



Government of **Western Australia**
Department of **Commerce**

Office of the Director General



WAI Corro 126

27 May 2010

Our Ref: A1642507

Enquiries: Brian Bradley 9282 0431

The Hon John Kobelke, MLA
Chairman, Public Accounts Committee
Parliament House
PERTH WA 6000

Dear Mr Kobelke

**PUBLIC ACCOUNTS COMMITTEE INQUIRY INTO PROJECT PLANNING FOR
WESTERN AUSTRALIAN INFRASTRUCTURE PROJECTS**

I refer to your letter of 27 April 2010 advising that the Public Accounts Committee is conducting an inquiry into the best approaches to decision making for major infrastructure projects in Western Australia.

As part of this inquiry the Committee has advised that it requires a brief written outline of the infrastructure developments associated with the Australian Marine Complex (AMC) in Henderson.

The development of the AMC infrastructure has been a joint exercise with LandCorp and this brief written outline has been prepared with input from that Agency.

To assist the Committee in its deliberations as the infrastructure developments at the AMC were planned and designed as two distinct infrastructure projects the attached brief to the Committee has treated them as separate projects.

The first project was the Jervoise Bay Project which created the initial infrastructure that became the Australian Marine Complex – Common User Facility (AMC-CUF) which opened in 2003.

In 2006 the Western Australian Government funded additional infrastructure at AMC-CUF. This project was titled the AMC-CUF Infrastructure Upgrade Project.

As both the Department of Commerce and LandCorp are responsible for the current and ongoing infrastructure planning for the AMC-CUF if you require any further information please do not hesitate to contact me on 92820431 or Mr Ross Holt, Chief Executive Officer, LandCorp, on 94827426.

Yours sincerely

Brian Bradley
DIRECTOR GENERAL

PROGRAMME

PUBLIC ACCOUNTS COMMITTEE VISIT TO THE AUSTRALIAN MARINE COMPLEX – COMMON USER FACILITY (AMC-CUF) 124 QUILL WAY, HENDERSON

TUESDAY 8 JUNE 2010

- | | |
|---------|---|
| 10:00am | Welcome by Brian Bradley
Director General, Department of Commerce |
| 10:05am | Briefing on the AMC-CUF by John O'Hare
General Manager, Marine & Defence, Oil & Gas, AMC
Department of Commerce |
| | And |
| | Michael Bailey
General Manager, AMC Management (WA) Pty Ltd |
| 10:45am | Depart for tour of AMC-CUF |
| 11:10am | Arrive at the Floating Dock for Briefing |
| 12:00 | Depart AMC-CUF |

Please note: closed flat shoes and long sleeves should be worn.

Public Accounts Committee Inquiry into Project Planning for Western Australian Infrastructure Projects

INITIAL DEVELOPMENT

Australian Marine Complex - Common User Facility (AMC-CUF), Henderson

N.B. All construction costs reported are in AUD and exclusive of GST.

Problems or opportunities which the Common User Facility is to address

In the early 1980s the Government of Western Australia recognised both the potential for marine-related industrial development at Jervoise Bay and the constraints arising from lack of wave protection and, as a consequence, commenced a programme of breakwater construction. In addition, the importance of the area as a centre for marine-related industrial activity was boosted by the decision to construct a marine shiplift facility (MSF) at Jervoise Bay. The need for such a facility was primarily generated by adoption of the Two Ocean Policy by the Federal Government in 1987 that would lead to the home-porting of about half of Australia's surface naval fleet and all of the submarine fleet in Western Australia at the Stirling Naval Base in Garden Island.

Prior to construction of the MSF, the State Government also developed additional infrastructure in the form of a large fabrication yard and associated loadout wharf to service the needs of the North West Shelf Liquid Natural Gas (LNG) Project. This resulted in the fabrication of modules for both the North Rankin "A" and Goodwin offshore gas platforms at Jervoise Bay.

However, these activities and subsequent fabrication projects all suffered from the exposed nature of the waterfront site, particularly during winter months when strong west to north-westerly storms caused unacceptable levels of sea spray and site flooding. Sea conditions at various times of the year also frustrated use of the loadout wharf because of the lack of nearshore wave protection. These constraints limited the level and continuity of large scale fabrication activities in Jervoise Bay.

Despite these constraints, a very vibrant, world competitive, technology driven aluminium ferry manufacturing industry developed at Jervoise Bay. This was initially based within the Support Industry Precinct adjacent to the Jervoise Bay waterfront but progressively expanded to waterfront sites in the Northern Harbour in Jervoise Bay. This occurred because of the increasing size of vessels being constructed, the sheltered waters available within the Northern Harbour and the decision by the State Government to release waterfront land on a conditional freehold basis.

