Submission 109:
Attachment C

GASCOYNE
DEVELOPMENT COMMISSION
CREATING THE CLIMATE FOR GROWTH

Economic Development Opportunities for the Gascoyne Region associated with Resource Sector Invesment and Expansion

Gascoyne Pilbara Project

November 2011

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Economics & Planning

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Executive Summary

This report was commissioned by the Gascoyne Development Commission (GDC) to identify opportunities for the Gascoyne region to capitalise on and benefit from current and future developments in the resources sector, both within and external to the region.

The Gascoyne region sits between the thriving resources regions of the Pilbara and the Mid-West. To the north-west of the Gascoyne, significant oil and gas exploration and extraction activities are on-going in the Carnarvon and Browse Basins.

Due to the scale of off-shore oil and gas activity north of the Gascoyne, and mining activity in the Pilbara and Mid West regions, opportunities exist for the Gascoyne region to tap into wider regional resource sector supply chains, to better capture a portion of economic throughput from the mining and resource sectors.

Recognising the potential economic and social benefits to be realised, the Gascoyne Development Commission (GDC) engaged SGS Economics and Planning (SGS) and O'Neil Pollock & Associates (OPA) to examine opportunities for the Gascoyne region to benefit from current and prospective developments in the resources sector, in the Gascoyne itself and in the surrounding regions.

The recommendations put forward in this report acknowledge and respond to: a comprehensive list of resource projects (committed and under consideration); examination of the Gascoyne region's current offering to the resources sector; an evaluation of infrastructure improvements or developments to increase the region's ability to service resource projects; and the identification of the full range of opportunities within each local government area.

The research and analysis identified approximately 30 prospective supply-led project opportunities. Following industry and stakeholder consultation and analysis by the project consultants, **12 projects areas have been identified as regional priority action areas. The projects are spread across the region's four local government areas**. The project prioritisation framework that was utilised is documented in Section 4 of this report. The prioritisation of projects is essential to ensure that both financial and human resources are allocated effectively so that opportunities can be readily transferred into action and resultant economic and employment benefit for the region.

A summary of projects by Shire and priority is provided in the following pages of this Executive Summary. The identification of each priority project reflects the economic positioning / preferred economic future of the Shire in which it is physically located and that Shire's stated core values and related considerations.

For each priority project, information is provided on **key tasks**, **key stakeholders** and **project rationale**. Each of the region's local government areas are addressed in turn below.

Shire of Exmouth

Economic Positioning / 'Preferred Economic Future'

Exmouth is the principal settlement of the North West Cape of Western Australia. It is the largest service centre between Carnarvon and Karratha. It has a resident population of approximately 2,500 people. The Shire seeks to double its population in the medium term and in doing so increase its level of economic self-sufficiency.

Exmouth is the northern tourist gateway to the Ningaloo Marine Park, a World Heritage site and also hosts the Cape Range National Park. Tourism is the town's major economic contributor with eco-tourism experiencing significant growth in recent years. Hospitality, accommodation and retail also represent a considerable proportion of the Shire's economy and job market. Other key industries in the Shire of Exmouth include: fishing; pastoral activities; aquaculture; oil, gas and limestone mining; industrial activities; light engineering and government agency business.

The on-going growth in tourism and the potential for future growth in resident population as mining and aquaculture industries expand, are likely to increase the demand for retail, commercial, administrative and trades services in the Shire of Exmouth. The town is ideally placed to become a 'Defence Force Hub'.

Core Values and Considerations

The following core values and considerations are to guide future economic development and investment decision making in Exmouth:

- *Environmental protection and social advancement are equally important as economic development and economic prosperity.*
- *New economic activity must not put at risk tourism / landscape / lifestyle values.*
- *There is a desire to secure a slice of the economic return from surrounding resource sector activity, but not at any cost.*
- *No desire to attract 'Offensive / heavy / smoke stack industry'*
- *Growth in population is considered a key to assist in the expansion and sustainability of retail and service sectors (health, education, business).*
- *Promotion and maintenance of Exmouth's unique environment is a priority for the community as is access to additional employment opportunities.*
- *Medium Term Population Target: Approximately 5,000 (permanent pop).*

Priority Projects and Tasks – Gascoyne Pilbara Projects

Progressive implementation of the following projects is recommended in order to maximise the economic and social benefits for Exmouth arising from existing and proposed mining and resource sector investment in the Gascoyne, Pilbara and Mid-West Regions.

Ref No.	Project	Key Tasks	Key Stakeholders	Project Rationale
1.1	Exmouth Harbour Expansion	• Finalise economic and community impact assessment. • Develop business case in order to secure State and Federal funding for harbour facility expansion.	• DoT • GDC • Shire of Exmouth • Chamber of Commerce and Industry	Refer Opportunity 1, pp. 20-21
1.2	Market / Promote Exmouth as a Logistics Hub	• Engage with existing private sector participants to develop marketing / promotional material. • Distribute to industry representatives. • Encourage continued infrastructure development at Learmonth.	• GDC • Shire of Exmouth	Refer Opportunity 1, pp. 21-22
2.1	Development of Learmonth Marine Supply Base	• Encourage completion of environment and economic impact assessments. • Provide assistance in public information awareness. • Pending outcome of impact assessments, provide project facilitation support (as necessary) regarding Stage 1 approvals.	• Proponent • GDC • Shire of Exmouth • Chamber of Commerce and Industry • DoT	Refer Opportunity 2, p 23
3.1	Exmouth Fly In - Fly Out / Drive In - Drive Out Initiatives	• Continue to engage with off-shore oil and gas and mining sector participants to sell concept and formally negotiate "Exmouth – Work Site Direct" charter / transport options for workforce. • Negotiate a return Perth / Gascoyne / Pilbara air service route (including Onslow & Karratha). • Prepare marketing material targeting oil and gas and mining sector workers regarding Exmouth's attributes as a permanent residential	• GDC • Shire of Exmouth • Oil and Gas Sector companies utilising Learmonth as a transport hub. • Mining sector participants • Exmouth Chamber of Commerce	Refer Opportunity 3, pp. 24-26

		destination. • Facilitate negotiations to enable additional residential land release. • Continue to invest in lifestyle infrastructure (refer list of identified priorities, p.24).	and Industry	
5.1	Exmouth Tourism Initiatives	• Engage with off-shore oil and gas sector companies to secure more flexibility in transport options for FPSO workforce that would enable short and long stay holiday options in Exmouth and wider region (eg seek to have off-shore companies rescind policy that prohibits FPSO workers from 'disembarking' at Learmonth). • Negotiate a return Perth / Gascoyne / Pilbara air service route (including Onslow & Karratha). • Continue to market and facilitate investment in high end tourist accommodation. • Facilitate establishment of Ningaloo Research / Interpretation Education / Multi Use Centre. • Advance negotiations with Chevron which has indicated a desire to invest in the Exmouth township and will consider any proposal from the Shire (in regard to the Research Centre) upon its submission. • Finalise / Implement Local Tourism Strategy. • Market Exmouth as a holiday destination for off-shore oil and gas and on-shore resource workers and their families.	• GDC • Shire of Exmouth • Oil and Gas Sector companies utilising Learmonth as a transport hub. • Mining sector participants • Exmouth Chamber of Commerce and Industry	Refer Opportunity 5, pp. 28-29

Shire of Carnarvon

Economic Positioning / 'Preferred Economic Future'

Carnarvon is the administrative centre of the Gascoyne Region. It has a total population of approximately 6,500 people. The Shire of Carnarvon seeks to grow its permanent population to approximately 15,000 in the medium to longer term and has a vision of a prosperous, vibrant community with exceptional lifestyle choices. In order to achieve this outcome the Shire is committed to expanding its economic and employment base and in doing so, growing strong business enterprises.

The Shire of Carnarvon seeks to strengthen and diversify its economic activities with the prime drivers being horticulture, tourism, fishing, pastoral and mining. It seeks to strengthen its regional and sub-regional role as a supply base and service centre. It is a recognised transport hub and has significant capacity to further augment its strategic infrastructure assets which has potential to derive significant local, regional, and national benefit. The development of a Deep Water Port is considered a strategic priority that would generate significant and sustainable social and economic benefits.

Core Values / Considerations

The following core values and considerations are to guide future economic development and investment decision making in Carnarvon:

- *Economic diversification and growth in business development is an overarching priority for the Shire of Carnarvon.*
- *Enterprise development is supported in order to grow and sustain the Shire's permanent population.*
- *The Shire has a strong desire to make available land resources and develop infrastructure capacity to host a large range of commercial and industrial activities including heavy industry in appropriate locations.*
- *Growth in population is considered a key to assist in the expansion and sustainability of retail and service sectors (health, education, business).*
- *Medium Term Population Target: Approx. 15,000 (permanent pop).*

Priority Projects and Tasks

Progressive implementation of the following priority projects is recommended in order to maximise the economic and social benefits for Carnarvon arising from existing and proposed mining and resource sector investment in the Gascoyne, Pilbara and Mid-West Regions.

Ref No.	Project	Key Tasks	Key Stakeholders	Rationale
8.1	Carnarvon Fly In - Fly Out / Drive In - Drive Out Initiatives	• Undertake core research to quantify number of existing mining sector employees residing in Carnarvon. • Complete flood strategy works. • Negotiate a return Perth / Gascoyne / Pilbara air service route (including Onslow & Karratha). • Upgrade airport facilities to accommodate a 2km runway and jet aircraft. • Investigate options to develop affordable housing on existing airport site. • Facilitate negotiations to achieve additional residential land release. • Continue to engage with mining sector participants to sell concept and formally negotiate "Carnarvon – Work Site Direct" charter / transport options for workforce. Include • Prepare specific marketing material targeting resource sector workers regarding Carnarvon's attributes as a permanent residential destination. • Continue to invest in lifestyle infrastructure (refer list of identified priorities, p.31).	• GDC • Shire of Carnarvon • State Government / RFR Funding	Refer Opportunity 8, pp. 34-36

9.1	Carnarvon Fresh Food Boxes	• Secure grower commitment to advance initiative via Gascoyne Food Council. • Advance negotiations with Dampier Salt Manager Allen Perry regarding offer to trial project via Rio Tinto's underutilised air charter service (Thursday's) between Carnarvon and Paraburdoo.	• Gascoyne Food Council • GDC	Refer Opportunity 9, pp. 37-38
10.1	Indigenous Workforce Training and Placement Initiative	• Provide network support to proponent as required.	• Proponent • GDC • Carnarvon Shire	Refer Opportunity 10, p. 39
12.1	Carnarvon Trade Training	• Provide ongoing local and regional advocacy support to advance co-location / development of one school campus and development of freed up land for a Trade Training Centre. • Continue to advance discussions with Durack Institute of Technology regarding development of infrastructure and course delivery in the town.	• School Cluster Board • GDC • Carnarvon Shire • Durack Institute of Technology	Refer Opportunity 12, p. 42
13.1	Road Transport Hub	• Provide network support to proponent as required.	• Proponent • GDC • Carnarvon Shire	Refer Opportunity 13, pp. 43 - 44

Shire of Shark Bay

Economic Positioning / 'Preferred Economic Future'

Denham hosts many nationally and internationally recognised tourist attractions including the Shark Bay World Heritage Area including Monkey Mia dolphins, Francois Peron National Park, Dirk Hartog Island National Park, Shell Beach Conservation Park, Hamelin Pool Marine Nature Reserve, and the Shark Bay World Heritage Discovery Centre.

This natural offering complements the lifestyle attributes that make the region a desirable place to live. These factors will continue to contribute to population growth, seeing the Shire grow its permanent population to 2,500 persons in the medium to long term.

Development in the Shire is ecologically sustainable, and contributes toward and enhances quality of life for both residents and visitors. Opportunities for employment growth build off the existing economic base of tourism, aquaculture, pastoralism and mining.

Economic diversification through the development and expansion of these industries will form the basis of economic development.

Core Values / Considerations

The following core values and considerations are to guide future economic development and investment decision making in Shark Bay:

- *Protection and marketing of the Shire's environmental assets is a priority.*
- *The Shire seeks to facilitate continued public and private sector investment in infrastructure to support and grow its permanent resident population as well as facilities and services for visitors.*
- *Maritime infrastructure including upgrade / expansion of existing jetty facilities at Denham is an immediate priority which will result in significant and recurrent economic benefit for the town and municipality as a whole.*
- *Medium Term Population Target: Approx. 2500 (permanent pop).*

Priority Projects and Tasks

Progressive implementation of the following priority projects are recommended in order to maximise the economic and social benefits for the Shire of Shark Bay arising from existing and proposed mining and resource sector investment in the Gascoyne, Pilbara and Mid-West Regions.

Ref No.	Project	Key Tasks	Key Stakeholders	Rationale
14.1	Denham Fly In - Fly Out / Drive In - Drive Out Initiatives	• Maintain contact with Gunson Resources to explore opportunities to secure and market Denham as a source of resident workforce. • Investigate options to improve housing affordability • Negotiate a return Perth / Gascoyne / Pilbara air service route (including Onslow & Karratha). • Continue to develop lifestyle, family and knowledge worker 'infrastructure' (refer list of identified priorities, p.43).	• Shire of Shark Bay EDO • GDC	Refer Opportunity 14, pp. 46 - 47
15.1	Denham as a Holiday Destination	• Market Denham as a holiday destination for resource workers and their families. • Negotiate a return Perth / Gascoyne / Pilbara air service route (including Onslow & Karratha). • Continue to market and facilitate investment in high end tourist accommodation including. • Upgrade / expansion of existing jetty facility (refer Project 14.3, p.43); • Development of Recreational Freshwater Theme Water Park on the Foreshore; and • Upgrade and expansion of current entry statement and information bay.	• Shire of Shark Bay • GDC • State Government RFR Funding	Refer Opportunity 15, pp.48 - 49

Shire of Upper Gascoyne

Economic Positioning / 'Preferred Economic Future'

The Shire of Upper Gascoyne Junction includes the town of Gascoyne Junction and the Burringurrah Aboriginal community. It has a population of approximately 420 people. The Shire envisions the Upper Gascoyne to be a sustainable service base supporting the pastoral, tourism and mining industries and the local community. To this end, infrastructure enhancement is a priority including roads links, communications and water supply.

Substantial mining deposits have been identified in the region, and exploration is on-going. Gascoyne Junction and Burringurrah will act as supply hubs for this and other activities in the resource sector. Opportunity exists to increase tourism output via marketing and product development associated with the Mt. Augustus and Kennedy Range National Parks and latent capacity of the Burringurrah Aboriginal community. Diversification of the pastoral industry into 'station stays', horticulture and carbon/tree farming represent capacity building opportunities.

Core Values / Considerations

The following core values and considerations are to guide future economic development and investment decision making in the Upper Gascoyne:

- *Asset development and servicing represents one of the Shire's significant challenges including improvements to road, water, tourism and telecommunications infrastructure (ADSL and Mobile phone coverage required as priorities)*
- *The Shire is committed to the support of new business establishment and resident attraction to the Upper Gascoyne.*
- *Existing strengths in tourism and pastoralism are perceived as the economic base off which further growth will be leveraged.*

Priority Projects and Tasks

Progressive implementation of the following priority projects are recommended in order to maximise the economic and social benefits for the Upper Gascoyne arising from existing and proposed mining and resource sector investment in the Gascoyne, Pilbara and Mid-West Regions.

Ref No.	Project	Key Tasks	Key Stakeholders	Rationale
18.1	Sealing the Gascoyne Junction – Meekatharra Road	• Continue efforts to secure funding to enable construction works.	• Shire of Upper Gascoyne • Meekatharra Shire • Shire of Carnarvon • Shire of Wiluna • GDC • MWDC	Refer Opportunity 18, p.52

1 Introduction

1.1 The Gascoyne Pilbara Project

The Gascoyne region sits between the thriving resources regions of the Pilbara and the Mid-West. Mineral extraction activities underpin the economic output of these regions, resulting in a combined production value of $37 billion (in 2009/10), which is approximately 53% of Western Australia's industry production value.To the north-west of the Gascoyne, significant oil and gas exploration and extraction activities are on-going in the Carnarvon and Browse Basins, accounting for a further $22 billion in production value.

The Gascoyne region had an estimated gross regional product (GRP) of $638 million in 2008/09, with significant industry contributions from the tourism, retail, agriculture, fishing and mining sectors. Mining in the region is predominantly salt extraction, accounting for $130 million of the $142 million industry production value in 2009/10.

Despite the scale of resource sector activity in Western Australia's north-west, industry needs will not be able to be solely serviced locally. Opportunitiesmay exist for the Gascoyne region to contribute toward the supply chains for these industries in adjoining regions, tobetter capture a portion of economic throughput from the mining and resource sectors.

Recognising the potential economic and social benefits, the Gascoyne Development Commission (GDC) engaged SGS Economics and Planning (SGS) and O'Neil Pollock & Associates (OPA) to examine opportunities for the Gascoyne region to benefit from current and prospectivedevelopments in the resources sector, both locally and in the surrounding regions.

Key deliverables for the project, as statedin the project brief, include:

- A comprehensive list of resource projects (committed and under consideration);
- An examination of the Gascoyne region's current offering to the resources sector;
- An evaluation of infrastructure improvements or developments to increase the region's ability to service resource projects;
- Identification of the full range of specific opportunities within each local government area; and
- Development of projects and aframework to prioritise key initiatives.

The process for undertaking the study is illustrated in Appendix A.

1.2 Structure of this Report

This report builds on the findings presented in the Interim Report (August 2011), focussing on the identified needs of the resource sector, and using these findings to refine a list of projects for implementation.

Section 1 (This section) provides the project context and rationale.

