



Western Australian Regional Freight Transport Network Plan



LAYOUT: HOW TO READ THIS DOCUMENT

The *Western Australian Regional Freight Transport Network Plan* comprises four key parts as outlined below:

PART 1: OVERVIEW

HIGHLIGHTS:
FREIGHT TRANSPORT
PRIORITIES TO 2031

Provides a high-level summary of the key drivers, directions and priorities of the *Western Australian Regional Freight Transport Network Plan*

PART 2: CONTEXT

INTRODUCTION:
SHAPING WESTERN
AUSTRALIA
FOR THE FUTURE

Outlines the need for the *Western Australian Regional Freight Transport Network Plan* and describes the context for and scope of the Plan

OVERVIEW:
THE WESTERN
AUSTRALIAN
FREIGHT TASK

Describes regional Western Australia’s freight network, current and future freight drivers and freight demand and the implications for the regional freight network to 2031



- Map 1: Current Freight Drivers
- Map 2: Current Regional Freight Network
- Map 3: Future Freight Drivers
- Map 4: Current and Future Demand

PART 3: STRATEGIC DIRECTIONS AND PRIORITIES

APPROACH:
COORDINATING THE
FREIGHT TRANSPORT
NEEDS OF REGIONAL
WESTERN AUSTRALIA

Articulates the Western Australian Government’s vision and objectives for the regional freight network, Government’s role in relation to the network and the general directions it will take to manage future freight growth and address cumulative impacts on the network to 2031

TO 2031:
STATEWIDE FREIGHT
PLANNING, POLICY AND
PROJECT PRIORITIES

Articulates the Western Australian Government’s planning, policy and project priorities for the State’s regional freight network to 2031

To be read in conjunction

- Map 5: Planning and Protecting the Network – Regional Freight Network Priorities
- Map 6: Managing the Network – Regional Freight Network Priorities
- Map 7: Building and Maintaining the Road Network – Regional Freight Network Priorities
- Map 8: Facilitating and Selectively Investing in Strategic Rail and Port Projects – Regional Freight Network Priorities

PART 4: FURTHER GUIDANCE FOR THE READER

METHODOLOGY:
EVIDENCE-BASED
PLANNING

Outlines the methodology and project governance model employed to develop the *Western Australian Regional Freight Transport Network Plan* and major planning and policy issues for further consideration

PART 5: APPENDICES

MINISTER'S FOREWORD

There is an inextricable link between the strong performance of Western Australia's regions and the nation's prosperity. In 2010-11 Western Australia accounted for 46% (\$121 billion) of Australia's merchandise exports. The majority of this comes from resources activity, most of which takes place in the regions.

As Western Australia's population and economy continue to grow strongly, so too does the scale of the freight task in our regions. This places added pressure on the regional freight transport network and requires the State Government to plan ahead to ensure we make the right decisions now about future transport requirements.

The State Government's commitment to upgrade and expand the regional freight transport network is demonstrated by key projects including:

- Duplication of the Dampier Highway from Balmoral Road West to Burrup Peninsula Road
- Concurrent construction of the Bunbury Outer Ring Road (from Boyanup-Picton Road to South Western Highway) and the Bunbury Port Access Project Stage 2 (between South Western Highway and the Bunbury Outer Ring Road)
- Realignment of the Great Northern Highway between Port Hedland and South Hedland around the Wedgefield industrial precinct
- Upgrade of the Esperance Port Access Corridor
- Continued roll-out of a coordinated investment program for the grain freight network
- A market sounding exercise to identify private sector interest in expanding iron ore export capacity at the Port of Esperance by up to 20 million tonnes per annum

This *Western Australian Regional Freight Transport Network Plan* articulates the Western Australian Government's planning, policy and project priorities to ensure the regional transport network continues to perform effectively. By providing clear strategic direction for the development of the transport network over the next two decades, this Plan provides an enduring foundation to inform and build investor and industry confidence and a framework for developing the State's freight network well into the future.

The Plan clearly outlines the Western Australian Government's role in the development of the regional freight transport network. The long standing practice of partnering with the private sector to deliver major infrastructure, particularly ports and railways, is a cornerstone policy position. Many of the project priorities in the *Western Australian Regional Freight Network Plan* are essential to further support and sustain nationally significant economic activity, with local and national benefits. Many of the investments in the regional freight transport network will therefore need to be joint investments between the State and Australian Governments.

Meeting the transport needs of major industries and diverse communities is a challenge, particularly in a State with such an immense and rapidly growing freight task. Over the past two years, the Department of Transport's project team has spent a great deal of time and energy engaging with stakeholders from industry, the community and government. More than 80 local government and regional development organisations and more than 70 major freight transport and logistics companies and users across the State have been involved. The focus has been on identifying key issues and future demands, investment priorities, policy options to manage the freight task and planning needs required to achieve an efficient and sustainable transport network.

The development of this Plan has been overseen by a Steering Committee chaired by the Department of Regional Development and Lands and comprising senior executives from a number of key government agencies. This underpins the essential need to identify regional development priorities that balance economic, social and sustainability issues.

The *Western Australian Regional Freight Transport Network Plan* identifies the regional freight transport infrastructure we need to drive jobs and investment in our economy today and into the future. It will consolidate and focus the decision-making for future transport investment, and provide new and improved transport connections and shape the growth and development of regional Western Australia.