The presence of the MSF and the increasing levels of industrial activity in the aluminium and steel shipbuilding industries provided a firm base for future development of marine related industrial activities at Jervoise Bay. In addition, a number of industry sectors were identified within the Western Australian economy that were developing and maturing and would benefit from further development of the Jervoise Bay facilities. These included the oil and gas industry, ship repair and maintenance activities, the mining and resources sector and the downstream processing industry.

Of particular relevance to the development of the Jervoise Bay facility was the move within the oil and gas, mining and resources and processing industries to modularised fabrication of large scale components. This is still a world-wide trend and one that is of particular importance when developing major projects in remote areas such as in the north-west of Western Australia. The modularised approach generates a number of benefits including:

- better quality control;
- higher fabrication efficiencies;
- lower on-site costs and timeframes; and
- improved opportunities for pre-commissioning and commissioning in controlled conditions.

Whilst this modularised approach is well established in the oil and gas industry it is also developing in the other industry sectors. The success of such an approach lies in being able to fabricate large modules and to then readily transport them to site. In this respect, Jervoise Bay offered good potential for ocean based transport within Western Australia and to interstate and international destinations.

As well as being able to respond to these new industry trends, the Jervoise Bay site provided an opportunity for synergy between a wide range of marine related activities. Infrastructure provided to service the specific needs of one industry sector (eg oil and gas) could be designed to accommodate and be effectively used by other sectors (eg ship repair and maintenance).

With these opportunities available, the State Government embarked on a course of planning for and investing in infrastructure improvements at Jervoise Bay to encourage local industry to maximise its participation in these opportunities.

These efforts commenced in late 1993 when the Department of Commerce & Trade (DCT) commissioned a study to examine ways in which the Jervoise Bay area could be developed to:

- a. provide improved infrastructure for existing and possible future shipbuilding, repair and maintenance activities; and

- b. provide suitable infrastructure to attract fabrication work associated with major offshore oil and gas development projects on an ongoing basis.

The findings of that study were issued in April 1994 in a report titled "Jervoise Bay/Henderson Marine Industry Estate Planning Study" (Halpern Glick Maunsell 1994). DCT then distributed this report to representatives of Government and industry with the recommendations then endorsed by the then State Cabinet as the Jervoise Bay Infrastructure Plan.

In April 1996, DCT commissioned Halpern Glick Maunsell to complete the studies required to refine the Jervoise Bay Infrastructure Plan to a final Masterplan form suitable for subsequent detailed design, tendering and construction. The Masterplan was to be based on the 1994 plan but amended on the basis of industry requirements as specified by DCT during the study.

The Commonwealth Government was also looking at ways the nation could benefit from investment in infrastructure to support resource based industrial development.

In 1989 the Commonwealth House of Representatives Standing Committee on Industry Science and Technology inquired into the offshore North West Shelf project and produced a report titled "The North West Shelf – A Sea of Lost Opportunities."

This report put forward the view that major national resource projects which exploit a non-renewable resource should contribute to the economy in more ways than simply through direct revenue, royalties and taxes. The report identified industry, infrastructure and skills management as areas these projects must develop. Government was seen as having a responsibility to ensure that both the direct and indirect benefits of these projects to the nation were maximised.

In March 1998 the House of Representatives Standing Committee published a follow up report titled "A Sea of Indifference." The report was highly critical of the fact that no action had been taken to address the Lost Opportunities identified in the 1989 report.

The DCT Jervoise Bay Masterplan Report, coupled with the views presented in these Commonwealth Government reports, formed the basis of the Western Australian Government's bid for a Federation Fund grant from the Commonwealth Government. The purpose of the Federation Fund was to finance a number of major projects of national significance. The projects had to be well advanced but not necessarily completed by the Centenary of Federation in 2001. The successful projects were selected on the basis that they would generate jobs in the construction phase and make a significant and ongoing contribution to Australia and the Australian economy. The Jervoise Bay Project was selected by the State Government as its main project for funding from the Federation Fund.

On Australia Day, 26 January 1998, the then Prime Minister John Howard announced an \$80 million Federation Fund grant to support the Western Australian Government's proposed Jervoise Bay Project. This funding became the catalyst that made possible the development of what is now a world class marine heavy engineering facility servicing the marine and defence industries.

On 13 December 2000, the then Commonwealth Minister for Science, Industry and Resources, Senator the Hon Nick Minchin, and the then Deputy Premier of Western Australia, Hon Hendy Cowan, officially launched the start of construction of the \$180 million phase of the Jervoise Bay Development. The Commonwealth Government's Federation Fund provided \$80 million toward the cost of this construction.

In 2003, the Jervoise Bay Project was renamed the Australian Marine Complex-Common User Facility (AMC-CUF).