Section 2 Provides an overview of the resource sector in the Gascoyne, Mid-West, Pilbara and off-shore regions. This section incorporates comments received on the Interim Report and sets the scene for the remainder of the report.

Section 3 Identifies demand driven role for the Gascoyne, identified through consultation with a variety of resource sector proponents. The section includes commentary on resources sector needs, competing regional offerings and sector developments likely to influence the capacity of the Gascoyne to service the resource sector.

Section 4 Refines the list of projects nominated by stakeholders and assessed by the project consultant team on the basis of regional benefit and capacity to implement.

The contents of this report reflect the findings from the consultant team's research, consultation and analysis undertaken throughout the course of the project, including:

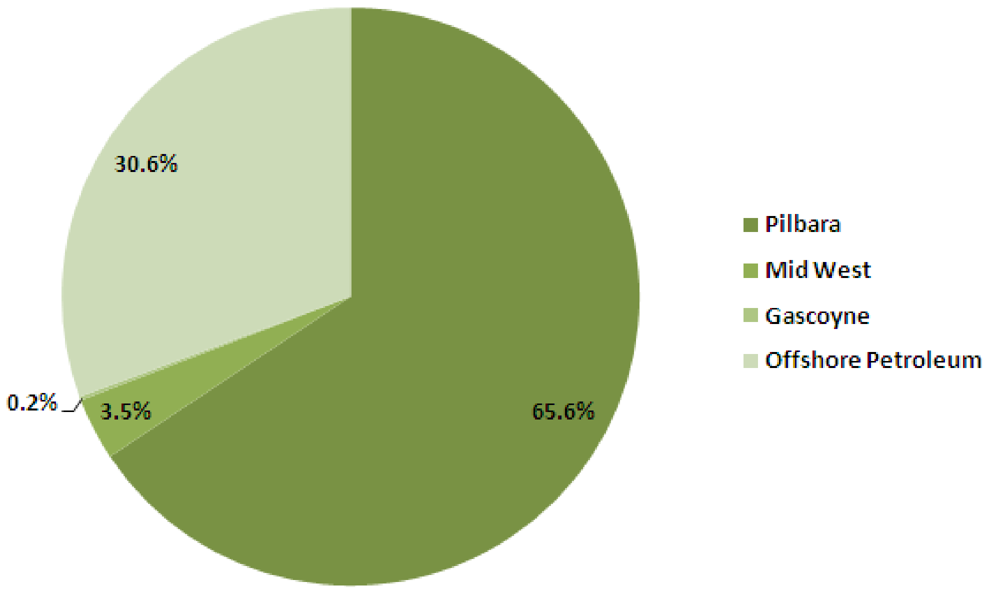
- An overview of the current status of resource exploration and extraction sectors in the Gascoyne, Mid-West, Pilbara and off-shore regions;
- Key socio-economic indicators for the Gascoyne region, as well as an overview of key attributes of the region's four local government areas of Exmouth, Carnarvon, Shark Bay and Upper Gascoyne.
- An overview of policy documents as a component of the Gascoyne Pilbara Project (GPP), and a summary of initiatives presently underway that are relevant to the project;
- Analysis of local strengths and constraints that will contribute to the region's capitalisation on opportunities to engage with the resource sector; and
- A vision for the economic future of each of the four local government areas in the Gascoyne, along with opportunities that have been identified for the region to strengthen its engagement with the resource sector.

2 Resource Sector Overview

The Gascoyne region borders the State's premier mining region in the Pilbara, and emerging iron ore sector in the Mid-West. The combined resource production value of the Pilbara and Mid-West regions totalled over $51 billion during 2010, representing over 56 per cent of the State's industry production value. The Gascoyne region had an estimated production value of over $140 million in 2010, with salt mining the dominant activity, accounting for $130 million worth of industry value.[1]

Off-shore oil and gas accounted for another $22 billion with the majority of off-shore operations located off the coast of northwest Western Australia, namely the Carnarvon and Browse Basins. The Carnarvon Basin, situated off the northern tip of the Gascoyne region, is home to Australia's largest gas reserve with over 90 trillion cubic feet of estimated supply and is home to a number of world-class projects including the North West Shelf Joint Venture, Pluto and Gorgon LNG projects.[2]

Figure 1. Resource Value by Region, 2010



Total Value: $74,535,485,164

Source: SGS utilising data from the Department of Mines and Petroleum, 2011

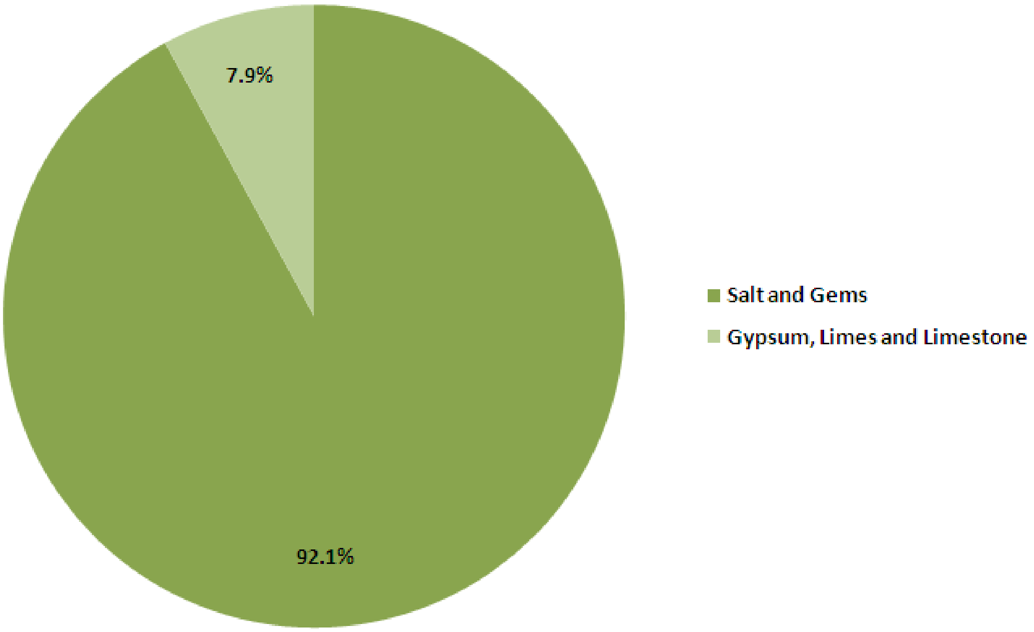
[1] Department of Mines and Petroleum, 2011

[2] Annual Report 2009/10, Department of Mines and Petroleum

2.1 Gascoyne Region

Salt is the predominant resource produced in the Gascoyne, accounting for 92 per cent of the sale value of all resources produced in the region in 2010. The remainder was accounted for by Gypsum, Limes and Limestone.

Figure 2. Resource Value by Resource – Gascoyne Region, 2010



Total Value: $140,887,672

Source: SGS utilising data from the Department of Mines and Petroleum, 2011

Salt extraction occurs at Lake MacLeod and at Useless Loop. There are plans to expand operations at Lake MacLeod from 764 hectares to 1,000 hectares by 2014, and for exports to increase commensurately. Current production at the site is 3.2 million tonnes per annum. This is anticipated to grow to between 6 and 7 million tonnes by 2015 and 20 million tonnes by 2020.

Direct employment from salt operations in the region accounted for 345 positions in 2010, up from 315 in 2009.

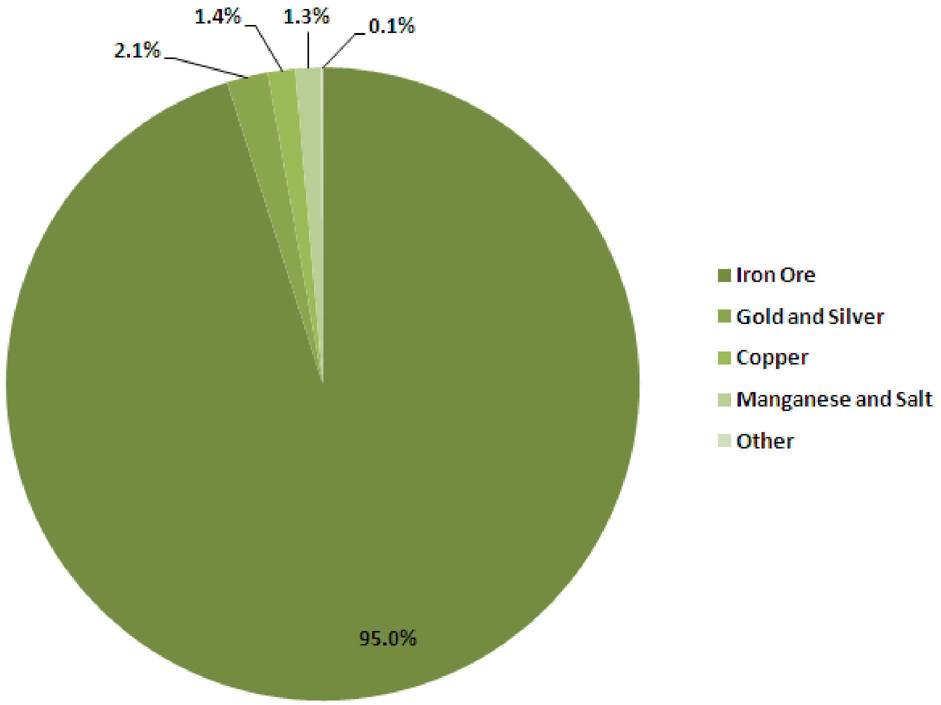
The only planned mineral project in the region is the Coburn Mineral Sands project, driven by Gunson Resources. The project is located in the Shire of Shark Bay, 250km north of Geraldton.

There are several exploration opportunities in the region that continue to be monitored with a view to eventual project development. Substantial deposits of iron ore, copper, gold, potash and uranium exist in the Upper Gascoyne Shire, however require substantial infrastructure investment (i.e. roads and utilities) to proceed. Potential proponents include Atlas Iron, Meteoric Resources, Pepinnini Minerals and Sinosteel Midwest (iron ore); Sandfire Resources (copper/ gold); East Coast Minerals (potash); and Paladin Energy (uranium).

2.2 Pilbara Region

In 2010 the Pilbara accounted for $48 billion worth of Western Australia's total mineral and petroleum sales, which equated to over half of the State's total sales. Within the Pilbara, the resource sector is dominated by iron ore production, accounting for 95 per cent of the total production value. Other prominent mineral extraction activities include gold and silver (2.1%), copper (1.4%) and manganese and salt (1.3%).[3]

Figure 3. Resource Value by Resource – Pilbara Region, 2010



Total Value: $48,928,160,531

Source: SGS utilising data from the Department of Mines and Petroleum, 2011

The Pilbara is likely to experience further growth which will bring both major challenges and opportunities to the region. The region's potential for economic growth has been recognised by the State Government with ambitions to leverage growth opportunities and develop regional communities as self-sustaining, diverse centres through the Pilbara Cities initiative (refer to Section 3.4.3 of this report).

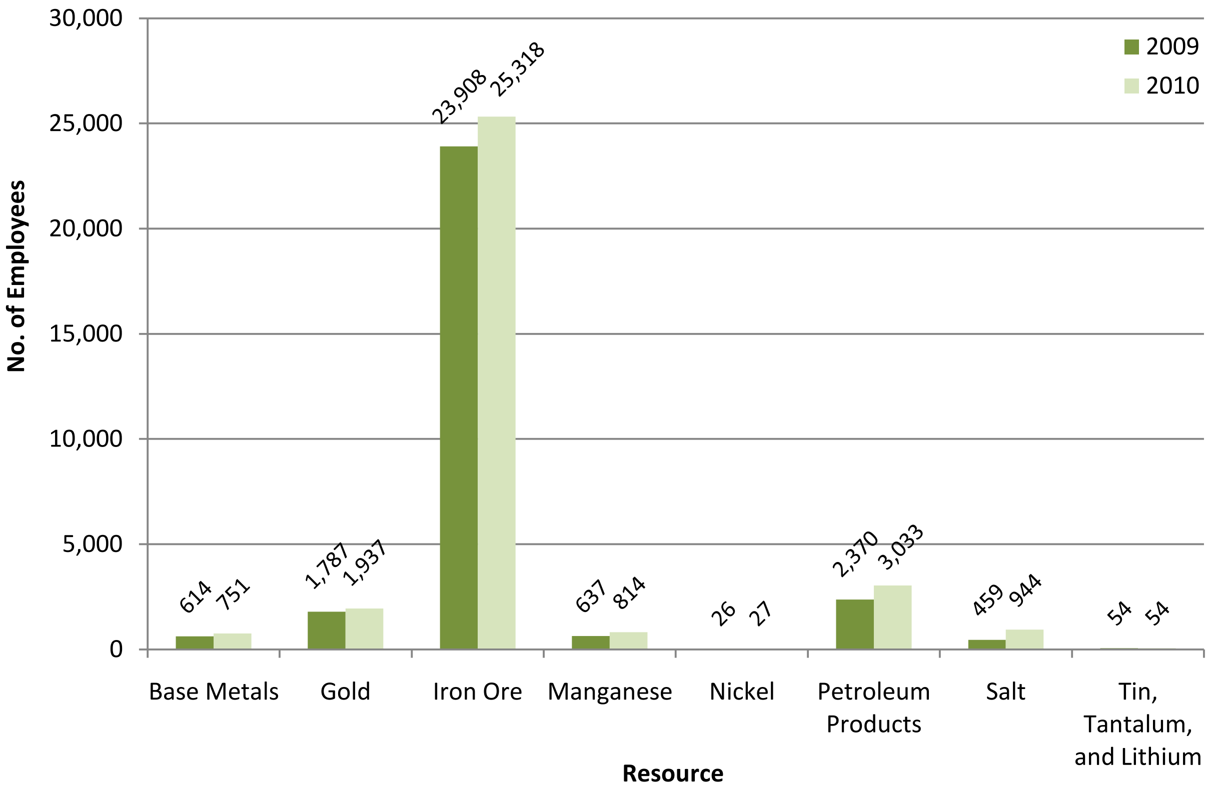
Employment in the Pilbara resources sector has grown over the 2009/2010 period. Industry sources would suggest that this trend is likely to continue but will be limited by access to labour. Employment by resource is commensurate with the predominance of iron ore extraction activities, accounting for 77% of resource sector employment in the region. Petroleum products (9%) and gold (6%) are also employment drivers in the region.

[3] A map of the geographic distribution of Pilbara resource projects is included in Appendix C.

Employment figures are listed by major sites in Table 1. The key employers engaged in iron ore include: Hamersley Iron (approximately 5,100 employees across three sites); BHP Iron Ore Ltd (approximately 4,650 employees across three sites); and Fortescue Metals Group (approximately 3,100 employees). Newcrest Mining is the key gold and copper extraction company in the Pilbara, operating at its Telfer site.

Iron ore extraction will continue to drive resource sector expansion in the Pilbara, with eight projects committed or under construction and a further 16 under consideration. Exploration/ project feasibility analysis is also underway for a variety of other mineral extraction projects, including lead nickel, zinc, silver, copper and ammonium nitrate.

