.7 million
- **594 FTE Indirect Jobs from Current Operations** (Excluding jobs at the base)
- Indirectly Injects **$63.15 million Annually to Sydney GRP** (Gross Regional Product)

Currently supporting jobs in various industries:

- Public Administration and Safety: 340
- Administrative and Support Services: 30
- Transport, Postal and Warehousing: 88
Comparison to the KPMG Report

The ‘Economic Contribution of the Naval Bases in Sydney’ prepared by KPMG econtech in January 2011 outlined several measures of economic and employment contribution generated by the combined bases.

The key points of comparison are outlined in figure 1.7. There are some key points to consider, however.

- This report considers an additional base in the form of Randwick Barracks.
- Direct comparisons have been made where possible, however, the KMPG report uses in-house modelling. This report uses AURIN modelling which is a nationally recognised and accessible benchmark for input-output modelling.
- As outlined in the reports, the employment figures estimated in the KPMG Report for 2008/09 are considered optimistic and this influences the economic and employment contributions.
**Figure 1.6 Total Contribution of Naval Bases – Key Figures**

**Sydney Naval Bases**

- **6,019** FTE workers in 2017
- **$1.092 billion** Total Annual Expenditure
  - (Salaries, sustainment costs, visitor spend, operational expenses, leasing values)
- **$85.2 million** Annual Navy Base Personnel Expenditure on Retail
- **0.45%** of Annual Sydney GRP (Average)
- **6,673** FTE Indirect Jobs from Current Operations
  - (Excluding jobs at the bases)
- **Indirectly Injects $742.91 million Annually to Sydney GRP** (Gross Regional Product)
- **Future Investment Activity will inject $767.9 million** into the regional economy (value add) & **6,557** FTE Jobs (excluding jobs at the base)

Currently supporting jobs in various industries:
- Public Administration and Safety: 1,597
- Manufacturing: 1,187
- Administration and Support Services: 312

$223.5 million Future Investment (Approved)
- **$1.18 billion** (Unapproved)
Figure 1.7 Key Points of Comparison between the RPS and KPMG Report

**Sydney Naval Bases**

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**Comparison Notes:**
- RPS (2017) Employment contribution includes on-site employment at bases and multiplier generation based on total annual base expenditure.
- 2009 Employment estimates per base that were utilized for the preparation of the (2011 KPMG Economist Report) are considered optimistic. This is based partially on a lack of available 2011 census data at the time.
- There are certain differences in the economic models used between the 2011 KPMG and 2017 RPS report.
- The RPS economic and employment outputs consider ABS Census data (2013) to inform 2017 employment estimates; as it
- The RPS economic contribution figure includes an investment figure per annum based on committed investment at each base over the next 3-5 years.
1 Review of Findings in the 2011 Economic Contribution of the Naval Bases in Sydney Report (KPMG)

This first section of the report provides a review of ‘Economic Contribution of the Naval Bases in Sydney’ prepared by KPMG Econtech in January 2011. It is hereafter referred to as the KPMG Report. The assessment of the KPMG Report includes a review of the findings as well as the employment and value-add of each precinct.

1.1 The purpose of the report

The purpose of the KPMG Report was to identify for the Department of Defence the economic contribution of the four naval bases in Sydney (Garden Island Defence Precinct, HMAS Waterhen, HMAS Watson and HMAS Penguin) to the regional and state economy.

The economic contribution was modelled utilising KPMG Econtech’s Murphy Model Regional (MMR) model using a range of scenarios. Results were expressed in 2009/10 dollars, based on reported activity in 2008/09.

It is important to note that KPMG estimates are considered optimistic, owing to the limited amount of reliable information at that point in time. Since that time, ABS Census data from 2011 has been published, providing slightly more justifiable estimates than KPMG Report (i.e. jobs in each study area). This is considered when assessing the total contribution of naval and defence bases (including Randwick) to the regional economy in this report.

1.2 Key Findings for each Base

Below is the derived contribution of each base individually based on $2009/10 dollars as outlined in the KPMG Report.

Garden Island Defence Precinct

The KPMG modelling estimated that Garden Island Defence Precinct (GIDP) directly and indirectly supports 6,784 jobs in the Sydney region – an increase of 0.29% of total employment. This increase of 0.29% is derived that it increases total employment in the region by 0.29% greater than if the base did not operate.

In terms of breaking the employment contribution into broad industry groupings, the GIDP delivers a 3.98% increase in employment in the Government Administration and Defence industry, 0.51% increase in employment in the Finance and Insurance industry and 0.32% increase in employment in the Retail Trade industry than would otherwise be the case.

In economic contribution, it was modeled that GIDP directly and indirectly contributed $473 million annually to value added and contributed $528 million annually to consumption in the Sydney regional economy. GIDP operations resulted in a 0.21% gain in value added and a 0.10% gain in consumption.

Table 1.1 outlines the contribution of GIDP to the Sydney regional economy in the KPMG report.
Table 1.1 Garden Island - Impact on the Sydney Regional Economy

<table>
<thead>
<tr>
<th>Employment (jobs)</th>
<th>Value Added ($m)</th>
<th>Turnover ($m)</th>
<th>Consumption ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden Island</td>
<td>6,784</td>
<td>473.3</td>
<td>812.3</td>
</tr>
</tbody>
</table>

HMAS Waterhen

The modeling in the KPMG report estimated that HMAS Waterhen directly and indirectly supports 983 jobs in the Sydney regional economy – an increase of 0.04% of total jobs on the employment base. This includes a 0.62% increase in employment in the Government Administration and Defence industry, 0.08% increase in employment in the Finance and Insurance industry and a 0.05% increase in employment in the Retail Trade industry than would otherwise be the case.

HMAS Waterhen directly and indirectly contributed $68 million annually to value added and contributed $76.5 million annually to consumption in the Sydney regional economy. HMAS Waterhen operations resulted in a 0.03% gain in value added and a 0.01% gain in consumption.

Table 1.2 HMAS Waterhen - Impact on the Sydney Regional Economy

<table>
<thead>
<tr>
<th>Employment (jobs)</th>
<th>Value Added ($m)</th>
<th>Turnover ($m)</th>
<th>Consumption ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMAS Waterhen</td>
<td>986</td>
<td>67.9</td>
<td>115.4</td>
</tr>
</tbody>
</table>

HMAS Watson

The modeling in the KPMG report estimated that HMAS Watson directly and indirectly supports 627 jobs in the Sydney regional economy – an increase of 0.03% of total jobs. This includes a 0.41% increase in employment in the Government Administration and Defence industry, 0.05% increase in employment in the Finance and Insurance industry and a 0.03% increase in employment in the Retail Trade industry than would otherwise be the case.

Watson directly and indirectly contributed $43 million annually to value added and contributed $49 million annually to consumption in the Sydney regional economy. Watson operations resulted in a 0.02% gain in value added and a 0.01% gain in consumption.

Table 1.3 HMAS Watson - Impact on the Sydney Regional Economy

<table>
<thead>
<tr>
<th>Employment (jobs)</th>
<th>Value Added ($m)</th>
<th>Turnover ($m)</th>
<th>Consumption ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMAS Watson</td>
<td>627</td>
<td>43.2</td>
<td>73.3</td>
</tr>
</tbody>
</table>

HMAS Penguin

The modelling in the KPMG report estimated that HMAS Penguin directly and indirectly supports 540 jobs in the Sydney regional economy – an increase of 0.02% of total jobs. This includes a 0.35% increase in employment in the Government Administration and Defence industry, 0.04% increase in employment in the Finance and Insurance industry and a 0.03% increase in employment in the Retail Trade industry than would otherwise be the case.

Penguin directly and indirectly contributed $37 million annually to value added and contributed $42 million annually to consumption in the Sydney regional economy. Penguins operations resulted in a 0.02% gain in value added and a 0.01% gain in consumption.
Table 1.4 HMAS Penguin - Impact on the Sydney Regional Economy

<table>
<thead>
<tr>
<th></th>
<th>Employment (jobs)</th>
<th>Value Added ($m)</th>
<th>Turnover ($m)</th>
<th>Consumption ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMAS Penguin</td>
<td>540</td>
<td>37.2</td>
<td>63.1</td>
<td>41.9</td>
</tr>
</tbody>
</table>

1.3 Combined Economic Impact of Naval Bases on the State Economy

The KPMG report considers the combined contribution of the four Naval bases in terms of employment and economic contribution to the Sydney regional economy through different measures.

Employment

The modelling in the KPMG report estimated that the four naval bases supported 8,684 jobs in the NSW economy. The outline of employment contribution by broad sector is shown in the table below. The KPMG report considers upward pressure on pricing and labour force demand to having a negative employment contribution to certain sectors including manufacturing and construction. This analysis is considered differently in this report (RPS Report) with particularly a major positive contribution to construction based on the level of infrastructure investment.

Table 1.5 Jobs Supported by Naval Bases

<table>
<thead>
<tr>
<th>Industry sector</th>
<th>Jobs supported by naval bases (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>-146</td>
</tr>
<tr>
<td>Construction</td>
<td>-113</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>+714</td>
</tr>
<tr>
<td>Transport and Storage</td>
<td>-135</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>+1,151</td>
</tr>
<tr>
<td>Property and Business Services</td>
<td>-1,338</td>
</tr>
<tr>
<td>Government Administration</td>
<td>+5,444</td>
</tr>
<tr>
<td>Education</td>
<td>+622</td>
</tr>
<tr>
<td>Health and Community Services</td>
<td>+967</td>
</tr>
<tr>
<td>Other</td>
<td>+1,518</td>
</tr>
<tr>
<td>Total</td>
<td>+8,684</td>
</tr>
</tbody>
</table>

The report found that expenditure by employees of the naval bases predominantly supported customer-focus based industries such as government administration and finance and insurance. The naval bases are also expected to cause employment pressure on some industries such as property and business services and transport and storage.

Value Added

The modeling in the KPMG Report estimated that the four naval bases contributed a combined $608 million annually to value added to the NSW economy. The breakdown of contribution by broad industry sector is shown in the table below.
Table 1.6 Value-add to ($m) by broad industry sector

<table>
<thead>
<tr>
<th>Industry sector</th>
<th>Value added ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>-7</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>+46</td>
</tr>
<tr>
<td>Transport and Storage</td>
<td>-8</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>+71</td>
</tr>
<tr>
<td>Property and Business Services</td>
<td>-80</td>
</tr>
<tr>
<td>Government Administration</td>
<td>+397</td>
</tr>
<tr>
<td>Education</td>
<td>+38</td>
</tr>
<tr>
<td>Health and Community Services</td>
<td>+60</td>
</tr>
<tr>
<td>Other</td>
<td>+100</td>
</tr>
<tr>
<td>Total</td>
<td>+608</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-9</td>
</tr>
</tbody>
</table>

The value added $ contribution mirror the employment impacts, with industries benefiting from the naval bases including retail trade, finance and insurance, education and health and community services.

Living Standards

By supporting production (value added) in the state economy, the four naval bases contribute to living standards in NSW. The four naval bases were estimated to contribute $613 million annually to consumption in the NSW economy.
Garden Island Defence Precinct
1 Subject Site Overview

1.1 Context

Garden Island Defence Precinct (GIDP) is the primary naval base on the east coast of Australia. It occupies 23.4 hectares between Cowper Wharf Road, Wylde Street and Macleay Street in Potts Point. Located approximately 2km from the Sydney CBD, the peninsula is bound predominantly by Sydney Harbour, with residential uses in the form of Potts Point and Elizabeth Bay to the south.

The site is accessible by public transport via the 311 bus that travels along Cowper Wharf Road and Kings Cross railway station which is located 2.9km away. Major roads connecting the site and the rest of the city are Cowper Wharf Road, Macleay Street and Victoria Street, providing links to William Street. Macleay Street and Victoria streets are the main shopping strips in Potts Point, consisting of shops and services including a Woolworths, gyms, fashion boutiques and a variety of bars and restaurants. There is also the Garden Island ferry which runs between 10am and 4pm from the southern end of Garden Island, providing connections with Circular Quay and other wharfs on the F7 Eastern Suburbs route.

1.2 Subject Site Overview

Garden Island has supported naval activities since 1788, with the island originally being used as a garden bed to produce food for the Ship’s company. The site has been used by Royal Navy ships since the 1850’s, prior to the establishment of the Royal Australian Navy (RAN) in 1911. The Captain Cook Graving Dock, which is one of the largest dry docks in the southern hemisphere and a land bridge, now connects the island and the mainland.

GIDP comprises almost 150 major and minor buildings including the Fleet Base East facilities and berths, the Captain Cook Dock, HMAS Kuttabul and Fleet Headquarters. It is a strategic location for the Royal Australian Navy, allowing it to conduct operations in the region and abroad. Activities carried out at the site have included ship maintenance and building, land reclamation and above-ground and underground storage of chemicals. The site also consists of two electrical substations and a waste storage facility.
2 Economic and Employment Profile

This section of the report considers the economic and employment characteristics of the localised study area around the Garden Island Defence Precinct (GiDP) which encompasses the following Australian Bureau of Statistics (ABS) defined SA2 regions:

- Potts Point – Wooolloomooloo SA2 Region.
- Darlinghurst SA2 Region.

Hereafter referred to as the ‘Garden Island Study Area’, these two SA2 regions have been chosen for their proximity to the Garden Island Defence Precinct. It is likely that personnel at the precinct (regular, temporary and contractors) would frequent businesses in these regions, supporting local economic activity. See Figure 2.1.
Figure 2.1 Garden Island Study Area Map
2.2 Population Characteristics

As of 2015, the population of the Garden Island Study Area is 31,680, accounting for 0.6% of the Greater Sydney population (4.9 million).

The Garden Island Study Area has a relatively large proportion of residents aged between 20-34 (40.1%) and 35-49 (25.9%), particularly when compared with Greater Sydney. See Figure 2.2.

**Figure 2.2 Age Profile of the Garden Island Study Area vs Greater Sydney (2015)**

As prescribed by the Bureau of Transport Statistics (BTS), the population of the Garden Island Study Area is expected to increase to 34,137 people by 2036, representing an increase of 2,457 people.

2.3 Employment Profile

Employment by Industry

At the time of the 2011 ABS Census, there were 22,779 workers in the Garden Island Study Area. The largest proportion of jobs are related to the Health Care and Social Assistance Industry (23.4%), followed by Public Administration and Safety (16.3%) and Professional, Scientific and Technical Services (12.1%). Defence related jobs represent 13.0% of total jobs in the Garden Island Study Area (3,021 jobs). St Vincent’s Hospital as well as the Garden Island Defence Precinct largely shapes the economic profile of the area. The two are the major employment generating anchors with a number of businesses and activity generated from their base level of employment.

---

2 The BTS publish population projections at the Australian Bureau of Statistics (ABS) defined SA2 geographical level. These projections are based on the Department of Planning and Environment (DP&E) population projections who publish at the local government area (LGA) geographic level.
Compared with Greater Sydney, there is a greater representation of employment in the following industries:

1. Health Care and Social Assistance (23.4% vs 11.3% jobs).
2. Public Administration and Safety, which includes Defence (16.3% vs 6.0% of jobs).
3. Accommodation and Food Services (11.6% vs 6.3%).

See Figure 2.4.
Figure 2.4 Industry Profile of the Garden Island Study Area vs Greater Sydney (2011)

Source: ABS Census (2011)
Employment by Occupation

The Garden Island Study Area encompasses a high proportion of Professionals, Managers and Clerical and Administrative Workers.

Compared with Greater Sydney, there are a larger proportion of Professionals, Community and Personal Service Workers, Managers and Technicians and Trade Workers.

Table 2.1 Occupation Profile, Garden Island Study Area vs Greater Sydney (2011)

<table>
<thead>
<tr>
<th>Occupation Type</th>
<th>Garden Island Study Area</th>
<th>Greater Sydney</th>
<th>Garden Island Study Area (%) Vs Greater Sydney (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workers</td>
<td>% of Total</td>
<td>Workers</td>
</tr>
<tr>
<td>Managers</td>
<td>3,700</td>
<td>16.4%</td>
<td>263,277</td>
</tr>
<tr>
<td>Professionals</td>
<td>8,118</td>
<td>35.9%</td>
<td>506,388</td>
</tr>
<tr>
<td>Technicians and Trades Workers</td>
<td>2,762</td>
<td>12.2%</td>
<td>203,564</td>
</tr>
<tr>
<td>Community and Personal Service Workers</td>
<td>2,826</td>
<td>12.5%</td>
<td>165,585</td>
</tr>
<tr>
<td>Clerical and Administrative Workers</td>
<td>2,858</td>
<td>12.6%</td>
<td>320,293</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>1,144</td>
<td>5.1%</td>
<td>172,709</td>
</tr>
<tr>
<td>Machinery Operators and Drivers</td>
<td>201</td>
<td>0.9%</td>
<td>100,952</td>
</tr>
<tr>
<td>Labourers</td>
<td>909</td>
<td>4.0%</td>
<td>120,874</td>
</tr>
<tr>
<td>Inadequately Described</td>
<td>91</td>
<td>0.4%</td>
<td>20,474</td>
</tr>
<tr>
<td>Total</td>
<td>22,609</td>
<td>100.0%</td>
<td>1,874,116</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

Employment by Sector

Of total jobs in the Garden Island Study Area, the largest proportion are private sector related (71.9%). This is followed by National Government jobs (14.7%) and NSW State Government jobs (13.2%).

Compared with Greater Sydney, there are fewer (proportionately) private sector jobs (71.9% vs 85.3%) and a higher proportion of National Government jobs (14.7% vs 3.7%) and NSW State Government jobs (13.2% vs 9.8%). This is reflective of the workforce profile of the Garden Island Defence Precinct and St Vincent’s Hospital.
Income Profile

At the time of the 2011 ABS Census, the median annual income of workers in the Garden Island Study Area was $71,500. This is considerably higher than the Greater Sydney median ($46,800).

Note – median personal income of Defence personnel at the Garden Island Defence Precinct ($71,500) was even greater than the median of workers in the Garden Island Study Area and much higher than Greater Sydney. This suggests that disposable incomes may also be higher (supporting retail expenditure) especially considering the young age profile and marital/family status of Defence workers.