In addition to the oil and gas and resource project opportunities, a strong driving force in the development of the AMC-CUF, dating back to 1987, was the identified need to maintain and repair naval ships in Western Australia. An essential element of the AMC would be the ability to lift vessels for below water line repairs and servicing. It was recognised that a support facility would not only benefit the Royal Australian Navy, but would also service the commercial ship repair market and the marine requirements of the oil and gas industry. In addition, a new facility would accommodate ships that were currently too large to be transferred or launched from existing facilities at Jervoise Bay, the site proposed for the upgrade.

The establishment of a major commercially operational submarine repair facility in WA was further supported by the closure of various dockyards around Australia in the early 1990s, including Cockatoo Island and Newcastle.

At this time, planned developments in the oil and gas industry in Australia and surrounding regions projected the need for construction and transportation of a considerable number of offshore structures for several decades to come. This was seen to complement the shipbuilding industry; a marine support facility that served both purposes in WA would be commercially viable and reap direct benefits for the State.

The development also provides for a clustering of engineering contractors that, over time, will guarantee a steady base load of work by obtaining a share of the general fabrication and engineering work being carried out for WA's private and public sector clients in the defence, marine maintenance and repair industries.

The Common User Facility (CUF) at the AMC at Jervoise Bay in Henderson was built with the objective to significantly increase the local industry participation in

the manufacturing of fabricated structures and engineering components for Australia's marine & defence, oil & gas, resource industry, and develop international competitiveness in these sectors.

Scope of the CUF and the wider context to which it relates

The State's objectives when establishing the AMC were:

- To enhance the development of local industry engaged in the manufacturing, fabrication, assembly, technology, repair and maintenance servicing activities in the marine, defence and resource industries;
- To establish the Australian Marine Complex into a world-class Centre of Excellence for manufacturing, fabrication, assembly, technology, repair and maintenance servicing activities in the marine, defence and resource industries; and
- To ensure the Australian Marine Complex is recognised as the pre-eminent location of choice, locally, nationally and internationally for manufacturing, fabrication, assembly, technology, repair and maintenance servicing activities in the marine, defence and resource industries.

The Vision for the AMC is:

A world class centre of excellence for manufacturing, fabrication, assembly, technology, repair and maintenance servicing activities in the marine, defence, and resource industries.

The CUF was designed as a major centre for training and employment of skilled labour, with a view to increasing the sustainability of the WA economy.

The Australian Marine Complex has been developed to facilitate and enhance the opportunities created by the clustering of industries and is arranged into four adjoining precincts, each with a particular service focus.

Fabrication Precinct - incorporating the Common User Facility provides world-class, multi-purpose facilities for the fabrication, assembly and load-out of pre-assembled units up to 15,000 tonnes for local, national and international projects. The specialist infrastructure makes possible an exciting range of global engineering and manufacturing options.

Technology Precinct - dedicated to strategic innovation and enterprise within the marine, defence, oil and gas technology and research sectors. The Technology Precinct includes the new Central Services Facility, Raytheon Australia's Naval System Division and Challenger TAFE's Australian Centre for Energy and Process Training (ACEPT) Facility.

Shipbuilding Precinct - this is now Australia's largest commercial Shipbuilding Precinct and home to local shipbuilders such as Austal Ships, Strategic Marine and Hanseatic Marine. The Precinct supplies approximately 50 per cent of Australia's commercial shipbuilding production and has enabled Western Australia to become a global leader in the construction of high speed lightweight vessels. The Shipbuilding Precinct includes the Marine Support Facility with an 8,000 tonne shiplift owned by BAE Systems Australia.

Support Industry Precinct - comprises of leading manufacturing and service companies, dedicated to providing support to the shipbuilding, defence and resource industries and worldwide export markets.

Stages of the CUF development, including preliminary assessments, timing and costs

Construction of the first stage of the development at Jervoise Bay was launched on 13 December 2000. The total cost of this phase was \$180 million, of which \$80 million was provided by the Commonwealth Federation Fund.

The full development comprises:

- Fully protected dredged harbour basin;
- Dredged approach channel;
- Reclaimed land area fully using locally dredged and excavated spoil material;
- 300m long service wharf incorporating 15 000 tonne loadout capability;
- Common user area including on-site facilities such as 80 x 60 x 42m fabrication hall, craneage and support buildings and services;
- Refurbished 3000 tonne loadout wharf and associated maritime facilities; and
- Seven large service lots (with direct access to the waterfront) for leasing to large fabrication companies to develop their own module fabrication and assembly facilities.

Loadout wharves completed May 2003.