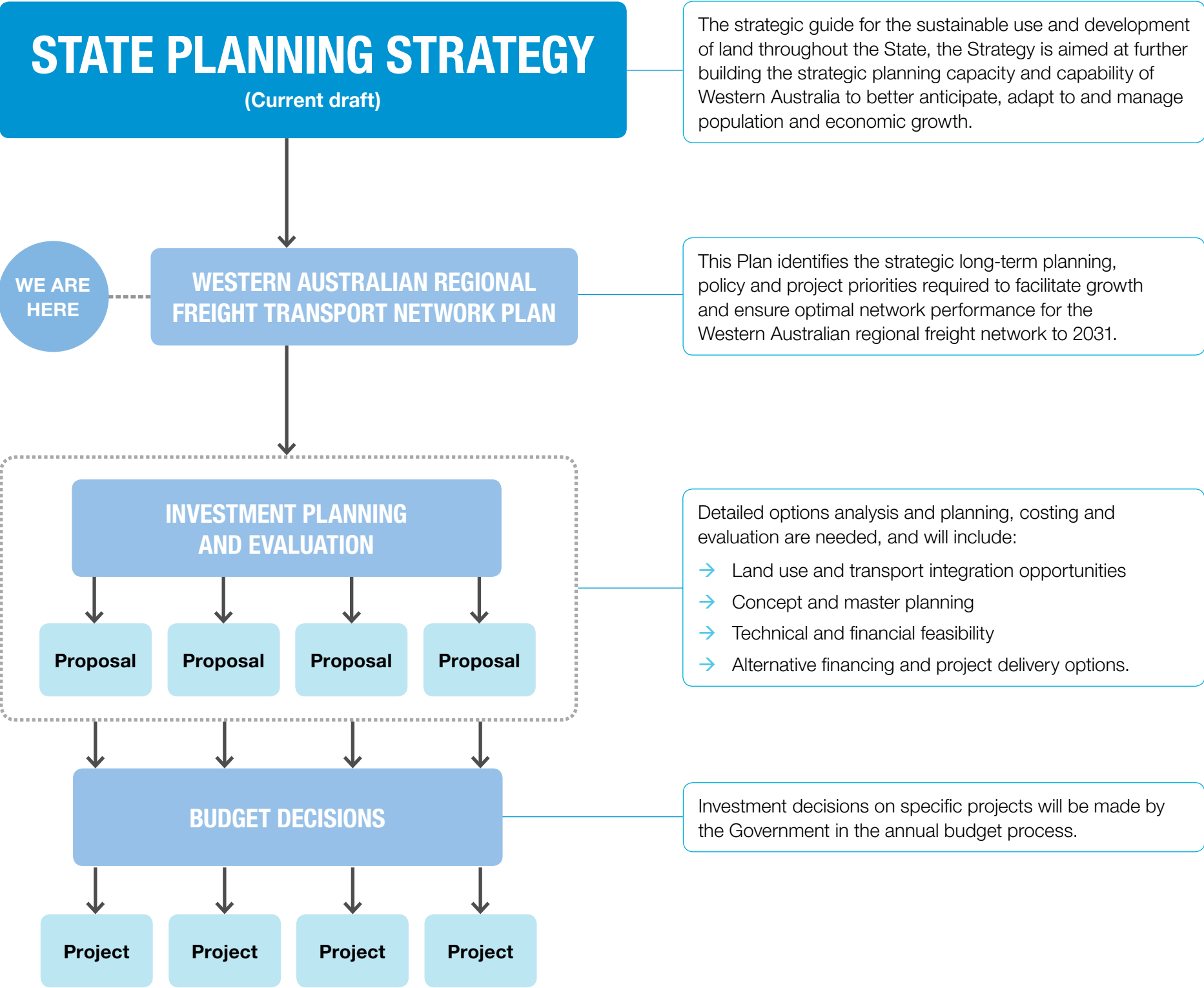
Troy Buswell

Treasurer; Minister for Transport; Fisheries



DECISION MAKING FRAMEWORK

FOR PREPARATION AND IMPLEMENTATION OF THIS PLAN



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Image courtesy of Port Hedland Port Authority



PART 1: OVERVIEW



Image courtesy of Bill Cutten and Esperance Port Authority

HIGHLIGHTS: FREIGHT TRANSPORT PRIORITIES TO 2031

EXECUTIVE SUMMARY

Western Australia's Regional Freight Task

The growth pressures facing Western Australia's regional freight transport network have never been greater. By 2031:

- The volume of regional-based freight movements through the State's port authorities will be around 2.5 times what it is today
- Western Australia's regional road freight task will be around 2 times what it was in 2010
- The rail freight task serviced by the State's rail freight network, managed by Brookfield Rail, will be 2.25 times what it was in 2010.

This growth brings a number of challenges in ensuring that the freight transport network in Western Australia can continue to support the State's immense freight task. Not the least is the challenge of developing infrastructure in a coordinated and timely manner to sustain a high productivity transport network that connects the State's commodity producing regions to marketplaces in Perth, interstate and overseas, and underpins wealth for Western Australia and the nation.

The scale and scope of freight demands over the next two decades will differ across the State's regions. A substantial proportion of current and future regional freight movements will concentrate on a relatively small number of strategic corridors and facilities. This network of strategic freight corridors and facilities will do much of the "heavy lifting" in terms of moving Western Australia's freight task to 2031.

The Western Australian Regional Freight Transport Network Plan focuses the State's freight planning, policy and project priorities on these strategic elements of the regional freight network to ensure the robustness of the overall transport system.