It is important to highlight that this data relates to workers and not working residents (people that live in the locality).

Table 2.2 Median Personal Income, Garden Island Study Area, Defence Personnel and Greater Sydney (2011)

<table>
<thead>
<tr>
<th>Area</th>
<th>Median Annual Personal Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden Island Study Area</td>
<td>$58,500</td>
</tr>
<tr>
<td>Defence Personnel in Garden Island</td>
<td>$71,500</td>
</tr>
<tr>
<td>Greater Sydney</td>
<td>$46,800</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

*This data source refers to workers in each area. It does not have regard for resident workers.

Figure 2.6 visually depicts the income distribution of workers in the Garden Island Study Area, Defence Personnel in Garden Island and Greater Sydney. It is evident that the income profile of Defence personnel is high in comparison to both the study area and Greater Sydney, as indicated by the red circle in Figure 2.6. Around 63.6% of Garden Island Defence Personnel earn more than $65,000 per annum, compared with 44.1% in the study area and 36.2% in Greater Sydney.
Figure 2.6 Personal Income Profile, Garden Island Study Area, Defence Personnel and Greater Sydney (2011)

Source: ABS Census (2011)
Employment Projections

New South Wales Bureau of Transport Statistics (BTS) Employment Projections have been used to forecast the workforce of the Garden Island Study area. The projections forecast the employment in the study area to increase from 22,779 in 2011 to 32,123 in 2036, representing an increase of 7,239 jobs. Defence related investment will support employment growth in the precinct, consistent with NSW State Government projections.

2.4 Business Profile

As at 2016, there were 2,031 employing businesses in the Garden Island Study Area. A large proportion of employing businesses are small in nature, encompassing between one and four workers (68.9% of businesses). This is followed by businesses that employ between 5 and 19 workers (23.3%). Between 2011 and 2016, the number of local businesses increased by 300.

Table 2.3 Business Profile, Garden Island Study Area (2011 & 2016)

<table>
<thead>
<tr>
<th>Business Size</th>
<th>2011</th>
<th>2016</th>
<th>Change in Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Businesses</td>
<td>% of Total</td>
<td>Number of Businesses</td>
</tr>
<tr>
<td>1-4</td>
<td>1203</td>
<td>69.5%</td>
<td>1400</td>
</tr>
<tr>
<td>5-19</td>
<td>398</td>
<td>23.0%</td>
<td>474</td>
</tr>
<tr>
<td>20-199</td>
<td>124</td>
<td>7.2%</td>
<td>145</td>
</tr>
<tr>
<td>200+</td>
<td>6</td>
<td>0.3%</td>
<td>12</td>
</tr>
<tr>
<td>Total Employing Businesses</td>
<td>1,731</td>
<td>100.0%</td>
<td>2,031</td>
</tr>
</tbody>
</table>

Source: Counts of Australian Businesses, including Entries and Exits (2016)

*Note – ABS business count data excludes the ‘General Government’ and therefore the contribution of HMAS Watson to the total count has been excluded.

A large number of employing businesses are related to the Professional, Scientific and Technical Services. This is followed by Accommodation and Food Services and Health Care and Social Assistance. See Figure 2.7.
Figure 2.7 Number of Employing Businesses by Industry Type, Garden Island Study Area (2016)

Source: Counts of Australian Businesses, including Entries and Exits (2016)
3 Direct Expenditure

This section of the report considers direct retail and operational expenditure in the local economy. The Garden Island Defence Precinct contributes directly to the Sydney regional economy by employing staff and contractors who purchase local goods and services. Visiting RAN and international vessels are also docked at the precinct, further contributing to local expenditure on goods and services.

Annual spend by Full Time Equivalent Employees (FTE’s) and visitors is considered, having regard for average salaries. Operational expenses and capital costs incurred by the Department of Defence (DoD) are also considered. Local expenditure generated by employees, visitors and the (DoD) has a direct economic impact on the economy. Multiplier effects are considered in Section 4 of the report.

Full time personnel, contractors and visitors are likely to have the following expenses and thus generate expenditure through:

- Accommodation.
- Cafes and restaurants.
- Entertainment.
- Electronic Equipment.
- Internet and phone.
- Public bars and clubs.
- Shopping.
- Transport.
- Cultural and recreational services.

Expenditure estimates have been derived using information provided in the previous KPMG report as well as ABS datasets including 2011 Census data, Wage Price Index and the Retail Trade dataset. All estimates are based on employment and expenditure over the 2016/2017 financial year.

3.1 Full Time Equivalent Employees (FTE’s) and Visitors

As prescribed in the KPMG report, the following employment and visitor estimates were derived for the Garden Island Defence Precinct:

- In 2008/2009 there were 4,181 FTE’s which were predominately Defence employees and contractors. These employees are split between two industries, Government Administration and Defence and Property and Business Services.
- On average, 4,000 sailors and ancillary personnel visit the Garden Island Defence Precinct (annually). It is estimated that the average spend per sailor per day was $227.90.

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1 Information on Allied and non-homeported vessels had been provided to KPMG Econtech by the Department of Defence
2 Based on a survey undertaken by the Northern Territory’s Department of Business, Economic and Regional Development relating to naval ship visits to the Port of Darwin.
Full Time Equivalent Employees (FTE’s)

It is estimated that FTE job estimates provided by KPMG in 2011 were optimistic, owing to the availability of limited information at the time.\(^5\)

Based on 2011 ABS Census data, it is estimated that there were 3,197 FTE’s at the Garden Island Defence Precinct in 2011. Based on wharf and facilities upgrades, it is estimated that the number of direct and indirect Defence jobs has increased by around 300 since that time*. As at 2017, it is estimated that there are 3,497 FTE’s at the Garden Island Defence Precinct.

*(Pending based on finalised figures from DoD.

A breakdown of FTE’s in 2011 and 2017 at a more detailed level is provided in Table 3.1. Note: 2017 estimates are based on overall proportionate growth of 300.

Table 3.1 Full Time Equivalent Jobs at Garden Island Defence Precinct.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>177</td>
<td>194</td>
<td>17</td>
</tr>
<tr>
<td>Defence Personnel</td>
<td>3,020</td>
<td>3303</td>
<td>283</td>
</tr>
<tr>
<td>Total</td>
<td>3,197</td>
<td>3,497</td>
<td>300</td>
</tr>
</tbody>
</table>


As prescribed in the existing report undertaken by KPMG, salaries equated to around $273.10 million in 2008/09, associated with 4,181 FTE's. Utilising the same ratio of jobs to total Defence expenditure on salaries and having regard for average Defence personnel salaries in 2011 (ABS Census) and public sector wage growth\(^6\), it is estimated that around $282.8 million will be spent on Defence related salaries at the Garden Island Defence Precinct in 2017. This equates to an average net weekly salary per capita of around $1,180. See Table 3.2.

Table 3.2 Defence Expenditure on Salaries at the Garden Island Defence Precinct

<table>
<thead>
<tr>
<th>Expenditure Indicator</th>
<th>2009 (KPMG Estimate)</th>
<th>2011</th>
<th>2017 (including wage growth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's</td>
<td>4,181</td>
<td>3,197</td>
<td>3,497</td>
</tr>
<tr>
<td>Salary Expenditure</td>
<td>$273,100,000</td>
<td>$228,585,500</td>
<td>$285,557,149</td>
</tr>
<tr>
<td>(average)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Gross Salary</td>
<td>$65,319.30</td>
<td>$71,500.00</td>
<td>$81,657.75</td>
</tr>
<tr>
<td>Per Capita (Annual)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Gross Salary</td>
<td>$1,256.14</td>
<td>$1,375.00</td>
<td>$1,570.34</td>
</tr>
<tr>
<td>Per Capita (Weekly)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Net Salary</td>
<td>$984.14</td>
<td>$1,062.00</td>
<td>$1,190.10</td>
</tr>
<tr>
<td>Per Capita (Weekly)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Defence staff (2011), ABS Catalogue Number 6345.0 Wage Price Index, Australia, Dec 2016

Utilising the RPS retail expenditure model, average annual spend on food retail, household goods, personal consumer goods, department store items and takeaway/cafes has been derived. Findings are based on the following key assumptions (having regard for ABS Retail Trade Expenditure Data), as outlined overleaf.

\(^5\) The most detailed level of data at the time of the 2006 ABS Census could only be gained at the SSD Statistical Subdivision Level for ‘Inner Sydney’ which includes the entire Sydney CBD. The 2011 ABS Census published more specific SA2 region data which is considered a more accurate representation of jobs at the Garden Island Defence Precinct.

\(^6\) Using ABS Catalogue Number 6345.0 - Wage Price Index, Australia, Dec 2016 (public sector growth in NSW)
- Median Defence personnel weekly personal income (net) of $1,190.1.
- Median NSW weekly personal income (net) of $1,168.67.

A breakdown of average retail spend by category (%), which is used in the RPS retail expenditure model, based on ABS Retail Trade Expenditure Data is provided below.

**Figure 3.1 Average Spend Per Capita on Retail, NSW**

![](image)

Source: ABS Catalogue Number 8501.0 Retail Trade, Australia January 2017, RPS (2017)

Overall, full-time workers at the Garden Island Defence Precinct are calculated to spend $14,097 per person (per annum) on retail related items. Having regard for total staff (3,497 workers); it is calculated almost $50 million is spent annually on retail items in the Sydney regional economy. See table below.

**Table 3.3 Estimated Retail Expenditure, Full Time Garden Island Defence Personnel (2017)**

<table>
<thead>
<tr>
<th>Retail Category</th>
<th>Annual Expenditure Per Capita ($)</th>
<th>Defence Personnel</th>
<th>Garden Island Personnel Expenditure on Retail ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Retailing</td>
<td>$5,961</td>
<td>3,497</td>
<td>$20,846,146</td>
</tr>
<tr>
<td>Household Goods</td>
<td>$2,482</td>
<td></td>
<td>$8,680,568</td>
</tr>
<tr>
<td>Personal Consumer Goods</td>
<td>$997</td>
<td></td>
<td>$3,487,191</td>
</tr>
<tr>
<td>Department Stores</td>
<td>$721</td>
<td></td>
<td>$2,521,108</td>
</tr>
<tr>
<td>Other</td>
<td>$1,948</td>
<td></td>
<td>$6,812,313</td>
</tr>
<tr>
<td>Takeaway Food /Café's</td>
<td>$1,988</td>
<td></td>
<td>$6,951,478</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$14,097</strong></td>
<td><strong>3,497</strong></td>
<td><strong>$49,298,804</strong></td>
</tr>
</tbody>
</table>


---

7 ABS Catalogue Number 6302.0 Average Weekly Earnings
Visitors

The Garden Island Defence Precinct hosts visiting RAN and international vessels, generating consumption induced spending by these visitors. As prescribed in the existing KPMG report, 4,000 sailors visit the Garden Island Defence Precinct per annum and spend around $227.90 per day of each stay over an average stay of around 13 days.

In 2009, it was estimated that around $11.8 million was spent on retail related items in the Sydney regional economy by these visitors. Using an indicative growth scenario of 4,500 visitors in 2017 (i.e. an increase of 500 since 2009), and keeping all other variables the same, total average annual expenditure may have increased to $13.3 million since that time.

**Table 3.4 Induced Retail Expenditure by Visiting RAN and International Vessels (2009)**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Visitors</th>
<th>Average Length of Stay (days)</th>
<th>Average Daily Spend ($)</th>
<th>Total Average Annual Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>4,000</td>
<td>13</td>
<td>$227.90</td>
<td>$11,800,000</td>
</tr>
<tr>
<td>2017</td>
<td>4,500</td>
<td>13</td>
<td>$227.90</td>
<td>$13,332,150</td>
</tr>
</tbody>
</table>


Total visitor expenditure has been allocated a retail classification in order to capture more specific effects on the local retail economy. It is estimated that a large proportion of personal spend is attributed to food retail and take-away food/cafes. See Table 3.5.

**Table 3.5 Visitor Expenditure by Retail Category (2017)**

<table>
<thead>
<tr>
<th>Retail Category</th>
<th>Proportion of Spend</th>
<th>Total Spend ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takeaway Food /Café's</td>
<td>40%</td>
<td>$5,332,860</td>
</tr>
<tr>
<td>Food Retailing</td>
<td>30%</td>
<td>$3,999,645</td>
</tr>
<tr>
<td>Household Goods</td>
<td>10%</td>
<td>$1,333,215</td>
</tr>
<tr>
<td>Other</td>
<td>10%</td>
<td>$1,333,215</td>
</tr>
<tr>
<td>Personal Consumer Goods</td>
<td>7%</td>
<td>$943,056</td>
</tr>
<tr>
<td>Department Stores</td>
<td>3%</td>
<td>$333,304</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
<td><strong>$13,332,150</strong></td>
</tr>
</tbody>
</table>


**Total Expenditure – FTE’s and Visitors**

Total retail expenditure from FTE’s and visitors from RAN and international vessels is expected to be in the order of around $62.2 million in 2017. The largest retail beneficiary of personnel and visitor spend is food retail, representing around 40% of average annual spend, followed by takeaway food/cafes (20% of spend) and household goods (16%). A detailed breakdown is provided in Table 3.6.
Table 3.6 Summary Table – Average Annual Retail Expenditure (2017)

<table>
<thead>
<tr>
<th>Retail Category</th>
<th>FTE's ($)</th>
<th>Visitors ($)</th>
<th>Total Annual Retail Expenditure ($)</th>
<th>Proportion of Total Annual Spend (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Retailing</td>
<td>20,846,146</td>
<td>3,999,645</td>
<td>24,672,365</td>
<td>39.7%</td>
</tr>
<tr>
<td>Household Goods</td>
<td>8,680,568</td>
<td>1,333,215</td>
<td>9,941,567</td>
<td>16.0%</td>
</tr>
<tr>
<td>Personal Consumer Goods</td>
<td>3,487,191</td>
<td>943,056</td>
<td>4,401,236</td>
<td>7.1%</td>
</tr>
<tr>
<td>Department Stores</td>
<td>2,521,108</td>
<td>333,304</td>
<td>2,833,438</td>
<td>4.6%</td>
</tr>
<tr>
<td>Other</td>
<td>6,812,313</td>
<td>1,333,215</td>
<td>8,088,854</td>
<td>13.0%</td>
</tr>
<tr>
<td>Takeaway Food /Café's</td>
<td>6,951,478</td>
<td>5,332,860</td>
<td>12,226,507</td>
<td>19.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>49,298,804</strong></td>
<td><strong>13,332,150</strong></td>
<td><strong>62,220,821</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

3.2 Operational Expenditure

Along with wages, there are also general operating expenses, sustainment costs and capital costs which are considered expenditure items in the local economy. Using information provided in the KPMG report (2011), the value of other expense items in 2017 has been derived, having regard for growth in the consumer price index (CPI) since 2009\(^8\).

It is estimated that around $51.6 million will be spent on transport, utilities and facilities operations in 2017, representing an increase of around $7.7 million since 2009.

**Table 3.7 Other Garden Island Defence Precinct Expenditure (2017)**

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>2009 Expenditure</th>
<th>2017 Expenditure (expected)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>$ 520,000</td>
<td>$ 610,890</td>
<td>$ 90,890</td>
</tr>
<tr>
<td>Utilities (Electric)</td>
<td>$ 4,050,000</td>
<td>$ 4,757,892</td>
<td>$ 707,892</td>
</tr>
<tr>
<td>Utilities (Gas)</td>
<td>$ 60,000</td>
<td>$ 70,487</td>
<td>$ 10,487</td>
</tr>
<tr>
<td>Utilities (water, sewerage)</td>
<td>$ 300,000</td>
<td>$ 352,436</td>
<td>$ 52,436</td>
</tr>
<tr>
<td>Garrison Support</td>
<td>$ 13,250,000</td>
<td>$ 15,565,943</td>
<td>$ 2,315,943</td>
</tr>
<tr>
<td>CMS Fees</td>
<td>$ 950,000</td>
<td>$ 1,116,049</td>
<td>$ 166,049</td>
</tr>
<tr>
<td>Rations</td>
<td>$ 740,000</td>
<td>$ 869,343</td>
<td>$ 129,343</td>
</tr>
<tr>
<td>General Supplies</td>
<td>$ 90,000</td>
<td>$ 105,731</td>
<td>$ 15,731</td>
</tr>
<tr>
<td>Operating Plant and Equipment</td>
<td>$ 860,000</td>
<td>$ 1,010,318</td>
<td>$ 150,318</td>
</tr>
<tr>
<td>Facilities Operations</td>
<td>$ 23,070,000</td>
<td>$ 27,102,362</td>
<td>$ 4,032,362</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 43,890,000</strong></td>
<td><strong>$ 51,561,451</strong></td>
<td><strong>$ 7,671,451</strong></td>
</tr>
</tbody>
</table>


**Sustainment Costs**

As advised by the proponent, sustainment costs equate to around $494,327,175, annually (2016/17 dollars). Sustainment costs are the maintenance and repairs costs associated with the naval fleet. Works associated with the Adelaide CLS Frigate, LHD Sustainment and the Mine Hunter Coastal make up a large component of total sustainment costs.

**Leasing Information**

Additionally, the Department of Defence provides revenue to other Government agencies by leasing property. Annually, the Department of Defence spends around $447,176 to lease the wharf and to bore holes in the seabed.

\(^8\) Growth in the CPI derived from ABS Catalogue Number 6401.0 Consumer Price Index (Greater Sydney)
3.3 Total Expenditure

A summary of salary expenditure, visitors spend and general operational expenditure incurred by the Government is outlined in Table 3.8 below. It is estimated that around $609 million is injected annually into the local and NSW economies, as a result of Garden Island Defence operations.

Table 3.8 Total Expected Expenditure (2017)

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Expenditure</td>
<td>$49,298,804</td>
</tr>
<tr>
<td>Visitor Expenditure</td>
<td>$13,332,150</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$51,561,451</td>
</tr>
<tr>
<td>Sustainment Expenditure</td>
<td>$494,327,175</td>
</tr>
<tr>
<td>Leasing Value</td>
<td>$447,176</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td><strong>$608,966,756</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017)

3.4 Retail Evidence

There are macro-economic and micro-economic influences that impact on the retail environment (i.e. tourism trends, economic booms and busts, unemployment rates, Government legislation, net face rents etc.). Regardless, it is likely that expenditure associated with Defence personnel, visitors and general operations has positively impacted on the retail environment in the Garden Island Study Area. This is particularly in an environment where legislative changes could be considered unfavourable (owing to the implementation of the Sydney lockout laws).