Contract packaging

- i. Project Management and Construction Superintendency (let to SKM in November 1999).
- ii. A design consultancy for the major civil works package (let to GHD in October 2000).
- iii. A construction contract for the Island Breakwater. This work, valued at \$14.6 million, was designed and documented by SKM under a pre-existing engineering commission and let to the Jervoise Bay Joint Venture (JBJV) in November 2000. The contract was subsequently varied to include the construction of seawalls and containment bunds to accommodate

- dredging spoil (excised from the Civil and Marine Contract). This variation, valued at \$5.7 million, was negotiated at competitively tendered rates and was implemented in late February 2001 and completed on 4 July 2001. Construction of the Breakwater was completed in November 2001.
- iv. A separate contract for the dredging of the approach channel and basin was awarded to Dredeco Pty Ltd in June 2001 and completed on 16 December 2001.
 - v. The Civil and Marine Works Contract was awarded to the Transfield MacMahon Contractors Joint Venture on 25 September 2001 and practical completion was achieved on 17 January 2003.
 - vi. An On-Site Facilities Design and Construction Contract was awarded to Multiplex Constructions on 28 November 2001. This contract, which is not directly funded as part of the Federation Fund Grant, was completed on budget on 20 June 2003.
 - vii. A Common-User Area Facilities Management Contract was concluded with JBFM-Babcock Pty Ltd for the ongoing management of the facility. State Government funding was secured to fund the first four years of operation.
 - viii. Environmental consultancies were awarded to PPK, DALSE and Ecotech to provide ongoing environmental advice and monitoring throughout the development.

Planning and Environmental Assessments

From a planning and environmental viewpoint there could have been sites along the Western Australia coast that may have presented significantly less planning challenges than Jervoise Bay, located in Cockburn Sound, Perth's most highly utilised recreational fishing and boating waterway.

Each analysis clearly indicated that only Jervoise Bay offered the opportunity for a world class facility that could be internationally competitive. The following criteria could only be satisfied by a location in the Perth Metropolitan area and Jervoise Bay was the only location in the Perth Metropolitan area that fitted the specifications, namely:

- Physical factors (based on similar sized facilities in Europe) of a large shorefront common user area, with protected deep water frontage and backed by industrially zoned land;
- Market opportunities requiring loadout by sea to the oil and gas fields and heavy/wide load road access to the mineral resource activities in the Pilbara, Goldfields and South west;
- International competitiveness and quality high-value work through a relatively large, stable and highly-skilled workforce;
- Facilities and support services to undertake a wide range of multiple and overlapping contracts simultaneously thereby generating a steady based

workload, a stable industrial relations climate and avoiding high mobilisation/demobilisation costs; and

- The backup of a large social and industry services infrastructure with ongoing skills training through TAFE and university courses.

Environmental approval was determined by the then Minister for the Environment, Hon Cheryl Edwardes, MLA in December 1998 after nearly two years of exhaustive analysis of the impacts of development on the marine and land environment.

In its assessment, the Environmental Protection Authority (EPA) highlighted 3 concerns where it felt the project might not meet EPA quality objectives.

These concerns were seagrass, water quality and loss of high conservation value limestone cliffs. The State Government was totally committed to the preservation of the terrestrial and marine environment impacted by the development.

The measures taken to overcome the EPA's concerns have resulted in an outcome that is an improvement on the existing state of the environment of the areas affected by the development.

Prior to the issue of any tendering documents, the Jervoise Bay Project Office gained confirmation from the Department of Environmental Protection (DEP) that the Environmental Management Plan (EMP) for Construction was considered to be satisfactory.

On 7 December 2000, the Chief Executive Officer of the DEP advised that, as the proponent had satisfactorily met all the relevant preconstruction conditions and commitments, construction could commence.

EMPs for the Dredging and Civil and Marine Works were accepted by DEP, with each contractor required to submit a final plan for endorsement.

The construction EMP for the on-site facilities was accepted by DEP on 14 February 2002.

Sources of funding, determined and prospective

Federation Funding

Under the terms and conditions of the Grant of Financial Assistance between the Commonwealth Government and the State of Western Australia (dated 16 September 1999) the Commonwealth was to contribute \$80 million to the development.

As per Schedule 1 of the Grant document, the Grant Funds were used for the construction of the following components:

- Breakwaters (seawalls);
- Dredging of channel and harbour basin;
- Bulk earthworks; and
- Heavy/wide load road access within the site.

The project design was modified in June 2000 and a variation to the Grant was signed on 19 January 2002. This variation acknowledged the changes to the project timetable and reconfirmed that the Grant Funds would continue to be used for the components outlined above. On-Site Facilities such as the Fabrication/Assembly Hall, craneage, and support building services were not part of the Federation fund grant but are an integral part of the full development.

As per Clause 1 of Schedule 2, Grant Funds of \$80 million were paid by the Commonwealth following receipt of reports detailing the completion of tasks.

The Auditor General of Western Australia conducted an independent audit of the statement of receipts and payments for the Commonwealth grant for the year ending 31 August 2002. The feedback from the Commonwealth Department of Industry, Tourism and Resources indicated that all requirements were met.