Figure 4. Employment by Resource – Pilbara Region, 2009-2010



Source: Department of Mines and Petroleum, 2011

Table 1. Major Operating Sites in the Pilbara Region

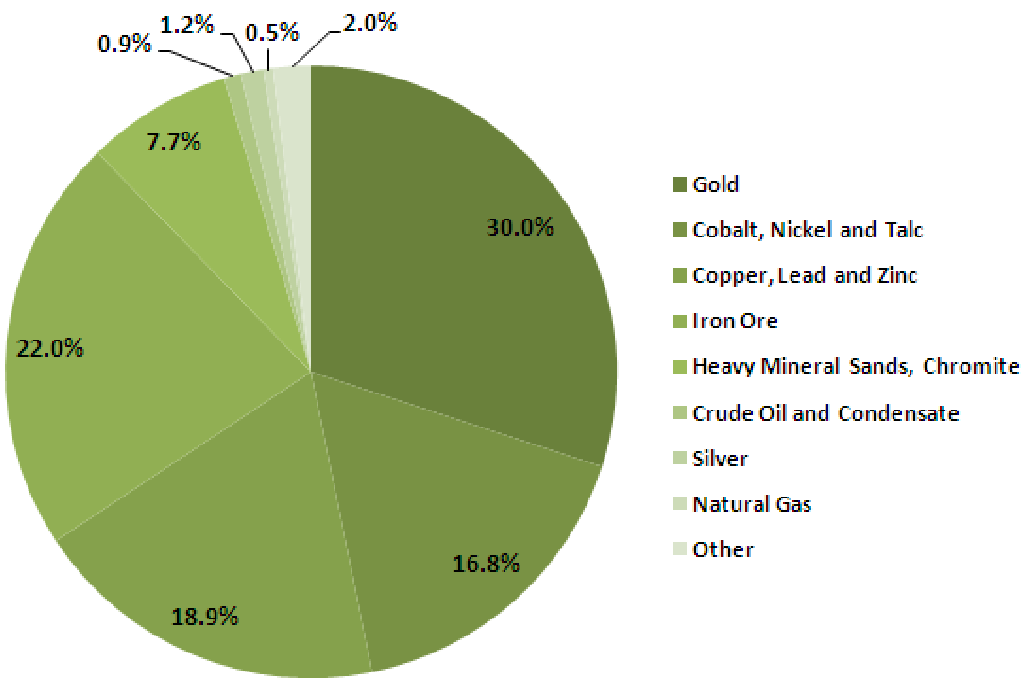
Project/ Company	Commodity	Location	Project Status	Employees (2010)
Cloud Break – Fortescue Metals Group Pty Ltd	Iron Ore	89km west-south-west of Nullagine	Operating	3,100
Tom Price – Hamersley Iron Pty Ltd	Iron Ore	Tom Price	Operating	1,910
Dampier Port Operations and Power Plant – Hamersley Iron Pty Ltd	Iron Ore	Dampier	Operating	1,820
Telfer – Newcrest Mining Ltd	Gold/Copper	Telfer	Operating	1,778
Mt Whaleback – BHP Iron Ore Ltd	Iron Ore	Pampajinya	Operating	1,702
Mining Area 3 – BHP Iron Ore Ltd	Iron Ore	North-west of Pampajinya	Operating	1,507
Nelson Point – BHP Iron Ore Ltd	Iron Ore	Port Headland	Operating	1,432
Paraburdoo – Hamersley Iron Pty Ltd	Iron Ore	Paraburdoo	Operating	1,357

Source: Department of Mines and Petroleum, 2011

2.3 Mid-West Region

In 2010 the Mid-West accounted for approximately $2.6 billion worth of mineral and petroleum sales. In contrast to the Pilbara, the Mid-West has a far more diverse array of resource extraction activities. Prominent activities by extraction value include gold (30%), iron ore (22%), copper lead and zinc (19%) and cobalt, nickel and talc (17%).[4]

Figure 5. Resource Value by Resource – Mid-West Region, 2010



Total Value: $2,645,503,989

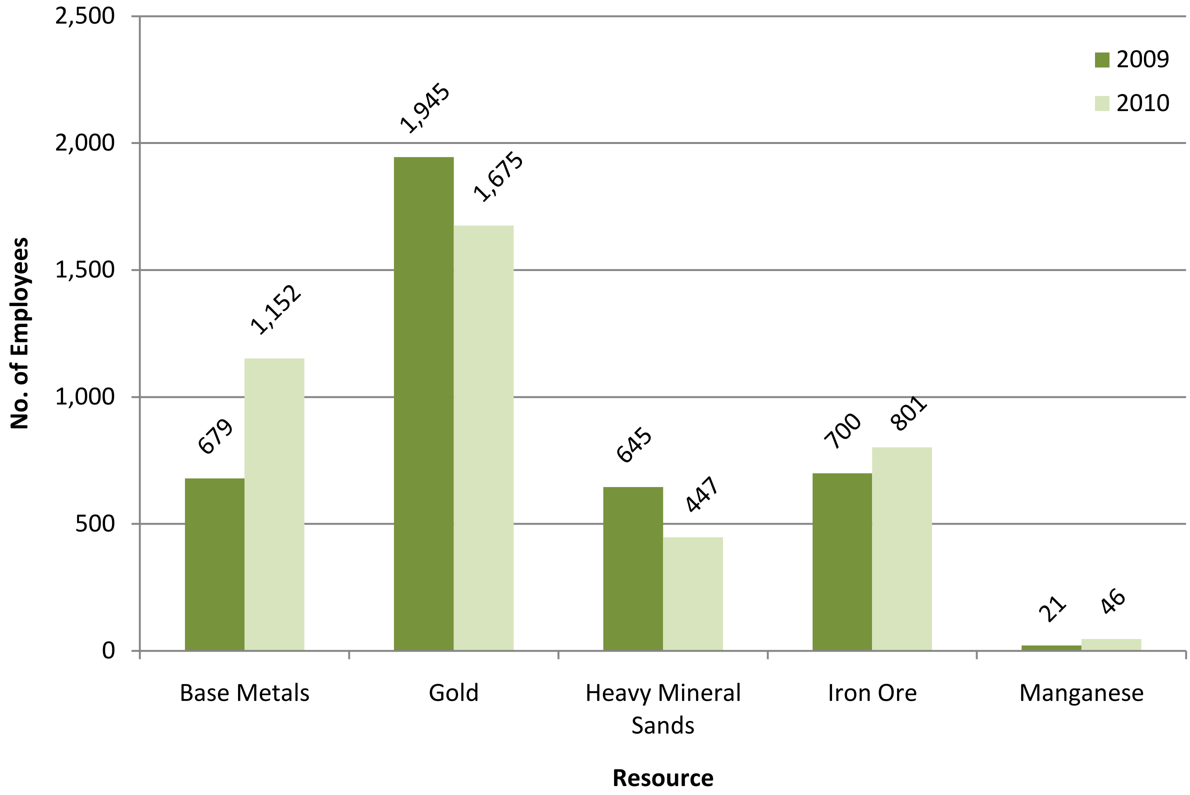
Source: SGS utilising data from the Department of Mines and Petroleum, 2011

In mid-2010, there were 17 active resource projects in the Mid-West. Prominent employers are outlined in Table 2and employment by resource presented in Figure 6 below. The prominence of gold production was reflected in employment figures, though these figures did decrease over the 2009-2010 period. Conversely, employment in base metals and iron ore extraction has increased.

Looking to the future, the resource sector is expected to grow substantially, with the development of the Oakajee Port and Rail infrastructure project a catalyst for expansion. At the same time, the scale of construction associated with the Karara project ($2.6 billion in capital expenditure) will ensure substantial expansion of iron ore production in the region.

[4] A map of the geographic distribution of Mid-West resource projects is included in Appendix C.

Figure 6. Employment by Resource – Mid-West Region, 2009-2010



Source: Department of Mines and Petroleum, 2011

Table 2. Major Operating Sites in the Mid-West Region

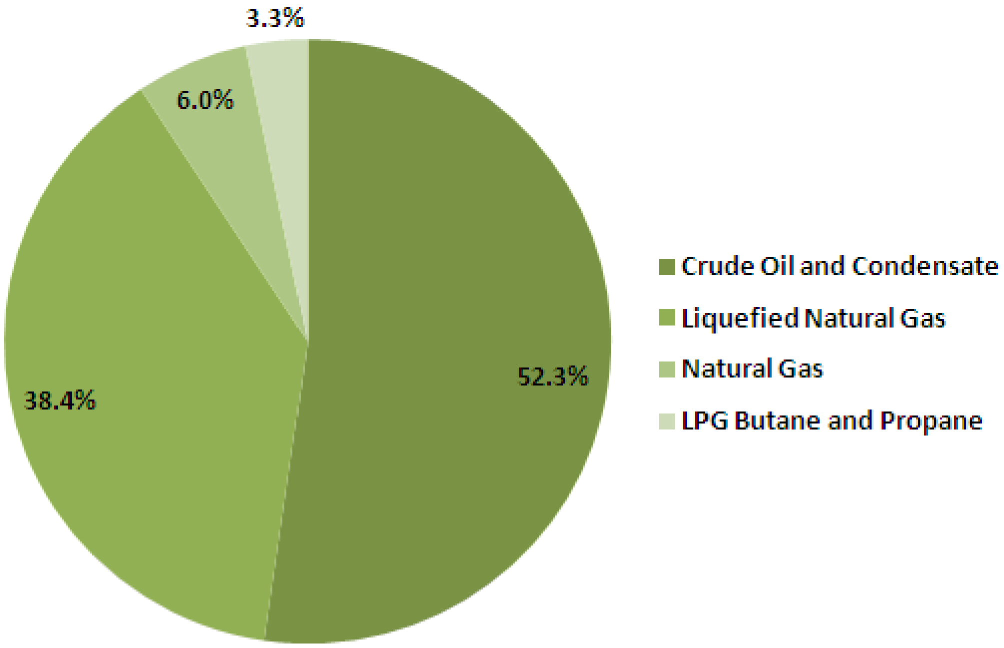
Project/ Company	Commodity	Location	Project Status	Employees (2010)
Golden Cove – Minerals and Metals Group	Base Metals	South-east of Yalgoo	Operating	903
Jundee – Newmont Mining Corporation	Gold	North-east of Emu Farm	Operating	570
Plutonic – Barrick Gold of Australia Limited	Gold	North-east of Yulga Jinna	Operating	444
Tallering Peak – Mount Gibson Mining limited	Iron Ore	North of Wandanooka	Operating	299
Narngulu Synthetic Rutile Plant – Iluka Resources Limited	Heavy Mineral Sands	Geraldton	Operating	280
Jack Hills – Crosslands Resources Ltd	Iron Ore	North-east of Pia Wadjarri	Operating	123

Source: Department of Mines and Petroleum, 2011

2.4 Off-Shore

Off-shore oil and gas operations are primarily located in the State's north-west in close proximity to both the Gascoyne and Pilbara regions.[5] Crude oil and condensate accounted for the majority of resource value sales in 2010 (52% of the $22.8 billion in sales). Liquefied natural gas (LNG) also accounted for significant sale value (38.4%), followed by natural gas (6%) and LPG butane and propane (3.3%). Off-shore production of oil and gas accounted for 21% of total mineral and petroleum sales in Western Australia in 2010, second only to resource sales in the Pilbara region.

Figure 7. Resource Value by Resource – Off-Shore, 2010



Total Value: $22,820,932,972

Source: SGS utilising data from the Department of Mines and Petroleum, 2011

Off-shore oil and gas operations are of particular interest, given the proximity of operations to Exmouth. A list of prominent employers and projects is listed in the table below, noting that significant employee expansion is projected as new projects enter the construction and operational stages.

Prominent projects on the horizon include the Wheatstone project, which in addition to substantial off-shore operations, will develop an LNG processing plant at Onslow; Pluto, the North-West Shelf expansions and Gorgon. Collectively, these projects represent $81.4 billion in capital expenditure (refer section 3.4.1 and 3.4.2 of this report).

[5] A map of substantial off-shore oil and gas operations has been included as an inset to the Pilbara context map in Appendix C.

Table 3. Major Operating Sites off the North-West of the Pilbara Coast

Project/ Company	Commodity	Location	Project Status	Employees (2010)
Athena, Cossack, Echo-Yodel, Goodwyn, Hermes, Laminaria East, north Rankin, Wannea, Angel, Vincent, Enfield – Woodside Energy Ltd	Petroleum Products	Off coast of Pilbara	Operating	3,650
Barrow Island, Crest, Roller-Skate, Saladin, Yammaderry Wheatstone and Gorgon – Chevron (Australia) Pty Ltd	Petroleum Products	Off coast of Pilbara	Operating	2,131
Harriet, John Brookes, Stag, Legendre – Apache Energy Ltd	Petroleum products	Off coast of Pilbara	Operating	550

Source: Department of Mines and Petroleum, 2011

2.5 Future Expansion

As at the end of April 2011, there were 39 projects at an advanced stage of development in Western Australia,representing a total capital expenditure of $109.5 billion, an increase of $16.4 billion or almost 18% from October 2010.It is expected that the strong resource sector growth experienced in the north-west of Western Australia will continue.

A list of projects that are currently committed or under consideration in the Gascoyne, Mid-West, Pilbara regions and off-shore is presented in Appendix D of this report.

3 The Resource Sector and the Gascoyne

3.1 Resource Sector Consultations

Consultation has been undertaken to ascertain the degree of opportunity and existing demand for Gascoyne region inputs to resource sector supply chains. Representatives of the following organisations were consulted to better understand this demand:

- Shell
- BHP Billiton
- Apache
- Woodside
- Chevron
- Crosslands Resources
- Gunson Resources
- Rio Tinto – Dampier Salt
- Association of Mining and Exploration Companies
- Chamber of Minerals and Energy Western Australia

These consultations have yielded information pertaining to supply chain decision-making criteria, identified input requirements and an evolving role for the Gascoyne. These findings are documented below, and contrasted against the role identified by stakeholders to areas of mutually agreeable opportunity.

3.2 Fundamental Business Prerequisites

There are a variety of fundamental prerequisites that companies must satisfy prior to being considered a potential supply chain participant. In essence a company must be able to demonstrate to a potential supplier that it has the legal, commercial, technical and financial abilities to fulfil the requirements of the procurement. Often tender documents will require companies to demonstrate previous experience and referees. At a minimum, companies wishing to participate in the resource sector supply chain will need to be able to demonstrate that they have:

1. Documented Quality Assurance Accreditation and Quality Systems as required by the *Mines Safety and Inspection Act* (1994), the *Mines Safety and Inspections Regulations* (1995) and / or the *Occupational Safety and Health Act* 1984 if going onto a mine site;
2. Product, Public Liability and Professional Indemnity Insurances (as relevant);
3. Documented workplace health and safety procedures, processes and accreditation;
4. Demonstration of financial capacity, trading history and experience;
5. Demonstrated financial, human and/or product capacity to deliver goods and services within specified timelinesand on a continuous basis.

The above business prerequisites are not specific to the requirements of mining and resource sectors. They were highlighted however, by many of the company representatives spoken with as considerations often overlooked by small and medium-sized companies seeking business in the Pilbara and Mid-West regions. A key message is that small and medium-sized businesses in the Gascoyne region looking to expand their operation to service the emerging needs of neighbouring regions must ensure that they are 'business ready'.

3.3 Strategic Decision Making Criteria

In addition to the consideration of the previously discussed business prerequisites for the engagement of suppliers, a series of broader strategic considerations influence decision-making around supply chain operator selection and investment. These factors are critical to the understanding of both the feasibility of stakeholder identified projects, as well as the implementation planning outlined in the Executive Summary of this report.

Consultation has indicated that strategic decision-making criteria include:

1. ***Cost and Comparable Service*** – At the most fundamental level, the financial impact/ benefit presented by any supply chain decision is a critical consideration for both resource sector companies and their contractors. Companies must be able to offer a competitive price and a comparable service.

2. ***Impact Mitigation*** – Mitigation of the real and perceived impacts of resource sector activities on local communities, economies and the environment that would otherwise not be present. Where feasible, resource companies will prioritise supply chain investments that mitigate on-going impacts (i.e. prioritising local Indigenous employment programs for traditional owners of operational sites; investing in social infrastructure in towns affected by the residence of resource sector workers, etc.).

3. ***Impact Prevention*** – Where a supply chain decision presents a real or perceived risk of environmental, social or economic impact, this may preclude a resource company from considering that supply chain opportunity (i.e. at least one off-shore oil & gas proponenthas precluded its boats from traversing the Ningaloo World Heritage Marine Park out of concern for the potential impact should an incident occur).

4. ***Workforce Satisfaction***–Competition for skilled labour in the Western Australian resource sector is high. Subsequently, any supply chain decision that is likely to improve workforce satisfaction is viewed favourably.

Beyond these factors, it is the unique local offering of a region, town or site that will influence a resource company and/ or its contractors to either base themselves or source inputs locally. This offering has already been elaborated upon in stage one of this strategy, and will be re-addressed later in this chapter.

Finally, existing relationships and contracts also influence supply chain decisions. These relationships and the financial and risk hurdles associated with shifting or breaking them present a form of dis-incentive to shift supply chain operations. Several companies used the example of existing marine supply contracts with suppliers in Dampier to evidence this concern. While it was noted that Exmouth is geographically closer and more cost efficient for marine supply to several oil and gas fields, existing contracts and supply agreements meant that it would be unlikely they would transfer their business in the short-term (should an appropriate marine services facility be developed).

The summation of the above considerations can be equated to a relative propensity to invest. Through discussions with resource sector representatives, it would appear that the greatest challenges for the Gascoyne region in having a positive investment propensity would be:

- the lack of significant local mining activity (reducing the need for local impact mitigation); and
- concern for impact prevention (particularly in the case of marine impact on the Ningaloo Reef).

Conversely, the greatest assets of the region are:

- those that it offers to reduce cost (i.e. proximity to oil and gas fields, convenience of layover, proximity to resource regions when compared with Perth etc.); and
- those that may support the satisfaction of locally based workforces (i.e. lifestyle factors).

3.4 Identified Needs

Consultation with resource sector proponents has reinforced the findings of the Western Australian Chamber of Mineral and Energy's *WA State Growth Outlook*, which identified shortages in the three growth enablers of labour, power and water as the most significant constraints facing the resource sector in Western Australia's north-west.

In considering an expanded role for the Gascoyne region, the consistent demand focus related to the region's capacity to supply labour. Water and power supply needs are not considered an opportunity for the Gascoyne as the demand is tied to the immediate locality within which the site was operating, and therefore could not be easily or efficiently 'transported or transferred' from the Gascoyne.

Demand for labour in Western Australia's north-west is characterised by intense industry competition for skilled employees. This is particularly apparent against a backdrop of increases in workforce demand in the Pilbara and Mid-West regions. Over a 2009 base, the *WA State Growth Outlook* anticipated demand for an additional 7,500 workers in the Mid-West and an additional 34,000 workers in the Pilbara. These workforce requirements were expected to remain high through to 2015. Since the development of these forecasts, the advent of substantial new infrastructure and resource extraction developments (i.e. Wheatstone and Oakajee Port and Rail) have further exacerbated workforce requirements.

While it is acknowledged that the majority of required employees could not be sourced from the Gascoyne region, there was a consistent message throughout consultation that should workforce participants chose to live in the region, sites would investigate the feasibility of transporting them to their workplace under a 'Fly-Out-Fly-In' (FOFI) or 'Drive-Out-Drive-In' (DODI) arrangement. This was reinforced by the *State Growth Outlook* report stating that: *"it is also expected that some*

FIFO workers will be sourced from the Gascoyne region". This message has recently been reinforced through Rio Tinto declaring Exmouth as one of its regional FIFO towns, and several other organisations surveying their workforce to gather an understanding of local demand for FIFO services from Learmonth Airport.

Increases in workforce numbers have also brought additional demand for housing, transport, training and supporting social infrastructure for employees. It was identified that some of these demands could be provided by the key population centres in the Gascoyne by playing an increasing role as a residential base and recreational destination for mining staff and their families.

Housing and supporting infrastructure in particular are critical considerations for the resource sector, and ties in with the 'workforce satisfaction' strategic consideration identified above. This demand can stimulate local construction, providing both immediate local economic benefit and lasting infrastructure benefits for the community.