Over the four year period to 2011, the number of employing businesses related to retail, accommodation/food services and arts/recreation increased or was fairly stable. However, since 2014 (the implementation of the Sydney lock-out laws), the number of retail related employing businesses has declined. See Figure 3.2. Expenditure from Defence personnel is likely to have positively impacted the local economy and softened the potential negative impact from the implementation of the laws.
**Figure 3.2** Change in the Number of Retail + Arts and Recreation related Businesses (2011-2016)

![Graph showing changes in the number of retail and arts and recreation businesses from 2011 to 2016.](image)

Implementation of Lock-out Laws

Source: ABS Catalogue Number 8165.0 - Count of Australian Businesses (2016), RPS (2017)
4 Economic Output from Current Operations

This section outlines the methodology employed in estimating the economic impacts on the regional economy.

4.1 Input-Output Overview

The economic multiplier of current investment activity has been produced using Input-Output (I/O) transaction tables and models developed by the University of Adelaide and the Australian Urban Research Infrastructure Network (AURIN). Data sources used include State and National Accounts and industry specific ABS and other agency data.

Input-Output (IO) analysis is used to identify the inter-industry relationships within a given economy through the purchasing patterns and uses of inputs by one industry for other industries, and other aspects of the economy such as households, external parties etc. Input-Output analysis is primarily used as a way to assess the direct and indirect impacts a stimulant could potentially have on one or many sectors of the economy. As a result input-output modelling can be used to assess the final demand from a stimulant to the whole economy through the associated flow-on impacts.

An input-output framework has been used to identify the direct and flow-on impacts. The direct and flow-on impacts to the economy have been estimated based on two key measures:

- Gross Regional Product (GRP): The value of all outputs of an industry including taxes and subsidies on its final products after deducting the cost of goods and services inputs in the production process.
- Employment: Level of employment supported by the industry, and is expressed as full-time equivalent (“FTE”) positions.

The output generated from economic activity at GIDP is measured through:

- Direct impacts: Operational expenditure made by the bases on wages and salaries, expenditure on intermediate goods and expenditure on local goods and services made by personnel or visiting RAN. The direct impacts of naval bases can be estimated in a relatively straightforward manner.
- Flow-on impacts (indirect impacts): the second and subsequent round effects of the increased level of purchases by personnel and the base. In the case of GIDP, this includes consumer spending by people who are employed by the naval bases. The second is the impact of additional spending by upstream businesses that supply goods and services to these businesses.

4.2 Direct Economic Impacts

Garden Island Defence Precinct contributes directly to employment and expenditure in the local and NSW economies through the following means:

- Salaries and wages paid to personnel and contractors.
- Visiting RAN expenditure.
- Operational expenses.
- Sustainment Expenditure.
- Leasing of property.

It is estimated that around $842 million is injected directly into the economy (annually) from the Garden Island Defence Precinct. See the next table.
Table 4.1 Annual Direct Expenditure resulting from the presence of the Garden Island Defence Precinct

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Salaries</td>
<td>$285,557,149</td>
</tr>
<tr>
<td>Visitor Expenditure</td>
<td>$13,332,150</td>
</tr>
<tr>
<td>Annual Operational Expenses</td>
<td>$51,561,451</td>
</tr>
<tr>
<td>Sustainment Expenditure</td>
<td>$494,327,175</td>
</tr>
<tr>
<td>Leasing Value</td>
<td>$447,176</td>
</tr>
<tr>
<td><strong>Total Direct Economic Expenditure</strong></td>
<td><strong>$845,225,101</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017), Defence staff, ABS

4.3 Indirect Economic Impact of Current Operations

The economic impact methodology used for this assessment is based on an Input-Output analysis. The direct impact referred to in this section is the first round of GRP and employment generated from annual direct expenditure from the base. Indirect impacts are the flow-on GRP and employment impacts because of activity at the base.

The indirect impacts of activity at the Garden Island Defence Precinct is summarised in Table 4.2. The first round economic benefit of activity is expected to directly generate around $350.8 million in GRP and support almost 3,462 FTE jobs, annually. Second round multipliers will inject $183.4 million into the regional economy and generate around 1,283 FTE jobs.

Table 4.2 Indirect Impacts of Defence Activities at Garden Island ($ Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Regional Product ($M)</th>
<th>Employment (FTE jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Round Impacts</td>
<td>2nd Round Impacts</td>
</tr>
<tr>
<td>2017</td>
<td>350.76</td>
<td>183.41</td>
</tr>
</tbody>
</table>

Source: RPS (2017), WISer EIAT (2017)

In total, annual expenditure at Garden Island (salaries, visitor expenditure, sustainment expenditure, annual operational expenses and leasing of property) leads to the following annual economic impacts:

- $534.17 million in Gross Regional Product (value add).
- Supports approximately 4,745 additional jobs.

Economic activity at the Garden Island Defence Precinct multiplies through all industries. Benefits (FTE Jobs) are largely felt by the public administration and safety industry. This is followed by manufacturing industry owing to solid sustainment expenditure at this particular base (i.e. dock operation and reticulated services, amphibious oiler replenishments etc.). See Figure 4.1.

GRP largely benefits the public administration and safety industry, followed by manufacturing, administrative and support services and financial and insurance services. See Figure 4.2.
Figure 4.1 Current Employment Impact (number of jobs)

Source: RPS (2017), WISer EIAT (2017)

Figure 4.2 Current Annual GRP by Industry

Source: RPS (2017), WISer EIAT (2017)
Limitations of the Model

Input-Output multipliers are most commonly used to quantify the economic impacts (both direct and indirect) relating to policies and projects. While their ease of use makes Input-Output multipliers a popular tool for economic impact analysis, they are based on limiting assumptions. As such, the results of the analysis must be interpreted within the context of the following assumptions/limitations:

- **Lack of supply–side constraints**: The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply–side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.

- **Fixed prices**: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.

- **Fixed ratios for intermediate inputs and production**: Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount;

- **No allowance for purchasers’ marginal responses to change**: Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.

- **Absence of budget constraints**: Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
5 Forecast Economic Output from Infrastructure Investment

Currently, around $223.55 million in funding has been approved and $1.18 billion is earmarked (unapproved) for the Garden Island Defence Precinct.
6 Summary of Economic Impacts

Garden Island Defence Precinct

- 3,497 FTE workers at GIDP in 2017
- Annual Visitor Expenditure: $13.3 million
- Average Annual Garden Island Personnel Expenditure on Retail: $48.9 million
- Total GIDP Annual Expenditure: $845 million
- 4,745 FTE Indirect Jobs from Current Operations (Excluding jobs at the base)
- Indirectly Injects: $534.2 million Annually to Sydney GRP (Gross Regional Product)

Currently supporting jobs in various industries:

- Manufacturing: 1,177
- Public Administration and Safety: 784
- Administrative and Support Services: 159
HMAS Waterhen
1 Subject Site Overview

1.1 Context

HMAS Waterhen is located in Waverton on Sydney’s Lower North Shore, approximately 5 kilometres from the Sydney CBD. The five hectare base is located off Balls Head Road.

The base is serviced by Waverton railway station which is located approximately 650m away. The station is on the T1 North Shore, Northern and Western Line, providing services to the city and western suburbs such as Emu Plains and Richmond heading south and Hornsby or Berowra heading north.

The closest bus stop is located 500m away on Woolcott Street, providing services between Lane Cove and McMahons Point via Greenwich on the 265 bus. There are night buses from North Sydney Station which is located 1.7km away. There are some essential shops and services located around Waverton railway station such as a chemist, IGA Express, dry cleaners and a few restaurants.

As mentioned, North Sydney CBD is located 1.7km away and is the closest major centre. It consists of larger supermarkets, gyms, schools, cafes and restaurants and a high concentration of office buildings.

1.2 Subject Site Overview

Waterhen was commissioned in 1962 and is the Navy’s leading establishment for Mine Warfare. As of 2010, Waterhen is home to the Australian Navy Mine Warfare and Clearance Diving Group, consisting of Clearance Diving Team One, Six Huon class minehunters, several minor and commercially operated support vessels and is often used as a base for visiting vessels. The base was redeveloped through a $70 million modernisation program in the mid-1990s. The site consists of three main building structures, two wharves, a four level carpark consisting of 196 car spaces, oil fuel installation facilities, a gatehouse and support staff facilities. There are residential uses to the north and east of the site, Balls Head Reserve to the south and Sydney Harbour to the west.
2 Economic and Employment Profile

This section of the report considers the economic and employment characteristics of the localised study area which encompasses the following Australian Bureau of Statistics (ABS) defined SA2 regions:

- Crows Nest – Waverton SA2 Region.
- North Sydney Lavender Bay SA2 Region.

Hereafter referred to as the ‘Waterhen Study Area’, these two SA2 regions have been chosen for their proximity to the Waterhen Study Area. It is likely that personnel at the precinct (regular, temporary and contractors) would frequent businesses in these regions, supporting local economic activity. See Figure 2.1.
Figure 2.1 Waterhen Study Area Map

2.2 Population Characteristics

As of 2015, the population of the Waterhen Study Area is 31,467, accounting for 0.6% of the Greater Sydney population (4.9 million).

The Waterhen Study Area has a relatively large proportion of residents aged between 20-34 (34.6%) and 35-49 (24.4%), particularly when compared with Greater Sydney. See Figure 2.2.

**Figure 2.2** Age Profile of the Waterhen Study Area vs Greater Sydney (2015)

![Age Profile Chart](chart.png)

Source: ABS Population by Age and Sex (2016)

As prescribed by the Bureau of Transport Statistics (BTS), the population of the Waterhen Study Area is expected to increase to 37,003 people by 2036, representing an increase of 5,536 people.

2.3 Employment Profile

**Employment by Industry**

At the time of the 2011 ABS Census there were 50,583 workers in the Waterhen Study Area. The largest proportion of jobs are related to the Professional, Scientific and Technical Services Industry (28.7%), followed by Financial and Insurance Services (14.7%) and Information Media and Telecommunications (6.7%). Defence related jobs represent 1% of total jobs in the Waterhen Study Area (650 jobs).

The major employment centres of St Leonards and North Sydney are located in the study area, providing an explanation as to why Defence related jobs (as a proportion of total jobs) is minimal.

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9 The BTS publish population projections at the Australian Bureau of Statistics (ABS) defined SA2 geographical level. These projections are based on the Department of Planning and Environment (DP&E) population projections who publish at the local government area (LGA) geographic level.
Compared with Greater Sydney, there is a greater representation of jobs in the following industries:

1. Administrative and Support Services (5.5% vs 3.2%).
2. Financial and Insurance Services (14.7% vs 7.0%).
3. Information Media and Telecommunications (6.7% vs 3.2%).
4. Professional, Scientific and Technical Services (28.7% vs 10.2%).

See Figure 2.4.
Figure 2.4 Industry Profile of the Waterhen Study Area vs Greater Sydney (2011)

Source: ABS Census (2011)
Employment by Occupation

The Waterhen Study Area encompasses a high proportion of Professionals, Managers and Clerical and Administrative Workers.

Compared with Greater Sydney, there are also a higher proportion of Professional, Managers and Clerical and Administrative Workers.

**Table 2.1 Occupation Profile, Waterhen Study Area vs Greater Sydney (2011)**

<table>
<thead>
<tr>
<th>Occupation Type</th>
<th>Waterhen Study Area</th>
<th>Greater Sydney</th>
<th>Waterhen Study Area (%) Vs Greater Sydney (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workers</td>
<td>% of Total</td>
<td>Workers</td>
</tr>
<tr>
<td>Managers</td>
<td>11,061</td>
<td>21.9%</td>
<td>263,277</td>
</tr>
<tr>
<td>Professionals</td>
<td>20,982</td>
<td>41.5%</td>
<td>506,388</td>
</tr>
<tr>
<td>Technicians and Trades Workers</td>
<td>2,830</td>
<td>5.6%</td>
<td>203,564</td>
</tr>
<tr>
<td>Community and Personal Service Workers</td>
<td>2,165</td>
<td>4.3%</td>
<td>165,585</td>
</tr>
<tr>
<td>Clerical and Administrative Workers</td>
<td>9,134</td>
<td>18.1%</td>
<td>320,293</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>2,846</td>
<td>5.6%</td>
<td>172,709</td>
</tr>
<tr>
<td>Machinery Operators and Drivers</td>
<td>245</td>
<td>0.5%</td>
<td>100,952</td>
</tr>
<tr>
<td>Labourers</td>
<td>727</td>
<td>1.4%</td>
<td>120,874</td>
</tr>
<tr>
<td>Inadequately described</td>
<td>548</td>
<td>1.1%</td>
<td>20,474</td>
</tr>
</tbody>
</table>

Total: 50,582                           100.0%          1,874,116                     100.0%          

Source: ABS Census (2011)

Employment by Sector

Of total jobs in Waterhen Study Area, the largest proportion are private sector related (92.4%). This is followed by NSW State Government jobs (4.9%) and National Government jobs (2.0%).

Compared with Greater Sydney, there are more (proportionately) private sector jobs (92.4% vs 85.3%) and a lower proportion of NSW State Government jobs (4.9% vs 9.8%) and National Government jobs (2.0% vs 3.7%). This is reflective of employment centres in the Waterhen Study Area including St Leonards and North Sydney.
Income Profile

At the time of the 2011 ABS Census, the median annual income of workers in the Waterhen Study Area was around $71,500, considerably higher than the Greater Sydney median ($46,800). Personal income is an important indicator of socio-economic status.

Note – median personal income of Defence personnel at HMAS Waterhen was the same as the Waterhen Study Area (i.e. inclusive of North Sydney and St Leonards) and higher than Greater Sydney. This suggests that disposable income could be relatively high, given the age and demographic profile of Defence personnel on the site.

Table 2.2 Median Personal Income, Waterhen Study Area, Defence Personnel and Greater Sydney (2011)

<table>
<thead>
<tr>
<th>Area</th>
<th>Median Annual Personal Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterhen Study Area</td>
<td>$71,500</td>
</tr>
<tr>
<td>Defence Personnel in HMAS Waterhen</td>
<td>$71,500</td>
</tr>
<tr>
<td>Greater Sydney</td>
<td>$46,800</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

Figure 2.6 depicts the income distribution of workers in the Waterhen Study Area as well as Defence Personnel in HMAS Waterhen and Greater Sydney. It is evident that the income profile of Defence personnel is high in comparison to both the local study area and Greater Sydney, as indicated by the red circle below. Around 66.1% of HMAS Waterhen Defence Personnel earn more than $65,000 compared with 60% in the Waterhen study area and 36.3% in Greater Sydney.
Figure 2.6 Personal Income Profile, Waterhen Study Area, Defence Personnel and Greater Sydney (2011)

Source: ABS Census (2011)
Employment Projections

The BTS employment projections forecast the workforce of the Waterhen Study Area to increase from 61,425 in 2011 to 76,079 in 2036, representing an increase of 14,654 jobs. Pending economic modelling, it is envisaged that Defence related investment will support employment growth in the precinct, consistent with NSW State Government projections.

2.4 Business Profile

As at 2016, there were 3,840 employing businesses in the Waterhen Study Area. A large proportion of employing businesses are small in nature, encompassing between one and four workers (65.5% of businesses). This is followed by businesses that employ between five and 19 workers (23.7%). Between 2011 and 2016, the number of local businesses increased by 60.

Table 2.3 Business Profile, Waterhen Study Area (2011 & 2016)

<table>
<thead>
<tr>
<th>Business Size</th>
<th>2011</th>
<th>2016</th>
<th>Change in Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Businesses</td>
<td>% of Total</td>
<td>Number of Businesses</td>
</tr>
<tr>
<td>1-4</td>
<td>2,385</td>
<td>63.1%</td>
<td>2,514</td>
</tr>
<tr>
<td>5-19</td>
<td>980</td>
<td>25.9%</td>
<td>911</td>
</tr>
<tr>
<td>2-199</td>
<td>362</td>
<td>9.6%</td>
<td>397</td>
</tr>
<tr>
<td>200+</td>
<td>53</td>
<td>1.4%</td>
<td>18</td>
</tr>
<tr>
<td>Total Employing Businesses</td>
<td>3,780</td>
<td>100.0%</td>
<td>3,840</td>
</tr>
</tbody>
</table>

Source: Counts of Australian Businesses, including Entries and Exits (2016)

*Note – ABS business count data excludes the ‘General Government’ and therefore the contribution of HMAS Watson to the total count has been excluded.

A large number of employing businesses are related to the Professional, Scientific and Technical Services industry. This is followed by Financial and Insurance Services and Administrative and Support Services. See Figure 2.7.
Figure 2.7 Number of Employing Businesses by Industry Type, Waterhen Study Area (2016)

Source: Counts of Australian Businesses, including Entries and Exits (2016)
3 Direct Expenditure

This section of the report considers direct retail and operational expenditure in the local economy. HMAS Waterhen contributes directly to the Sydney economy by employing staff and contractors who purchase local goods and services.

Annual spend by Full Time Equivalent Employees (FTE’s) is considered, having regard for average salaries. Operational expenses and capital costs incurred by the Government is also considered. Salaries paid, operational costs and leasing values have a direct and indirect economic impact on the regional and NSW State economy. Multiplier effects are considered in Section 4 of the report.

Expenditure estimates have been derived using information provided in the previous KPMG report as well as from online sources and datasets. All estimates are based on employment and expenditure over the 2016/2017 financial year.

3.1 Full Time Equivalent Employees (FTE’s)

As prescribed by KPMG in the existing report completed in 2011, the following employment and visitor estimates were derived for HMAS Waterhen:

- In 2008/2009 there were 690 FTE’s which are split between two industries, Government Administration and Defence, and Property and Business Services.
- In 2008/2009, HMAS Waterhen is estimated to have spent $8.58 million on wages, capital and operating expenses.

