

February 2011

Pilbara

planning and infrastructure framework

Draft

Pilbara Regional Planning Committee
Western Australian Planning Commission



Western Australian Planning Commission
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Minister's Foreword

The Pilbara region is important to both Western Australia and the nation. It is one of the most ancient of places, characterised by primal, sculptured landscapes that mark the geological eras. It is also home to one of the oldest continuous cultures, which has constructed the world's greatest gallery of rock art on what is now the Burrup Peninsula.

Since the late 1960s, the Pilbara region's considerable mineral and hydrocarbon wealth, embedded in the land mass and off-shore under the continental shelf, has been the foundation of its prosperity and responsible for much of its urban form and infrastructure. It has however, been influenced by the ebbs and flows of world commodity markets

with their boom and bust cycles, and this is reflected in the nature and quality of the region's towns and support infrastructure and its growing reliance on fly-in fly-out arrangements.

The continued sustainability of the region will no doubt be determined by the strengths of its communities; the liveability of its towns; appreciation of the region's natural and cultural values; economic diversification and self sufficiency; and the level of services the region can attract.

This will be a challenging task. Economic growth has not been achieved easily with issues such as shortages of affordable housing; a high cost of living; and inadequate services being just some of the obstacles to overcome. With climate change an emerging issue to consider in this cyclone prone region, we are now facing challenges in sourcing secure water and energy supplies. These will require innovative responses.

The State Government's Pilbara Cities initiative seeks to expand the region's resident population and to rectify infrastructure inadequacies with the development of the twin cities of Karratha and Port Hedland.

Each city will have a critical population mass to sustain higher thresholds of facilities and services. In addition, it is envisaged that Newman will expand as a sub-regional centre, and other centres, such as Onslow, will also expand and have new roles. This will involve an investment partnership between government and the private sector.

This ancient remote region now has great possibilities to become a focus for major regional development. The conservation of the region's natural and cultural heritage – both on land and offshore, is paramount. Pilbara icons such as Karijini National Park, the Burrup rock engravings and the annual Cossack art awards need to be maintained, cherished and celebrated.

This Pilbara Planning and Infrastructure Framework provides a response to many of the opportunities and challenges facing the region. It sets a basis for further, detailed planning at the local level. It also establishes unified action between state and local governments in the adoption and ongoing review of the framework.

I encourage your participation in the ongoing review of this Framework.

A handwritten signature in black ink, reading 'John Day'.

John Day MLA
Minister for Planning

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Chairman's Foreword

The Western Australian Planning Commission and the Department of Planning are working with state and local government agencies, industry and the community to shape the Pilbara's future. This will be achieved through an evolving planning and infrastructure framework that makes strategic decisions about land, infrastructure and investment.

This Pilbara Planning and Infrastructure Framework builds on the Pilbara region's economic advantages and its natural and cultural endowments. It assists the building of communities by strengthening regional governance and enhancing liveability and lifestyle opportunities. Also, it facilitates the diversification of the economy and job creation by setting aside land for major industries and sites and corridors for major infrastructure.

The Framework promotes the development of twin Pilbara cities in Karratha and Port Hedland and a subregional centre at Newman, that have the critical population mass to support a higher threshold of community, cultural and recreational facilities for the benefit of the region as a whole. It also seeks to strengthen local sense of place; improve connectivity between activity centres; maintain the region's natural and cultural values; and protect conservation areas.

The Pilbara Planning and Infrastructure Framework has been prepared under the direction of the newly formed Pilbara Regional Planning Committee. It has subsequently been endorsed as a regional strategy by the Planning Commission and will be listed in State Planning Policy 1 to provide a big-picture view of the region's mid to long term future.

Its focus is on the major opportunities and challenges facing the region. In doing so, it expresses the position of the Commission in addressing the region's key issues and challenges. It provides direction for regional planning and to local governments for the preparation of more detailed local planning strategies and local planning schemes.

In recognising the need for regional planning to address development issues as they emerge, the Framework will be subject to ongoing monitoring and regular review.

A handwritten signature in black ink, appearing to read 'Gary Prattley'.

Gary Prattley
Chairman
Western Australian Planning Commission

Executive summary

Vision

The Pilbara has evolved into the economic powerhouse of Australia and is on the threshold of another period of expansion.