Remembering that the regional freight network seen today has taken more than 100 years to develop, transport-related issues are often ongoing and addressed over time. *The Western Australian Regional Freight Transport Network Plan* sets the enduring strategic directions the Western Australian Government will take to manage future freight growth and address its cumulative impacts over a long-term horizon to 2031 and beyond. It articulates the Western Australian Government's main roles in the development of the regional freight transport network: planning and protecting the network, managing the network, building and maintaining the road network, and facilitating and selectively investing in strategic rail and port network projects.

The Western Australian Regional Freight Transport Network Plan uses the best industrial, population and freight data available and considers expert advice from Main Roads Western Australia, the Public Transport Authority, Port Authorities, Brookfield Rail and the Department of Transport, as well as independent third parties to determine the State's freight transport requirements. The freight transport modelling for the Plan uses new *WA Tomorrow* forecasts for population and synthesises freight demand forecasts from industry and infrastructure providers.

Image courtesy of Department of Regional Development and Lands



Key Findings for the Regional Freight Transport Network

Roads

The road freight task moving into, within and out of the State's regions will increase from 20+ billion tonne kilometres per annum to 40 billion tonne kilometres per annum by 2030.

The future freight task will require a focus on significant road upgrade and renewal programs to certain existing infrastructure together with selective road expansion projects and new links.

The configuration, condition and road-use profile of a number of the State's freight roads are already built to a standard to support freight growth to 2031. Other roads will require upgrading to improve safety, reliability and add additional capacity, particularly in the Pilbara and Mid West regions where major resource developments are occurring and in the South West region, where most of the State's regional-based population occurs. Certain freight routes in the Great Southern and Wheatbelt regions, where much of the network is more than 50 years old, will also require investment to renew and strengthen ageing road infrastructure to accommodate increasing freight tonnages and maximise safety outcomes for users.

The Great Northern Highway will continue to act as an important supply corridor to the north of the State. However, the increasing scale of the future outbound and inbound freight task, together with the development of Strategic Industrial Areas and greenfield infrastructure along the Pilbara seaboard, will result in significant growth in freight movements along the coastal strip. This has implications for both the North West Coastal Highway and the regional roads between it and the Great Northern Highway, as cargo is moved from port to projects along the coast or to mines located inland, requiring investment and policy responses from Government.

Population and economic growth will drive the need for, and timing of, a number of heavy vehicle bypasses and major ring roads across the State. Reconfiguring the road networks around regional centres to allow port-related through-traffic to flow without interfering with local traffic will require road realignments to be closely integrated with a substantial program of port access road improvements to 2031.

The establishment of Strategic Industrial Infrastructure Projects, particularly within the Pilbara, Kimberley and Mid West regions, will require Government to make targeted expansions to the road network to meet emerging demands. Along with Oakajee Mid West Development Project, the integration of the wider regional road freight network with the future ports at the Ashburton North Strategic Industrial Area, the Anketell Port and Strategic Industrial Area, and the proposed Browse Liquefied Natural Gas Precinct is a particular priority.

The efficiency of freight movement within the State's arterial road corridors will continue to be essential to the economy. This efficiency imperative, together with the expected increase in freight movements, will require the Western Australian Government to consider policy responses to make certain major freight routes more productive and keep the heavy vehicle regulatory environment responsive to the changing requirements of the community and industry. A more progressive approach to the State's existing High Wide Load and Restricted Access Vehicle regimes may potentially be required, together with an assessment of the current configuration, condition and location of road train assembly yards.

Rail

The rail freight task on the State-owned rail network, managed by Brookfield Rail, will increase by up to 126 per cent to 2030 from 50+ million net tonnes per annum to more than 130 million net tonnes per annum.

The State's rail network will play an increasingly important role in the movement of the freight task in the southern regions of Western Australia in the future. To meet potential demand, Brookfield Rail will need to invest substantial capital in order to create the required capacity in the rail network.

In the Mid West, Brookfield Rail expects freight growth to increase exponentially to 2030, with much of the growth — and investment in additional capacity — likely to be concentrated on the Morawa-Mullewa-Narngulu-Geraldton arc. The Goldfields-Esperance and South West regions are also likely to be a focus for growth projects. Future growth on the Leonora to Esperance line will necessitate capacity upgrades including partial rail line duplication and the construction of new passing loops, as well as the upgrading and re-sleepering of the line to enable it to carry higher axle loads. Future growth on the Collie to Bunbury rail line will underpin capacity upgrades, including duplication of the line between Brunswick Junction and the port of Bunbury where northern and eastern rail freight flows converge.

Iron ore demand in particular is forecast to increase significantly from approximately 20 per cent of total rail demand to more than 40 per cent of total demand by 2030. Much of this increase is likely to occur in the shorter term, given emerging industrial developments. While the State-owned regional rail freight network is extensive, the distribution of the resources sector, and potential changes in supply chains in the south of Western Australia, may require the development of new rail links or the activation of historic corridors. These links would be facilitated as private developments, as emerging resource projects become viable and proceed to final investment decision.

Western Australia has the nation's most effective and scalable multi-commodity regional rail freight network. Demand for intermodal solutions in the State's regions will continue to grow and will require heavy industrial estates and intermodal terminals to be better integrated with road and rail networks so that freight can be transported, stored and transhipped efficiently with minimum adverse social and environmental impacts.

Image courtesy of
Main Roads Western Australia

Ports

Trade through the State's port authorities will increase by up to 140 per cent to 2030 from 457 million tonnes per annum in 2012 to more than 1 billion tonnes per annum in 2030.