Full Time Equivalent Employees (FTEs)

It is estimated that FTE job estimates provided by KPMG in 2011 were optimistic, owing to the availability of limited information at the time.\(^{10}\)

Based on 2011 ABS Census data, it is estimated that there were 650 FTE’s at HMAS Waterhen. It is estimated that the number of Defence related jobs has increased by around 100 since that time. As at 2017, it is estimated that there are around 750 FTE’s at HMAS Waterhen.

A breakdown of FTE’s in 2011 and 2017 at a more detailed level is provided in Table 3.1. Note: 2017 estimates are based on overall proportionate growth of 100.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>105</td>
<td>121</td>
<td>16</td>
</tr>
<tr>
<td>Defence Personnel</td>
<td>545</td>
<td>629</td>
<td>84</td>
</tr>
<tr>
<td>Total</td>
<td>650</td>
<td>750</td>
<td>100</td>
</tr>
</tbody>
</table>


As prescribed in the KPMG report, salaries equated to around $45.07 million in 2008/2009, associated with 690 FTE’s. Utilising the same ratio of jobs to total Defence expenditure on salaries and having regard for

\(^{10}\) The most detailed level of data at the time of the 2006 ABS Census could only be gained at the SSD Statistical Subdivision Level for 'Inner Sydney' which includes the entire Sydney CBD. The 2011 ABS Census published more specific SA2 region data which is considered a more accurate representation of jobs at the Garden Island Defence Precinct.
average Defence personnel salaries in 2011 (ABS Census) and public sector wage growth, it is estimated that around $53 million will be spent on Defence related salaries at HMAS Waterhen in 2017. This equates to an average net weekly salary per capita of around $1,190. See Table 3.2.

Table 3.2 Defence Expenditure on Salaries at HMAS Waterhen

<table>
<thead>
<tr>
<th>Expenditure Indicator</th>
<th>2009 (KPMG Estimate)</th>
<th>2011</th>
<th>2017 (including wage growth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's</td>
<td>690</td>
<td>650</td>
<td>750</td>
</tr>
<tr>
<td>Salary Expenditure (average)</td>
<td>$2,160,000*</td>
<td>$46,475,000</td>
<td>$53,077,537</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Annual)</td>
<td>$3,130.43</td>
<td>$71,500.00</td>
<td>$81,657.75</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Weekly)</td>
<td>$60.20</td>
<td>$1,375.00</td>
<td>$1,570.34</td>
</tr>
<tr>
<td>Average Net Salary Per Capita (Weekly)</td>
<td>$984.14</td>
<td>$1,062.00</td>
<td>$1,190.00</td>
</tr>
</tbody>
</table>

Source: Defence staff (2011), ABS Catalogue Number 6345.0 Wage Price Index, Australia, Dec 2016

*The salary expenditure estimates are very low due to limited information in the KPMG Report. In the KPMG Report, table 4.6 outlines that ‘due to contractual arrangements, some salaries have not been provided’. As such, this provides a difficult comparison. Based on the provided information in the KPMG.

Utilising the RPS retail expenditure model, average annual spend on food retail, household goods, personal consumer goods, department store items and takeaway/cafes has been derived. Findings are based on the following key assumptions (having regard for ABS Retail Trade Expenditure Data), as outlined:

- 750 FTE’s in 2017.
- Median Defence personnel weekly personal income (net) of $1,190
- Median NSW weekly personal income (net) of $1,168.6

A breakdown of average retail spend by category(%), which is used in the RPS retail expenditure model, based on ABS Retail Trade Expenditure Data is provided below.

---

11 ABS Catalogue Number 6302.0 Average Weekly Earnings
Overall, it is calculated that full-time workers at HMAS Waterhen spend around $14,097 per person (per annum) on retail related items. Having regard for total staff (750 workers); almost $10.6 million is spent annually on retail items in the Sydney regional economy. See Table 3.3.

**Table 3.3** Estimated Retail Expenditure, Full Time HMAS Waterhen Personnel (2017)

<table>
<thead>
<tr>
<th>Retail Category</th>
<th>Annual Expenditure Per Capita ($)</th>
<th>Defence Personnel</th>
<th>HMAS Waterhen Personnel Expenditure on Retail ($)</th>
<th>Proportion of Total Annual Spend (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Retailing</td>
<td>$5,961</td>
<td></td>
<td>$4,470,863</td>
<td>42.3%</td>
</tr>
<tr>
<td>Household Goods</td>
<td>$2,482</td>
<td></td>
<td>$1,861,717</td>
<td>17.6%</td>
</tr>
<tr>
<td>Personal Consumer Goods</td>
<td>$997</td>
<td></td>
<td>$747,896</td>
<td>7.1%</td>
</tr>
<tr>
<td>Department Stores</td>
<td>$721</td>
<td></td>
<td>$540,701</td>
<td>5.1%</td>
</tr>
<tr>
<td>Other</td>
<td>$1,948</td>
<td>750</td>
<td>$1,461,034</td>
<td>13.8%</td>
</tr>
<tr>
<td>Takeaway Food/Café's</td>
<td>$1,988</td>
<td></td>
<td>$1,490,880</td>
<td>14.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$14,097</strong></td>
<td></td>
<td><strong>$10,573,092</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>


The largest retail beneficiary of personnel spend if Food Retailing, representing around 42% of average annual spend, followed by Household Goods (17% of spend) and Takeaway Food/ Cafes (14%).
3.2 Operational Expenditure

Along with wages, there are also operating expenses and capital costs which are considered expenditure items in the local economy. Using information provided in the KPMG report (2011), the value of other expense items in 2017 has been derived, having regard for growth in the consumer price index since 2007.\(^\text{12}\)

It is estimated that around $7.5 million will be spent on transport, utilities and facilities operations, representing an increase of around $1.1 million since 2009.

**Table 3.4 Other HMAS Waterhen Expenditure (2017)**

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>2009 Expenditure</th>
<th>2017 Expenditure (expected)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>$520,000</td>
<td>$610,890</td>
<td>$90,890</td>
</tr>
<tr>
<td>Utilities (water, sewerage)</td>
<td>$80,000</td>
<td>$93,983</td>
<td>$13,983</td>
</tr>
<tr>
<td>Garrison Support</td>
<td>$3,350,000</td>
<td>$3,935,540</td>
<td>$585,540</td>
</tr>
<tr>
<td>CMS Fees</td>
<td>$630,000</td>
<td>$740,117</td>
<td>$110,117</td>
</tr>
<tr>
<td>Rations</td>
<td>$320,000</td>
<td>$375,932</td>
<td>$55,932</td>
</tr>
<tr>
<td>General Supplies</td>
<td>$30,000</td>
<td>$35,244</td>
<td>$5,244</td>
</tr>
<tr>
<td>Operating Plant and Equipment</td>
<td>$580,000</td>
<td>$681,377</td>
<td>$101,377</td>
</tr>
<tr>
<td>Facilities Operations</td>
<td>$910,000</td>
<td>$1,069,057</td>
<td>$159,057</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$6,420,000</strong></td>
<td><strong>$7,542,140</strong></td>
<td><strong>$1,122,140</strong></td>
</tr>
</tbody>
</table>


3.3 Total Expenditure

A summary of salary expenditure, general operational expenditure and leasing values incurred by the Government is outlined in Table 3.5 below. It is estimated that around $18.6 million will be injected into the Sydney regional economy in 2017, as a result of HMAS Waterhen operations.

**Table 3.5 Total Expected Expenditure (2017)**

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Expenditure</td>
<td>$10,573,092</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$7,542,140</td>
</tr>
<tr>
<td>Leasing Values</td>
<td>$444,083</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td><strong>$18,559,315</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017)

\(^{12}\) Growth in the CPI derived from ABS Catalogue Number 6401.0 Consumer Price Index (Greater Sydney)
### 3.4 Retail Evidence

There are macro-economic and micro-economic trends that impact on the retail environment (i.e. tourism trends, economic booms and busts, unemployment rates, Government legislation, net face rents etc.). Regardless, it is likely that expenditure associated with Defence personnel and general operations has positively impacted on the retail environment in the Waterhen Study Area.

Over the four year period to 2014, the number of employing businesses related to retail and arts/recreation increased or was fairly stable. Since 2014, the number of retail related employing businesses has increased. See Figure 3.2 Expenditure from Defence personnel is likely to have positively impacted the local economy and contributed to some of the increase in retail trade employing businesses.

**Figure 3.2** Change in the Number of Retail, Accommodation and Food Services, and Arts and Recreation Related Businesses (2011-2016)

![Figure 3.2 Change in the Number of Retail, Accommodation and Food Services, and Arts and Recreation Related Businesses (2011-2016)](source)

Source: ABS Catalogue Number 8165.0 - Count of Australian Businesses (2016), RPS (2017)
4 Economic Output from Current Operations

This section outlines the methodology employed in estimating the economic impacts on the study area and the NSW economy.

4.1 Input-Output Overview

The economic multiplier of future investment activity has been produced using Input-Output (I/O) transaction tables and models developed by the University of Adelaide and the Australian Urban Research Infrastructure Network. Data sources used include State and National Accounts and industry specific ABS and other agency data.

Input-Output analysis is used to identify the inter-industry relationships within a given economy through the purchasing patterns and uses of inputs by one industry for other industries, and other aspects of the economy such as households, external parties etc. Input-output analysis is primarily used as a way to assess the direct and indirect impacts a stimulant could potentially have on one or many sectors of the economy. As a result input-output modelling can be used to assess the final demand from a stimulant to the whole economy through the associated flow-on impacts.

An input-output framework has been used to identify the direct and flow-on impacts, these direct and flow-on impacts to the economy have been estimated based on three key measures:

- **Gross Product**: The value of all outputs of an industry including taxes and subsidies on its final products after deducting the cost of goods and services inputs in the production process.
- **Employment**: Level of employment supported by the industry, and is expressed in as full time equivalent ("FTE") positions.

The output generated from economic activity at HMAS Waterhen is measured through:

- **Direct impacts**: Operational expenditure made by the bases on wages and salaries, expenditure on intermediate goods and expenditure on local goods and services made by personnel. The direct impacts of naval bases can be estimated in a relatively straightforward manner.
- **Flow-on impacts (indirect impacts)**: the second and subsequent round effects of the increased level of purchases by personnel and the base. In the case of HMAS Waterhen, this includes consumer spending by people who are employed by the naval bases. The second is the impact of additional spending by upstream businesses that supply goods and services to these businesses.

4.2 Direct Economic Impacts

HMAS Waterhen contributes directly to employment and expenditure in the Sydney and NSW economies through the following means:

- **Salaries and wages paid**.
- **Operational expenses**.
- **Leasing of property**.

Around $61 million is injected directly into the economy from the Waterhen Naval Base. See Table 4.1.
Table 4.1 Direct Expenditure resulting from the presence of HMAS Waterhen

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary Expenditure</td>
<td>$ 53,077,537</td>
</tr>
<tr>
<td>Visitor Expenditure</td>
<td>-</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$ 7,542,140</td>
</tr>
<tr>
<td>Leasing Values</td>
<td>$ 444,083</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td><strong>$ 61,063,760</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017), Defence staff, ABS

4.3 Indirect Economic Impact of Current Operations

The economic impact methodology used for this assessment is based on an Input-Output analysis. The direct impact referred to in this section is the first round of GRP and employment generated from annual expenditure at the base. Indirect impacts are the flow-on GRP and employment impacts as a result of activity at the base.

The indirect impacts of activity at HMAS Waterhen is summarised in Table 4.2. The first round economic benefit of activity is expected to directly generate around $33.3 million in GRP and support almost 345 FTE jobs, annually. Through second round multipliers, current operations are forecast to inject $16.1 million into the regional economy and generate around 110 FTE indirect jobs.

Table 4.2 Direct and Indirect Impacts of Defence Activities at HMAS Waterhen ($ Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Regional Product ($M)</th>
<th>Employment (FTE jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Round Impacts</td>
<td>2nd Round Impacts</td>
</tr>
<tr>
<td>2017</td>
<td>33.3</td>
<td>16.1</td>
</tr>
</tbody>
</table>

Source: RPS (2017), WISer EIAT (2017)

In total, annual expenditure at HMAS Waterhen (salaries, annual operational expenses and leasing of property) leads to the following annual economic impacts:

- $49.3 in Gross Regional Product (value add).
- Supports around 455 additional jobs.

GRP largely benefits the public administration and safety industries followed by transport, administrative, financial service, and rental services. See Figure 4.2.

Economic activity at HMAS Waterhen multiplies through all industries. Benefits (FTE Jobs) are largely felt by the public administration and safety industry as well as transport, administrative and professional service related industries. See Figure 4.2.
Figure 4.1 Current Annual GRP by Industry

Source: RPS (2017), WISer EIAT (2017)

Figure 4.2 Current Employment Impact (number of jobs)

Source: RPS (2017), WISer EIAT (2017)
Limitations of the Model

Input Output multipliers are most commonly used to quantify the economic impacts (both direct and indirect) relating to policies and projects. While their ease of use makes Input Output multipliers a popular tool for economic impact analysis, they are based on limiting assumptions. As such, the results of the analysis must be interpreted within the context of the following assumptions/limitations:

- **Lack of supply–side constraints**: The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply–side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.

- **Fixed prices**: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.

- **Fixed ratios for intermediate inputs and production**: Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount;

- **No allowance for purchasers’ marginal responses to change**: Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.

- **Absence of budget constraints**: Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
5 Forecast Economic Output from Infrastructure Investment

5.1 Known Investment

There is no investment in the immediate pipeline earmarked for HMAS Waterhen.
6 Summary of Economic Impacts

HMAS Waterhen

750 FTE workers at Waterhen in 2017

$71,500 2011 Median Annual Personal Income of Waterhen Personnel

$10.6 million Average Annual HMAS Waterhen Personnel Expenditure on Retail

Total HMAS Waterhen Annual Expenditure $61.1 million (Salaries, operational expenses, leasing values)

455 FTE Indirect Jobs from Current Operations (Excluding jobs at the base)

Indirectly Injects $49.3 million Annually to Sydney GRP (Gross Regional Product)

Currently supporting jobs in various industries

Top three industries:
- Public Administration and Safety 30
- Transport, Postal and Warehousing 8
- Administrative and Support Services 3

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HMAS Watson
1 Subject Site Overview

1.1 Context

HMAS Watson is located at Sydney’s South Head off Cliff Street, Watsons Bay. The site is located approximately 11.6km from the Sydney CBD. There is the Sydney Harbour National Park to the immediate north and south of the site. Following the National Park to the north is Sydney Harbour which is also to the east and west of the site. Further south is Camp Cove and Watsons Bay which is predominantly low density residential. At Watsons Bay there is a small concentration of commercial activity in the form of cafes, restaurants and the Watsons Bay Hotel. The closest supermarkets are Coles Rose Bay North, located 3.5km away or Woolworths Metro Rose Bay located 4.7km away.

The Base is serviced by four bus routes that commence at Watsons Bay Terminus located 450m away from the entrance to the site. The 324 and 325 buses running via Old South Head Road and Vaucluse Road respectively connect the site with Walsh Bay travelling through the City and Double Bay. The 380 bus provides services to Circular Quay via Bondi and the L24 bus travels to Wynyard via Double Bay and Darlinghurst. There are also ferry services from Watsons Bay wharf which is located 500m away. Ferries run from Watsons Bay Wharf to Double Bay, Rose Bay, Circular Quay, Darling Harbour and Garden Island. In summer there is an express ferry from Watsons Bay to Manly.

1.2 Subject Site Overview

Watson is the main RAN maritime warfare training establishment, home to the Training Authority Maritime Warfare (TAMW) and part of the Fleet Command. The role of the base is to prepare Officers go to sea, providing basic and advanced training to junior and senior sailors in the Combat System Category and Junior Seaman Officers in ships handling navigation and tactics.

Military presence commenced at the site in 1871 with the development of artillery along the coastline to defend Sydney. The first barracks were built in 1877 by the NSW Artillery with the RAN established training facilities in 1942.
2 Economic and Employment Profile

This section of the report considers the economic and employment characteristics of the localized study area which encompasses the following Australian Bureau of Statistics (ABS) defined by the SA2 regions:

- Rose Bay – Vaucluse – Watson Bay SA2 Region.
- Dover Heights SA2 Region.
- Bondi Beach – North Bondi SA2 Region.

Hereafter referred to as the ‘Watson Study Area’, these three SA2 regions were chosen for their proximity to HMAS Watson. It is likely that personnel at the precinct (regular, temporary and contractors) would frequent businesses in these regions, supporting local economic activity. See Figure 2.1.
Figure 2.1 Watson Study Area Map

2.2 Population Characteristics

As of 2015, the population of the Watson Study Area is 46,944, accounting for 1.0% of the Greater Sydney population (4.9 million).

The Watson Study Area has a relatively similar proportion of residents in all age cohorts to Greater Sydney with a slightly younger age profile. See Figure 2.2.

Figure 2.2 Age Profile of the Watson Study Area vs Greater Sydney

![Age Profile Chart]

Source: ABS Population by Age and Sex (2016)

As prescribed by the Bureau of Transport Statistics\(^\text{13}\) (BTS), the population of the Watson Study Area is expected to increase to 57,290 people by 2036, representing an increase of 10,346 people.

2.3 Employment Profile

Employment by Industry

At the time of the 2011 ABS Census there were 7,821 workers in the Watson Study Area. The largest proportion of jobs are related to Accommodation and Food Services (15.2%), followed by Education and Training (14.3%) and Professional, Scientific and Technical Services (9.3%). Defence related jobs represent 7% of total jobs in the Watson Study Area (562).

\(^\text{13}\) The BTS publish population projections at the Australian Bureau of Statistics (ABS) defined SA2 geographical level. These projections are based on the Department of Planning and Environment (DP&E) population projections who publish at the local government area (LGA) geographic level.
Compared with Greater Sydney, there is a greater representation of jobs in the following industries:

1. Accommodation and Food Services (15.2% vs 6.3%)
2. Arts and Recreation Services (4.1% vs 1.6%)
3. Construction (6.9% vs 5.4%)
4. Education and Training (14.3% vs 8.0%)
5. Other Services (5.1% vs 3.7%)
6. Public Administration and Safety (8.0% vs 6.0%)
7. Rental, Hiring and Real Estate Services (3.4% vs 1.9%)

See Figure 2.4.
Figure 2.4 Industry Profile of the Watson Study Area vs Greater Sydney (2011)

Source: ABS Census (2011)
Employment by Occupation of Residents

The Watson Study Area encompasses a high proportion of Professionals, Managers and Community and Personal Service Workers.