State Funding

The remaining funds for the development were funded from consolidated revenue by the State Government.

Robustness of cost projections for project development and funding applications

The final report prepared by the Project Director confirmed that all phases of the development proceeded to budget with the Civil and Marine Works reaching practical completion on 17 January 2003.

The full development comprises:

- Fully protected dredged harbour basin;
- Dredged approach channel;
- Reclaimed land area fully using locally dredged and excavated spoil material;
- 300m long service wharf incorporating 15 000 tonne loadout capability;
- Common user area including on-site facilities such as 80 x 60 x 42m fabrication hall, craneage and support buildings and services;
- Refurbished 3000 tonne loadout wharf and associated maritime facilities; and

- Seven large service lots (with direct access to the waterfront) for leasing to large fabrication companies to develop their own module fabrication and assembly facilities.

All contracts for the project were completed within budget.

Business plans – executive summary with risk analysis

The Business Plan used in the Halpern Glick Maunsell “Jervoise Bay Infrastructure Masterplan” November 1997 was undertaken with key assistance from the following organisations:

- Aker Group (Aker) of Norway;
- John Holland Construction and Engineering (JHCE) of Australia; and
- Ernst & Young.

Aker and JHCE were both large, international contractors active in the oil and gas marine-related industries being targeted for Jervoise Bay. Aker, in particular, brought considerable experience to the study in respect of the planning, establishment, ongoing development, operation and management of major waterfront heavy engineering and fabrication yards. This experience extends from Europe to North America and was used to identify key design criteria for development of the Jervoise Bay Infrastructure Masterplan.

To establish the economic viability of the proposed of the AMC-CUF, Ernst & Young (1997) completed a broad macro-economic assessment of industry demand to estimate the economic and financial impact the development was likely to have on the local economy and more specifically, on the oil & gas, mining and shipbuilding industries in Western Australia.

The summary of the Ernst & Young report is below:

- The proposed infrastructure development has the potential to bring strong economic growth to not only the oil and gas industry but also to the mining and mineral processing industries, shipbuilding and repair and other specialised support organisations.
- The benefits will take time to develop as the site must build its reputation for being a “Centre of Excellence”. Similar sites in a number of countries clearly demonstrate this point.
- For the proposed site to be successful, it must first begin with the government’s commitment that the State’s oil, gas and mineral resources industries are its leading economic entity and a strong infrastructure must be available to support it. This includes creating a new profile for Jervoise Bay which identifies the facility as an integrated industrial complex focused on a broad range of heavy engineering and manufacturing activities.

- The usage of the site will be a function of how much the government will spend, the aggressiveness of the site management team, and how fast the site will be built. It should also be noted that both the physical size of the site and the nature of facilities to be established on the site will determine its overall success.
- Most companies interviewed favoured a fast track approach for the development of the infrastructure proposed for Jervoise Bay.
- From industry sources, Ernst & Young estimated that the proposed site could obtain a 2.5% share (ie \$100 million per annum) of future project work which is estimated to be valued at approximately \$4 billion per annum. Also \$160 million per annum in repair and maintenance work can be potentially generated from the site. It is this base load maintenance work that has the potential to establish a large permanent workforce on the site. The total value of work which would therefore be undertaken at Jervoise Bay is estimated at \$260 million per annum at full site capacity,
- Additional economic deployment and community benefits will be derived through multiplier effects whereby, at full site utilisation, output will be valued at around \$572 million per annum of which approximately \$156 million would be associated with workforce income with up to 4,225 jobs created (1,625 direct site employees).
- The site is likely to be used by a number of major fabricators. This would be one of the initial efforts in developing a continuous workflow and, according to all the respondents, a critical component leading to successful development of Jervoise Bay.
- Direct income will be generated for both State and Federal Governments in the form of rent and lease of property (up to \$4 million per annum), payroll taxes (up to \$4 million per annum), additional taxation (up to \$16 million per annum) and sale of freehold property (up to \$24 million).
- Along with major fabricators, additional small and medium sized engineering firms are likely to utilise the new site. Their usage will be enhanced if appropriate infrastructure, facilities and equipment are added to the site.
- The medium size organisations are crucial to the development of Jervoise Bay as they work closely with the specialised support organisations located at Jervoise Bay.
- Some of the large oil and gas organisations can be expected to consider Jervoise Bay for their projects once the site is developed to provide their structures and facilities and that will lead to increased productivity at the site.
- Notwithstanding the support of the large oil and gas organisations, Jervoise Bay has the potential to develop into a strong regional centre for maritime engineering; mining and general fabrication and assembly of small modular jacket and subsea projects with the benefits being realised by Western Australia's economy and industry.
- With the new infrastructure, Jervoise Bay will attract new growth opportunities in fabrication activity areas not currently undertaken in WA.
- Various industrial organisations including the Chamber of Commerce and Industry of WA and the Australian Petroleum Production and Exploration

Association noted Jervoise Bay currently lacks the appropriate infrastructure with an established and committed workforce to support major fabrication and construction work associated with increasing project opportunities in Western Australia. These organisations consider failure to provide the facilities and structures at Jervoise Bay as envisaged under the Masterplan to capitalise on the wave of projects currently under way will significantly reduce the opportunities for Australian industry in the resources development international markets.