The sectors driving demand for labour are predominantly oil and gas, iron ore and associated infrastructure. Consultation with mining sector representatives did not yield additional demand opportunity beyond those related to labour provision and those already identified by stakeholders in phase 1 of the project.

3.5 Competitive Strengths and Competing 'Offers'

The Gascoyne region's competitive strengths in relation to its potential 'offer' to the resource sector participants in the Pilbara and the Mid-West is documented at length in Sections 2, 3 and 4 of the Interim report. The Gascoyne region's advantages include:

- Geographic proximity to off-shore oil and gas;
- Geographic location between Perth and the Pilbara;
- Proximate source of labour;
- Existing airport and port infrastructure suitable for expansion;
- Serviced industrial land availability;
- Secure water supply and availability of natural gas;
- Existing economic strengths in horticultural production and tourism;
- Marketable lifestyle and climatic advantages; and
- A proactive and strategically focused local and regional development network.

While highlighting the above, neighbouring regions present competing offerings that need to be acknowledged. Understanding the competing offerings in nearby regions builds an understanding of how the Gascoyne region can better position itself to capitalise on and benefit from current and future resource sector opportunities. Key competing offerings include:

- The Wheatstone LNG Project, Pilbara region;
- The Oakajee Port and Rail Project, Mid-West region; and
- The Pilbara Cities Initiative, Pilbara region.

These competing offerings, and what implications they might have for the Gascoyne region, are described in more detail below.

3.5.1 Wheatstone LNG Project

The Federal Government and the Western Australian Government have approved the development of the Wheatstone liquefied natural gas (LNG) project in the Pilbara region. The Pilbara region is rich in natural resources and considered to be Western Australia's premier mining region. In 2010 the Pilbara accounted for $48 billion worth of Western Australia's total mineral and petroleum sales, which equated to over half of the State's total sales.

The Wheatstone project involves the development of offshore gas fields, building a subsea pipeline and the construction of a port and LNG production facilities at the Western Australian Government's Ashburton North Strategic Industrial Area, approximately 12kilometres from the town of Onslow. The project is expected to generate around 6,500 direct and indirect jobs during peak construction and result in locally purchased goods and services of more than $17 billion. It is expected to initially produce around 9 million tonnes of LNG per annum (mtpa), with the potential to increase production up to 25 mtpa.

The town of Onslow is being developed as a hub for resource sector infrastructure and investment. The Wheatstone project (along with other projects proposed and committed for the area) will have a significant impact on the town, particularly in terms of population growth and infrastructure and service provision.

Once completed, the Wheatstone LNG project is likely to compete with Exmouth's offering to the offshore oil and gas sector. Plans for both port and air transport capacity improvements at Onslow have also been proposed. It is important that these competing offerings are recognised and considered by the Gascoyne Development Commission and partner agencies, particularly in terms of what challenges they might pose for the development of Exmouth Harbour.

3.5.2 Oakajee Port and Rail Project

Oakajee Port is a proposed deepwater port to be built in the Mid-West region, about 25 kilometres north of Geraldton, and linked to regional mines by approximately 570 kilometres of haulage rail. The project will transport iron ore from mines across the Mid-West region via rail to the deepwater port, and on to export markets.

In contrast to the Pilbara, the Mid-West has a far more diverse array of resource extraction activities. In 2010 the Mid-West accounted for approximately $2.6 billion worth of mineral and petroleum sales and in mid-2010, there were 17 active resource projects in the region. Looking to the future, the resource sector is expected to grow substantially, with the development of the Oakajee Port and rail infrastructure project a catalyst for expansion.

The Oakajee Port and rail project is expected to generate around 2,000 jobs during the construction and development phase and up to 400 jobs when operational. The Western Australian Government also plans to develop a value-adding Oakajee Industrial Estate adjacent to the port site. The port will have an initial start-up capacity of approximately 35 mtpa, with plans for staged expansion as the demand grows. This will make it amongst the State's largest iron ore ports, after Dampier, Cape Lambert and Port Hedland.

The creation of a new port together with rail infrastructure will make it more than likely that other mining projects proposed for the wider region will become a reality. If the project goes ahead, the port could potentially service the needs of the expanding iron ore exploration projects close to the Upper Gascoyne and eliminate the need to export the iron ore from the Pilbara region.

3.5.3 Pilbara Cities Initiative

Under the Western Australian Government's Pilbara Cities initiative, the towns of Karratha and Port Hedland will be the focus of future development as they become major regional hubs, or cities, for the State. The towns have been identified as population hubs to facilitate the State's resources boom, and are envisaged to become vibrant cities and regional centres that can support and deliver a skilled workforce for major economic projects in the Pilbara.

Funded through the Royalties for Regions initiative, the towns will receive State and Federal Government and private sector investment, to help create liveable cities with updated amenities and infrastructure, to encourage more people to live in the Pilbara region.As part of the Pilbara Cities initiative, major townsite development and revitalisation projects have also been proposed for South Hedland, Newman, Onslow, Tom Price and Dampier.

Key directions under the Pilbara Cities initiative include: creating higher density centres; supporting mixed-use residential and commercial developments to help meet the region's demand for new housing choices; residential land releases; and the delivery of numerous social infrastructure projects. The initiative will have significant flow-on effects in underpinning a diverse local economy and as a catalyst to attract further investment.

Under the Pilbara Cities initiative, Karratha and Port Hedland are likely to become more attractive options for workers, families and business operators. Consequently, the Gascoyne region must continue to invest time and resources into developing the liveability attributes and appeal of its population centres so that it can match and potentially out-compete the emerging offerings of towns in the Pilbara.

3.6 Key Demand-Side Conclusions

Based on consultation with participants in the resource sector operating in the Pilbara and the Mid-West, the core opportunity for the Gascoyne region to participate in the growth of its neighbouring regions focuses on its potential to provide residential / workforce and tourism hubs. Additionally, it is considered that there is scope to provide a range of products and services where businesses can demonstrate that they are 'business ready' having addressed the suite of business prerequisites.

Specific opportunities are addressed in the next section of this report.

4 Industry Critique and Project Prioritisation

4.1 Assessment Framework

This section of the report provides an overview of industry sector feedback on the supply led opportunities identified in the Interim Report (August 2011). It provides an evaluation of the opportunity having regard to the endorsed project prioritisation framework also articulated in the Interim Report.

The industry critique was informed by interviews with representatives of a range of resource sector companies and industry representatives. A full list of consulted stakeholders has been provided as Appendix B of this report. It is considered that the views expressed during these interviews reflect a reasonable representation of industry and stakeholder perspectives.

The evaluation framework assessment criterion includes consideration of*benefit assessment* and *capacity to implement* as outlined below.

Benefit Assessment:

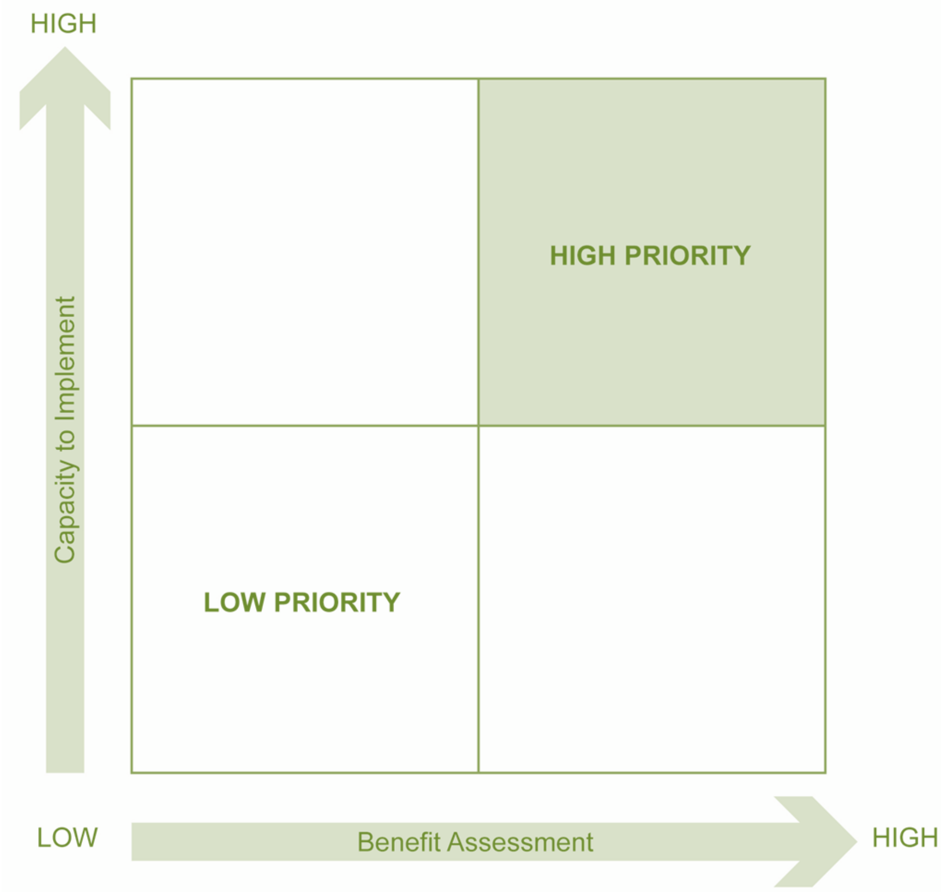
- What **benefits** will the action deliver to the resident and business communities of the Gascoyne region if realised?
  - Will it bring more investment to the Gascoyne region?
  - Is it the sort of investment that the community wants in the Gascoyne region (Is it consistent with the economic positioning and vision elements for each municipality outlined in The Executive Summary to this report)?
  - Will it help to create more jobs?
  - What sort of jobs will it bring?
  - Will it create, grow and retain local wealth?
  - Will it help to reduce leakages and retain and re-circulate more income in the region (through local multipliers)?
  - Are there other potential impacts (e.g. social, environmental, cultural) to consider?

Capacity to Implement:

- What is the Gascoyne region's **capacity to implement** the project or activity?
  - Do we have the organisational capacity?
  - Do we have the financial resources?
  - Do we have the human resources?
  - Do we have the political and community will (i.e. will the community accept and support the activity)?
- Is it consistent with the region's economic development vision and underlying principles?
- Implementation - who is best placed to drive the opportunity?

Both 'benefit assessment' and 'capacity to implement' has been ranked on a scale of high/ low. This allows for the mapping of each project on the framework below. This in turn provides for a prioritisation of action planning in line with these findings.

Figure 8. Gascoyne Pilbara Project Assessment Framework



Note: where a potential opportunity was determined as not being viable by all industry stakeholders interviewed it has not been subject to evaluation in the above framework and has been identified as a low priority.

4.2 Shire of Exmouth

Industry feedback, benefit assessment and capacity to implement assessments are outlined below for each of the identified Exmouth opportunities and projects.

Opportunity 1: Development of Exmouth Harbour

Opportunity 1: Development of Exmouth Harbour capacity to service both recreational and commercial operations of significance to the town and local economy	
Enabling Projects/ Initiatives	***1.1 Exmouth Harbour Expansion*** Facilitate the expansion of Exmouth Harbour to enhance capacity to provide services to both recreational and commercial vessels. It is noted that community stakeholders do not support harbour expansion for the exclusive use of the oil and gas industry. Priority actions / improvements identified by the Chamber of Commerce and Industry include: • More pens for recreational and commercial vessels; • Heavy lift loading area/ bay; • High speed fuelling facility; • Greater vessel service area on the service wharf; and • Deep water access and land back loading facility.
	1.2 Market/ Promote Exmouth as a Logistics Hub Engage with existing private sector participants represented in Exmouth (e.g. Toll Holdings) to develop marketing / promotional material to increase awareness of Exmouth's capacity as an off-shore service hub.

1.1 Exmouth Harbour Expansion

Industry Sector Critique

Industry responses were broadly supportive of the harbour expansion. These responses however, were tempered by the current role that Exmouth plays for oil and gas supply vessels. For the majority of off-shore oil and gas businesses (i.e. Woodside, BHP, Apache), Exmouth only plays a role in emergency marine supply, with on-going supply being facilitated through existing contracts in Dampier.

Based on who was consulted during this project, there appears to be industry consensus that, should a commercially viable and attractive marine supply base be developed on the Exmouth peninsula, the increased demand for vessel berthing would underwrite the need for harbour expansion.

More broadly, resource representatives indicated that the expansion of facilities to service recreational needs would be appealing to those members of their workforce choosing to live or visit Exmouth.

Opportunity Evaluation

Benefit:	***High***

Expansion of harbour facilities in Exmouth offers both commercial and recreational benefits across a broad sector of the Exmouth community. Local marine businesses, fishing businesses, transport operators and others rely heavily on the marina to support their businesses. Similarly, recreational uses provide community-wide benefits for residents and support the expansion of marine-oriented tourism trade.

Waiting lists for both commercial and recreational vessels underwrite the demand for expansion of pens, while expressed industry need from all sectors has highlighted the significant value of additional facility upgrades.

Capacity:	***High***

The Western Australian Department of Transport, local businesses and local government are all strongly invested in the expansion of the Exmouth Harbour. The constraint to progressing the project is State funding. Should this funding be secured, local capacity exists to support implementation.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

1.2 Market / Promote Exmouth as a Logistics Hub

Industry Sector Critique

Industry support for Exmouth as a logistics hub is relatively similar to that expressed for the harbour expansion. Should a commercially viable and attractive marine supply base be developed, there would be the opportunity for Exmouth to play a greater role in off-shore oil and gas floating production storage and offloading (FPSO).

Broader concern around potential environmental impact of increased marine traffic through the Exmouth Gulf was raised by several industry representatives. At least one representative indicated that their company had a strict policy against marine traffic through the Ningaloo World Heritage Park, requiring any marine supply vessels from Exmouth to traverse the outer perimeter of the park before travelling to off-shore sites. This would raise the likelihood of increased competition from any facility to be developed at Onslow.

From a non-marine perspective, it is anticipated that Learmonth Airport will continue to play a role as a hub for air traffic in the region. The future redevelopment and expansion of facilities at Onslow however, may alter the competitive advantage of Exmouth in this regard upon its development.

Opportunity Evaluation

Benefit:	***High***

Should a marine supply base in Exmouth receive appropriate approvals and progress to development, there would be substantial local benefit in lending support to the promotion of the services offered. While the extent of this benefit may diminish as competition with Onslow increases, there will be strong local benefits in the short to medium-term. Increased private sector investment in infrastructure at Learmonth should be encouraged in the short term in order to reinforce the long term appeal of Exmouth as an off-shore distribution and access point for workers.

Capacity:	***High***

Effective promotion of the region and its marine offering to the resource sector would represent the continuance of an on-going dialogue. As such, there would be little to hinder the implementation of this initiative.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 2: Development of a Marine Supply Base

Opportunity 2: Development of a marine supply base to service off-shore oil and gas requirements	
Enabling Projects/ Initiatives	***2.1 Learmonth Marine Supply Base*** Proponent to obtain necessary approvals to commence operation of stage 1 of the Learmonth Marine Supply Base. Supply base to facilitate marine supply for off-shore oil and gas projects from the existing seafood processing site south of the Exmouth township.

2.1 Development of Learmonth Marine Supply Base

Industry Sector Critique

Industry representatives were broadly supportive of the initiative and could see the commercial rationale underwriting it. For many however, existing marine supply contracts with Dampier based marine supply contractors meant that it would be unlikely that they would shift the bulk of their operations in the short term. It was also noted that Dampier was closer to Highway 1 (the main supply route for the North West), making for fewer disturbances to existing supply routes. Nevertheless, there was significant interest in the form that the eventual supply base would take, and a broad 'wait and see' approach toward the opportunity. There is some concern about potential marine/ environmental impacts from increased marine traffic in the Gulf. These will need to be addressed in line with the necessary approval process for the operation of the supply base.

Opportunity Evaluation

Benefit:	***High***

Should the necessary approvals be obtained and the marine supply base progress, there is the potential for significant economic benefit to flow through to Exmouth businesses. Concurrently however it is noted that there is community concern regarding potential environmental impact, and these will need to be addressed prior to any development progression.

Capacity:	***High***

There is a current proponent / joint venture with international marine supply operation experience that is committed to the development of the facility, subject to the support of Council. It is understood that the joint-venture has capacity to quickly develop the necessary infrastructure and readily service resource sector needs. Capacity to implement is contingent on planning approvals and impact assessments necessary for a project of this nature.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 3: Exmouth as a FOFI/ DODI Residential Base

<table>
<tr><th colspan="2">Opportunity 3: Exmouth as a 'Fly Out/ Fly In' and 'Drive Out / Drive In' residential base for off-shore oil and gas and on-shore mining and exploration nodes</th></tr>
<tr><td rowspan="4">Enabling Projects/ Initiatives</td><td>3.1 Engage with Airlines and Oil and Gas and Mining Sectors to Improve Regional Air Connectivity

Actively engage with off-shore oil and gas and on-shore mining sector participants to sell the concept and formally negotiate "Exmouth – Work Site Direct" charter / transport options for workforce (e.g. light plane / helicopter from Exmouth to site etc.). Preliminary conversations have already been held with Rio Tinto and Consolidated Minerals and continue to be pursued by the Exmouth Chamber of Commerce and Industry.</td></tr>
<tr><td>3.2 Housing Affordability Initiatives

Investigate options to improve housing affordability and provision of suitable accommodation for seasonal workers (and housing for all sectors of the community).</td></tr>
<tr><td>3.3 Development of Lifestyle Infrastructure

Continue to develop lifestyle and family infrastructure to maximise the appeal of the township as a permanent residential base for working families including projects contained in the Gascoyne Regional Development Plan 2010 - 2020:
• Facilitate development of Ningaloo Research / Interpretation / Education / Multi Use Centre (also refer Opportunity 5).
• Expansion of Exmouth Health Campus.
• Relocation of Exmouth Emergency Services and Police Station to facilitate prime CBD re-development opportunities.
• Implementation of Stage 2 Townscape Upgrade / Improvements.
• Development and implementation of Foreshore Management Plan for the public land and reserve area between the Novotel Resort and the Exmouth Golf Club, including the town beach area.
• Mobile and ADSL Telecommunications Infrastructure.
• Encourage development of Child Care services.</td></tr>
<tr><td>3.4 Timely Residential Land Release

Continue to work with stakeholders to facilitate timely residential land release at a variety of residential densities, locations and housing typologies.</td></tr>
</table>

3.1 Exmouth FOFI/ DODI Initiatives

Industry Sector Critique

Mixed responses were provided by industry respondents on the FOFI potential of Exmouth. It was acknowledged that Learmonth is a transit point for the Vincent and VanGogh oil fields (for an estimated 600 FPSO workers). Current FIFO policy is that employees can fly, at the company's expense, from any capital city. This means that Exmouth is effectively competing with all capital cities in Australia as a residential location for FIFO off-shore FPSO workforce. Conversely, similar policies do not necessarily apply for onshore mineral extraction sites, narrowing the field of competition for residential bases.