Compared with Greater Sydney, there are a larger proportion of Managers, Community and Personal Service Workers and Technicians and Trades Workers.

**Table 2.1 Occupation Profile, Watson Study Area vs Greater Sydney (2011)**

<table>
<thead>
<tr>
<th>Occupation Type</th>
<th>Waterhen Study Area</th>
<th>Greater Sydney</th>
<th>Waterhen Study Area (%) Vs Greater Sydney (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workers</td>
<td>% of Total</td>
<td>Workers</td>
</tr>
<tr>
<td>Managers</td>
<td>1,372</td>
<td>17.5%</td>
<td>263,277</td>
</tr>
<tr>
<td>Professionals</td>
<td>2,013</td>
<td>25.7%</td>
<td>506,388</td>
</tr>
<tr>
<td>Technicians and Trades Workers</td>
<td>1,031</td>
<td>13.2%</td>
<td>203,564</td>
</tr>
<tr>
<td>Community and Personal Service Workers</td>
<td>1,315</td>
<td>16.8%</td>
<td>165,585</td>
</tr>
<tr>
<td>Clerical and Administrative Workers</td>
<td>721</td>
<td>9.2%</td>
<td>320,293</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>654</td>
<td>8.4%</td>
<td>172,709</td>
</tr>
<tr>
<td>Machinery Operators and Drivers</td>
<td>110</td>
<td>1.4%</td>
<td>100,952</td>
</tr>
<tr>
<td>Labourers</td>
<td>456</td>
<td>5.8%</td>
<td>120,874</td>
</tr>
<tr>
<td>Inadequately described</td>
<td>149</td>
<td>1.9%</td>
<td>20,474</td>
</tr>
<tr>
<td>Total</td>
<td>7,821</td>
<td>100.0%</td>
<td>1,874,116</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

Employment by Sector

Of the total jobs in the Watson Study Area, the largest are private sector related (87.0%). This is followed by National Government Jobs (7.6%) and NSW State Government jobs (5.0%).

Compared with Greater Sydney, there are more (proportionately) private sector jobs (87.0% vs 85.3%) and National Government jobs (7.6% vs 3.7%) and a lower proportion of NSW State Government jobs (5.0% vs 9.8%).
**Figure 2.5 Employment by Sector, Watson Study Area vs Greater Sydney (2011)**

![Bar chart showing employment by sector](image)

Source: ABS Census (2011)

**Income Profile**

At the time of the 2011 ABS Census, the median annual income of workers in the Watson Study Area was around $46,800, the same as the Greater Sydney median. Personal income is an important indicator of socio-economic status.

Note - median personal income of Defence personnel at HMAS Watson ($64,999) was even higher than the median of the Watson Study Area and Greater Sydney, suggesting that disposable incomes may also be higher.

**Table 2.2 Median Annual Personal Income**

<table>
<thead>
<tr>
<th>Area</th>
<th>Median Annual Personal Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watson Study Area</td>
<td>$46,800</td>
</tr>
<tr>
<td>Defence Personnel in HMAS Watson</td>
<td>$64,999</td>
</tr>
<tr>
<td>Greater Sydney</td>
<td>$46,800</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

*Note – the median annual income of HMAS Watson defence personnel lies between two income brackets. The median between the two income brackets has been utilised ($64,999).

Figure 2.6 visually depicts the income distribution of workers in the Watson Study Area, Defence Personnel and Greater Sydney. It is evident that the income profile for Defence personnel is high in comparison, as indicated by the red circle below. Around 50% of HMAS Watson Defence Personnel earn more than $65,000 compared with 30.5% in the Watson study area and 36.3% in Greater Sydney.
Figure 2.6 Personal Income Profile, Watson Study Area, Defence Personnel and Greater Sydney (2011)

Source: ABS Census (2011)
Employment Projections

The BTS employment projections, forecast the workforce of the Watson Study Area to expand from 9,736 in 2011 to 12,903 in 2036, representing an increase of 3,167 jobs. Pending economic modelling, it is envisaged that Defence related investment will support employment growth in the precinct, in-line with NSW State Government projections.

2.4 Business Profile

As at 2016, there were 1,944 employing businesses in the Watson Study Area. A large proportion of employing businesses are small in nature, encompassing one and four workers (79.5% of businesses). This is followed by business that employ between five and 19 workers (16.2%). Between 2011 and 2016, the number of local businesses increased by 127.

Table 2.3 Business Profile, Watson Study Area (2011 & 2016)

<table>
<thead>
<tr>
<th>Business Size</th>
<th>2011</th>
<th>2016</th>
<th>Change in Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Businesses</td>
<td>% of Total</td>
<td>Number of Businesses</td>
</tr>
<tr>
<td>1-4</td>
<td>1,493</td>
<td>82.2%</td>
<td>1,546</td>
</tr>
<tr>
<td>5-19</td>
<td>278</td>
<td>15.3%</td>
<td>315</td>
</tr>
<tr>
<td>2-199</td>
<td>46</td>
<td>2.5%</td>
<td>77</td>
</tr>
<tr>
<td>200+</td>
<td>0</td>
<td>0.0%</td>
<td>6</td>
</tr>
<tr>
<td>Total Employing Businesses</td>
<td>1,817</td>
<td>100.0%</td>
<td>1,944</td>
</tr>
</tbody>
</table>

Source: Counts of Australian Businesses, including Entries and Exits (2016)

*Note – ABS business count data excludes the ‘General Government’ and therefore the contribution of HMAS Watson to the total count has been excluded.

A large number of employing businesses are related to the Professional, Scientific and Technical Services industry. This is followed by Construction and Accommodation and Food Services. See Figure 2.7.
Figure 2.7 Number of Employing Businesses by Industry Type, Watson Study Area (2016)

Source: Counts of Australian Businesses, including Entries and Exits (2016)
3 Direct Expenditure

This section of the report considers direct retail and operational expenditure in the local economy. HMAS Watson contributes directly to the Sydney economy by employing staff and contractors who purchase local goods and services.

Annual spend by Full Time Equivalent Employees (FTE’s) is considered, having regard for average salaries. Operational expenses and capital costs incurred by the Government is also considered. Salaries paid, operational costs and leasing values have a direct and indirect economic impact on the regional and NSW State economy. Multiplier effects are considered in Section 4 of the report.

Expenditure estimates have been derived using information provided in the previous KPMG report as well as from online sources and datasets. All estimates are based on employment and expenditure over the 2016-2017 financial year.

3.1 Full Time Equivalent Employees (FTE’s)

As prescribed by KPMG in the existing report completed in 2011, the following employment and visitor estimates were derived for HMAS Watson:

- In 2008/2009, HMAS Watson is estimated to have directly employed a total of 438.8 FTE’s, which are predominantly Defence employees and contractors. These employees are split between two industries, Government Administration and Defence and Property and Business Services.
- In 2008-2009, HMAS Watson is estimated to have spent $43.20 million on wages, capital and operating expenses.

Full Time Equivalent Employees (FTEs)

It is estimated that FTE job estimates provided by KPMG in 2011 were optimistic at the time, owing to the availability of limited information at the time.14

Based on 2011 ABS Census data, it is estimated that there were 650 FTE’s at HMAS Watson. Based on facilities upgrades, it is estimated that the number of Defence related jobs has increase by around 200 since that time. As at 2017, it is estimated that there are around 712 FTE’s at HMAS Watson.

A breakdown of FTE’s in 2011 and 2017 at a more detailed level is provided in Table 3.1. Note: 2017 estimates are based on overall proportionate growth of 200.

Table 3.1 Full Time Equivalent Jobs at HMAS Watson

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Defence Personnel</td>
<td>559</td>
<td>758</td>
<td>199</td>
</tr>
<tr>
<td>Total</td>
<td>562</td>
<td>762</td>
<td>200</td>
</tr>
</tbody>
</table>


---

14 The most detailed level of data at the time of the 2006 ABS Census could only be gained at the SSD Statistical Subdivision Level for 'Inner Sydney' which includes the entire Sydney CBD. The 2011 ABS Census published more specific SA2 region data which is considered a more accurate representation of jobs at the Garden Island Defence Precinct.
As prescribed in the existing report undertaken by KPMG, salaries equated to around $34.26 million in 2008/2009, associated with 439 FTE’s. Utilising the same ratio of jobs to total Defence expenditure on salaries and having regard for average Defence personnel salaries in 2011 (ABS Census) and public sector wage growth, it is estimated that around $56.6 million will be spent on Defence related salaries at HMAS Watson in 2017. This equates to an average net weekly salary per capita of around $1,175. See Table 3.2.

### Table 3.2 Defence Expenditure on Salaries at HMAS Watson

<table>
<thead>
<tr>
<th>Expenditure Indicator</th>
<th>2009 (KPMG Estimate)</th>
<th>2011</th>
<th>2017 (including wage growth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's</td>
<td>439</td>
<td>562</td>
<td>762</td>
</tr>
<tr>
<td>Salary Expenditure (average)</td>
<td>$34,260,000</td>
<td>$36,530,000</td>
<td>$56,566,550</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Annual)</td>
<td>$78,076.57</td>
<td>$65,000.00</td>
<td>$74,234.32</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Weekly)</td>
<td>$1,501.47</td>
<td>$1,250.00</td>
<td>$1,427.58</td>
</tr>
<tr>
<td>Average Net Salary Per Capita (Weekly)</td>
<td>$1,145.47</td>
<td>$980.00</td>
<td>$1,096.00</td>
</tr>
</tbody>
</table>

Source: Defence staff (2011), ABS Catalogue Number 6345.0 Wage Price Index, Australia, Dec 2016

Utilising the RPS retail expenditure model, average annual spend on food retail, household goods, personal consumer goods, department store items and takeaway/cafes has been derived. Findings are based on the following key assumptions (having regard for ABS Retail Trade Expenditure Data), as outlined:

- 762 FTE’s in 2017.
- Median Defence personnel weekly personal income (net) of $1,096.
- Median NSW weekly personal income (net) of $1,168.6\(^{15}\).

A breakdown of average retail spend by category(%), which is used in the RPS retail expenditure model, based on ABS Retail Trade Expenditure Data is provided below.

\(\text{^{15} ABS Catalogue Number 6302.0 Average Weekly Earnings}\)
Overall, full-time workers at HMAS Watson spend around $12,984 per person (per annum) on retail related items. Having regard for total staff (762 workers); around $9.9 million is spent annually on retail items in the Sydney regional economy. See Table 3.3.

**Table 3.3 Estimated Retail Expenditure, Full Time HMAS Watson Personnel (2017)**

<table>
<thead>
<tr>
<th>Retail Category</th>
<th>Annual Expenditure Per Capita ($)</th>
<th>Defence Personnel</th>
<th>HMAS Watson Personnel Expenditure on Retail ($)</th>
<th>Proportion of Total Annual Spend (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Retailing</td>
<td>$5,490</td>
<td>762</td>
<td>$4,183,586</td>
<td>42.3%</td>
</tr>
<tr>
<td>Household Goods</td>
<td>$2,286</td>
<td></td>
<td>$1,742,092</td>
<td>17.6%</td>
</tr>
<tr>
<td>Personal Consumer Goods</td>
<td>$918</td>
<td></td>
<td>$699,840</td>
<td>7.1%</td>
</tr>
<tr>
<td>Department Stores</td>
<td>$664</td>
<td></td>
<td>$505,958</td>
<td>5.1%</td>
</tr>
<tr>
<td>Other</td>
<td>$1,794</td>
<td></td>
<td>$1,367,154</td>
<td>13.8%</td>
</tr>
<tr>
<td>Takeaway Food/ Cafés</td>
<td>$1,831</td>
<td></td>
<td>$1,395,083</td>
<td>14.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$12,984</strong></td>
<td></td>
<td><strong>$9,893,713</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>


The largest retail beneficiary of personnel spend is Food Retailing, representing around 42% of average annual spend, followed by Household Goods (17% of spend) and Takeaway Food/ Cafés (14%).
3.2 Operational Expenditure

Along with wages, there are also operating expenses and capital costs which are considered expenditure items in the local economy. Using information provided in the KPMG report (2011), the value of other expense items in 2017 has been derived, having regard for growth in the consumer price index since 2007.\(^\text{16}\)

It is estimated that around $8.9 million will be spent on transport, utilities and facilities operations, representing an increase of around $1.5 million since 2009.

**Table 3.4 Other HMAS Watson Expenditure (2017)**

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>2009 Expenditure</th>
<th>2017 Expenditure (expected)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>$520,000</td>
<td>$610,890</td>
<td>$90,890</td>
</tr>
<tr>
<td>Utilities (water, sewerage)</td>
<td>$40,000</td>
<td>$46,992</td>
<td>$6,992</td>
</tr>
<tr>
<td>Garrison Support</td>
<td>$5,030,000</td>
<td>$5,909,184</td>
<td>$879,184</td>
</tr>
<tr>
<td>CMS Fees</td>
<td>$790,000</td>
<td>$928,083</td>
<td>$138,083</td>
</tr>
<tr>
<td>Rations</td>
<td>$380,000</td>
<td>$446,419</td>
<td>$66,419</td>
</tr>
<tr>
<td>General Supplies</td>
<td>$20,000</td>
<td>$23,496</td>
<td>$3,496</td>
</tr>
<tr>
<td>Operating Plant and Equipment</td>
<td>$720,000</td>
<td>$845,847</td>
<td>$125,847</td>
</tr>
<tr>
<td>Facilities Operations</td>
<td>$1,430,000</td>
<td>$1,679,947</td>
<td>$249,947</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$8,930,000</strong></td>
<td><strong>$10,490,858</strong></td>
<td><strong>$1,560,858</strong></td>
</tr>
</tbody>
</table>


3.3 Total Expenditure

A summary of salary expenditure, operational expenditure as well as leasing values is outlined in Table 3.5 below. It is estimated that around $20.4 million will be injected into the Sydney regional economy in 2017, as a result of HMAS Watson Defence operations.

**Table 3.5 Total Expected Expenditure (2017)**

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Expenditure</td>
<td>$9,893,713</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$10,490,858</td>
</tr>
<tr>
<td>Leasing Value</td>
<td>$972</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td><strong>$20,385,543</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017)

---

\(^{16}\) Growth in the CPI derived from ABS Catalogue Number 6401.0 Consumer Price Index (Greater Sydney)
### 3.4 Retail Evidence

There are macro-economic and micro-economic trends that impact on the retail environment (i.e. tourism trends, economic booms and busts, unemployment rates, Government legislation, net face rents etc.). Regardless, it is likely that expenditure associated with Defence personnel and general operations has positively impacted on the retail environment in the Watson Study Area.

Over the four year period to 2014, the number of employing businesses related to retail and arts/recreation increased or was fairly stable. Since 2014, the number of retail related employing businesses declined. In contrast, businesses related to accommodation and food services have continued to increase. Expenditure from Defence personnel is likely to have positively impacted the local economy and contributed to some of the increase in trade related to accommodation and food services.

**Figure 3.2** Change in the Number of Retail, Accommodation and Food Services, and Arts and Recreation Related Businesses (2011-2016)

![Graph showing changes in the number of retail, accommodation, and food services businesses](source:image)

*Source: ABS Catalogue Number 8165.0 - Count of Australian Businesses (2016), RPS (2017)*
4 Economic Output from Current Operations

This section outlines the methodology employed in estimating the economic impacts on the regional economy.

4.1 Input-Output Overview

The economic impact methodology used for this assessment is based on an Input-Output analysis. Input-Output analysis is used to identify the inter-industry relationships within a given economy through the purchasing patterns and uses of inputs by one industry for other industries, and other aspects of the economy such as households, external parties etc. input-output analysis is primarily used as a way to assess the direct and indirect impacts a stimulant could potentially have on one or many sectors of the economy. As a result input-output modelling can be used to assess the final demand from a stimulant to the whole economy through the associated flow-on impacts.

An input-output framework has been used to identify the direct and flow-on impacts, these direct and flow-on impacts to the economy have been estimated based on three key measures:

- **Gross Product**: The value of all outputs of an industry including taxes and subsidies on its final products after deducting the cost of goods and services inputs in the production process.
- **Incomes**: Level of wages and salaries paid to employees in each industry.
- **Employment**: Level of employment supported by the industry, and is expressed in as full time equivalent (“FTE”) positions.

The output generated from economic activity at HMAS Watson is measured through:

- **Direct impacts**: Operational expenditure made by the bases on wages and salaries, expenditure on intermediate goods and expenditure on local goods and services made by personnel. The direct impacts of naval bases can be estimated in a relatively straightforward manner.
- **Flow-on impacts (indirect impacts)**: the second and subsequent round effects of the increased level of purchases by personnel and the base. In the case of HMAS Watson, this includes consumer spending by people who are employed by the naval bases. The second is the impact of additional spending by upstream businesses that supply goods and services to these businesses.

4.2 Direct Economic Impacts

HMAS Watson contributes directly to employment and expenditure in the local and NSW economies through the following means:

- Salaries and wages paid.
- Operational expenses.
- Leasing of property.

Around $67 million is injected directly into the economy from the HMAS Watson Naval base. See the next table.
Table 4.1 Direct Expenditure resulting from the presence of HMAS Watson

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Salaries</td>
<td>$56,566,550</td>
</tr>
<tr>
<td>Visitor Expenditure</td>
<td>$-</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$10,490,858</td>
</tr>
<tr>
<td>Leasing Value</td>
<td>$972</td>
</tr>
<tr>
<td><strong>Total Direct Economic Impact</strong></td>
<td><strong>$67,058,380</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017), Defence staff, ABS

4.3 Indirect Economic Impact of Current Operations

The indirect impacts of activity at HMAS Watson is summarised in Table 4.2. The first round economic benefit of activity is expected to directly generate around $35.98 million in GRP and support almost 368 FTE jobs, annually. Indirectly, general operations (i.e. day to day expenditure) will inject $23.21 million into the regional economy and generate around 174 FTE indirect jobs.