- There is a broad industry acceptance that Jervoise Bay is the most appropriate location in Western Australia for development of infrastructure for marine based fabrication support and that delays in providing such infrastructure will make it increasingly difficult for local industry to be competitive with international fabricators on large resource projects.

AUSTRALIAN MARINE COMPLEX INFRASTRUCTURE UPGRADE PROJECT

Australian Marine Complex - Common User Facility (AMC-CUF), Henderson

Problems or opportunities which the Common User Facility Infrastructure Upgrade Project is to address

The AMC-CUF has already generated substantial benefits into the economy since its opening in July 2003. In its first three and a half years of operation the AMC-CUF achieved approximately 1.75 million man hours of work from 125 projects, creating 1400 jobs and generating \$106 million worth of work directly into the State economy.

Major projects undertaken during that time at the AMC-CUF include:

User	Description
Tenix Defence	Conversion of Commercial Tanker – Delos to Specialised RAN Oil Replenishment Ship HMAS Sirius utilising the purpose designed conversion capabilities of the Southern Wharf. The AMC-CUF was the only facility in Western Australia that could handle this project, alternative choices for Defence were ADI – Sydney or Korea where the Delos was built.
FMC Technologies	Subsea maintenance and after market support to Woodside initially. Ongoing business in a growing market. This work would otherwise have been undertaken in Singapore.
AGC	Biodiesel plant for \$45 million Natural Fuel Australia's facility in Darwin.
AGC	Dampier Wharf extension.
Nomad	Nomad demountable buildings utilising the security and space of the CUF Laydown Area.
Hanseatic	70 metre Superyacht construction for the Mediterranean and Caribbean Luxury Charter Market. Utilising access to wharfs and skilled quality labour.
Anzac Alliance	HMAS Anzac – Major upgrades to the war fighting capability of the ANZAC Class Frigates, removing the conflict for space at Fleet Base West (FBW) and congestion of subcontractors at FBW that created safety hazards.
Anzac Alliance	HMAS Arunta – Major upgrades to war fighting capability.
Anzac Alliance	HMAS Warramunga – Extended maintenance availability.
AGC	Fabrication of the New Zealand Pohokura Oil and Gas Jacket.

Royal Equipment	Mining truck refurbishment – exported to Indonesia.
Voest Alpine	Dampier Iron Ore Ship Loader 2.
Voest Alpine	Dampier Iron Ore Ship Loader 3.
Allways Shipping	Lorelay Pipe Laying Ship mobilisation for POG North West Shelf Project.
Saipem	Saipem Barge mobilisation.

The majority of these projects would have been unlikely to be undertaken in the State if the Government had not provided the foresight and capital funding for the AMC-CUF to be built.

In August 2005, the then Minister for Science and Innovation requested funding of a further \$90.1 million to fund an infrastructure upgrade of the AMC-CUF to enhance its operational capacity.

In May 2006, ERC was advised that the cost estimates for the \$90.1 million infrastructure upgrade provided in August 2005 had been revised and were likely to be higher.

Further more accurate and revised costing were provided to ERC and in November 2006 ERC agreed to support the infrastructure upgrade providing the tender cost does not exceed \$174.3 million.

The specific purpose of this upgrade was to meet the needs of ASC Pty Ltd (formally Australian Submarine Corporation) and to enhance the State's ability to secure the \$2 billion amphibious vessel contract and other projects.

ASC is responsible for the maintenance of the Collins Class Submarines for the Royal Australian Navy. Until the floating dock was built as part of the infrastructure upgrade, the shiplift operated by Tenix was the only facility available to lift submarines out of the water. This facility was not really adequate for ASC's purposes, as they were required to erect scaffolding and encase each submarine in plastic in order to minimise dust ingestion. The increased cost and time had to be weighed up against the time and cost of taking the boats to the better facilities in Adelaide. ASC had advised the State that failure to provide a commitment to the dock and associated infrastructure by COB Thursday 30 November 2006 will mean ASC not continuing with its repair and maintenance facility worth \$30 million at the AMC.