Western Australia has the nation's largest network of ports. There are currently eight port authority ports and nine non-port authority ports in Western Australia. The immense scale and scope of forecast trade growth will necessitate significant infrastructure expansions at existing ports across most of the state as well as the development of new ports proposed at Oakajee, Ashburton, Anketell and potentially for the Browse Liquefied Natural Gas Precinct.

While much of the investment in future port capacity will be borne by the private sector, the Government will ensure the appropriate port planning frameworks, governance models and regulatory settings are in place. In this regard the State Government recently completed the *Western Australian Ports Review* to consolidate all existing and future ports into an appropriately managed regional port structure via the creation of five regional port authorities.

The State's regional ports involve long-life, high-value assets. Optimal investment and the use of these assets will depend on port authorities and all levels of government providing certainty regarding the provision of regional port capacity and use of port lands, as well as road and rail access and strategic integration with major industrial lands within port catchment zones.

There is a growing need for ports to operate within a broader strategic development framework that provides clarity of purpose for future growth and trade projections, and effective integration with other key transport networks and economic development strategies. These factors point to the need for long-term development planning for Western Australia's regional ports. In particular, there is a need to develop plans that ensure that the long-term capacities of transport corridors — both road and rail — are aligned with the long-term capacity of ports. While much of the planning focus to date has been on the export freight task, the demands associated with inbound and project logistics freight tasks are likely to increase significantly over the next 20 years and will need to be considered in more detail particularly in the North West.



Image courtesy of Dampier Port Authority

Planning and Policy Priorities for the Regional Freight Transport Network

The Western Australian Government's planning and policy priorities for the regional road freight transport network include:

- Selective reviews of the Restricted Access Vehicle regime, taking into account potential impacts on other transport modes including coastal shipping and rail, to determine the case for a more progressive access regime. Route assessments will focus on road train operations on the Great Eastern Highway between Northam and Kalgoorlie, the North West Coastal Highway south of Carnarvon, and the Goldfields and Coolgardie-Esperance Highways south of Kambalda to the Port of Esperance.
- A review of High Wide Load corridors within the State, in consultation with industry and other stakeholders, with a view to identifying strategic trunk routes and assessing the case for their development.
- Planning investigations to ascertain the feasibility of a potential direct road connection between the Goldfields Highway and the Great Northern Highway.
- Planning for heavy vehicle bypasses around regional centres to improve amenity and road safety by separating heavy vehicles from passenger traffic to the greatest extent possible. Planning priorities include Margaret River, Wyndham, Williams, Kulin and Kalgoorlie.

The Western Australian Government's planning and policy priorities for the State-owned rail freight transport network include:

- Planning to assess route options and feasibility of a potential rail connection between the Mid West ports and the Goldfields Esperance regions, and a potential rail connection to establish secondary interstate rail access and improve connectivity to the Perth metropolitan area and the South West region.
- Planning to define a corridor for rail realignment around the City of Kalgoorlie to minimise impacts associated with the increase in interstate and intrastate rail movements.
- Planning to assess the need and demand for an intermodal facility in Kalgoorlie including the location options and cost and feasibility.
- Developing a coordinated intermodal network strategy for the south of the state, including planning and protecting options for rail access to strategic heavy industrial estates.
- Continuing to work with all parties to facilitate a sustainable arrangement to keep Tier 3 lines operational.
- Investigating the suitability and potential usage of disused and/or non-operational rail corridors to service regional development needs, including the longer term feasibility of recommissioning corridors to service emerging regional commodities and industrial estate expansions.

The Western Australian Government's planning and policy priorities for regional port authorities include:

- Rolling out the *Western Australian Ports Review* to underpin a phased consolidation program of Western Australian ports.
- Developing a *State Port Strategic Plan* to reaffirm port trade roles and development under the amalgamated regional port authority arrangements outlined in the *Ports Review*.
- Investigating long-term inbound freight requirements in regional Western Australia to ensure the necessary capacity is reserved with a view to progressing common user inbound maritime freight facilities in the Pilbara region.
- Identifying strategic land in close proximity to regional ports for potential port and port user requirements, with further investigation of the concept of inland ports to form central regional hubs at the ports of Esperance, Albany and Dampier.
- Building on the master planning work undertaken by port authorities to determine the ultimate long term development capacity of the ports, including future infrastructure and land requirements and the provision for ongoing expansion and protection of land transport access.

Project Investment Priorities for the Regional Freight Transport Network

The table on pages 11-13 shows a program of proposed major freight transport projects for Western Australia's regions over the short (2012+), medium (2015+) and long term (2020+) to service the State's freight growth and support the productivity opportunities it will bring to 2031. The rate at which medium to long-term projects are delivered will depend on economic and population growth and logistics trends, as well as the resilience of the Western Australian and Australian economies in a climate of major change and global uncertainty. Given it is difficult to predict the future, this program of proposed major freight transport projects, with its emphasis on making better use of existing infrastructure and building on already committed infrastructure projects and resources projects that have a high level of certainty, is well placed to face the changes that are already apparent.

The two dominant freight growth regions are, and will continue to be, the Pilbara and the South West. In each case, the freight transport pressures are clear and definite, and implementation will need to be project-managed across multiple parties to achieve timely agreements and commitments. While the program has been divided into geographic areas for ease of use, it should be noted that projects often benefit more than one region and in many instances will improve Western Australia's overall contribution to national productivity and wealth generation.