Table 4.2 Indirect Impacts of Defence Activities at HMAS Watson ($ Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Regional Product ($M)</th>
<th>Employment (FTE jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Round Impacts</td>
<td>2nd Round Impacts</td>
</tr>
<tr>
<td>2017</td>
<td>35.98</td>
<td>23.21</td>
</tr>
</tbody>
</table>

Source: RPS (2017), WISer EIAT (2017)

In total, annual expenditure at HMAS Watson (salaries, annual operational expenses and leasing of property) leads to the following annual economic impacts:

- $59.19 million in Gross Regional Product.
- Supports around 541 jobs (excluding personnel employed by the Base).

GRP largely benefits the public administration and safety industries followed by administrative and support services and professional, scientific and technical services. See Figure 4.1.

Economic activity at HMAS Watson multiplies through all industries. Benefits (FTE Jobs) are largely felt by the public administration and safety industry as well administrative services, professional services and transport, postal and warehousing related industries. See Figure 4.1.
**Figure 4.1** Current Annual GRP by Industry

- Public Administration and Safety
- Administrative and Support Services
- Professional, Scientific and Technical Services
- Financial and Insurance Services
- Rental, Hiring and Real Estate Services
- Transport, Postal and Warehousing
- Information Media and Telecommunications
- Construction
- Retail Trade
- Accommodation and Food Services
- Wholesale Trade
- Other Services
- Education and Training
- Health Care and Social Assistance
- Manufacturing
- Arts and Recreation Services
- Electricity, Gas, Water and Waste Services
- Mining
- Agriculture, Forestry and Fishing

Source: RPS (2017), WISer EIAT (2017)

**Figure 4.2** Current Employment Impact (number of jobs)

- Public Administration and Safety
- Administrative and Support Services
- Professional, Scientific and Technical Services
- Transport, Postal and Warehousing
- Retail Trade
- Accommodation and Food Services
- Construction
- Other Services
- Financial and Insurance Services
- Information Media and Telecommunications
- Health Care and Social Assistance
- Education and Training
- Wholesale Trade
- Rental, Hiring and Real Estate Services
- Arts and Recreation Services
- Manufacturing
- Electricity, Gas, Water and Waste Services
- Mining
- Agriculture, Forestry and Fishing

Source: RPS (2017), WISer EIAT (2017)
Limitations of the Model

Input Output multipliers are most commonly used to quantify the economic impacts (both direct and indirect) relating to policies and projects. While their ease of use makes Input Output multipliers a popular tool for economic impact analysis, they are based on limiting assumptions. As such, the results of the analysis must be interpreted within the context of the following assumptions/limitations:

**Lack of supply–side constraints:** The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply–side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.

- **Fixed prices:** Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.

- **Fixed ratios for intermediate inputs and production:** Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount;

- **No allowance for purchasers’ marginal responses to change:** Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.

- **Absence of budget constraints:** Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
5 Forecast Economic Output from Infrastructure Investment

Around $174.7 million in funding has been earmarked (unapproved) for HMAS Watson. This is mainly attributed to the HMAS Watson Redevelopment project.
6 Summary of Economic Impacts

**HMAS Watson**

- **762** FTE workers at Watson in 2017
- **$64,999** 2011 Median Annual Personal Income of Watson Personnel
- **$12.4 million** Average Annual HMAS Watson Personnel Expenditure on Retail
- **$67 million** Total HMAS Watson Annual Expenditure (Salaries, operational expenses, leasing values)
- **541 FTE** Indirect Jobs from Current Operations (Excluding jobs at the base)
- **$59.19 million** Indirectly Injects Annually to Sydney GRP (Gross Regional Product)

Currently supporting jobs in various industries:
- **Top three industries:**
  - Public Administration and Safety: 300
  - Professional, Scientific and Technical: 56
  - Administrative and Support Services: 56

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Economic Contributions of Naval Bases in Sydney

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HMAS Penguin
Subject Site Overview

1.1 Context

HMAS Penguin is located in Balmoral at Middle Head in Sydney Harbour. It is approximately 9.8km from the Sydney CBD (road). The site is surrounded by sections of the Sydney Harbour National Park, with Sydney Harbour predominantly to the north and west and residential uses to the south. To the east is Middle Head Oval and a small concentration of businesses, including The Sydney Chocolate School and Eleven Communications, followed by more national park area and Sydney Harbour.

The Base is serviced by bus, with the 244 route running from the closest bus stop at Middle Head Road near Cobbittee Street. The 244 bus from this stop travels to Wynyard Station via Mosman. This bus stop is serviced by the 245 which also travels to the city, as well as the 238 and 257 buses. There are also connections to Chatswood Railway Station via Cremorne, Crows Nest and Willoughby.

1.2 Subject Site Overview

The base is part of the Navy’s Fleet Command and was commissioned on 14 July 1942. Its primary role is to provide trained personnel to the Fleet and is home to the ADF Diving School, the RAN Hydrographic School and the RAN Medical School. It also consists of a number of resident units such as the Maritime Operational Health Unit, Submarine and Underwater Medicine Unit, Recompression Chamber Facility, 1 Commando Company, ADF Centre for Mental Health and the Penguin Health Centre. The site is approximately 17.6ha.
2 Economic and Employment Profile

This section of the report considers the economic and employment characteristics of the localized study area which encompasses the following Australian Bureau of Statistics (ABS) defined SA2 regions:

- Mosman SA2 Region.
- Neutral Bay – Kirribilli SA2 Region.
- Cremorne – Cammeray SA2 Region.

Hereafter referred to as the ‘Penguin Study Area’, these three SA2 regions have been chosen for their proximity to HMAS Penguin. It is likely that personnel at the precinct (regular, temporary and contractors) would frequent business in these regions, supporting local economic activity. See Figure 2.1 Penguin Study Area Map

2.2 Population Characteristics

As of 2015, the population of the Penguin Study Area is 69,917, accounting for 1.4% of the Greater Sydney population (4.9 million).

The Penguin Study Area has a relatively similar proportion of residents for all age cohorts to Greater Sydney except 0-19 where it has relatively lower proportion of resident (18.9% vs 24.8%). See Figure 2.2.

Figure 2.2 Age Profile of the Penguin Study Area vs Greater Sydney (2015)

![Age Profile Chart]

Source: ABS Population by Age and Sex (2016)

As prescribed by the Bureau of Transport Statistics (BTS)\(^{17}\), the population of the Penguin Study Area is expected to increase to 87,829 people by 2036, representing an increase of 18,131 people.

2.3 Employment Profile

Employment by Industry

At the time of the 2011 ABS Census there were 16,658 workers in the Penguin Study Area. The largest proportion of jobs are related to Professional, Scientific and Technical Services (18.6%), followed by Health Care and Social Assistance (11.0%) and Retail Trade (10.8%). Defence related jobs represent 2% of total jobs in the Penguin Study Area (291 jobs).

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\(^{17}\) The BTS publish population projections at the Australian Bureau of Statistics (ABS) defined SA2 geographical level. These projections are based on the Department of Planning and Environment (DP&E) population projections who publish at the local government area (LGA) geographic level.
Figure 2.3 Defence Related Jobs, Penguin Study Area (2011)

Source: ABS Census (2011)

Compared with Greater Sydney, there is a greater representation of jobs in the following industries:

1. Accommodation and Food Services (10.2% vs 6.3%).
2. Arts and Recreation Services (4.3% vs 1.6%).
3. Education and Training (10.0% vs 8.0%).
4. Professional, Scientific and Technical Services (18.6% vs 10.2%).
5. Rental, Hiring and Real Estate Services (4.4% vs 1.9%).

See Figure 2.4.
Figure 2.4 Industry Profile of the Penguin Study Area vs Greater Sydney (2011)

Source: ABS Census (2011)
Employment by Occupation

The Penguin Study Area encompasses a high proportion of Managers, Professionals, and Community and Personal Service Workers.

Compared with Greater Sydney, there are a larger proportion of Managers, Professionals, Community and Personal Service Workers, Technicians and Trades Workers, and Sales Workers.

Table 2.1 Occupation Profile, Penguin Study Area vs Greater Sydney (2011)

<table>
<thead>
<tr>
<th>Occupation Type</th>
<th>Penguin Study Area</th>
<th>Greater Sydney</th>
<th>Waterhen Study Area (%) Vs Greater Sydney (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workers % of Total</td>
<td>Workers % of Total</td>
<td></td>
</tr>
<tr>
<td>Managers</td>
<td>2,605 15.6%</td>
<td>263,277 14.0%</td>
<td>+1.6%</td>
</tr>
<tr>
<td>Professionals</td>
<td>5,078 30.5%</td>
<td>506,388 27.0%</td>
<td>+3.5%</td>
</tr>
<tr>
<td>Technicians and Trades Workers</td>
<td>1,844 11.1%</td>
<td>203,564 10.9%</td>
<td>+0.2%</td>
</tr>
<tr>
<td>Community and Personal Service Workers</td>
<td>2,128 12.8%</td>
<td>165,585 8.8%</td>
<td>+3.9%</td>
</tr>
<tr>
<td>Clerical and Administrative Workers</td>
<td>2,071 12.4%</td>
<td>320,293 17.1%</td>
<td>-4.7%</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>1,756 10.5%</td>
<td>172,709 9.2%</td>
<td>+1.3%</td>
</tr>
<tr>
<td>Machinery Operators and Drivers</td>
<td>234 1.4%</td>
<td>100,952 5.4%</td>
<td>-4.0%</td>
</tr>
<tr>
<td>Labourers</td>
<td>700 4.2%</td>
<td>120,874 6.4%</td>
<td>-2.2%</td>
</tr>
<tr>
<td>Inadequately described</td>
<td>242 1.5%</td>
<td>20,474 1.1%</td>
<td>+0.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,658 100.0%</strong></td>
<td><strong>1,874,116 100.0%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

Employment by Sector

Of total jobs in the Penguin Study Area, the largest proportion are private sector related (92.3%). This is followed by NSW State Government jobs (4.2%) and National Government jobs (2.2%).

Compared with Greater Sydney, there are more (proportionately) private sector jobs (92.3% vs 85.3%) and Local Government jobs (1.2% vs 1.1%), and a lower proportion of National Government jobs (2.2% vs 3.7%) and NSW State Government jobs (4.2% vs 9.8%).
Figure 2.5 Employment by Sector (2011)

Source: ABS Census (2011)

Income Profile

At the time of the 2011 ABS Census, the median annual income of workers in the Penguin Study Area was around $46,800, the same as the Greater Sydney median ($46,800). Personal income is an important indicator of socio-economic status.

Note – median personal income of Defence personnel at HMAS Penguin ($71,500) was higher than the median of the Penguin Study Area and Greater Sydney, suggesting that disposable incomes may also be higher.

Table 2.2 Median Personal Income, Penguin Study Area, Defence Personnel and Greater Sydney (2011)

<table>
<thead>
<tr>
<th>Area</th>
<th>Median Annual Personal Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penguin Study Area</td>
<td>$46,800</td>
</tr>
<tr>
<td>Defence Personnel in HMAS Penguin</td>
<td>$71,500</td>
</tr>
<tr>
<td>Greater Sydney</td>
<td>$46,800</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

Figure 2.6 visually depicts the income distribution of workers in the Penguin Study Area, Defence Personnel in HMAS Penguin and Greater Sydney. It is evident that the income profile of Defence personnel is high in comparison, as indicated by the red circle below. Around 54.8% of HMAS Penguin Defence Personnel earn more than $65,000 per annum, compared with 36.5% in the Penguin Study area and 36.3% in Greater Sydney.
Figure 2.6 Personal Income Profile, Penguin Study Area, Defence Personnel and Greater Sydney (2011)

Source: ABS Census (2011)
Employment Projections

The BTS employment projections forecast the workforce of the Penguin Study Area to expand from 20,272 in 2011 to 26,151 in 2036, representing an increase of 5,879 jobs. Pending economic modelling, it is envisaged that Defence related investment will support employment growth in the precinct, in-line with NSW State Government projections.

2.4 Business Profile

As at 2016, there were 3,094 employing businesses in the Penguin Study Area. A large proportion of employing businesses are small in nature, encompassing one and four workers (78.8% of businesses). This is followed by business that employ between five and 19 workers (16.9%). Between 2011 and 2016, the number of local businesses decreased by 40.

Table 2.3 Business Profile, Penguin Study Area (2011 & 2016)

<table>
<thead>
<tr>
<th>Business Size</th>
<th>2011</th>
<th>2016</th>
<th>Change in Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Businesses</td>
<td>% of Total</td>
<td>Number of Businesses</td>
</tr>
<tr>
<td>1-4</td>
<td>2496</td>
<td>79.6%</td>
<td>2439</td>
</tr>
<tr>
<td>5-19</td>
<td>506</td>
<td>16.1%</td>
<td>523</td>
</tr>
<tr>
<td>2-199</td>
<td>126</td>
<td>4.0%</td>
<td>129</td>
</tr>
<tr>
<td>200+</td>
<td>6</td>
<td>0.2%</td>
<td>3</td>
</tr>
<tr>
<td>Total Employing Businesses</td>
<td>3,134</td>
<td>100.0%</td>
<td>3,094</td>
</tr>
</tbody>
</table>

Source: Counts of Australian Businesses, including Entries and Exits (2016)

*Note – ABS business count data excludes the ‘General Government’ and therefore the contribution of HMAS Watson to the total count has been excluded.

A large number of employing businesses are related to the Professional, Scientific and Technical Services industry. This is followed by Health Care and Social Assistance and Financial and Insurance Services. See Figure 2.7.
Figure 2.7 Number of Employing Businesses by Industry Type, Penguin Study Area (2016)

Source: Counts of Australian Businesses, including Entries and Exits (2016)
3 Direct Expenditure

This section of the report considers direct retail and operational expenditure in the local economy. HMAS Penguin contributes directly to the Sydney economy by employing staff and contractors who purchase local goods and services.

Annual spend by Full Time Equivalent Employees (FTE’s) is considered, having regard for average salaries. Operational expenses and capital costs incurred by the Government is also considered. Salaries paid, operational costs and leasing values have a direct and indirect economic impact on the regional and NSW State economy. Multiplier effects are considered in Section 4 of the report.

Expenditure estimates have been derived using information provided in the previous KPMG report as well as from online sources and datasets. All estimates are based on employment and expenditure over the 2016-2017 financial year.

3.1 Full Time Equivalent Employees (FTE’s)

As prescribed in the KPMG Report, the following employment and visitor estimates were derived for HMAS Penguin:

- In 2008/2009, HMAS Penguin is estimated to have directly employed a total of 378 FTE’s, which are predominantly Defence employees and contractors. These employees are split between two industries, Government Administration and Defence and Property and Business Services.
- In 2008-2009, HMAS Penguin is estimated to have spent $20.95 million on wages, capital and operating expenses.

Full Time Equivalent Employees (FTEs)

It is estimated that FTE job estimates provided by KPMG in 2011 were slightly optimistic at the time, owing to the availability of limited information at the time.18

Based on 2011 ABS Census data, it is estimated that there were 291 FTE’s at HMAS Penguin. It is estimated that the number of Defence related jobs has increase by around 100 since that time. As at 2017, it is estimated that there are around 391 FTE’s at HMAS Penguin.

A breakdown of FTE’s in 2011 and 2017 at a more detailed level is provided in Table 3.1. Note: 2017 estimates are based on overall proportionate growth of 100.

Table 3.1 Full Time Equivalent Jobs at HMAS Penguin

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>33</td>
<td>56</td>
<td>11</td>
</tr>
<tr>
<td>Defence Personnel</td>
<td>258</td>
<td>435</td>
<td>89</td>
</tr>
<tr>
<td>Total</td>
<td>291</td>
<td>391</td>
<td>100</td>
</tr>
</tbody>
</table>


18 The most detailed level of data at the time of the 2006 ABS Census could only be gained at the SSD Statistical Subdivision Level for ‘Inner Sydney’ which includes the entire Sydney CBD. The 2011 ABS Census published more specific SA2 region data which is considered a more accurate representation of jobs at HMAS Penguin.
As prescribed in the existing report undertaken by KPMG, salaries equated to around $11.31 million in 2008/2009, associated with 378 FTE’s. Utilising the same ratio of jobs to total Defence expenditure on salaries and having regard for average Defence personnel salaries in 2011 (ABS Census) and public sector wage growth, it is estimated that around $31,928,180 million will be spent on Defence related salaries at HMAS Penguin in 2017. This equates to an average net weekly salary per capita of around $1,190. See Table 3.2.

Note: The salaries expenditure provided by KPMG does not provide all salaries due to contractual arrangements attributing to the lower salary expenditure in 2009.

Table 3.2 Defence Expenditure on Salaries at HMAS Penguin

<table>
<thead>
<tr>
<th>Expenditure Indicator</th>
<th>2009 (KPMG Estimate)</th>
<th>2011</th>
<th>2017 (including wage growth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE’s</td>
<td>378</td>
<td>291</td>
<td>391</td>
</tr>
<tr>
<td>Salary Expenditure</td>
<td>$11,310,000</td>
<td>$20,806,500</td>
<td>$31,928,180</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Annual)</td>
<td>$29,920.63</td>
<td>$71,500.00</td>
<td>$81,658.00</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Weekly)</td>
<td>$575.40</td>
<td>$1,375</td>
<td>$1,570.34</td>
</tr>
<tr>
<td>Average Net Salary Per Capita (Weekly)</td>
<td>$522.40</td>
<td>$1,062.00</td>
<td>$1,190.00</td>
</tr>
</tbody>
</table>

Source: Defence staff (2011), ABS Catalogue Number 6345.0 Wage Price Index, Australia, Dec 2016

Utilising the RPS retail expenditure model, average annual spend on food retail, household goods, personal consumer goods, department store items and takeaway/cafes has been derived. Findings are based on the following key assumptions (having regard for ABS Retail Trade Expenditure Data), as outlined:

- 391 FTE’s in 2017.
- Median Defence personnel weekly personal income (net) of $1,190.
- Median NSW weekly personal income (net) of $1,168.619.