By 2035, the region will have a resident population of more than 140 000, based on a more diverse economy that has capitalised on its competitive advantages. As part of the Pilbara Cities vision, the Pilbara will have two cities: Karratha and Port Hedland, each with a population of 50 000. These would be supported by the Newman sub-regional centre with a population of 15 000 and the major towns of Tom Price, Onslow and Wickham (refer to Map 1).

Higher levels of population in the region's main urban centres will support a wider range of employment opportunities; greater housing choice; higher levels of amenity; and access to higher standards of education, health, recreational and other community services. The natural and cultural heritage assets of the Pilbara, such as the coastline, Karijini and the Burrup Peninsula's rock-art galleries will be conserved, celebrated and cherished.

Settlement

Over the next 25 years, the scale and character of Pilbara settlements will change significantly. Some will experience major expansion while others will have more modest growth and, in some cases, decline. No significant new permanent settlements are envisaged for the region. It is anticipated that fly-in fly-out will have a lesser role in the work-living equation as the level of services, facilities and general amenity increase in the cities and towns, making them more attractive places in which to live.

The region's settlement structure will experience a step change, achieving a higher threshold of housing choice and community facility provision, making them inherently more liveable places. The evolving settlement structure will be:

- | | |
|--------------------------|--|
| 1. Pilbara City: | Karratha (Karratha and Dampier), Port Hedland (Port Hedland and South Hedland) |
| 2. Sub-regional centre: | Newman |
| 3. Major town: | Tom Price, Onslow, Wickham |
| 4. Town: | Paraburdoo, Roebourne, Pannawonica |
| 5. Village: | Point Samson, Marble Bar, Nullagine, Cossack, Shellborough |
| 6. Aboriginal community: | (Refer to section 2.12) |

To cater for the region's population targets and to satisfy unmet latent demand, an additional 35 430 dwellings will be needed, taking up some 2130 hectares of net residential land. The settlement housing density and form is anticipated to change greatly in each Pilbara City and major towns. This will mean more residential apartments, townhouses and other forms of medium and higher density living.

Economy

The Pilbara will have a robust, diverse and sustainable regional economy to service the needs of its industry and commerce effectively. This will be based on the region's competitive advantages. The region's economy will be diversified on the basis of resource industry supply chain completion in the first phase, widening in the later phases to encompass more knowledge-based industries, with an increasing capacity to export goods and services. Elements of this transition are already evident. However, significant government intervention is needed if it is to be accelerated in line with the Pilbara Cities vision. This could be in the form of a new defence base, a university sub-campus or a collaborative research institution in the region.

To achieve long-term economic viability in the region, strategies will be put in place to ensure adequate wharf-side and land-side capacity at the region's ports, strategic industrial areas and townsites (light industrial and commercial areas). There is a need to identify suitably located campus-sites for potential large government-sponsored facilities.

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Utility infrastructure

Most of the Pilbara's urban infrastructure was constructed in the 1960s and 1970s and is reaching the end of its useful life. It is now constraining economic productivity and impacting on the functionality of communities. There is now a strong need to upgrade and replace much of the region's infrastructure and, in turn, this will provide the impetus to look at new approaches and technologies for utility infrastructure provision.

Water: There is a growing supply-demand dichotomy between inland and coastal Pilbara – the location of the greatest future demand. Currently, Karratha and the other Nickol Bay settlements, Port Hedland and Onslow are entirely climate-dependent for their water supply.

To ensure a reliable future water source it is essential that new sources are identified and developed. Potential sources include:

- constructing a new desalination plant on the Burrup Peninsula and piping water from Bungaroo for Karratha and the Nickol Bay settlements;

- expanding the Yule and De Grey borefields in the case of Port Hedland; and
- Expanding the Cane River borefields, developing the Birdrong aquifer or identifying another source to service future town and industrial demand for Onslow.

The Framework makes provision for the conservation of these water source areas.

Waste water: There is a need to provide deep water sewerage facilities in all Pilbara cities and towns and to provide adequate local absorption systems in the region's villages and Aboriginal communities. Wherever feasible, wastewater will be utilised for open space irrigation.