The data-driven, evidence-based planning activities undertaken to develop the Plan have allowed for a rigorous analysis of Western Australia's strategic freight task to 2031 highlighting the national significance of the State's resources sector and the basis for the State to seek Commonwealth funding for infrastructure to ensure exports from Western Australia remain internationally competitive and contribute to national wealth. The declaration of the strategic freight task and Government's intentions through the Plan opens the opportunity for the private sector to initiate investment and to partner with the Government to deliver key transport projects that will help to transform the State, particularly major port and rail network infrastructure.

Kimberley

Development of port/logistics capability to support expansion of the Browse Basin and a major flood mitigation program to improve the reliability of the Kimberley region's Great Northern and Victoria Highways

Priorities	2012+	2015+	2020+
→ Upgrade the port of Broome's main wharf	■		
→ Develop a marine supply base precinct adjacent to the port of Broome to further position the port as a service hub for the Browse Basin. The precinct will be managed by the Port Authority in partnership with the traditional owner corporation	■		
→ Upgrade the Broome-Cape Leveque Road and construct a new, high-standard road from Broome-Cape Leveque Road to the Browse Liquefied Natural Gas Precinct		○	
→ Implement a flood mitigation program for the Kimberley region's arterial roads – Great Northern and Victoria Highway: Derby to Fitzroy Crossing, Halls Creek to Victoria Highway		○	○
→ Construct the Kununurra heavy vehicle bypass – Stage 1		○	
– Stage 2			○

Pilbara

Establishment of integrated deep-water port and industrial estates at Anketell and Ashburton and expansion at existing port authority ports to accommodate growth in the region's resources sectors; development of the Pilbara road network to support coastal and inland industrial expansion and the Pilbara Cities Initiative

Priorities	2012+	2015+	2020+
→ Dampier Port marine and landside facilities development			
– Develop a dedicated logistics hub – Dampier Marine Services Facility, subject to private sector funding model and necessary Government approvals	◆		
– Upgrade King Bay Industrial Estate infrastructure, including access roads, services and utilities	■		
→ Develop the port of Port Hedland up to a potential capacity of around 900 Mtpa			
– Develop a dedicated logistics hub – Lumsden Point Berths PH5 and 6, subject to private sector funding model and necessary Government approvals	◆		
– Construct up to 11 additional berths and undertake an associated dredging program to take the Inner Harbour to 495 Mtpa; construct up to 16 additional berths and a new shipping channel to develop an Outer Harbour of 400 Mtpa	◆	○	○
→ Duplicate Dampier Road from Balmoral to Burrup Road for improved access to the Port of Dampier and Burrup Peninsula	●●●		
→ Improve access to the port of Port Hedland			
– Realign the Great Northern Highway at Wedgefield Industrial Estate	●●●		
– Duplicate the Port Hedland Road		○	
– Undertake the Great Northern Highway eastern bridges program		○	
→ Upgrade the Marble Bar Road – Stage 1: Coongan Gorge realignment		○	
– Stage 2: Newman to Rippon Hills Road turnoff: upgrade to seal standard	●	○	○
→ Upgrade the North West Coastal Highway: Minilya to Barradale		○	
→ Progress transport infrastructure to support development of Strategic Infrastructure Projects		○*	
– Construction of Anketell Port Access Road, upgrade of Onslow Road and construction of Ashburton Port Access Road			
→ Construct the Karratha western bypass			○
→ Complete the missing link in the Karratha Tom Price Road: Millstream to Nanutarra-Munjina Road			○

* To include proponent funding contributions

Proposed – business case subject to funding approval ■

Proposed – proponent funding, subject to final investment decision ◆

Proposed ○

Under Construction ●●●

Funded ●●

Part Funded ●

Note: Currently unfunded projects will be subject to the Decision Making Framework outlined on page 4.

Mid West and Gascoyne

Expansion of the regions’ freight network to link the emerging Mid West resources industry to existing and future Mid West ports, manage the Greater Geraldton Area’s increasing freight task and improve the area’s northern and southern freight accesses to support future regional development

Priorities	2012+	2015+	2020+
→ Optimise existing berths at the port of Geraldton to service the surge in resources trade to take the port to 20-30Mtpa until Oakajee is developed			
– Extend Berths 2 and 6; undertake harbour surge mitigation program; install advanced mooring systems	■	○	
– Upgrade shiploaders at Berths 4 and 5		○	○
→ Plan for and invest towards common-user port infrastructure to develop the Mid West resources industry – Oakajee Mid West Development Project	○	○	
→ Construct a potential dual-gauge extension to Brookfield Rail’s southern Mid West network		○	
→ Construct Geraldton Outer Bypass Stage 1: connect Oakajee Estate to Geraldton Mount Magnet Road creating an outer bypass of the City of Geraldton		○	
→ Construct Geraldton Inner Bypass Stage 1: southern section of a north-south link road for Geraldton		○	
→ Duplicate the North West Coastal Highway within the City of Geraldton: Uta Karra Road to Green Street			○
→ Construct the Northampton heavy vehicle bypass			○
→ Realign the Brand Highway at Bookarra and S-Bends; replace bridges at Pell’s River, Greenough River and Irwin River	●●*	○	○

* Greenough River Bridge

South West

Interlinking projects to better connect South West industry to bulk ports at Bunbury and Kwinana, unlock capacity at the port of Bunbury, manage the Greater Bunbury Area’s increasing freight circulation task, and upgrade east-west transport links to freight growth areas such as Collie