The consistent message across all sectors however, was that any new fly-in-fly-out routes would have to be workforce-driven. In the case of Rio Tinto, this has already yielded a positive result, with Exmouth being declared one of Rio's regional FIFO towns. This success is largely attributable to the persistence of the local Chamber of Commerce and Industry, and provides a foundation for on-going dialogue with other resource companies. Commitments have already been made to review the number of workforce members living in Exmouth. Should these investigations return positive results, this may yield further commitments to FOFI arrangements out of Exmouth.

Facilitating timely land release, identification of measures to improve housing affordability and continued investment in lifestyle infrastructure were viewed as supportive of the broader FIFO initiative. All three are likely to increase the potential for workers to consider residential opportunities in Exmouth, and are necessary to compete with emerging 'Pilbara Cities' centres.

The development of regional transport routes between Exmouth, Onslow and Karratha would significantly benefit Exmouth in terms of its appeal as a FIFO residential base and also its attractiveness as a holiday destination for workers. With substantial workforce demand forecast in Onsolow and Karratha, Exmouth is well positioned to play an increasing role as a residential and tourism hub.

Opportunity Evaluation

Benefit:	***High***

The commitment of off-shore oil and gas and on-shore mining sector companies to negotiate flexible employee FOFI arrangements from Exmouth would significantly improve the appeal of the town as a place to live, and assist in stabilising the seasonal fluctuations in population. It may also encourage workers who currently own dwellings in Exmouth to spend greater periods in the town and subsequently make a greater contribution to the local community and economy. Population growth in turn will also support the expansion of service offering in the town, reinforcing the appeal of Exmouth as a place to reside. The expansion of air services from the Gascoyne region (from centres such as Exmouth, Carnarvon, and Denham) into the Pilbara region (ie Onslow and Karratha) represents an overarching regional priority.

Capacity:	***High***

Promotion of the town as a residential base is already on-going through the proactive work of the Exmouth Chamber of Commerce and Industry. As such, there would be little to hinder the continuance of this dialogue and on-going implementation of this initiative.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 4: Light Industrial Development

Opportunity 4: 'Light' Industrial Development Opportunities – Exmouth	
Enabling Projects/ Initiatives	***4.1 Encourage Light Industrial Development in Appropriate Location*** Building on marketing / promotion of Exmouth as an emerging off-shore logistics hub (refer Project 1.2), encourage and facilitate general / light industrial development uses to develop and locate within the existing and proposed strategic industrial areas south of the Exmouth Township. Completion of flood mitigation works in Reid Street and Market Street are also required to unlock development potential of existing light industrial land.

4.1 Light Industrial Development in Appropriate Locations

Industry Sector Critique

The development of further light industry capacity to service off-shore oil and gas requirements would be dependent upon the realisation of other opportunities (in particular, 1 and 2). Under current operating arrangements, there is one operator in Exmouth (Exmouth Industrial) who meets the ISO 9000 standards for servicing the oil and gas industry. They are utilised for servicing emergency needs as required, though not on a regular or on-going basis.

Under present operating arrangements, there is not the additional demand for further light industrial development at Exmouth.

Opportunity Evaluation

Benefit:	***High***

The development of light industrial businesses in Exmouth will bring employment opportunity, and assist in the attraction and retention of resource sector expenditure. Zoning for industrial businesses to the south of town is supportive of further business expansion.

Capacity:	***Low***

The expansion of local industrial businesses to service the oil and gas industry is subject to the development of several other projects, as well as implementation of rigorous and expensive quality standard mechanisms.

Prioritisation

Prioritisation:	***Medium***

Opportunity 5: Exmouth as a Holiday Destination

Opportunity 5: Exmouth as a Holiday Destination for Workers and Families	
Enabling Projects/ Initiatives	***5.1 Encourage Further Investment in High End Tourist Accommodation / Visitor Attractions*** Encourage development of additional high end accommodation, resort developments and attractions for tourists in appropriate locations (including Exmouth Museum).
	5.2 Facilitate Establishment of Ningaloo Research / Interpretation / Education / Multi Use Centre Promote and facilitate establishment of Ningaloo Research / Interpretation / Education / Multi Use Centre as a matter of priority. This project also has links and benefits associated with Opportunity 3.
	5.3 Implementation of Exmouth Tourism Strategy Initiatives As identified in the *Exmouth Townsite Structure Plan* (June 2011) finalise preparation of the Local Planning Tourism Strategy including identification of suitable locations for tourism sites and associated facilities.

5.1 Exmouth Tourism Initiatives

Industry Sector Critique

The expansion of Exmouth's tourism offering and its promotion as a short or long stay holiday destination was seen as a logical opportunity by many in the off-shore oil, gas industry and onshore resources sectors.

Oil and gas workforce visitation to Exmouth was broadly acknowledged as an opportunity, however company representatives did not consider that workforce visitation was something that they could heavily influence. This view is rejected by stakeholders in the region (and by members of the project consultant project team) who consider there is significant potential to tap into the FPSO workforce that transit on a weekly basis through Learmonth Airport. It is understood current company policy prohibits off-shore oil and gas workers from 'disembarking' at Learmonth. If this policy was rescinded, a significant tourism market for Exmouth and the broader Gascoyne region would be created overnight. Workers could be encouraged to stay a night or two in the region prior to heading home or prior to transiting off-shore. Another opportunity would be for partners and families could be encouraged to meet their partners in the region for holidays.

In many respects, tourism as a driver for resource sector engagement was seen as a greater opportunity than the logistics hub concept. Tourism was viewed as more consistent with the values and nature of the town, with one representative going so far as to say "*Exmouth is a great tourist town, but will struggle to be an industry hub*".

In the case of the Ningaloo Research Centre, there was considerable interest from Chevron, which has categorised Exmouth as one of its key stakeholder townships. Chevron is committed to investing in the Exmouth township and will consider any proposal from the Shire (in regard to the Research Centre) upon its submission.

Opportunity Evaluation

Benefit:	***High***

Exmouth is already viewed by many as a tourism town. The further development of tourism infrastructure and marketing initiatives is commensurate with the ideal economic future expressed by stakeholders, and one that would continue to bring substantial economic benefits the local economy.

Capacity:	***High***

Marketing of opportunities to workforce participants who fly via Learmonth to off-shore FPSOs presents a logical opportunity to expand oil and gas workforce visitation to the township. Rescinding company policy which prohibits off-shore oil and gas workers from 'disembarking' at Learmonth would create a significant tourism market overnight. Potential to tap this off-shore market is likely to increase with development of the Wheatstone LNG project. The appeal of the town as a tourism destination will be enhanced with on-going improvement of the tourism offering which is dependant upon both private and public sector investment and support. The existing offering is already strong, however the further development of facilities at the harbour, expansion of accommodation facilities and investment in marketing initiatives will bring substantial additional benefit.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 6: Exmouth as a Marine Trade Training Centre

Opportunity 6: Exmouth as a Trade Training Centre for Marine Activities	
Enabling Projects/ Initiatives	***6.1 Local Delivery of Marine Trade Training*** The delivery of local trade trading and or tertiary education courses for workers looking to obtain additional qualifications for marine and off-shore oil and gas work. This could be delivered through a joint venture between industry and either a TAFE, University or registered training organisation.

6.1 Delivery of Marine Trade Training

Industry Sector Critique

The opportunity to develop trade courses specific to the off-shore oil and gas sector and or the mining sector together with associated infrastructure for delivery in Exmouth, was largely dismissed by industry representatives due to the small population and demand generated from within the town. Competing facilities such as that north of Rockingham at the Australian Marine Complex have received substantial capital investment from Government and the private sector and are contracted for the on-going delivery of such training services. It was indicated that the majority of workers have a desire to learn close to home, and would be unlikely to fly to Exmouth at their own expense to receive training. Until there was substantial increase in local demand, training on site in Exmouth was not considered a viable option. Another hurdle for Exmouth hosting such training is that workers are not permitted onto FPSO's until they have obtained all necessary qualifications / tickets. Company representatives concluded that there is little benefit in training close to the off-shore FPSOs.

Opportunity Evaluation

Benefit:	***High***

Increased development of education and training infrastructure and on-site delivery of training by Durak Institute Technology and or other providers in the town would provide significant benefit to Exmouth and its residents.

Capacity:	***Medium***

The economic viability of increasing trade training inclusive of courses aligned to off-shore oil and gas and on-shore mining will strengthen as the town's population increases. Opportunities to develop region specific training should be explored via capitalising on associated regional attributes such as marine studies and natural resource management. Continued discussion with representatives of Durack Institute of Technology should occur in order to define specific opportunities which could link to their other networked campuses in Geraldton and Carnarvon.

Prioritisation

Prioritisation:	***Medium***

4.3 Shire of Carnarvon

Industry feedback, benefit assessment and capacity to implement assessments have been outlined below for each of the identified Carnarvon opportunities and projects.

Opportunity 7: Bejaling Shoals Deep Water Port Facility

Opportunity 7: Development of the Bejaling Shoals Deep Water Port Facility	
Enabling Projects/ Initiatives	***7.1 Progress Planning and Feasibility Analysis in Line with the AECOMM Bejaling Deepwater Port Study.*** The development of a deep water port facility in this vicinity would provide the region with an unparalleled and sustainable economic and employment stimulus. It would have significant flow on benefits including a stimulus for residential, commercial, and industrial activity. It would also generate additional demand for a new aviation facility. Steps necessary to progress the project are outlined in Section 15 of the AECOMM report and include: data collection; site selection; concept development, and feasibility stages.

7.1 Bejaling Shoals Deep Water Port

Industry Sector Critique

While industry participants that were consulted agreed that the development of the project would provide substantial local and regional economic stimulus, most indicated that there wasn't sufficient demand to underwrite a port development of the scale considered at this particular time.

Dampier Salt is presently quantifying berthing / port expansions needed to support their planned export growth over the coming five years. This growth alone however, will be insufficient to underwrite an expansion of the scale considered in the AECOMM report.

Consultation with the Department of State Development reinforced this concern with representatives indicating that they couldn't identify the projects that would provide the export tonnage necessary to support the port development in the short or medium term.

Opportunity Evaluation

Benefit:	***High***

The construction and operation of a new deep water port facility proximate to Carnarvon would provide an enormous short and long term employment and economic stimulus for the town and surrounding region. Such a development would assist in the underwriting of a suite of accommodation and town infrastructure improvements. The employment and economic multipliers would be significant. For this reason local and regional stakeholders should continue to strongly advocate for the realisation of the project.

Capacity:	***Low***

State Government commitment as a funding partner is required for the project to be realised. At present, the project does not benefit from such support. Until Dampier Salt's throughput reaches its long term projection, and or additional long-term throughput can be secured from other sources, there is little capacity for local and regional stakeholders to advance progression of the project.

Prioritisation

Prioritisation:	***Medium***

Opportunity 8: Carnarvon as a FOFI/ DODI Residential Base

<table>
<tr><th colspan="2">Opportunity 8: Carnarvon as a 'Fly Out/ Fly In' and 'Drive Out / Drive In' residential base for off-shore oil and gas and on-shore mining and exploration nodes</th></tr>
<tr><td rowspan="6">Enabling Projects/ Initiatives</td><td>8.1 Carnarvon Airport Facility

Undertake required investigations and secure commitments to upgrade airport capacity at Carnarvon including construction of a 2km runway and necessary associated infrastructure to accommodate jet aircraft.</td></tr>
<tr><td>8.2 Engage with Airlines and Oil and Gas and Mining Sectors to Improve Regional Air Connectivity

Actively engage with off-shore oil and gas and mining sector participants within and proximate to the region to sell concept and formally negotiate "Carnarvon – Work Site Direct" charter / transport options for workforce (e.g. light plane / helicopter from Carnarvon to site, etc). The expansion of air services from the Gascoyne region (from centres such as Carnarvon, Denham and Exmouth) into the Pilbara region (ie to Onslow and Karratha) represents an overarching regional priority. (Also Refer Projects 3.1 and 14.1).</td></tr>
<tr><td>8.3 Complete Carnarvon Flood Strategy Works

Complete flood mitigation strategy and works to protect town and industry assets. Flood mitigation works are the immediate budgetary and policy commitment for the Shire, and have substantial capital works funding already committed.</td></tr>
<tr><td>8.4 Facilitate Timely Release of Residential Land

Continue to work with stakeholders through the CLG to facilitate timely residential land release at a variety of residential densities, locations and housing typologies. Where feasible, Council to continue to progress plans to develop its land assets. Investigate options to develop affordable housing on the existing airport site. (Also Refer Project 3.4).</td></tr>
<tr><td>8.5 Housing Affordability Initiatives

Investigate options to improve housing affordability and provision of suitable accommodation for seasonal workers (and housing for all sectors of the community). (Also Refer Projects 3.2, 8.4 and 14.2).</td></tr>
<tr><td>8.6 Development of Lifestyle Infrastructure

Continue to develop lifestyle and family infrastructure to maximise the appeal of the township as a permanent residential base for working families including projects contained in the Gascoyne Regional Development Plan 2010 - 2020:</td></tr>
</table>

	• Development of a regional aged care facility; • Continued upgrade of Carnarvon Hospital and augmentation of services; • Redevelopment of Small Boat Harbour in the vicinity of the Yacht Club including possible waterfront housing development and possible multi agency government building; • Relocation of Police Station and Courthouse to facilitate redevelopment of site; • Continue to implement Fascine redevelopment works; • Improve mobile phone coverage and secure ADSL; • Encourage development of child care services; • Upgrade regional library, art gallery and civic centre consistent with preliminary designs and quantity surveyor reports; and • Expansion of senior citizens centre.

8.1 Carnarvon FOFI/ DODI Initiatives

Industry Sector Critique

From the perspective of the off-shore oil and gas and on-shore mining sectors, the key opportunity for Carnarvon to tap into current resource sector activity relates to its capacity to supply a labour force to proximate activities. This will require on-going engagement with off-shore oil and gas and resource sector representatives to negotiate satisfactory worker transport options. Improvement in regional airport services (direct commercial flights from Carnarvon to towns in the Pilbara) and improvements in the on-ground airport infrastructure capacity at Carnarvon Airport will be required to achieve this outcome. All other identified initiatives stem from the above.

Resource companies consulted with indicated that they were broadly supportive of the initiative. Rio Tinto is already flying staff from Carnarvon to Paraburdoo on a weekly basis, and Crosslands is committed to continuing to explore options for engagement with Carnarvon.

The critical consideration for resource companies considering transport options from Carnarvon is the proportion of their workforce based in Carnarvon. For many this is an unknown element. Further engagement and understanding of the workforces based locally will be critical in assisting Carnarvon's advocacy for worker transport options.

Opportunity Evaluation

Benefit:	***High***

The ultimate objective of this suite of initiatives is the increase of the Carnarvon population, in line with the economic vision. An increased population builds the ratepayer base for the local government, improving capacity to deliver services and support to the local area. The population threshold also provides rationale for improved health and education funding from a broader State and Federal perspective. An increased population brings additional skills, expertise and investment into the community, underwriting on-going economic growth.

Capacity:	***High***

The investment needed to advance this suite of initiatives is substantial, and will need to be staggered. Flood strategy works are the immediate priority for Council, and will need to be progressed prior to other initiatives requiring local government investment. The next stage will see the development of airport capacity, and development of additional residential supply and housing affordability. Other complementary investments will further improve the attractiveness of the town, and are supported through well networked committees across the local Chamber, GDC and the Shire.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 9: Carnarvon as a Regional Produce Supply Base

<table>
<tr><th colspan="2">Opportunity 9: Carnarvon as a Regional Produce Supply Base</th></tr>
<tr><td rowspan="2">Enabling Projects/ Initiatives</td><td>9.1 Develop and Trial 'Carnarvon Fresh Food Box' via Rio Tinto working in association with Gascoyne Food Council
The project would involve the packaging of a weekly fruit box of fresh, local produce that would be delivered to individual mine workers in the Pilbara.
Consultation with Dampier Salt manager Allen Perry has indicated that Rio Tinto presently has an underutilised air charter service once a week on Thursday between Carnarvon and Paraburdoo. He has also indicated an initial willingness to trial the initiative in partnership with the Gascoyne Food Council.</td></tr>
<tr><td>9.2 Provision of year round mine site fruit and vegetable supply
Members of the Carnarvon Food Council have indicated a willingness to shift to year round production of certain fruit and vegetables if this would allow for the direct supply to mine sites of local produce (instead of transport to Perth prior to shipment). The feasibility of this initiative however, will be dependent upon the willingness of mine site caterers to alter current purchase and supply arrangements that focus on capital city markets.</td></tr>
</table>

9.1 Carnarvon Fresh Food Boxes

Industry Sector Critique

Industry was strongly supportive of the initiative. Dampier Salt and Gunson Resources have already registered strong interest in participating in the initiative, and are committed to further conversations on roll out. Dampier Salt in particular has nominated spare capacity on its weekly flight to Paraburdoo as a potential freight flight to transport Carnarvon fresh fruit and vegetables.