Energy: The Pilbara economy cannot expand without additional power generation being installed. Forecasts of demand and generation supply indicate that Horizon Power has access to sufficient generation capacity to meet its demand projections until late 2012. There is a need for a broader, integrated approach to long-term Pilbara power supply planning to ensure that the region's energy supply needs can be met. A commercial approach is likely to optimise efficient investment and innovative supply options.

Table 1: Utility infrastructure priorities – 2015

Infrastructure	Priorities
Water	<ul style="list-style-type: none">• Investigate construction of a desalination plant to service Karratha City (Karratha/Dampier).• Investigate new water source development at Bungaroo to service Karratha City.• Investigate new water source – Yule and de Grey borefields – to service Port Hedland.• Identify new water source – Cane River borefields, Birdrong aquifer or an alternative – to service Onslow.
Energy	<ul style="list-style-type: none">• Provide new power generation and transmission at Port Hedland.• Provide new power generation and transmission at Karratha.• Expand power generation at Onslow.
Wastewater	<ul style="list-style-type: none">• Upgrade Karratha Waste Water Treatment Plant.• Upgrade Port Hedland deep sewerage scheme.• Relocate Port Hedland Waste Water Treatment Plant and augment South Hedland Waste Water Treatment Plant.
Waste Management	<ul style="list-style-type: none">• System of townsite transfer stations.• Service hub recycling plants.
Telecommunications	<ul style="list-style-type: none">• Augment mobile phone coverage - telecommunication companies.• Roll out of National Broadband Network in Pilbara.

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Waste management: While there is currently minimal recycling of waste in the region, the next decade will require a comprehensive waste recycling and disposal plan. It will be important to ensure that options for strategic waste transfer, collection, treatment, recycling and disposal facilities, including buffer areas, are clearly identified in local planning strategies and schemes.

Telecommunications: Current mobile phone coverage in the region is patchy and access to broadband is limited and slow. The anticipated increase in the Pilbara's economic activity and population, with high expectations for fast and efficient communications, will require a major upgrade of the region's telecommunications infrastructure. The increase in mobile phone antennae will necessitate their sensitive location in urban areas and along major highways.

Community facilities

The expansion of the Pilbara region's population to more than 140 000 by 2035 will require a higher threshold of facilities and services. The enhancement of these facilities and services will greatly assist the region's ability to attract and retain workers and their families.

Health: Hospital facilities will be expanded to meet future needs, with a focus on Port Hedland and Karratha. More general practitioner, dental and other health specialist services will be provided. There is also potential to establish a Royal Flying Doctor Service hub in Karratha, in addition to that which already operates out of Port Hedland.

Education: New primary schools, new and expanded high schools, expanded TAFE facilities and one or two university sub-campuses will be developed to meet greater demand for educational services and to retain senior students in the region's schools.

Recreation: A number of facilities are proposed to meet the increased demand for recreation opportunities. These include: two new marinas (at Dampier and Port Hedland); upgrades to boat harbours and boat launching facilities; improved access to beaches; upgrades to the region's swimming pools; provision of fully equipped sports ovals; and indoor recreation centres.

Community safety and support: The changing size and composition of the Pilbara communities will require a higher level of police and court facilities and a wider range of childcare and family support facilities. It will also need more community facilities such as places of worship, and accommodation for volunteer organisations and clubs.

Culture and entertainment: There is a need to expand both community and commercially based places of culture and entertainment, including: theatres, cinemas, galleries and museums – particularly in Karratha and Port Hedland.

Retail facilities: The higher population thresholds will be able to sustain more retail facilities, particularly in Karratha and Port Hedland.

Civic facilities: The range of civic facilities – town halls, libraries and community centres will be expanded in the two Pilbara cities, the sub-regional centre and the major towns (Table 2):

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Table 2: Community facility priorities – 2015