Priorities	2012+	2015+	2020+
→ Double the capacity of the port of Bunbury to 30+ Mtpa			
– Divert the Preston River to consolidate port land holdings and allow development of the Inner Harbour	■	○	
– Redevelop existing Berths 3 and 5	■	○	
– Construct up to five additional berths, including Berth 14, and an internal rail loop	◆	○	○
→ Upgrade the Collie to Brunswick Junction rail line including partial duplication	○		
→ Duplicate the rail line between Brunswick Junction and Bunbury Inner Harbour	○		
→ Stage improvements to the South West Main to increase axle loads to 23-25 tonnes. Undertake a crossing loop extension program between Brunswick Junction and Pinjarra and potentially, in the longer term, duplicate the line between Pinjarra and Kwinana		○	○
→ Complete the Bunbury Port Access Road – Stage 2	●●		
→ Improve the South West Highway: Donnybrook to Bridgetown	●●		
→ Complete the Bunbury Outer Ring Road – Stage 1	●●		
– Stages 2 & 3		○	
→ Upgrade the Coalfields Highway	●●*	○	○

* Wellington Dam turnoff to Allanson

- Proposed – business case subject to funding approval ■
- Proposed – proponent funding, subject to final investment decision ◆
- Proposed ○
- Under Construction ●●
- Funded ●●
- Part Funded ●

Note: Currently unfunded projects will be subject to the Decision Making Framework outlined on page 4.

Great Southern Road infrastructure investments to manage the Greater Albany Area’s increasing freight circulation task, improve port access and renew the region’s ageing arterial roads

Priorities	2012+	2015+	2020+
→ Progress expansion plans at the port of Albany, subject to satisfactory private sector funding model; construction of an additional berth and associated dredging program for Capesize vessels to service emerging resource development opportunities		◆	
→ Roll out a road renewal program for the Albany-Lake Grace Road		○	
→ Complete the Albany Ring Road – Stages 2 & 3			○
→ Duplicate the Albany Highway within the City of Albany: Federal Street to LeGrande Avenue			○

Goldfields Esperance Coordinated projects to enable capacity expansion at the port of Esperance, alleviate the impact of heavy freight movements on the region’s communities and ensure Western Australia’s principal interstate supply links (Eastern Goldfields Railway, Great Eastern Highway and Coolgardie-Esperance Highway) keep pace with the State’s freight demands

Priorities	2012+	2015+	2020+
→ Bring forward additional port of Esperance terminal capacity to take the port to 30+ Mtpa, subject to a satisfactory private sector funding model and necessary Government approvals	◆	○	
→ Achieve Defined Interstate Rail Network Standards for the Eastern Goldfields Railway via a program of duplications and crossing loops	●*	○	
→ Upgrade the Leonora to Esperance line, including crossing loop program and train control, communications and signal system upgrades in the short term, a re-rail and re-sleepering program in the medium term, and grade and axle load improvements in the long term	○	○	○
→ Construct a potential spur line to service the emerging Yilgarn resources province		○	
→ Upgrade the Kalgoorlie to Esperance rail line to provide for efficient operation of long trains including targeted duplications		○	
→ Construct the Esperance Port Access Corridor: Coolgardie-Esperance Highway – Stage 1	●●		
– Stage 2			○
→ Upgrade the State’s principal interstate road supply link			
– Great Eastern Highway: Duplicate the Highway within the City of Kalgoorlie-Boulder from Anzac Drive to Gatacre Street		○	
– Great Eastern Highway: Construct additional passing lanes between Southern Cross and Kalgoorlie		○	
– Great Eastern Highway: Reconstruct the Highway from Walgoolan to Karalee; Bullabulling to Coolgardie West		○	○
– Coolgardie-Esperance Highway: Reconstruct the Highway from Emu Rocks North to Widgiemooltha		○	○
→ Upgrade and seal the Goldfields Highway: Wiluna to Meekatharra	●**	○	
→ Construct the Kalgoorlie north west heavy vehicle bypass			○
→ Construct the Ravensthorpe heavy vehicle bypass	●●		

* Replacement of 185km of rail between Koolyanobbing and Kalgoorlie

** Sealing of overtaking opportunities and floodways at strategic locations

Wheatbelt Package of road and rail projects to secure the future of the region’s grain transport network, regenerate the region’s arterial roads and manage inter-regional freight growth

Priorities	2012+	2015+	2020+
→ Invest in narrow gauge network upgrades to Tier 1 and selected Tier 2 lines serving the region’s grain silo network	●●		
→ Continue to work with parties to facilitate a sustainable arrangement to keep Tier 3 lines operational	○		
→ Upgrade the Great Northern Highway: Muchea to Wubin Stage 2	●●*	○	
→ Upgrade the Albany Highway: Bedforddale Hill to Arthur River; Harold Road to Settlement Road		○	○
→ Roll out a road renewal program for the Brookton Highway			○

* Bindi Bindi Curves upgrade

Note: Currently unfunded projects will be subject to the Decision Making Framework outlined on page 4.

Proposed – business case subject to funding approval ■

Proposed – proponent funding, subject to final investment decision ◆

Proposed ○

Under Construction ●●●

Funded ●●

Part Funded ●



Super Pit, Kalgoorlie-Boulder, Western Australia

PART 2: CONTEXT



INTRODUCTION: SHAPING WESTERN AUSTRALIA FOR THE FUTURE

IMPORTANCE OF THE WESTERN AUSTRALIAN FREIGHT NETWORK

An effective freight transport network is essential for the long-term development of Western Australia. A strong freight network ensures remote, regional and metropolitan businesses and communities have reliable access to goods and services. It underpins the capability to move these goods efficiently and sustainably into, around and out of the State thereby making a substantial contribution to the overall prosperity and liveability of Western Australia.