The critical next step will be negotiations with the local growers association on the most appropriate distribution approach.

Opportunity Evaluation

Benefit:	***High***

This opportunity represents a quick win for local horticultural producers, and an opportunity to develop a benchmark model that can be expanded to other sites on the basis of initial successes. It also presents an additional economic supply chain opportunity for producers, supplementing existing income streams, and profiling their fresh produce to the region.

Capacity:	***High***

Initial feedback from resource sector participants has been strongly supportive of the initiative, and will be an asset in rolling out implementation.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

9.2 Year-Round Fresh Produce Mine Site Supply

Industry Sector Critique

The dominant / larger resource companies operating throughout the Pilbara and Mid West have questioned the viability of the initiative, noting that mine-site food supply is the province of their contracted catering companies rather than the companies themselves. They considered that the economies of scale associated with currently metropolitan-centric supply chains will be difficult to break. They recommended that local growers continue their investigations of supply chains through Perth, and work to identify opportunities to reduce the number of participants in their supply chain.

More broadly, sector representatives suggested the investigation of direct supply to independent grocers (i.e. IGA franchisers) in regional mining towns as a more relevant opportunity than direct supply to site.

Opportunity Evaluation

Benefit:	***High***

Securing year round direct on-shore and off-shore work site supply contracts for supply of fresh produce would provide a substantial market opportunity for growers in Carnarvon. If secure contracts can be negotiated growers have indicated a capacity and willingness to dedicate additional financial and human resources to increase yields to meet demand. New horticultural investment in the region will also provide downstream employment opportunities.

Capacity:	***Medium***

Successfully negotiating long term secure contracts with catering companies serving the large on-shore and off-shore site will be difficult to manage in the short term. Securing supply agreements with exploration companies, junior miners and or independent grocers in mining towns are considered more realistic mid term targets. A collective approach is recommended.

Prioritisation

Prioritisation:	***Medium***

Opportunity 10: Indigenous Workforce Training & Placement Initiatives

Opportunity 10: Indigenous Training and Employment Base - Carnarvon	
Enabling Projects/ Initiatives	***10.1 Embrace Local Initiatives*** Secure necessary mining and resource sector support to advance indigenous training and employment outcomes in the sector arising from the implementation and expansion of local initiatives.

10.1 Indigenous Workforce Training and Placement Initiatives

Industry Sector Critique

There was a strong commitment from local resource sector organisations to support Indigenous Workforce Training and Placement initiatives. In particular, Dampier Salt and Gunson Resources indicated that local Carnarvon initiatives would complement their existing Indigenous workforce engagement programs and plans.

Training and education for the local Indigenous community is seen as both a positive social outcome, as well as a sound economic investment in a workforce that is likely to have a strong attachment to living in the area. Training programs of this nature would also support supply industries for the resource sector, and further underwrite expansion of local capacity in the machinery servicing and other industrial sectors.

Opportunity Evaluation

Benefit:	***High***

As recognised by the resource sector above, there are substantial economic and social benefits associated with the up-skilling of local Indigenous workforces. In addition to improving the capacity of the local labour force to contribute to the economy, the development of the Indigenous workforce has the additional benefit of a strong connection with the township, increasing labour force retention.

Capacity:	***High***

Locally driven Indigenous Workforce Training and Placement Initiatives have the support of end-use employers, as well as local government and the Gascoyne Development Commission.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 11: Carnarvon as a Holiday Destination

Opportunity 11: Carnarvon as a Holiday Destination for Workers and Families	
Enabling Projects/ Initiatives	***11.1 Encourage Further Investment in High End Tourist Accommodation / Visitor Attractions*** Encourage development of additional high-end accommodation, resort developments and attractions for tourists in appropriate locations. Previously identified strategic tourist initiatives to advance (as identified in the *Gascoyne Regional Development Plan*) include: • Complete restoration / refurbishment and development of One Mile Jetty; • Continue development of Baiyungu Track facilities (Carnarvon to Exmouth); • Town entrance improvements including signage; • Restoration and redevelopment of the Overseas Telecommunication Centre (OTC) site; and • Encourage private sector investment in Coral Bay tourist infrastructure including roads and parking improvements and worker accommodation.

11.1 Carnarvon as a Holiday Destination

Industry Sector Critique

Visitor attraction initiatives were broadly supported by industry consultation. Resource sector representatives indicated that capitalising on this opportunity was largely in the hands of local tourism stakeholders, rather than resource sector companies. As outlined in relation to Opportunity 5.1, this view is rejected by local stakeholders and the project team that consider there is significant potential to tap into the off-shore and on-shore workforce that transit to and from the region on a weekly basis (eg FSPO workforce through Learmonth Airport).

Change in company policy regarding workforce transport options from 'home' to 'work' would be required to provide flexibility in pick up and drop off points. A significant tourism market for centres in the Gascoyne region, such as Carnarvon would be created overnight. Workers could be encouraged to stay a night or two in the region prior to or after their stay on site. Another opportunity would be for partners and families could be encouraged to meet their partners in the region for holidays.

Industry stakeholders indicated that their workforce was increasingly highly paid and that a range of recreation pursuits are sought (high end to budget experiences). Continued development of Carnarvon's tourism infrastructure (eg new four star and five star accommodation, conference facilities, all weather family entertainment options, etc) was encouraged as well as investment in tourism marketing and promotion. Investment in signage and entrance statements was also viewed as important in attracting stop-over visitation for the passing traffic that chooses not to turn off the highway at the Carnarvon junction.

Opportunity Evaluation

Benefit:	***High***

Securing increased visitation from on-shore and off-shore resource sector employees will provided substantial economic and employment benefits for the Carnarvon community. The ability to extend length of stay and average daily expenditure through improved local tourism offering will similarly offer substantial economic benefit.

Capacity:	***Moderate***

Continued investment in tourism infrastructure and tourism marketing is considered important to attract increased visitation from resource sector employees and the general travelling public. Securing local private sector tourism investment is a priority and a challenge which requires continued focused commitment from local and regional stakeholders. Continued investment in public infrastructure and marketing, and securing improved regional air services that link towns in the Gascoyne with towns in the Pilbara and Mid-West are also considered to be actions that will yield on-going economic and employment benefits.

Prioritisation

Prioritisation:	***Moderate***

Opportunity 12: Carnarvon Education Resource Precinct

Opportunity 12: Education Training Centre - Carnarvon	
Enabling Projects/ Initiatives	***12.1 Carnarvon Education Resource Precinct*** Continue to advance proposals and provide support to the School Cluster Board to develop a Carnarvon Educational Resource Precinct including development of a one school campus (pre-school to year 12) and utilise freed up land resources to develop a Trade Training Centre. Include the delivery of mining and resource sector specific training in the project mix.

12.1 Carnarvon Trade Training

Industry Sector Critique

The development of local trade training capacity would further complement Indigenous engagement initiatives and assist in relieving unmet local demand for trade qualified expertise in both resource and resource support sectors. The size of population would better support trade enrolment figures than the similar project considered for Exmouth, and would not be subject to the substantial off-shore training regulations.

Dampier Salt is considering substantial expansion plans, and will require increased labour during construction phases. Improvements to the capacity of the local labour force to fill this labour demand will be of benefit to the local economy.

Opportunity Evaluation

Benefit:	***High***

Improved opportunities for local training will be of substantial long term benefit to the local labour force and broader economy. Furthermore, it will assist the local labour force in capitalising on the growing workforce demand both locally and further abroad in the Pilbara and Mid-West regions.

Capacity:	***High***

Planning has already commenced for the redevelopment of the school campus in Carnarvon, noting it will take time and substantial investment to progress. Achieving co-location will provide the necessary land resource to enable development of the trade centre. Continued investment by Durack Institute of Technology should also be encouraged in the short term to enhance is regional service delivery in the Gascoyne.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 13: Industry Servicing Centre

<table>
<tr><th colspan="2">Opportunity 13: Industry Servicing Centre at Carnarvon</th></tr>
<tr><td rowspan="4">Enabling Projects/ Initiatives</td><td>13.1 Redevelopment of Damaged Petrol Stations

During recent flooding events, substantial damage was incurred by the petrol stations located near the turn-off from the North-West Coastal Highway that leads into Carnarvon. Re-construction and maintenance of this service to passing traffic is an important initial step in increasing road transport stoppages in Carnarvon.</td></tr>
<tr><td>13.2 Development and Expansion of Heavy Duty Maintenance Repair Industry

The proximity of Carnarvon to major resource projects (compared with the distance to Perth) has driven the initiative to increase local capacity to undertake heavy-duty maintenance and repair work on mine-site equipment and machinery. This initiative is further supported by the existence of local businesses in Carnarvon who are already offering heavy machinery maintenance services.</td></tr>
<tr><td>13.3 Allocation of Sufficient Zoned Land for Heavy Industrial Purposes

Council has received several applications for heavy industrial land developments. At present, land release is constrained in Carnarvon, preventing the zoning of suitable land for these purposes.</td></tr>
<tr><td>13.4 Development of Supporting Infrastructure for a Road Transport Hub

Typical road traffic travel time from Perth to Carnarvon is approximately 10 hours, the equivalent of a single road shift for road transport drivers. This proximity has driven the initiative for the expansion of road transport layover / transport hub facilities. The scope and scale of these facilities will be driven by user demand.</td></tr>
</table>

For the purpose of industry commentary, these four initiatives have been divided into the two linked projects below.

13.1 Road Transport Hub

The road transport hub initiative represents a collaborative of 13.1 and 13.4.

Industry Sector Critique

Industry respondents have taken an approach of 'build it and they will come'. The rationale in terms of distance from Perth is considered sound, and supportive of increased stopover opportunities. Refurbishment of the petrol station(s) at the Carnarvon turn-off is a critical first step, and will need to be complemented by parking space and set-down space for trucks, along with additional land for any other desired support services.

It is unlikely that there would be a significant logistics distribution component to any transport hub, with the majority of haulage being sourced from Perth and only requiring a shift change handover/ rest stop on the route between Perth and the Pilbara.

Opportunity Evaluation

Benefit:	***High***

Refurbished petrol station(s) are beneficial to the broader community, and have the potential to complement expenditure attraction by advertising Carnarvon opportunities at the station. The potential to attract additional expenditure through the development of supporting infrastructure for a road transport hub is also beneficial, and would complement petrol station redevelopment.

Capacity:	***High***

It is understood that a proponent is currently in advanced stages of planning to pursue the redevelopment of the BP service station. This initiative will provide the catalysis for the development of a hub and should be encouraged.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

13.2 Service Industry Development

Industry Sector Critique

Mixed support was received for this initiative. The majority of resource companies would sooner support the development of servicing capabilities at the point of use (i.e. in the Pilbara or Mid-West communities) rather than in Carnarvon. The development of servicing industries in the primary Pilbara towns of Karratha and Port Hedland is considered more cost-efficient from the perspective of the company.

More broadly however, it is recognised that the cost of attracting and housing staff in the northern Pilbara towns are far more difficult than in Carnarvon. Furthermore, there are environmental benefits (i.e. a cooler climate) associated with locating a servicing centre in Carnarvon.

Labour shortages in Carnarvon, however, may be prohibitive to the development of a resilient heavy duty maintenance cluster. At present local heavy duty servicing businesses require assistance from labour at Dampier Salt to meet demand. Expansion of this sector would need to be complemented by significant local training and retention initiatives.

Opportunity Evaluation

Benefit:	***High***

The further development of this industry would broaden the economic base of Carnarvon, and build on existing local business expertise. The capacity of the industry to similarly service local horticultural machinery would also provide on on-going demand for service.

Capacity:	***Low***

The immediate expansion of this industry is constrained by available local labour, and will require on-going investment in local training capacity.

Prioritisation

Prioritisation:	***Moderate***

4.4 Shire of Shark Bay

Industry feedback, benefit assessment and capacity to implement assessments have been outlined below for each of the identified Shark Bay opportunities and projects.

Opportunity 14: Denham as a FOFI/ DODI Residential Base

<table>
<tr><th colspan="2">Opportunity 14: Denham as a as a 'Fly Out/ Fly In' and 'Drive Out / Drive In' residential base for off-shore oil and gas and on-shore mining and exploration nodes</th></tr>
<tr><td rowspan="3">Enabling Projects/ Initiatives</td><td>14.1 Engage with Mining Sector to Negotiate Worker Transport Options
Actively engage with Gunson Resources and mining sectors participants in the Pilbara and Mid-West, and also with off-shore oil and gas companies to sell concept and formally negotiate "Shark Bay – Work Site Direct" charter / transport options for workforce (e.g. bus to Gunson Resources Mineral Sands Project / light plane / helicopter from Denham to sites rather than via Perth).</td></tr>
<tr><td>14.2 Housing Affordability Initiatives
Investigate options to improve housing affordability and provision of suitable accommodation for seasonal workers (and housing for all sectors of the community).</td></tr>
<tr><td>14.3 Development of Lifestyle Infrastructure
Continue to develop lifestyle and family infrastructure to maximise the appeal of the township as a permanent residential base for working families including projects contained in the Gascoyne Regional Development Plan 2010 - 2020:
• Shark Bay maritime facilities including upgrade / expansion of existing boating facilities and utilisation of the Discovery Centre;
• Implementation of Denham Townsite Area Walk Trails;
• Mobile and ADSL Telecommunications Infrastructure;
• Improved medical services (ie permanent doctor)
• Encourage development of Child Care services; and
• Encourage development of aged care / seniors accommodation.</td></tr>
</table>

14.1 Denham FOFI/ DODI Initiatives

Industry Sector Critique

Gunson Resources is supportive of drive-in/ drive-out arrangements from Denham, and intends to incorporate this into its workforce planning. This initiative is supported by the available land for residential development in Denham. While Gunson does plan to have substantial on-site residential options, it is recognised that Denham has a role to play as the closest regional centre.

Further FIFO initiatives were not as strongly supported, given the services available at the next substantial population centre to the south (Geraldton).

Lifestyle infrastructure and affordability initiatives were supported to the extent that they would improve workforce satisfaction and the broader residential appeal of Denham.

Opportunity Evaluation

Benefit:	***High***

The increase of the Denham and Monkey Mia permanent populations is a critical goal for the further economic development and sustainability of these communities. The development of the communities as a residential base for regional mineral sites supports this population growth and strengthens the local economy and community.

Capacity:	***High***

The increase of the permanent population at Denham is consistent with both the local government's economic vision, as well as the labour requirements of nearby resource sites (in particular Gunson Resources). To this end, the on-going development of Denham as a residential base is a logical progression.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 15: Denham as a Holiday Destination

Opportunity 15: Denham as a Holiday Destination for Workers and Families	
Enabling Projects/ Initiatives	***15.1 Encourage Further Investment in High End Tourist Accommodation / Visitor Attractions*** Encourage development of additional high end accommodation, resort developments and attractions for tourists in appropriate locations. Previously identified strategic tourist initiatives to advance (as identified in Gascoyne Regional Development Plan) include: • Upgrade / expansion of existing boating facility (refer Project 14.3); • Development of Recreational Freshwater Theme Water Park on the Foreshore; and • Upgrade and expansion of current entry statement and information bay.

15.1 Denham as a Holiday Destination

Industry Sector Critique

Tourism is a fundamental contributor to the Shark Bay economy, with local natural offerings one of its greatest assets in attracting expenditure and visitation. This appeal extends to resource sector employees, with additional investments likely to contribute toward extended stays, spend and increased visitation.

There is significant potential to tap into the off-shore and on-shore workforce that transit to and from the region on a weekly basis (eg FSPO workforce through Learmonth Airport).

Change in company policy regarding workforce transport options from 'home' to 'work' would be required to provide flexibility in pick up and drop off points. A significant tourism market for centres in the Gascoyne region, such as Denham would be created overnight. Workers could be encouraged to stay a night or two in the region prior to or after their stay on site. Another opportunity would be for partners and families could be encouraged to meet their partners in the region for holidays.

The tourism offer of Denham was largely understood and accepted by resource sector representatives spoken with.

Opportunity Evaluation

Benefit:	***High***

Improving higher yield tourism visitation (compared with the traditional grey nomad tourism profile of relatively low expenditure) presents an opportunity for local economic development. This opportunity is enhanced by the natural environment in Shark Bay, and is consistent with the stakeholder vision for Shark Bay's economic future.

Capacity:	***High***

Shark Bay is already actively undertaking marketing initiatives to promote Denham and the wider region, and is also progressing planning for the expansion of the existing boating facilities. While substantial investment will be needed to progress some projects, both local government and the private sector have capacity to pursue identified opportunities. The 400 year celebration in 2016 also provides a substantial opportunity to market Denham and its tourism resources.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

Opportunity 16: Light Industrial Development Opportunities

Opportunity 16: 'Light' Industrial Development Opportunities - Denham	
Enabling Projects/ Initiatives	***16.1 Encourage Light Industrial Development in Appropriate Location*** Council has indicated that there is substantial capacity for the expansion of light industry and metal fabrication on existing available land in Denham. It is the intent of Council that this land be marketed as an opportunity for resource sector suppliers and as a broader component of Council's economic development agenda.