A breakdown of average retail spend by category(%), which is used in the RPS retail expenditure model, based on ABS Retail Trade Expenditure Data is provided in Figure 3.1.

---

19 ABS Catalogue Number 6302.0 Average Weekly Earnings
Overall, full-time workers at HMAS Penguin spend around $13,980 per person (per annum) on retail related items. Having regard for total staff (391 workers); almost $4.65 million is spent annually on retail items in the Sydney regional economy. See Table 3.3.

Table 3.3 Estimated Retail Expenditure, Full Time HMAS Penguin Personnel (2017)

<table>
<thead>
<tr>
<th>Retail Category</th>
<th>Annual Expenditure Per Capita ($)</th>
<th>Defence Personnel</th>
<th>HMAS Penguin Personnel Expenditure on Retail ($)</th>
<th>Proportion of Total Annual Spend (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Retailing</td>
<td>$5,961</td>
<td></td>
<td>$2,330,810</td>
<td>42.3%</td>
</tr>
<tr>
<td>Household Goods</td>
<td>$2,482</td>
<td></td>
<td>$970,575</td>
<td>17.6%</td>
</tr>
<tr>
<td>Personal Consumer Goods</td>
<td>$997</td>
<td></td>
<td>$389,903</td>
<td>7.1%</td>
</tr>
<tr>
<td>Department Stores</td>
<td>$721</td>
<td></td>
<td>$281,885</td>
<td>5.1%</td>
</tr>
<tr>
<td>Other</td>
<td>$1,948</td>
<td></td>
<td>$761,686</td>
<td>13.8%</td>
</tr>
<tr>
<td>Takeaway Food /Café's</td>
<td>$1,988</td>
<td></td>
<td>$777,246</td>
<td>14.1%</td>
</tr>
<tr>
<td>Total</td>
<td>$14,097</td>
<td>391</td>
<td>$5,512,105</td>
<td>100.0%</td>
</tr>
</tbody>
</table>


The largest retail beneficiary of personnel spend is Food Retailing, representing around 42% of average annual spend, followed by Household Goods (17% of spend) and Takeaway Food/ Cafes (14%).

3.2 Operational Expenditure

Along with wages, there are also annual operating expenses and capital costs which are considered expenditure items in the local economy.
Using information provided in the KPMG report (2011), the value of other expense items in 2017 has been derived, having regard for growth in the consumer price index since 2007.\textsuperscript{20}

It is estimated that around $11.32 million will be spent on transport, utilities and facilities operations, representing an increase of around $1.7 million since 2009.

\textbf{Table 3.4 Other HMAS Penguin Expenditure (2017)}

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>$520,000</td>
<td>$610,890</td>
<td>$90,890</td>
</tr>
<tr>
<td>Utilities (water, sewerage)</td>
<td>$140,000</td>
<td>$164,470</td>
<td>$24,470</td>
</tr>
<tr>
<td>Garrison Support</td>
<td>$4,630,000</td>
<td>$5,439,269</td>
<td>$809,269</td>
</tr>
<tr>
<td>CMS Fees</td>
<td>$790,000</td>
<td>$928,083</td>
<td>$138,083</td>
</tr>
<tr>
<td>Rations</td>
<td>$540,000</td>
<td>$634,386</td>
<td>$94,386</td>
</tr>
<tr>
<td>General Supplies</td>
<td>$40,000</td>
<td>$46,992</td>
<td>$6,992</td>
</tr>
<tr>
<td>Operating Plant and Equipment</td>
<td>$720,000</td>
<td>$845,847</td>
<td>$125,847</td>
</tr>
<tr>
<td>Facilities Operations</td>
<td>$2,260,000</td>
<td>$2,655,021</td>
<td>$395,021</td>
</tr>
<tr>
<td>Total</td>
<td>$9,640,000</td>
<td>$11,324,958</td>
<td>$1,684,958</td>
</tr>
</tbody>
</table>


\textbf{3.3 Total Expenditure}

A summary of salary expenditure, operational expenses and leasing values incurred by the Government is outlined in Table 3.5 below. It is estimated that around $16.9 million will be injected into the Sydney regional economy in 2017, as a result of HMAS Penguin Defence operations.

\textbf{Table 3.5 Total Expected Expenditure (2017)}

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Retail Expenditure</td>
<td>$5,512,105</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$11,324,958</td>
</tr>
<tr>
<td>Leasing Value</td>
<td>$50,208</td>
</tr>
<tr>
<td>Total Expenditure</td>
<td>$16,887,271</td>
</tr>
</tbody>
</table>

Source: RPS (2017)

\textbf{3.4 Retail Evidence}

There are macro-economic and micro-economic factors that impact on the retail environment (i.e. tourism trends, economic booms and busts, unemployment rates, Government legislation, net face rents etc.). Regardless, it is likely that expenditure associated with Defence personnel and general operations has positively impacted on the retail environment in the Penguin Study Area.

Over the four year period to 2014, the number of employing businesses related to retail and arts/recreation increased or was fairly stable. However, since 2014 the number of retail related employing businesses has

\textsuperscript{20} Growth in the CPI derived from ABS Catalogue Number 6401.0 Consumer Price Index (Greater Sydney)
increased. See Figure 3.2. Expenditure from Defence personnel is likely to have positively impacted the local economy and contributed to some of the increase in retail trade employing businesses.

**Figure 3.2** Change in the Number of Retail, Accommodation and Food Services, and Arts and Recreation Related Businesses (2011-2016)

Source: ABS Catalogue Number 8165.0 - Count of Australian Businesses (2016), RPS (2017)
4 Economic Output from Current Operations

This section outlines the methodology employed in estimating the economic impacts on the study area and the NSW economy.

4.1 Input-Output Overview

The economic impact methodology used for this assessment is based on an Input-Output analysis. Input-Output analysis is used to identify the inter-industry relationships within a given economy through the purchasing patterns and uses of inputs by one industry for other industries, and other aspects of the economy such as households, external parties etc. Input-output analysis is primarily used as a way to assess the direct and indirect impacts a stimulant could potentially have on one or many sectors of the economy. As a result input-output modelling can be used to assess the final demand from a stimulant to the whole economy through the associated flow-on impacts.

An input-output framework has been used to identify the direct and flow-on impacts, these direct and flow-on impacts to the economy have been estimated based on three key measures:

- Gross Product: The value of all outputs of an industry including taxes and subsidies on its final products after deducting the cost of goods and services inputs in the production process.
- Incomes: Level of wages and salaries paid to employees in each industry.
- Employment: Level of employment supported by the industry, and is expressed in as full time equivalent (“FTE”) positions.

The output generated from economic activity at HMAS Penguin is measured through:

- Direct impacts: the activity which directly results from operational expenditure made by the bases on wages and salaries, expenditure on intermediate goods and property leases. The direct impacts of naval bases can be estimated in a relatively straightforward manner.
- Flow-on impacts (indirect impacts): the second and subsequent round effects of the increased level of purchases by personnel. In the case of HMAS Penguin, this includes consumer spending by people who are employed by the naval bases. The second is the impact of additional spending by upstream businesses that supply goods and services to these businesses. Flow-on impacts are disaggregated to:
  - Supply Chain Effects (Type I): which represent the production induced support activity as a result of additional expenditure by the personnel on goods and services, and subsequent round effects of increased purchases by suppliers in response to increased sales.
  - Household Consumption Effects (Type II): which represent the consumption induced activity from additional household expenditure on goods and services resulting from additional wages and salaries being paid within the economy.

4.2 Direct Economic Impacts

HMAS Penguin contributes directly to employment and expenditure in the local and NSW economies through the following means:

- Salaries and wages paid.
- Operational expenses.
- Leasing of property.
Around $43.3 million is injected directly into the economy from the HMAS Penguin Naval Base. See the next table.

**Table 4.1** Direct Expenditure resulting from the presence of HMAS Penguin

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Salaries</td>
<td>$31,928,180</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$11,324,958</td>
</tr>
<tr>
<td>Leasing Value</td>
<td>$50,208</td>
</tr>
<tr>
<td><strong>Total Direct Economic Impact</strong></td>
<td><strong>$43,303,346</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017), Defence staff, ABS

### 4.3 Indirect Economic Impact of Current Operations

The economic multiplier of future investment activity has been produced using Input-Output (I/O) transaction tables and models developed by the University of Adelaide and the Australian Urban Research Infrastructure Network. Data sources used include State and National Accounts and industry specific ABS and other agency data.

The indirect impacts of activity at HMAS Penguin is summarised in Table 4.2. The first round economic benefit of activity is expected to generate around $23.1 million in GRP and support almost 232 FTE jobs, annually. Through the multiplier effect (2nd round impacts), $14 million will be injected into the regional economy and generate around 106 FTE indirect jobs.

**Table 4.2** Indirect Impacts of Defence Activities at HMAS Penguin ($ Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Regional Product ($M)</th>
<th>Employment (FTE Jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Round Impacts</td>
<td>2nd Round Impacts</td>
</tr>
<tr>
<td>2017</td>
<td>23.1</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: RPS (2017), WISer EIAT (2017)

In total, annual expenditure at HMAS Penguin (salaries, annual operational expenses and leasing of property) leads to the following annual economic impacts:

- $37.1 million in Gross Regional Product.
- Supports around 338 jobs.

Economic activity at HMAS Penguin multiplies through all industries. GRP largely benefits the public administration and safety industry followed by administration and support services and professional services. Benefits (FTE Jobs) are largely felt by the public administration and safety industry as well as administrative and support services, professional services and the transport industry.
**Figure 4.1** Current Annual GRP by Industry

![Diagram showing current annual GRP by industry](image)

Source: RPS (2017), WISer EIAT (2017)

**Figure 4.2** Current Employment Impact (number of FTE jobs)

![Diagram showing current employment impact](image)

Source: RPS (2017), WISer EIAT (2017)
Limitations of the Model

Input Output multipliers are most commonly used to quantify the economic impacts (both direct and indirect) relating to policies and projects. While their ease of use makes Input Output multipliers a popular tool for economic impact analysis, they are based on limiting assumptions. As such, the results of the analysis must be interpreted within the context of the following assumptions/limitations:

**Lack of supply–side constraints:** The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply–side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.

- **Fixed prices:** Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.

- **Fixed ratios for intermediate inputs and production:** Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount;

- **No allowance for purchasers’ marginal responses to change:** Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.

- **Absence of budget constraints:** Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
5 Forecast Economic Output from Infrastructure Investment

Proposed works involve the demolition of existing LIA rooms that are not viable to upgrade (owing to their asset condition) and are at the end of their useful life. As such, there is only a demolition cost associated with proposed works.
6 Summary of Economic Impacts

HMAS Penguin

- **391** FTE workers at Penguin in 2017
- **$71,500** 2011 Median Annual Personal Income of Penguin Personnel
- **$4.6 million** Average Annual HMAS Penguin Personnel Expenditure on Retail
- **Total HMAS Penguin Annual Expenditure $43.3 million** (Salaries, operational expenses, leasing values)
- **338 FTE Indirect Jobs from Current Operations** (Excluding jobs at the base)
- **Indirectly Injects $37.1 million Annually to Sydney GRP** (Gross Regional Product)

Currently supporting jobs in various industries:
- Public Administration and Safety: 179
- Administrative and Support Services: 34
- Professional, Scientific and Technical: 33
Randwick Barracks
1 Subject Site Overview

1.1 Context

Established in 1981, the 45 hectare Randwick Barracks site is located 7km south east of the Sydney CBD. The site is bordered by the Randwick Community Centre and the Randwick Environment Park to the east and residential housing to the south, north and west. There are two small convenience stores within a 600m radius of the site, but in terms of retail the closest options are either Randwick Junction (1.8km) or Maroubra Junction (1.3km). Both these areas have many supermarkets, banks, gyms, eateries and essential services such as medical centres.

In terms of public transport, the site is serviced well by buses. The closest bus stop is 87m from the entrance and provides service between La Perouse and Circular Quay via the 394. The 418 bus runs between Burwood and Bondi Junction via the airport from the bus stop at the corner of Rainbow Street and Avoca Street. The bus stop at Anzac Parade near Fischer Street provides many buses such as the 393-397, 400, 410, L94 and M10. These buses provide service to suburbs such as Bondi Junction, Maroubra Junction, La Perouse, Sydney CBD, Kingsford, Sydney Airport and Leichardt.

1.2 Subject Site Overview

Randwick Barracks is predominantly an administrative facility for Army personnel and includes accommodation and facilities such as a pool, tennis court and grassed areas. In mid-2016, the Chief of Navy opened the new $85 million Navy Training Systems Centre at the site, revolutionising the way that the RAN prepares marine and electronic technicians for their roles in the fleet. Of particular importance, is the ability of the new centre to train seamen in the new Canberra Class amphibious ships and the Hobart class destroyers that the RAN now uses. The centre has the capacity to train up to 300 students at a time using simulation and modern training systems.
2 Economic and Employment Profile

This section of the report considers the economic and employment characteristics of the localised study area which encompasses the following Australian Bureau of Statistics (ABS) defined SA2 regions:

- Randwick SA2 Region.
- Coogee – Clovelly SA2 Region.
- Bondi Junction – Waverly SA2 Region.

Hereafter referred to as the ‘Randwick Study Area’, these three SA2 regions have been chosen for their proximity to Randwick Barracks and represent a viable commercial catchment area. It is likely that personnel at the precinct (regular, temporary and contractors) would frequent businesses in these regions, supporting local economic activity. See Figure 2.1.

Figure 2.1 Randwick Study Area Map

2.2 Population Characteristics

As at 2015, the population of the Randwick Study Area is 76,407, accounting for 1.6% of the Greater Sydney population (4.9 million).

The Randwick Study Area has a relatively large proportion of residents aged between 20-34 (30.5%) and 35-49 (23.5%), particularly when compared with Greater Sydney. See Figure 2.2.

Figure 2.2 Age Profile of the Randwick Study Area vs Greater Sydney (2011)

[Bar chart showing age distribution]

Source: ABS Population by Age and Sex (2016)

As prescribed by the Bureau of Transport Statistics (BTS)\(^{21}\), the population of the Randwick Study Area is expected to increase to 87,829 people by 2036, representing an increase of 18,131 people.

2.3 Employment Profile

Employment by Industry

At the time of the ABS Census there were 29,819 workers in the Randwick Study Area. The largest proportion of jobs are related to Health Care and Social Assistance (30.1%), followed by Retail Trade (12.5%) and Education and Training (11.4%). Defense related jobs represent 1% of total jobs in the Randwick Study Area (419 jobs). The Prince of Wales Hospital super precinct largely shapes the economic profile of the area.

\(^{21}\) The BTS publish population projections at the Australian Bureau of Statistics (ABS) defined SA2 geographical level. These projections are based on the Department of Planning and Environment (DP&E) population projections who publish at the local government area (LGA) geographic level.
Compared with Greater Sydney, there is a greater representation of jobs in the following industries:

1. Health Care and Social Assistance (30.1% vs 10.1%)
2. Retail Trade (12.5% vs 0.9%)
3. Education and Training (11.4% vs 1.9%)
4. Professional, Scientific and Technical Services (7.8% vs 3.7%)
5. Rental, Hiring and Real Estate Services (1.9% vs 0.2%)

See Figure 2.4.
Figure 2.4 Industry Profile of the Randwick Study Area vs Greater Sydney (2011)

Source: ABS Census (2011)
Employment by Occupation

The Randwick Study Area encompasses a high proportion of Professionals, Community and Personal Service Workers, and Sales Workers.

Compared with Greater Sydney, there are a larger proportion of Professionals, Community and Personal Service Workers, and Sales Workers.

**Table 2.1 Occupation Profile, Penguin Study Area vs Greater Sydney (2011)**

<table>
<thead>
<tr>
<th>Occupation Type</th>
<th>Randwick Study Area</th>
<th>Greater Sydney</th>
<th>Randwick Study Area (%) Vs Greater Sydney (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Workers</td>
<td>% of Total</td>
<td>Workers</td>
</tr>
<tr>
<td>Managers</td>
<td>3,334</td>
<td>11.2%</td>
<td>263,277</td>
</tr>
<tr>
<td>Professionals</td>
<td>10,669</td>
<td>35.8%</td>
<td>506,388</td>
</tr>
<tr>
<td>Technicians and Trades Workers</td>
<td>2,409</td>
<td>8.1%</td>
<td>203,564</td>
</tr>
<tr>
<td>Community and Personal Service Workers</td>
<td>3,531</td>
<td>11.8%</td>
<td>165,585</td>
</tr>
<tr>
<td>Clerical and Administrative Workers</td>
<td>3,922</td>
<td>13.2%</td>
<td>320,293</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>3,458</td>
<td>11.6%</td>
<td>172,709</td>
</tr>
<tr>
<td>Machinery Operators and Drivers</td>
<td>846</td>
<td>2.8%</td>
<td>100,952</td>
</tr>
<tr>
<td>Labourers</td>
<td>1,387</td>
<td>4.7%</td>
<td>120,874</td>
</tr>
<tr>
<td>Inadequately described</td>
<td>263</td>
<td>0.9%</td>
<td>20,474</td>
</tr>
<tr>
<td>Total</td>
<td>29,819</td>
<td>100.0%</td>
<td>1,874,116</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

Employment by Sector

Of total jobs in the Randwick Study Area, the largest proportion are private sector related (73.9%). This is followed by NSW State Government jobs (20.1%) and National Government jobs (4.0%).

Compared with Greater Sydney, there are fewer (proportionately) private sector jobs (73.9% vs 85.3%) and a higher proportion of NSW State Government jobs (20.1% vs 9.8%), National Government jobs (4.0% vs 3.7%) and Local Government jobs (2.0% vs 1.1%). This is reflective of the workforce profile of the Prince of Wales Hospital precinct. This precinct does however exclude the University of New South Wales.
**Income Profile**

At the time of the 2011 ABS Census, the median annual income of workers in the Randwick Study Area was around $46,800, the same as the Greater Sydney median ($46,800). Personal income is an important indicator of socio-economic status.

Note – median personal income of Defence personnel at Randwick Barracks ($91,000) was higher than the median of the Randwick Study Area and Greater Sydney, suggesting that disposable incomes may be higher.