For these reasons, it is in the interest of all Western Australians to ensure that the State has an effective freight network and that key infrastructure can continue to meet the State's freight task to 2031 and beyond.

An Effective Freight Network

- Reduces costs and underpins productivity – freight transport has a significant impact on everyday costs encountered by regional Western Australian businesses and communities. An effective network ensures efficiency gains in freight transport translate to greater productivity growth, higher living standards and competitive businesses.
Transport costs represent between 1-10 per cent of the total cost of Australia's production.¹
- Connects remote, regional and metropolitan Western Australia and creates development opportunities – an effective network makes jobs and services more accessible and links remote, regional and metropolitan Western Australia so that all parts of the State can share in the benefits of population and economic growth.
The freight network helps shape the State. It drives jobs, economic growth and builds Western Australia's prosperity.
- Supports the efficient operation of the transport, warehousing and logistics sector – the sector is a vital part of the Western Australian economy contributing \$11 billion, about 5 per cent, to Gross State Product in 2010-11.² More importantly, the sector provides the goods, equipment and services that support all other industries in the State, especially manufacturing, retail, agriculture and resources.
The transport and logistics sector is one the State's largest employers – employing 59,500 people in 2010-11.³
- Links regional goods with domestic and international marketplaces – an effective network links the State's commodity producing regions to marketplaces in Perth, interstate and overseas, generating wealth for Western Australia.
Exports of goods and services accounted for 55 per cent of Western Australia's Gross State Product in 2010-11.⁴

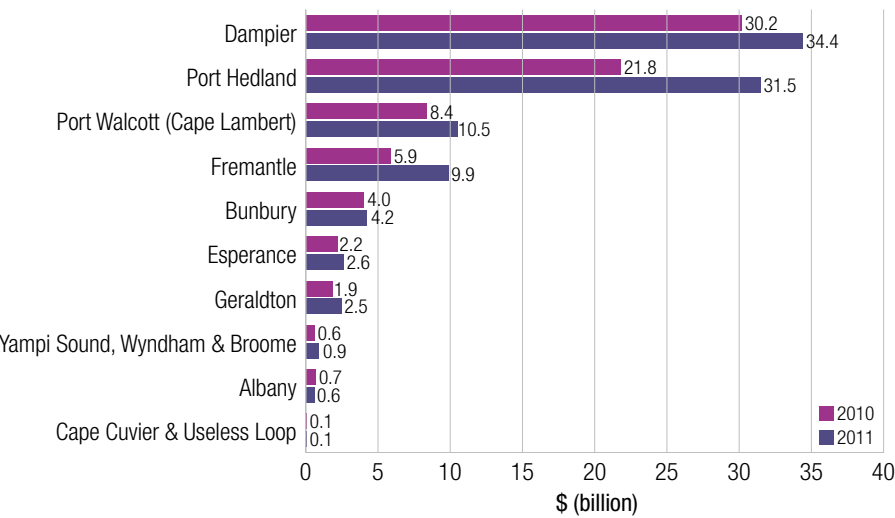


Figure 1: Exports by Major Port (Value)⁵

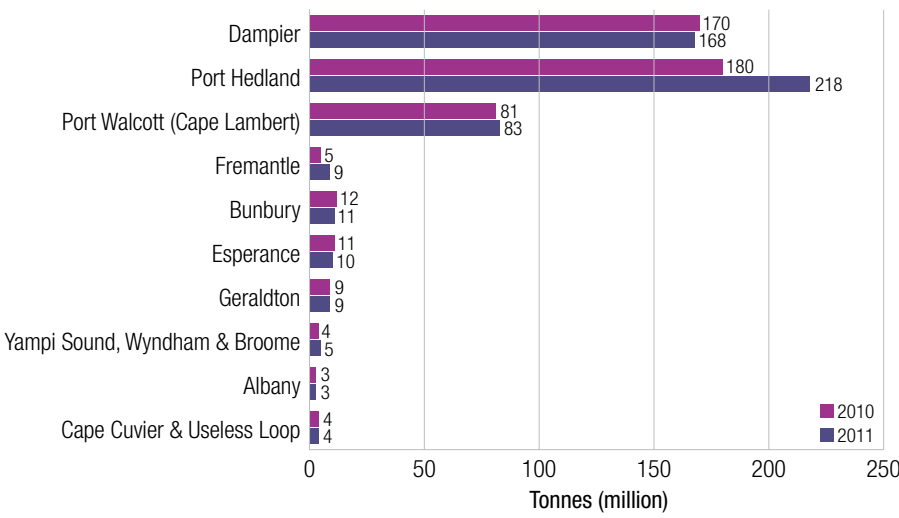


Figure 2: Exports by Major Port (Tonnes)⁶

THE PURPOSE OF THE REGIONAL FREIGHT NETWORK PLAN

Regional Western Australia continues to grow at a rapid pace producing more exports than ever before. As the State's regions grow, so too does the demand for the movement of freight, placing increasing pressure on the regional freight transport network.