Infrastructure	Priorities
Health	<ul style="list-style-type: none"> • Redevelop Nickol Bay Hospital into the Karratha Health Campus. • Upgrade or replace all current State hospital/clinic infrastructure not included in forward estimates. • Significant investment required in State Health Workforce Housing across the Pilbara. • Expand existing population health services for drug and alcohol counselling, mental health and general psychological services. • Continue with 'Close the Gap' Aboriginal health initiatives and other local priorities. • Significant investment/incentives for private or not for profit health sector expansion to meet future projected demand and diversification.
Education	<ul style="list-style-type: none"> • Undertake further development of the Karratha Leisure Centre and Karratha High School and TAFE. • Upgrade and expand Port Hedland High School. • Renewal of infrastructure at Roebourne District High School. • Expansion of Onslow Primary School to a District High School. • Provision of housing for educators and administrators across the Pilbara.
Recreation	<ul style="list-style-type: none"> • Construction of a marina in Dampier. • Construction of a marina in Port Hedland. • Development of a Karratha aquatic complex (part of Karratha Leisure Centre precinct). • Construction of a Multipurpose Recreation Facility in Port Hedland. • Provision of a swimming pool in Onslow. • Expansion and diversification of recreation facilities to include new sports and recreation opportunities. • Provision for passive open space and public parks in new settlement developments. • Consider recreation needs in light of tourism needs and expansion opportunities.
Community support	<ul style="list-style-type: none"> • Supply of office and residential accommodation for community service workers. • Expansion of childcare places to meet the demands of a growing population and changing demographic profile.
Culture and entertainment	<ul style="list-style-type: none"> • Development of Marquee Park – South Hedland. • Development of an entertainment precinct in Karratha under the City of the North urban development plan. • Support the Pilbara Development Commission to undertake a study of culture and the arts and cultural tourism opportunities in the Pilbara, including Aboriginal cultural facilities.

Transport

To meet the Pilbara's projected expansion of economic activity and population, a transport system that provides equitable access for residents and industry; and practical, safe and affordable opportunities for intra-regional, intra-state, inter-state and international travel will be required.

Road transport: There is a need to develop a regional road network that provides safe all-weather connections between the region's centres of activity. Key future road transport priorities include:

- investigation of a coastal road between Karratha and Wickham;
- port access enhancements – Dampier, Port Hedland, Cape Lambert and Anketell;
- upgrades to Newman-Marble Bar Road;
- construction of a new road between Millstream and Tom Price;
- road pavement upgrades along heavily trafficked sections of the Great Northern and North West Coastal Highways; and
- development of viable public transport systems in the two Pilbara cities.

Rail transport: The region's rail system will expand from three privately-operated networks to five, during the next decade. Ore tonnages carried by rail will increase significantly, resulting in more frequent and longer trains travelling between mine and port. Future priorities include:

- promoting multi-user rail network;
- minimising excessive delays at road-rail grade intersections resulting from longer and more frequent ore trains; and
- investigating opportunities to carry non ore products on the region's rail networks.

Marine transport: Trade tonnage at the region's seaports is set to expand significantly over the next decade. There will be expanded seaport facilities at Port Hedland and Dampier and ore export terminals at Cape Lambert, Anketell and Cape Preston. These are supplemented by marine servicing boat harbours at Onslow (Beadon Creek) and Point Samson (Johns Creek). Future priorities include:

- facilitating berth capacity expansion;
- promoting multi-user port facilities;
- upgrading road and rail access to port areas;

- providing sufficient port related land for storage and processing; and
- providing facilities for general cargo as well as bulk commodities.

Air transport: Airport passenger throughput has increased significantly over the past five years, particularly at Karratha. More recently, there has been increased connectivity between the region's airports and other Australian centres, with direct flights to Brisbane, Sydney and Melbourne. In future, there may be demand to support greater connections between the region and selected international destinations. Future priorities include:

- developing the region's four hub airports to be capable of accepting high frequency services by Code 3 jet aircraft. This will require upgrades to air-side infrastructure, terminal facilities, access and parking;
- investigating the viability of intra-regional regular passenger air services;
- maintaining the integrity of flight paths to the region's airports; and
- investigating demand for connections between the region and selected international destinations.