Scope of the CUF Upgrade and the wider context to which it relates

Eastern Wharf Extension

The extension of the Eastern Wharf will see berthing capacity at the AMC increased to attract commercial and Royal Australian Navy operations. The

Eastern Wharf extension was broken into four components, preliminary wharf studies, preliminary wharf works, pile supply and delivery and Eastern Wharf main works. Following a formal tender process the pile contract was awarded in mid-April 2006 and the piles were delivered to the site early July 2006. Following a separate formal tender process, the Eastern Wharf main works contract was awarded to John Holland in May 2006. Work was completed by May 2007.

Electricity Upgrade

The 3.5MVA first stage caters for peak demand for existing facilities was completed first. The second stage undertaken by Downer Electrical was to lift the power capacity of the area to 8.5MVA and will allow the Floating Dock, ASC building and Transfer System to operate. A contract was awarded in September 2006, with works completed by June 2007. The third stage was to provide adequate power for all anticipated developments at the AMC to 13.5MVA via a line from the Cockburn zone substation. Power was available in 2009, following the completion of the Bibra Lake power station. A fourth stage, not yet required, will involve the construction of a new Western Power zone substation to cater for future proposed facilities and power demands at the AMC.

Blasting Earthworks

Blasting/earthworks at the AMC-CUF facilitated the location of the ASC and other super lot users to the AMC-CUF. Following a formal tender process, the Blasting Earthworks contract was awarded to RJ Vincent in late 2005, with work commencing in January 2006. The project consisted of three separate stages, the ASC site, the site required for the temporary storage of dredged fill material and the remainder of the 'superlot', these works were completed on 17 March 2008.

Transfer System/Wharf Interface

The transfer system scope of works consisted of a Self Propelled Modular Transporter (SPMT) system and the construction of a transfer and lay by wharf. The transfer wharf contract undertaken by Georgiou Group, included construction of the transfer and lay-by wharfs, shore services for the floating dock and modifications to the AMC-CUF hardstand area. The floating dock would abut the transfer wharf allowing for the transfer of vessels, utilising the SPMT system, to the hardstand area of the CUF for repair and maintenance work. Works commenced on 30 June 2008 and were completed by 7 June 2009.

The transfer system was originally designed as a rail and bogie system. However, the State selected a more versatile system and selected a SPMT system. The \$18 million SPMT system was built in Germany by Scheuerle and comprises 18 six-line trailer units, three four-line trailer units, three three-line trailer units and four power packs to move vessels and heavy modules up to 3,500 tonnes, all via remote

control. Construction of the SPMT system commenced on 28 December 2007 and was available for use at the AMC- CUF by 28 May 2009.

Dredging

The dredge pocket at the AMC-CUF facilitated the Floating Dock to conduct launch and retrieval services. Dredging works contract was awarded to Flanders Dredging Corporation in February 2007 and works were fully completed by November 2007, with mobilisation and demobilisation of the dredge a major component of the dredge contract.

Floating Dock – Stage 1

For retrieval and launch of Collins Class Submarine, ANZAC frigates and other vessels the State's desire to secure key marine and defence contracts was the underlying driver for the floating dock and transfer system.

Conceived as a two-part dock, Stage 1 consists of a 99 metres by 53 metre pontoon that is capable of lifting vessels up to 12 tonnes for service and provides the capability to transfer vessels and modules up to 3,500 tonnes to land.

Constructed by AMC based boat building company Strategic Marine the floating dock contract was awarded in August 2008 and was handed over to Government on 24 December 2009.

Since operation in January 2010 the floating dock has been used by Boskalis and Austal Ships. ASC Pty Ltd is scheduled to dock its first submarine at the AMC on 9 June 2010.

On 13 September 2009 the Floating Dock was announced joint winners with the New Perth Bunbury Highway in the 2009 WA Engineering Excellent Awards in the Category of Infrastructure and Building.

Stages of the CUF Upgrade, including preliminary assessments, timing and costs

The infrastructure upgrade comprised the following major work packages:

- Stage 1 of the Floating Dock, Transfer System and Dredge Pocket for retrieval and launch of Collins Class Submarine and ANZAC frigates;
- An upgrade to the Eastern Wharf to increase berthing capacity to meet current and projected requirements for Naval and commercial vessels;
- An Electricity Upgrade to provide for increased demand at the AMC-CUF; and
- Earthworks to facilitate the establishment of ASC and other users to the AMC-CUF.

Funding sources, determined and prospective

The August 2005 funding of \$90.1 million approved for this upgrade consisted of:

- An \$81.1 million allocation from the Department of Treasury and Finance to LandCorp, paid by way of an equity injection;
- A \$5 million allocation from ASC; and
- A \$4 million allocation from the Royal Australian Navy.

In November 2006 Cabinet agreed to support the project provided the tender cost does not exceed \$174.3 million. It should be noted that the total project costs were revised to \$170.3 million due to the \$4 million from the Royal Australian Navy not forthcoming as capital.