16.1 Denham Light Industrial Development

Industry Sector Critique

The resource generally struggled with the logistics of exporting substantial material inputs from Denham. The distance of the township from the North-West Coastal Highway, along with the lack of existing transport and logistics providers servicing the route, were noted to present challenges.

While the Coburn Mineral Sands development may increase regional demand for light fabrication services, it is likely that these services would be sourced from Geraldton.

Opportunity Evaluation

Benefit:	***Medium***

Increasing light industrial activity at Denham to service resource sector activity would provide additional employment opportunities and economic return for the community. Careful site planning and management of impacts would be required so as not to negatively impact on the town's core economic driver – tourism.

Capacity:	***Low***

Opportunities will be limited due to comparatively higher transport and logics costs due to the relative separation of the township from key transport corridor.

Prioritisation

Prioritisation:	***Low***

4.5 Shire of Upper Gascoyne

Industry feedback, benefit assessment and capacity to implement assessments have been outlined below for each of the identified Upper Gascoyne opportunities and projects.

Opportunity 17: Hub for Resource Exploration Activities

Opportunity 17: Development of Gascoyne Junction as a Hub for Resource Exploration Activities in the Upper Gascoyne Opportunity	
Enabling Projects/ Initiatives	***17.1 Gascoyne Junction as a Set-Down/ Storage Area for Mining Exploration Equipment*** The Shire's strategic plan articulates a desire to expand industrial land supply to contribute to economic diversification. Direct marketing of these land assets to exploration companies fits with this objective, and increases the utilisation of the town as a base for exploration activities in the region.

17.1 Gascoyne Junction as an Exploration Hub

Industry Sector Critique

Small-scale exploration leaseholders are already utilising private land in Gascoyne Junction as a set-down area for drilling equipment. At present this would appear to be a private arrangement, and occurs on an infrequent basis. Should exploration demand increase substantially (i.e. if plans were to develop for a substantial exploration activity in the Upper Gascoyne) then the formalisation of a Shire leased set-down area may be beneficial.

Opportunity Evaluation

Benefit:	***Low***

At present, the scale of demand for these services is relatively low. Should substantive exploration activities progress, then the demand for these services can be monitored on a case-by-case basis. Significant potential exists.

Capacity:	***High***

Council presently has the land to offer for equipment set-down areas and storage. Funding to develop any sites however, would need to be negotiated with the exploration company considering utilisation of these sites.

Prioritisation

Prioritisation:	***Moderate***

Opportunity 18: Improved Connectivity with the Mid-West

Opportunity 18: Improve Connectivity to the East of the Township	
Enabling Projects/ Initiatives	***18.1 Seal the Road Between Gascoyne Junction and Meekatharra*** Meekatharra Shire is presently investing the entirety of its *Royalties for Regions* funding into the sealing of the road between Meekatharra and Gascoyne Junction. Upper Gascoyne Shire is also progressing with the sealing of the road, and intends to seal a further 10 kilometres next year.

18.1 Sealing the Gascoyne Junction-Meekatharra Road

Industry Sector Critique

The majority of exploration sites in the Upper Gascoyne Shire are small leases and will benefit from the improved regional access. The sealing of the road will also support additional exploration activity.

Opportunity Evaluation

Benefit:	***High***

In addition to servicing over 20 pastoral properties there are a number of exploration projects in the area between Meekatharra and Gascoyne Junction. This project will benefit each of these, and improve commercial and tourism traffic movements between Meekatharra and the coast (to the benefit of Gascoyne Junction, Carnarvon and the broader Gascoyne region).

Capacity:	***High***

The progression of the road sealing project is dependent upon the availability of funding. There is strong commitment to the project from the Shire's of Upper Gascoyne, Meekatharra, Carnarvon and Wiluna. The Gascoyne Development Commission and the Mid-West Development Commission also recognise the project as a priority.

Prioritisation

Prioritisation:	***High***

Refer to the Executive Summary for list of key tasks.

4.6 Project Prioritisation Summary

Based on feedback from industry sector representatives and final assessment by the project consultant team, priority projects have been identified so that opportunity can be readily transferred into action. A summary of projects by Shire and priority is listed below.

Exmouth Shire

High Priorities	• Exmouth Harbour Expansion • Market / Promote Exmouth as a Logistics Hub • Development of Learmonth Marine Supply Base • Exmouth FOFI/ DIDO Initiatives • Exmouth Tourism Initiatives
Medium Priorities	• Light Industrial Development in Appropriate Locations • Delivery of Marine Trade Training

Carnarvon Shire

High Priorities	• Carnarvon FOFI/ DODI Initiatives • Carnarvon Fresh Food Boxes • Indigenous Workforce Training and Placement Initiatives • Carnarvon Trade Training • Road Transport Hub
Medium Priorities	• Bejaling Shoals Deep Water Port Facility • Year Round Fresh Produce Mine Site Supply • Carnarvon as a Holiday Destination • Service Industry Development

Shire of Shark Bay

High Priorities	• Denham FOFI/ DODI Initatives • Denham as a Holiday Destination

Shire of Upper Gascoyne

High Priorities	• Sealing the Gascoyne Junction – Meekatharra Road
Medium Priorities	• Gascoyne Junction as an Exploration Hub

Refer to Executive Summary for recommended initial actions to progress high priority projects.

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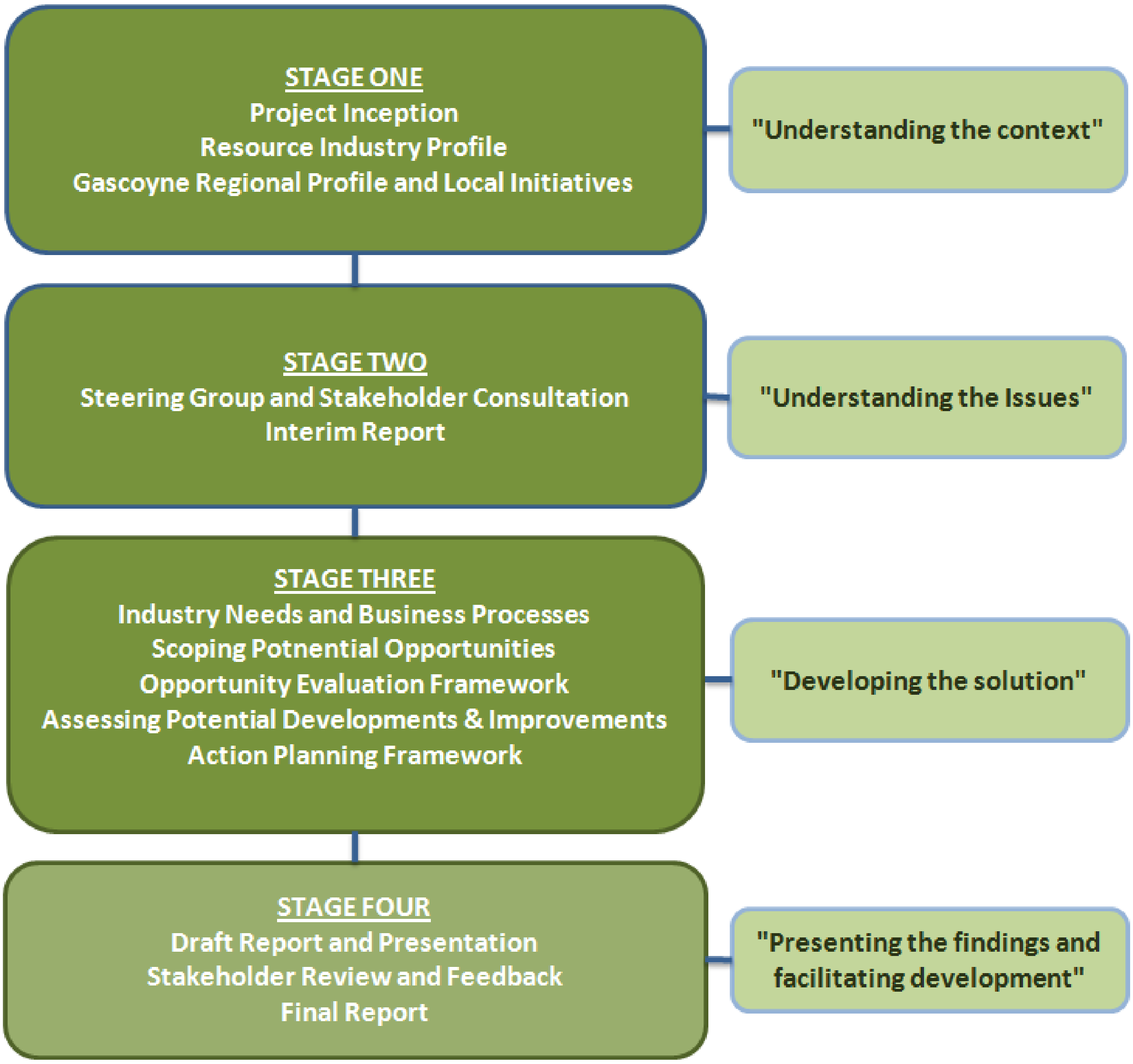
Appendix A – Study Process



Appendix B– Stakeholder Consultation List

- Shell
- BHP Billiton
- Apache
- Woodside
- Chevron
- Crosslands Resources
- Gunson Resources
- Raytheon Pty Ltd
- MSA Marine Services
- MG Kailis Group
- Seek Support
- Exmouth Chamber of Commerce and Industry
- Western Australian Department of Environment and Conservation
- Gascoyne Development Commission
- Shire of Exmouth
- Carnarvon Tourism Alliance
- Gascoyne Food Council
- Rio Tinto – Dampier Salt
- Gwoonwardu Mia
- Carnarvon Chamber of Commerce and Industry
  Shark Bay Tourist Association
- Shire of Shark Bay
- Gnaraloo Station
- Association of Mining and Exploration Companies
- Western Australian Department of Transport
- Chamber of Minerals and Energy Western Australia
- Regional Development Australia – Mid-West Gascoyne

Appendix C– Resource Sites Context

Gascoyne Region Context

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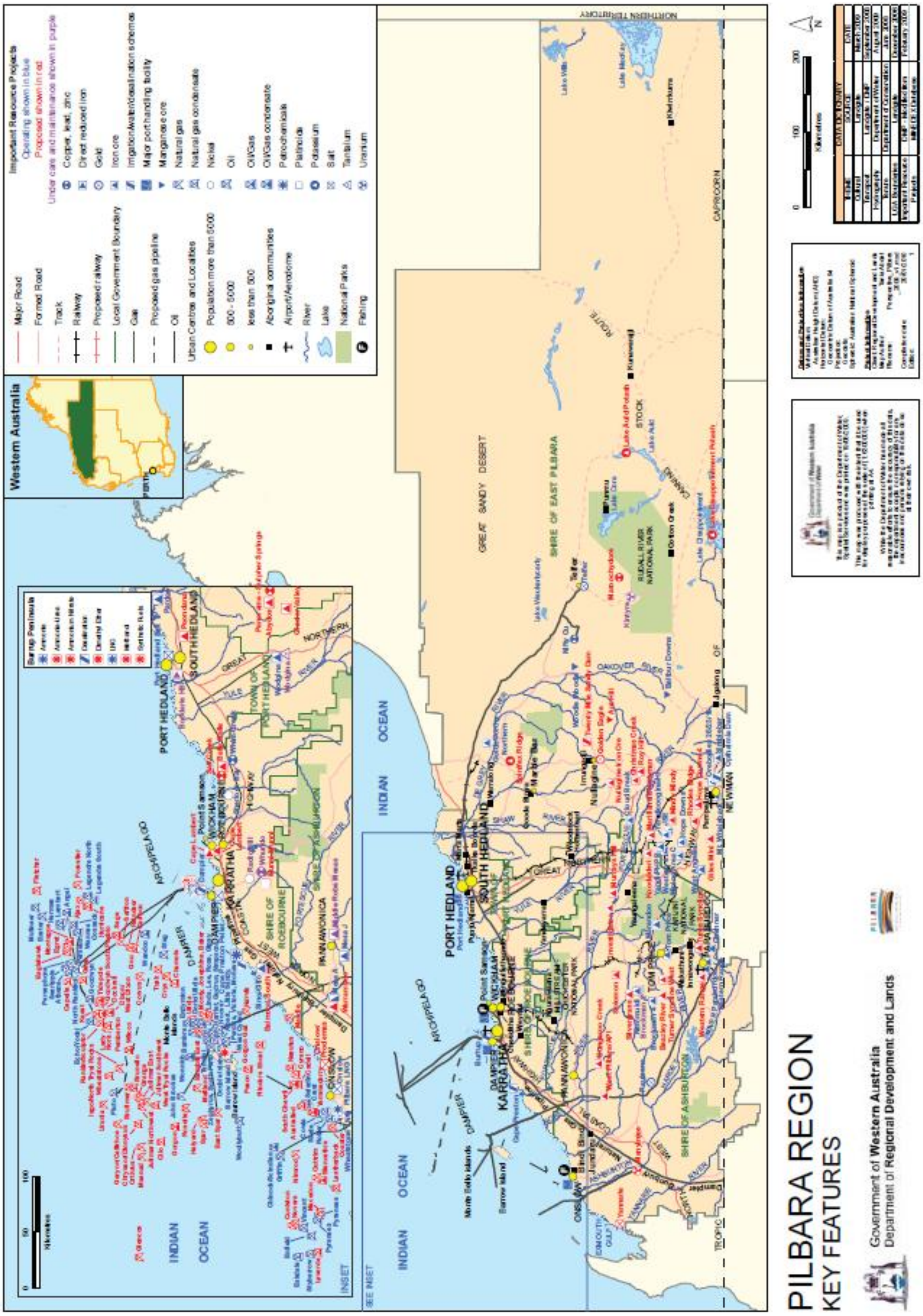
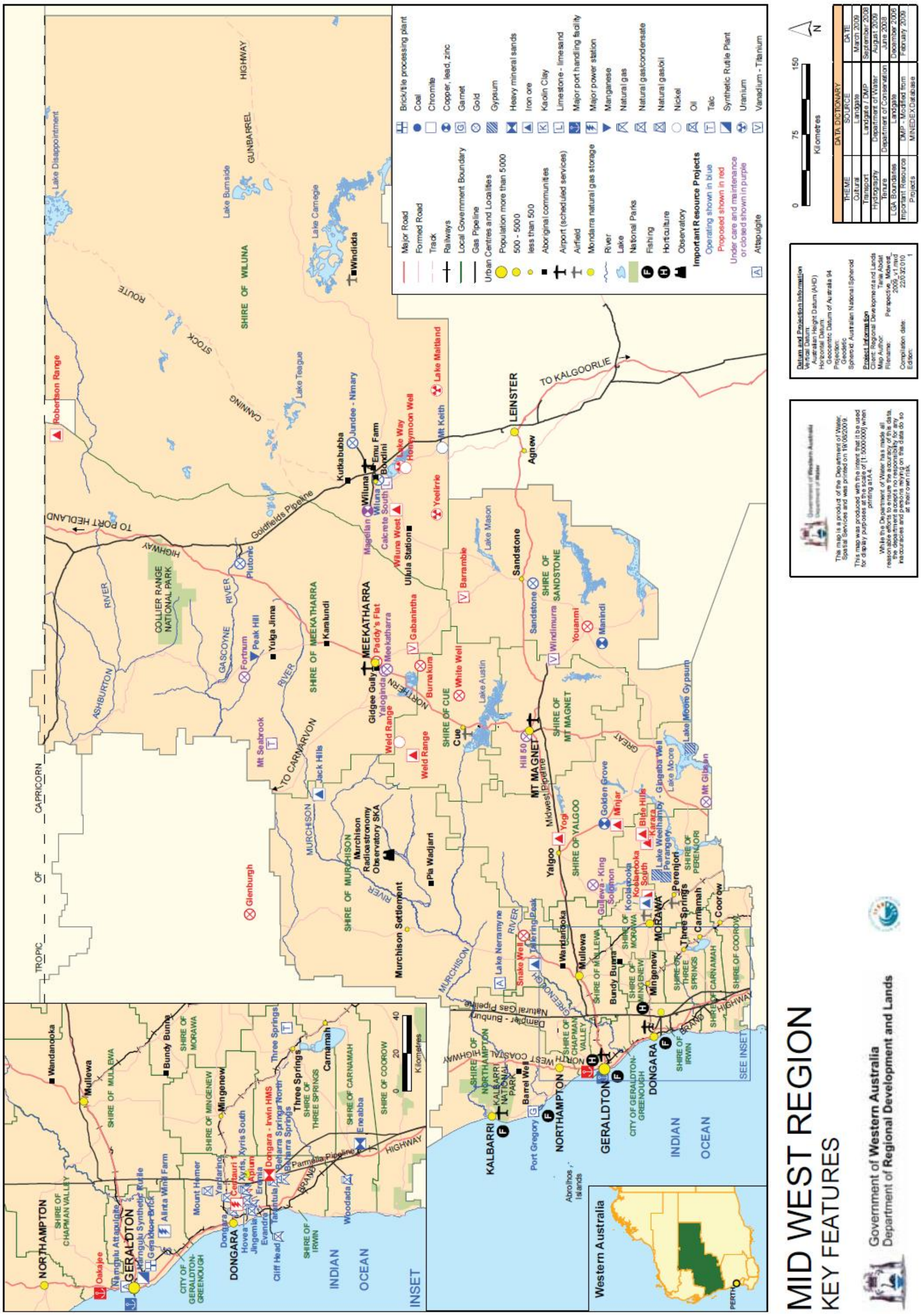
Pilbara Region Context



Mid-West Region Context



SGS Economics & Planning

Appendix D– Major Energy and Mining Projects

The tables below outline committed and exploratory projects for expansion of the resource sector in the Gascoyne and surrounding regions. This project list has been drawn from the most recent publication (April 2011) of the Australian Bureau of Agricultural and Resource Economics and Sciences 'Minerals and Energy: Major Development Projects' listing. These listings have been overlayed with information from the Western Australian Department of Mines and Petroleum where applicable.