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Table 3: Transport priorities – 2015

Infrastructure	Priorities
Road transport	<ul style="list-style-type: none"> Investigate options for Karratha-Wickham road. Upgrade port access – Dampier, Port Hedland, Cape Lambert and Anketell. Upgrade Newman-Marble Bar Road. Road pavement upgrades of sections of the Great Northern and North West Coastal Highways. Construct new road between Millstream and Tom Price.
Rail transport	<ul style="list-style-type: none"> Minimise excessive delays at road-rail grade intersections resulting from longer and more frequent ore trains. Promote multi-user rail networks.
Marine transport	<ul style="list-style-type: none"> Facilitate berth capacity expansion. Promote multi-user port facilities. Upgrade road and rail access to port areas. Provide sufficient port-related land for storage and processing.
Air transport	<ul style="list-style-type: none"> Upgrade Karratha Airport. Upgrade Port Hedland Airport. Investigate new Tom Price airport to regular public transport standard to act as air gateway to Karijini National Park and Hamersley Ranges. Investigate upgrading Onslow Airport to service Ashburton North Strategic Industrial Area.
Urban transport	<ul style="list-style-type: none"> Upgrade community bus services in Pilbara cities. Upgrade taxi services in main towns.

Natural environment

The realisation of the Pilbara Cities vision to triple the resident population and expand mining, petroleum and industrial activities could significantly challenge the region's natural environmental values. It is important to acknowledge the contribution these values make to the Pilbara's liveability, health, lifestyle and economy.

The Framework will build on the region's environmental values, national parks and conservation reserves. It will also provide momentum for a better understanding and respect for the natural environment; promote the conservation and protection of significant natural features; and ensure opportunities for discovery, recreation and a sense of meaning for the benefit of future generations

Cultural heritage

With an expanded urban population, there will be a need to create better understanding, recognition and respect for the region's past and present indigenous culture; together with the cultural heritage of its early settlement, pastoral and mining activities. This will engender a sense of continuity and general lifestyle enhancement, as well as providing attractions for tourists. Future priorities include:

- identification and protection of significant regional and local heritage places to ensure that development, in or adjacent to those places, will not compromise their cultural heritage values and significance;
- maintenance of the cultural integrity of the rock-art galleries contained within the newly declared Murujuga National Park on the Burrup Peninsula; and

- maintenance of the region's urban heritage, in particular: Cossack, Marble Bar, Roebourne, Port Hedland and Onslow.

Development

The region should be developed in a timely and responsible manner that responds to the Pilbara Cities vision and creatively addresses constraints and impediments. The key development issues comprise:

Climate change: The projected impact of climate change will need to be considered, particularly in a region that is significantly impacted most years by cyclonic activity. This, however, needs to be considered on a risk management basis, taking into account the susceptibility of a proposed land use and the probability that an extreme event will eventuate within a certain time scale.

Development assessment: To ensure that responsible development progresses in a timely manner, tracts of englobo land will need to be identified for urban expansion and industrial development. All relevant issues triggered by a proposed development will need to be identified and assessed well in advance of demand. These include: environmental impact assessment; assessment of Indigenous heritage and Native Title agreements.

Basic raw materials: As much of the proposed development associated with the Pilbara Cities will be on low-lying, flood-prone land, there will be a need to source and transport large quantities of fill material. Pragmatic strategies will need to be put in place to identify locations where large quantities of suitable material can be excavated in an environmentally sustainable and cost effective manner.

Implementation

The Framework will be endorsed by the WA Planning Commission as a regional strategy under the State Planning Framework.

Governance

The Framework will guide the decision-making of relevant government agencies in the areas of:

- **Planning** – by providing the over-arching policy framework within which local governments will prepare their local planning strategies and schemes.

- **Infrastructure** – by informing the Infrastructure Coordinating Committee of the WA Planning Commission when assigning priorities to infrastructure funding and development.
- **Economic development** – by informing the Pilbara Cities Office and other agencies in attracting investment to the region.

Current and future planning work

Further work identified by the Framework includes:

- mapping storm surge and flooding;
- preparing a Port Hedland growth plan; and
- undertaking investigations for a potential Karratha-Wickham link road.

In addition, the WA Planning Commission has commenced preparation of the 'Pilbara Infrastructure Implementation Plan', which will provide more detail on infrastructure requirements for the Pilbara including responsible agencies, costs and timelines for delivery.

Financial strategy

A funding structure will be established to finance the infrastructure priorities identified by the Framework. A number of mechanisms and funding sources will be considered.

Monitoring and review

The Framework is a living document and its performance will be monitored and reviewed.

Map 1: Strategy Map

see A3 pdf file

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