Robustness of cost projections for project development and funding applications

The revised estimates for the November 2006 Cabinet Approval were conservatively developed following an expression of interest process, updated engineering studies and pre-tender processes for the major project components prior to committing the State to a tender process.

In addition, the Department of Industry and Resources (DoIR) appointed Deloitte to prepare a feasibility review of an option to Build Own Operate (BOO) arrangement via a joint venture with private sector participants. The report concluded that all BOO options considered did not appear to be financially feasible.

In regards to the ASC facility, the company has advised the first targeted docking at the new facility is worth \$30 million to Western Australia and each subsequent docking will be similar in cost. With three to four dockings per year planned this equates to \$90 - \$120 million per annum spend locally.

Business plans – executive summary with risk analysis

LandCorp received a commitment from ASC that it would undertake the following work at the AMC when the infrastructure was completed:

- Mid-Cycle Dockings (MCD) in Western Australia including that involve upgrades;
- Installation and set to work of the Replacement Combat System in conjunction with an MCD; and
- Certification Extension Dockings (CED).

The potential market for the floating dock was considered as part of the review of the BOO option for the floating dock. This has found that in addition to the known

market of ASC submarine work that there is potential to seek additional work from ANZAC frigates refits and intermediate dockings, commercial ship repair work including cargo vessels, charter vessels, fishing vessels and tugs, as well as catering for emergency dockings of submarines and other vessels. The oil and gas market also presents opportunities for the floating dock for subsea well head testing. Increasing the commercial and economic returns to the State from the AMC-CUF is an ongoing role for both the Department of Commerce and LandCorp. Both agencies are continually looking for future markets that provide growth opportunities and significant returns, which will reduce the State's liability to fund its ongoing operations.

Risk Analysis

LandCorp requested Independent Risk & Insurance Services ("IRIS") to conduct a strategic project risk review on 9 August 2006 with the objective of identifying key risks which could impact on the Western Australian Government satisfactorily delivering the infrastructure upgrade project for the AMC-CUF. It was agreed DoIR would have a high level position in the review given their role in securing the original funding and ongoing responsibility to secure any additional project funding.

The overall objective of the review was to identify strategic risks that could affect the project being delivered within budget, on schedule and fit for purpose.

It was noted each of the components comprising the AMC-CUF Infrastructure Upgrade has its own rigorous operational risk management programs in place and therefore the purpose of this review was to identify high level strategic risks across the whole of the project.

Fourteen participants representing all stakeholders' views attended the workshop. Subsequently, four sessions were held with a select group of participants (three to five personnel from LandCorp and DoIR) to further review, assess and prioritise the key risks.

A pre agreed methodology was utilised to analyse the risks so that they could be assessed and rated.

Finally nine risks were agreed by the group and all but one of these had risk ratings of either High requiring urgent actions or Extreme requiring independent assessment and regular monitoring. For each risk a completed Risk Record was created which included an Action Plan outlining mitigating actions which need to be taken to prevent the risk from escalating.

The findings of the combined workshops reflected the assessments of LandCorp and DoIR. The risk management strategies documented in the Action Plans are deemed appropriate to ensure the risks are effectively controlled and where possible reduced.

In addition, a Safety Case was undertaken by AMOG Consulting which reviewed every aspect of operation for the Floating Dock & SPMT system and highlighted controls required to eliminate or highly reduce any potential hazards. The working group consisted of AMC Management, LandCorp, Navy, Defence Materiel Organisation (DMO), Collins Systems Program Office (COLSPO) and ASC.

The AMC-CUF Infrastructure Upgrade Project was overseen by a Project Reference Group (PRG) chaired by the Department of Commerce and comprising representatives from LandCorp, Department of Treasury and Finance, Department of Housing and Works (now Building Management Works) and AMC Management Pty Ltd.

The purpose of the PRG is to:

1. Ensure efficient and effective expenditure of the \$174 million allocated by Government, ASC and Navy for the construction of facilities in accordance with the Cabinet Submission and approval;
2. Ensure the facilities are 'fit for purpose' in accordance with a 'Needs Statement' and represent value for money; and
3. Ensure the facilities are completed in accordance with an agreed schedule.

The PCG will also provide LandCorp with a Project Management oversight function, monitoring risk, schedule progress and financial performance.

As outlined above the PRG provided oversight of the project and had a strong focus on Risk Analysis.

Conclusion

The AMC Infrastructure Upgrade Project is nearing completion.

The project has run to budget and has delivered the infrastructure within the \$170.3 million budget re-allocated.

The demand for services at the AMC-CUF has not faltered with the facility generating more than \$356 million for the local economy from 227 contracts since it opened some six years ago – a total of \$124 million in the 2008/09 financial year alone. This trend is set to continue with strong results recorded in the last six months to now.