Committed/ Under Construction

Exploration/ Expansion Under Investigation

Major Development Projects – Energy

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
Petroleum – oil and natural gas projects	Coniston (tie back to Van Gogh)	Apache Energy / Inpex	Off coast of Pilbara	50 km N of Exmouth, Carnarvon Basin, WA	Expansion, committed	2013	22 kbpd	US$537m (A$554m)
	Gorgon LNG	Chevron / Shell / ExxonMobil	Off coast of Pilbara	Barrow Island, WA	New project, under construction	2015	15 Mt LNG, 110 PJ pa domestic gas	$43b
	Macedon	BHP Billiton / Apache Energy	Off coast of Pilbara	100 km W of Onslow, WA	New project, under construction	2013	75 PJ pa gas	US$1.5b (A$1.55b)
	NWS CWLH	Woodside Energy / BHP Billiton / BP/ Chevron / Shell / Japan Australia LNG	Off coast of Pilbara	150 km NW of Dampier, Carnarvon Basin, WA	Expansion, under construction	2011	60 kbpd oil (field life extension)	US$1.47b (A$1.5b)

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	NWS North Rankin B	Woodside Energy / BHP Billiton / BP / Chevron / Shell/ Japan Australia LNG	Off coast of Pilbara	150 km NW of Dampier, Carnarvon Basin, WA	Expansion, under construction	2013	967 PJ pa gas	$5.1b (A$5.3b)
	Pluto (train 1)	Woodside Energy	Off coast of Pilbara	Carnarvon Basin/ Burrup Peninsula, WA	New project, under construction	late 2011	4.3 Mt LNG	$14b (inc site works for train 2)
	Reindeer gas field/Devil Creek gas processing plant (phase 1)	Apache Energy / Santos	Off coast of Pilbara	80 km NW of Dampier, Carnarvon Basin, WA	New project, under construction	late 2011	78 PJ pa gas	$1.08b
	Spar	Apache Energy / Santos	Off coast of Pilbara	120 km N of Onslow, WA	New project, committed	early 2013	18 PJ pa	US$120m (A$124m)
	Balnaves	Apache Energy / KUFPEC	Off coast of Pilbara	NW of Dampier, WA	New project, awaiting FID	2014	30 kbpd	$US445m (A$459m)
	Brunello / Julimar (supply for Wheatstone LNG project)	Apache / Kufpec	Off coast of Pilbara	NW of Dampier, WA	New project, feasibility study under way	2016	120 PJ pa	US$2.9b (A$3b)
	Gorgon LNG T4	Chevron / Shell / ExxonMobil	Off coast of Pilbara	Barrow Island, WA	Expansion, EIS under way	na	5 Mt LNG	na

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Pluto (train 2 and 3)	Woodside Energy	Off coast of Pilbara	Carnarvon Basin/ Burrup Peninsula, WA	Expansion, FEED studies completed	late 2014	2 x 4.3 Mt LNG	na
	Scarborough Gas	ExxonMobil / BHP Billiton	Off coast of Pilbara	280 km NW of Onslow, WA	New project, prefeasibility study under way	na	6 Mt LNG	na
	Wheatstone LNG	Chevron / Apache / KUFPEK / Tokyo Electric	Off coast of Pilbara	145 km NW of Dampier, Carnarvon Basin, WA	New project, FEED studies under way	2016	8.6 Mt LNG (initially) 25 Mt LNG (ultimately)	US$17.8b (A$18.4b)
Petroleum – gas pipeline projects	Dampier–Bunbury gas pipeline (DBNGP) expansion (stage 5C)	DBP	Dampier (Pilbara) to Bunbury	Dampier to Bunbury, WA	Expansion, feasibility study under way	na	100 PJ pa (total)	$800m
	Great Northern Pipeline	Buru Energy	Broome (Kimberly) to Port Hedland (Pilbara)	Broome to Port Hedland (550 km), WA	New project, pre FEED studies under way	na	up to 90 PJ pa	$500m
Uranium	Lake Maitland	Mega Uranium / JAURD / Itochu	Mid-West	130 km SE of Wiluna, WA	New project, feasibility study under way, mining lease granted	2013	1 kt U3O8	US$85m (A$88m)

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Wiluna Uranium Project	Toro Energy	Mid-West	17 km SE of Wiluna, WA	New project, awaiting govt. approval	2013	0.8 kt U3O8	$162m
Black Coal	Coolimba	Aviva Corporation	Mid-West	20 km S of Eneabba, WA	New project, EIS under way	2013	400MW	$1b
Gas	Centauri 1	Eneabba Gas	Mid-West	8 km E of Dongara, WA	New project, govt. approval received, on hold	na	168MW	na
Wind	Mumbida	Verve Energy	Mid-West	40 km S of Geraldton, WA	New project, feasibility study under way	2012	90MW	$250m

Major Development Projects – Mining

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
Copper	DeGrussa	Sandfire Resources	Mid-West	900 km NE of Perth, WA	New project, under construction	2013	60-70 kt Cu, 40-45 000 oz Au	$400m
Gold	Mt Magnet	Ramelius Resources	Mid-West	4 Km NW of Mt Magnet, WA	Redevelopment, under construction	2012	86 000 oz	$28m
	Nullagine Gold project	Millennium Minerals	Pilbara	10 km S of Nullagine, WA	New project, committed	2012	72 000 oz	$72m
	Central Murchison	Westgold Resources	Mid-West	W of Cue, WA	Redevelopment, feasibility study under way	na	100 000 oz	$53m
	Gullewa (Deflector gold- copper project)	Mutiny Gold	Mid-West	200 km E of Geraldton, WA	New project, feasibility study underway	2012	50 000 oz Au, 2kt Cu, 35Koz Ag	$52m
	Meekatharra	Reed Resources	Mid-West	S of Meekatharra, WA	Redevelopment, feasibility study under way	2013	120 000 - 150 000 oz	$33m
	Murchison	Silver Lake	Mid-West	600 km NE of Perth, WA	New project, feasibility study under	2013	100 000oz	$60m

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
					way			
	Nullagine (Blue Spec)	Northwest Resources	Pilbara	26 km NE of Nullagine, WA	New project, prefeasibility study under way	na	na	na
Iron Ore – mining projects	Chichester Hub 55-95Mtpa	Fortescue Metals Group	Pilbara	Pilbara, WA	Expansion, committed	2013	40 Mt	US$1.5b (A$1.55b)
	Extension Hill Direct Shipping Ore (DSO) project	Mt Gibson Iron	Mid-West	330 km SE of Geraldton, WA	New project, under construction	mid 2011	3.0 Mt hematite ore	US$80m (A$82m)
	Hamersley Iron Brockman 4 project (Phase B)	Rio Tinto	Pilbara	Pilbara, WA	Expansion, committed	2013	18 Mt	US$1.1b (A$1.13b) (inc West Turner Syncline)
	Hope Downs 4	Rio Tinto/Hancock Prospecting	Pilbara	30 km N of Newman, WA	New project, under construction	2013	15 Mt	US$1.6b (A$1.65b)
	Jimblebar mine and rail (WAIO)	BHP Billiton	Pilbara	Pilbara, WA	New project, committed	2014	35 Mt	US$3.4b (A$3.5b) excl. pre FID funding

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Karara Project	Gindalbie Metals/Ansteel	Mid-West	220 km E of Geraldton, WA	New project, under construction	2011	8 Mt magnetite concentrate, 2 Mt hematite ore	$2.6b
	Koolyanobbing	Cliffs Natural Resources	Mid-West	420 km NE of Perth, WA	Expansion, under construction	2012	2.5 Mt	US$254m (A$262m)
	Marandoo	Rio Tinto	Pilbara	Pilbara, WA	Expansion, under construction	2013	mine life extension	US$933m (A$962m)
	Sino Iron Project	CITIC Pacific Mining	Pilbara	Cape Preston, WA	New project, under construction	2011	28 Mt (concentrates and pellets in total)	US$5.2b (A$5.4b)
	Western Australian Iron Ore Rapid Growth Project 5 (RGP5)	BHP Billiton	Pilbara	Pilbara, WA	Expansion, under construction	2011	50 Mt	US$5.65b (A$5.8b) (incl. infrastructure)
	Western Turner Syncline II	Rio Tinto	Pilbara	30 km W of Tom Price, WA	Expansion, committed	2013	9 Mt	incl. in Brockman 4

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Balla Balla project (Phase I)	Atlas Iron	Pilbara	90 km E of Karratha, WA	New project, govt. approval received	2013	6 Mt iron concentrates, 280 kt TiO_2	$1.3b
	Balla Balla project (Phase II)	Atlas Iron	Pilbara	90 km E of Karratha, WA	New project, feasibility study under way	2016	4 Mt iron concentrates, 190 kt TiO_2, 7 kt FeV	$720m
	Balmoral South magnetite project (stage 1)	Australasian Resources	Pilbara	100 km NE of Onslow, WA	New project, feasibility study under review	na	12 Mt (5 Mt iron concentrate, 7 Mt pellets)	$3b
	Balmoral South magnetite project (stage 2)	Australasian Resources	Pilbara	100 km NE of Onslow, WA	Expansion, feasibility study under review	na	12 Mt (5 Mt iron concentrate, 7 Mt pellets)	na
	Cape Lambert magnetite project	MCC Mining	Pilbara	20 km E of Karratha, WA	New project, government approval under way	2015	15 Mt concentrates	na

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	East Pilbara Project (Robertson Range and Davidson Creek)	FerrAus	Pilbara	Pilbara, WA	New project, prefeasibility completed	2014	15 Mt	$960m
	Extension Hill magnetite project	Asia Iron Holdings	Mid-West	330 km SE of Geraldton, WA	New project, govt. approval received	2014	10 Mt magnetite concentrates	$2.5b
	Hardey	Aquila Resources	Pilbara	180 km SW of Pannawonica, WA	New project, prefeasibility study completed	2016	10 Mt	$1.6b
	Jack Hills project (stage 2)	Crosslands Resources	Mid-West	380 km NE of Geraldton, WA	Expansion, feasibility study under way	2014-15	25-35 Mt	$1.5b
	Karara Project	Gindalbie Metals/Ansteel	Mid-West	220 km E of Geraldton, WA	Expansion, feasibility study under way	na	6 Mt	na
	Marillana	Brockman Resources	Pilbara	100 km NW of Newman, WA	New project, feasibility study under way	2014	17-20 Mt hematite	$1.9b (incl. 80 km rail spur)

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Nammuldi expansion	Rio Tinto	Pilbara	Pilbara, WA	Expansion, feasibility study under way	2013	26 Mt	US$1.6b (A$1.65b)
	Pilbara Project	Flinders Mines	Pilbara	70 km NW of Tom Price, WA	New project, feasibility study under way	2014	5 Mt (up to 15 Mt)	$488m (for 5Mt)
	Ridley Magnetite project	Atlas Iron	Pilbara	75 km E of Port Hedland, WA	New project, prefeasibility study completed	na	15 Mt	$2.7b
	Roy Hill	Hancock Prospecting	Pilbara	Pilbara, WA	New project, feasibility study completed	2014	55 Mt (lump and fines)	na
	Solomon Hub (Stage I)	Fortescue Metals Group	Pilbara	Pilbara, WA	New project, awaiting final approval	2013	60 Mt	US$2.3b (A$ 2.37b)
	Solomon Hub (Stage II)	Fortescue Metals Group	Pilbara	Pilbara, WA	Expansion, feasibility study under way	na	50 Mt	na
	Turner River Hub	Atlas Iron	Pilbara	130 km S of Port Hedland, WA	New project, feasibility study under way	2012	10 Mt DSO	$178m

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Weld Range	Sinosteel Midwest	Gascoyne	370 km N of Geraldton, WA	New project, feasibility study completed	2014	15 Mt hematite	$2b
	West Pilbara	Aquila Resources / AMCI	Pilbara	Pilbara, WA	New project, feasibility study under way	2014	30 Mt hematite	$5.8b (incl. infrastructure)
	Wiluna West (Stage 1-3)	Golden West Resources	Mid-West	40 km W of Wiluna, WA	New project, prefeasibility study under way	na	10 Mt hematite	na
	Yalgoo Iron Project	Ferrowest	Mid-West	14 km E of Yalgoo, WA	New project, feasibility study under way	2014	1 Mt pig iron	$720m
Iron Ore – Infrastructure Projects	Cape Lambert port and rail expansion	Rio Tinto / Robe River	Pilbara	40 km N of Karratha, WA	Expansion, under construction	2013	53 Mt (to 133Mt)	US$3.1b (A$3.2b)
	Dampier Port Expansion (230Mtpa)	Rio Tinto	Pilbara	Dampier, WA	Expansion, under construction	early 2012	5 Mtpa	US$230m (A$237m)
	Port 55 - 155 Mtpa	Fortescue Metals Group	Pilbara	Port Hedland, WA	Expansion, under construction	2013	100 Mtpa	US$2.4b (A$2.5b)

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	WAIO Inner Harbour	BHP Billiton	Pilbara	Port Hedland, WA	Expansion, committed	late 2012	20 Mt (to 240 Mt)	US$2.2b (A$2.3b)
	WAIO optimisation (port blending and rail yards)	BHP Billiton	Pilbara	Port Hedland, WA	Expansion, committed	2014	optimisation and efficiency gains	US$1.65b (A$1.7b)
	WAIO RGP 5	BHP Billiton	Pilbara	Port Hedland, WA	Expansion, under construction	late 2011	increased rail capacity to 300Mt	incl. in RGP5 capex
	Anketell Point port	Fortescue Metals Group / MCC / Aquila	Pilbara	Pilbara, WA	New project, EIS under way	2013	30-40 Mtpa	$3.1b
	Cape Lambert port expansion	Rio Tinto / Robe River	Pilbara	40 km N of Karratha, WA	Expansion, feasibility study under way	late 2015	50 Mt (to 183Mt)	US$3.2b (A$3.3b)
	Oakajee Port & Rail infrastructure	Oakajee Port and Rail (Murchison Metals and Mitsubishi)	Mid-West	20 km N of Geraldton, WA	New project, feasibility study under way	2014-15	45 Mt initially, 100 Mt ultimately	$5.2b (incl rail, rolling stock and port)
	Port Hedland	Northwest Iron Ore Alliance	Pilbara	Port Hedland, WA	Expansion, feasibility study under way	2014	50 Mt	$2.7b

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Rail 55 - 155mtpa	Fortescue Metals Group	Pilbara	Pilbara, WA	Expansion, awaiting final govt. approval	2013	100 Mt	US$2.2b (A$2.3b)
	WAIO Outer Harbour	BHP Billiton	Pilbara	Port Hedland, WA	New project, government approval under way	2015-16	100 Mt (ultimately)	na
Lead – Zinc – Silver	Sulphur Springs Project	Venturex Resources	Pilbara	160 km SE of Pt Hedland, WA	New project, feasibility study under way	na	50 kt Zn, 20 kt Cu, 0.5 Mt Pyrite	$242m
Mineral Sands	Coburn	Gunson Resources	Gascoyne	250 km N of Geraldton, WA	New project, feasibility study completed	na	90 kt ilmenite, 40 kt zircon, 9 kt rutile, 7 kt leucoxene	$169m
Nickel	Sherlock Bay	Australasian Resources	Pilbara	100 km E of Karratha, WA	New project, prefeasibility study under way	na	9 kt Ni	$34m
Vernadium	Windimurra vanadium project	Atlantic Ltd	Mid-West	80 km SE of Mt Magnet, WA	Redevelopment, under construction	mid 2011	5.7 kt ferrovanadium, 1 kt V_2O_5	$580m

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
	Barrambie vanadium project	Reed Resources	Mid-West	64 km NW of Sandstone, WA	New project, awaiting govt. approval	2014	7.7 kt ferrovanadium, 11.2 kt V_2O_5	na
Other Commodities	Big Hill Tungsten Project	Hazelwood Resources	Pilbara	220 km NW of Newman, WA	New project, feasibility study under way	2013	6 kt W	$112m
	Burrup ammonium nitrate plant	Burrup Holdings / Yarra International	Pilbara	Burrup Peninsula, WA	New project, awaiting govt. approval	2013	350 kt ammonium nitrate	$600m
	Dampier Nitrogen project (ammonia/ urea/ ammonium nitrate)	Incitec Pivot	Pilbara	Burrup Peninsula, WA	New project, feasibility study under way	2014	272 kt ammonia, 235 kt ammonium nitrate	na
	Spinifex Ridge molybdenum/ copper project	Moly Mines	Pilbara	50 km NE of Marble Bar, WA	New project, feasibility study completed	2013	4.7 kt Mo, 5.9 kt Cu (in concentrates)	US$500m (A$515m)

Other Major Electricity/Power Projects

Commodity	Project	Company	Region	Location	Status	Expected Start-up	New Capacity	Capital Expenditure
Black Coal	Coolimba	Aviva Corporation	Mid-West	20 km S of Eneabba, WA	New project, EIS under way	2013	400MW	$1b
Gas	Centauri 1	Eneabba Gas	Mid-West	8 km E of Dongara, WA	New project, govt. approval received, on hold	na	168MW	na
Wind	Mumbida	Verve Energy	Mid-West	40 km S of Geraldton, WA	New project, feasibility study under way	2012	90MW	$250m