**Table 2.2** Median Personal Income, Randwick Study Area, Defence Personnel and Greater Sydney (2011)

<table>
<thead>
<tr>
<th>Area</th>
<th>Median Annual Personal Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randwick Study Area</td>
<td>$46,800</td>
</tr>
<tr>
<td>Defence Personnel in Randwick Barracks</td>
<td>$91,000</td>
</tr>
<tr>
<td>Greater Sydney</td>
<td>$46,800</td>
</tr>
</tbody>
</table>

Source: ABS Census (2011)

Figure 2.6 visually depicts the income distribution of workers in the Randwick Study Area, Defence Personnel in Randwick Barracks and Greater Sydney. It is evident that the income profile of Defence personnel is high in comparison, as indicated by the red circle below. Around 66.9% of Randwick Defence Personnel earn more than $65,000 per year compared with 32.7% in the study area and 36.3% in Greater Sydney.
Figure 2.6 Personal Income Profile, Randwick Study Area, Defence Personnel and Greater Sydney (2011)

Source: ABS Census (2011)
Employment Projections

The BTS employment projections forecast the workforce of the Randwick Study Area to expand from 36,491 in 2011 to 48,937 in 2036, representing an increase of 12,446 jobs. Pending economic modelling, it is envisaged that Defence related investment will support employment growth in the precinct, in-line with NSW State Government projections.

2.4 Business Profile

As at 2016, there were 3,404 employing businesses in the Randwick Study Area. A large proportion of employing businesses are small in nature, encompassing one and four workers (75.1% of businesses). This is followed by business that employ between five and 19 workers (19.7%). Between 2011 and 2016, the number of local businesses increased by 256.

Table 2.3 Business Profile, Randwick Study Area (2011 & 2016)

<table>
<thead>
<tr>
<th>Business Size</th>
<th>2011</th>
<th>% of Total</th>
<th>2016</th>
<th>% of Total</th>
<th>Change in Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Businesses</td>
<td></td>
<td>Number of Businesses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td>2381</td>
<td>75.6%</td>
<td>2556</td>
<td>75.1%</td>
<td>175</td>
</tr>
<tr>
<td>5-19</td>
<td>603</td>
<td>19.2%</td>
<td>669</td>
<td>19.7%</td>
<td>66</td>
</tr>
<tr>
<td>2-199</td>
<td>151</td>
<td>4.8%</td>
<td>173</td>
<td>5.1%</td>
<td>22</td>
</tr>
<tr>
<td>200+</td>
<td>13</td>
<td>0.4%</td>
<td>6</td>
<td>0.2%</td>
<td>-7</td>
</tr>
<tr>
<td>Total Employing Businesses</td>
<td>3,148</td>
<td>100.0%</td>
<td>3,404</td>
<td>100.0%</td>
<td>256</td>
</tr>
</tbody>
</table>

Source: Counts of Australian Businesses, including Entries and Exits (2016)

*Note – ABS business count data excludes the ‘General Government’ and therefore the contribution of HMAS Watson to the total count has been excluded.

A large number of employing businesses are related to the Professional, Scientific and Technical Services industry. This is followed by Health Care and Social Assistance and Construction. See Figure 2.7.
Figure 2.7 Number of Employing Businesses by Industry Type, Randwick Study Area (2016)

Source: Counts of Australian Businesses, including Entries and Exits (2016)
3 Direct Expenditure

This section of the report considers direct retail and operational expenditure in the local economy. Randwick Barracks contributes directly to the Sydney economy by employing staff and contractors who purchase local goods and services.

Annual spend by Full Time Equivalent Employees (FTE’s) is considered, having regard for average salaries. Operational expenses and capital costs incurred by the Government is also considered. Salaries paid, operational costs and leasing values have a direct and indirect economic impact on the regional and NSW State economy. Multiplier effects are considered in Section 4 of the report.

Expenditure estimates have been derived using information provided in the previous KPMG report as well as from online sources and datasets. All estimates are based on employment and expenditure over the 2016-2017 financial year.

3.1 Full Time Equivalent Employees (FTE’s)

Based on 2011 ABS Census data, it is estimated that there were 419 FTE’s at Randwick Barracks. Based on facilities upgrades, it is estimated that the number of Defence related jobs has increase by around 200 since that time. As at 2017, it is estimated that there could be approximately 619 FTE’s at Randwick Barracks.

A breakdown of FTE’s in 2011 and 2017 at a more detailed level is provided in Table 3.1. Note: 2017 estimates are based on overall proportionate growth of 200.

Table 3.1 Full Time Equivalent Jobs at Randwick Barracks

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>55</td>
<td>81</td>
<td>26</td>
</tr>
<tr>
<td>Defence Personnel</td>
<td>364</td>
<td>538</td>
<td>174</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>419</strong></td>
<td><strong>619</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>


Randwick Barracks was not included in the existing report prepared by KPMG. Based on 2011 ABS Census data, the average Defence personnel salary in the Randwick Barracks study area was $91,000, equating to derived total salary expenditure of around $38 million. Having regard for public sector wage growth and employment growth, it is expected that around $64.3 million will be spent on Defence related salaries at Randwick Barracks in 2017. This equates to an average net weekly salary (per capita) of around $1,350. See Table 3.2.

Table 3.2 Defence Expenditure on Salaries at Randwick Barracks

<table>
<thead>
<tr>
<th>Expenditure Indicator</th>
<th>2011</th>
<th>2017 (including wage growth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's</td>
<td>419</td>
<td>619</td>
</tr>
<tr>
<td>Salary Expenditure (average)</td>
<td>$38,129,000</td>
<td>$64,331,459</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Annual)</td>
<td>$91,000</td>
<td>$103,928</td>
</tr>
<tr>
<td>Average Gross Salary Per Capita (Weekly)</td>
<td>$1,750</td>
<td>$1,998</td>
</tr>
<tr>
<td>Average Net Salary Per Capita (Weekly)</td>
<td>$1,208</td>
<td>$1,350</td>
</tr>
</tbody>
</table>
Utilising the RPS retail expenditure model, average annual spend on food retail, household goods, personal consumer goods, department store items and takeaway/cafes has been derived. Findings are based on the following key assumptions (having regard for ABS Retail Trade Expenditure Data), as outlined:

- 619 FTE’s in 2017.
- Median Defence personnel weekly personal income (net) of $1,350
- Median NSW weekly personal income (net) of $1,168.622

A breakdown of average retail spend by category(%) which is used in the RPS retail expenditure model, based on ABS Retail Trade Expenditure Data is provided below.

**Figure 3.1 Average Spend Per Capita on Retail, NSW**

Source: ABS Catalogue Number 8501.0 Retail Trade, Australia January 2017, RPS (2017)

Overall, FTEs at Randwick Barracks spend around $15,993 per person (per annum) on retail related items. Having regard for total staff (619 workers); around $9.9 million is spent annually on retail items in the Sydney regional economy. See Table 3.3.

---

22 ABS Catalogue Number 6302.0 Average Weekly Earnings
The largest retail beneficiary of personnel spend is Food Retailing, representing around 42% of average annual spend, followed by Household Goods (17% of spend) and Takeaway Food/Cafes (14%).

### Operational Expenditure

Along with wages, there are also operating expenses which are considered expenditure items in the local economy. Operational expenses have been estimated at around $11.3 million. An exact breakdown is provided in Table 3.4.

### Total Expenditure

A summary of salary expenditure and operational expenditure incurred by the Government is outlined in Table 3.5 below. It is estimated that around $21.2 million is spent each year on salaries and other operating expenses.
Table 3.5 Total Expected Expenditure (2017)

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Expenditure</td>
<td>$9,899,613</td>
</tr>
<tr>
<td>Operational Expenditure</td>
<td>$11,324,958</td>
</tr>
<tr>
<td>Total Expenditure</td>
<td>$21,224,570</td>
</tr>
</tbody>
</table>

Source: RPS (2017)

3.4 Retail Evidence

There are macro-economic and micro-economic that impact on the retail environment (i.e. tourism trends, economic booms and busts, unemployment rates, Government legislation, net face rents etc.). Regardless, it is likely that expenditure associated with Defence personnel and general operations has positively impacted on the retail environment in the Penguin Study Area.

Over the four year period to 2014, the number of employing businesses related to retail, accommodation and food services, and arts/recreation increased or was fairly stable. Since 2014, the number of accommodation and food service related businesses has increased. See Figure 3.2.

In contrast, retail related businesses have been in decline since 2014. This may reflect the conversion of commercial/retail premises to residential apartments in the Randwick LGA and net loss of retail/commercial floorspace.

Figure 3.2 Change in the Number of Retail, Accommodation and Food Services, and Arts and Recreation Related Businesses (2011-2016)

Source: ABS Catalogue Number 8165.0 - Count of Australian Businesses (2016), RPS (2017)
4 Economic Output from Current Operations

This section outlines the methodology employed in estimating the economic impacts on the study area and the NSW economy.

4.1 Input-Output Overview

The economic impact methodology used for this assessment is based on an Input-Output analysis. Input-Output analysis is used to identify the inter-industry relationships within a given economy through the purchasing patterns and uses of inputs by one industry for other industries, and other aspects of the economy such as households, external parties etc. Input-output analysis is primarily used as a way to assess the direct and indirect impacts a stimulant could potentially have on one or many sectors of the economy. As a result input-output modelling can be used to assess the final demand from a stimulant to the whole economy through the associated flow-on impacts.

An input-output framework has been used to identify the direct and flow-on impacts, these direct and flow-on impacts to the economy have been estimated based on three key measures:

- Gross Product: The value of all outputs of an industry including taxes and subsidies on its final products after deducting the cost of goods and services inputs in the production process.
- Incomes: Level of wages and salaries paid to employees in each industry.
- Employment: Level of employment supported by the industry, and is expressed in as full time equivalent (“FTE”) positions.

The output generated from economic activity at Randwick Barracks is measured through:

- Direct impacts: the activity which directly results from operational expenditure made by the bases on wages and salaries, expenditure on intermediate goods and property leases. The direct impacts of naval bases can be estimated in a relatively straightforward manner.
- Flow-on impacts (indirect impacts): the second and subsequent round effects of the increased level of purchases by personnel. In the case of Randwick Barracks, this includes consumer spending by people who are employed by the naval bases. The second is the impact of additional spending by upstream businesses that supply goods and services to these businesses. Flow-on impacts are disaggregated to:
  - Supply Chain Effects (Type I): which represent the production induced support activity as a result of additional expenditure by the personnel on goods and services, and subsequent round effects of increased purchases by suppliers in response to increased sales.
  - Household Consumption Effects (Type II): which represent the consumption induced activity from additional household expenditure on goods and services resulting from additional wages and salaries being paid within the economy.

4.2 Direct Economic Impacts

Randwick Barracks contributes directly to employment and expenditure in the local and NSW economies through the following means:

- Salaries and wages paid.
- Operational expenses.
Excluding operational and leasing expenses as they have not been provided, around $75.7 million is injected directly into the economy from Randwick Barracks. See the next table.

Table 4.1 Direct Expenditure resulting from the presence of Randwick Barracks

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Expenditure ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE's Salaries</td>
<td>$64,331,459</td>
</tr>
<tr>
<td>Operational Expenses</td>
<td>$11,324,958</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$75,656,417</strong></td>
</tr>
</tbody>
</table>

Source: RPS (2017), Defence staff, ABS

4.3 Indirect Economic Impact of Current Operations

The economic multiplier of activity at Randwick Barracks has been produced using Input-Output (I/O) transaction tables and models developed by the University of Adelaide and the Australian Urban Research Infrastructure Network. Data sources used include State and National Accounts and industry specific ABS and other agency data. Note: this excludes operational and leasing expenses as this has not been provided by the proponent.

The indirect impacts of activity at Randwick Barracks is summarised in Table 4.2. The first round benefit of activity is expected to generate around $40.6 million in GRP and support around 415 FTE jobs, annually. Through second round multipliers, activities at Randwick Barracks inject $22.6 million into the regional economy and generate around 179 FTE indirect jobs.

Table 4.2 Indirect Impacts of Defence Activities at Randwick Barracks ($ Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>1st Round Impacts</th>
<th>2nd Round Impacts</th>
<th>Total GRP</th>
<th>1st Round Impacts</th>
<th>2nd Round Impacts</th>
<th>Total FTE Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>40.6</td>
<td>22.6</td>
<td>63.15</td>
<td>415</td>
<td>179</td>
<td>594</td>
</tr>
</tbody>
</table>


In total, annual expenditure at Randwick Barracks (salaries, annual operational expenses and leasing of property) leads to the following annual economic impacts:

- $63.15 million in Gross Regional Product.
- Supports around 594 jobs.

Economic activity at Randwick Barracks multiplies through all industries. The contribution to GRP largely benefits public administration and administrative and support services. Regarding jobs, the benefit is largely felt by the public administration and safety industry as well as administrative and support services and professional services.
Figure 4.1 Current Annual GRP by Industry

Source: RPS (2017), WISer EIAT (2017)

Figure 4.2 Current Employment Impact (number of jobs)

Source: RPS (2017), WISer EIAT (2017)
Limitations of the Model

Input Output multipliers are most commonly used to quantify the economic impacts (both direct and indirect) relating to policies and projects. While their ease of use makes Input Output multipliers a popular tool for economic impact analysis, they are based on limiting assumptions. As such, the results of the analysis must be interpreted within the context of the following assumptions/limitations:

Lack of supply–side constraints: The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply–side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.

- **Fixed prices**: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.

- **Fixed ratios for intermediate inputs and production**: Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount;

- **No allowance for purchasers’ marginal responses to change**: Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.

- **Absence of budget constraints**: Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
5 Forecast Economic Output from Infrastructure Investment

Around $480 million in funding has been earmarked for Randwick Barracks, mainly attributed to the construction of living in accommodation as well as the Maritime Operational Support Capability.
6 Summary of Economic Impacts

Randwick Barracks

- **619 FTE workers at Randwick in 2017**
- **$91,000** 2011 Median Annual Personal Income of Randwick Personnel
- **$8.7 million** Average Annual Randwick Barracks Personnel Expenditure on Retail
- **Total Randwick Barracks Annual Expenditure** $75.7 million (Salaries, operational expenses, leasing values)
- **594 FTE Indirect Jobs from Current Operations** (Excluding jobs at the base)
- **Indirectly Injects $63.15 million Annually to Sydney GRP** (Gross Regional Product)

Currently supporting jobs in various industries:
- Public Administration and Safety: 340
- Administrative and Support Services: 60
- Transport, Postal and Warehousing: 58
Summary of Economic and Employment Contributions of Sydney Naval Defence Facilities

Sydney Naval Bases

- **6,019 FTE workers in 2017**
- **Total Annual Expenditure**: $1.092 billion
  - (Salaries, sustenance costs, visitor spend, operational expenses, leasing values)
- **$85.2 million**
  - Annual Navy Base Personnel Expenditure on Retail
- **0.45% of Annual Sydney GRP (Average)**
- **6,673 FTE Indirect Jobs from Current Operations**
  - (Excluding jobs at the bases)
- **Indirectly Injects $742.91 million Annually to Sydney GRP**
  - (Excludes Regional Product)
- **$223.5 million**
  - Future Investment (Approved)
- **$1.18 billion**
  - (Unapproved)
- Currently supporting jobs in various industries:
  - Top three industries:
    - Public Administration and Safety: 1,597
    - Manufacturing: 1,187
    - Administration and Support Services: 312
- **Future Investment Activity will inject $767.9 million** into the regional economy (value add) &
- **6,557 FTE Jobs**
  - (Excluding jobs at the base)
  - "Approved and unapproved future investment"
6.1 Broader Economic Considerations

Naval operations in Sydney contribute to 12,692 jobs and $1.83 billion in GRP (around 0.45% of total GRP in Sydney). In addition, there are a multitude of economic benefits that result from naval operations across Sydney. This is particularly important in an investment period of tentative economic growth.

Naval bases in Sydney support various industries including (but not limited to) public administration and safety, manufacturing, administrative and support services and professional services. Diversification of the employment base of economies is important to reduce external macroeconomic shocks (i.e. economic downturns). A diversified economy that is not exposed to a single industry (or a few industries) is much better insulated from volatility. This has been shown in mineral rich regions and states of Australia which are particularly vulnerable to changes in commodity prices.

Over the past decade, growth in the Sydney economy has largely occurred in the following industries:

- Financial and insurance services.
- Construction.
- Real estate services.

Off the back of falling investment in mining, the Sydney economy has benefited from a residential and infrastructure construction boom, population growth and historically low interest rates. A falling Australian dollar has also supported increased competitiveness, benefitting export oriented businesses and the tourism industry.

These industries tend to be sensitive to macro-economic financial shocks (and even contribute to financial shocks). Going forward, a rise in US bond rates is likely to flow to Australian bond rates, meaning that the Reserve Bank of Australia could begin to gradually increase interest rates. Rising interest rates coupled with stronger restrictions for foreign investors owning Australian housing (a 50% cap on foreign ownership in new development) is likely to impact on the residential construction boom that has occurred in Sydney.

According to BIS Oxford Economics, the number of dwelling starts will decline from a peak above 230,000 to a trough around 160,000 within three years – a 31% slump. This downturn in residential activity could impact several industries including construction, real estate, household facing retail (i.e. furniture, homewares) and financial institutions.

As a result of the aforementioned economic projections, Sydney is likely to face an oversupply of construction workers, some from interstate who have migrated to reap the construction boom benefits. There is then a danger that a decline in employment could trigger mortgage defaults, falling home prices and further cuts to development plans, resulting in a continued decline (BIS Oxford Economics).

Government infrastructure spending over the next few years will be instrumental in supporting the Sydney economy through the construction downturn. As public investment builds momentum (i.e. Defence investment in Sydney), it will spread to demand in other complementary industries, building overall economic momentum. Further, economic stability in Sydney has major implications for the broader national economy.

The economic contribution of naval base operations in Sydney is more important than ever. Annual navy expenditure (1.09 billion) coupled with planned investment ($1.18 billion) over the next decade will provide a much needed boost to the economy. In particular, approved and unapproved investment will support the construction industry through a likely downturn.