A key role for Government is to manage these pressures and to provide a clear strategic direction about how it will ensure an effective regional freight transport network exists in the future. To gain the full advantage of the economic and social benefits associated with the provision of adequate transport infrastructure and services, current and future freight transport needs must be identified and a plan that determines the State's regional freight transport priorities developed. In this context, the overarching purpose of the *Western Australian Regional Freight Transport Network Plan* is to:

Guide the future development of the regional freight network to successfully respond to the needs of the growing Western Australian economy and population, while protecting the environment and quality of life aspirations that the community value.

Imperatives for Action

- Build on one of the State's major competitive advantages – the magnitude, scalability and generally good condition of the regional freight network represent a significant competitive advantage for Western Australia and its regions. A long-term plan for the future development and integration of the network is essential to ensure the State continues to attract investment and jobs.

Western Australia has the nation's largest network of ports and one of its most efficient road networks, with more than 90 per cent of State Roads available to high productivity vehicles.

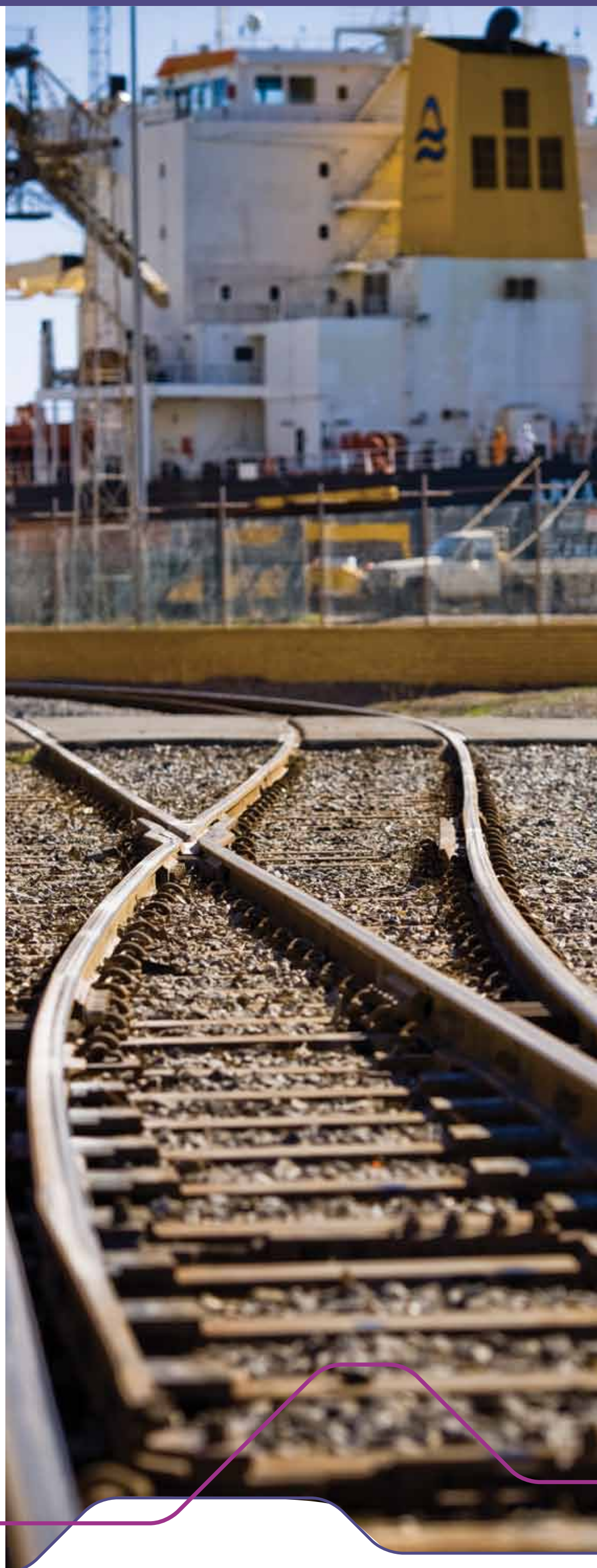
- Ensure robust and transparent investment in State assets – the regional transport network is one of the State's most important and valuable assets. It is prudent to have a plan that guides Government's investment in the network and ensures best use of the State's money.

In 2010-11 the State Government invested \$780 million in building, maintaining and operating Western Australia's regional State Road Network.⁷

- Better manage the State's immense freight task, now and into the future – the State transport network supports some of Australia's largest freight movements, many of which are attributed to export-related transport movements associated with the State's resources sector.

Western Australia produced all of Australia's nickel, diamonds and garnet in 2010, 97 per cent of the nation's iron ore and salt, and most of the nation's liquefied natural gas (87 per cent), gold (70 per cent), ilmenite (66 per cent) and alumina (63 per cent).⁸

*Image courtesy of
Brookfield Rail*





Moving a flock of Merino Sheep on a farm in Western Australia

THE SCOPE OF THE NETWORK PLAN

The *Western Australian Regional Freight Transport Network Plan* is a coordinated approach to the ongoing development of the strategic freight transport network for regional Western Australia.

The Plan identifies the principal road, rail, port and freight centres that form the strategic components of the regional freight transport network to which other freight corridors and freight centres, including local government roads, connect.

Key Scoping Principles

- Focusing on freight-only transport needs and priorities to 2031 mainly outside the Perth metropolitan and Peel regions.
- Covering the State Government's major freight roads (State Roads), State-owned rail lines (privately operated by Brookfield Rail under lease arrangements) and ports (port authorities) and all types of major freight-related land use.
- Considering planning, policy and project priorities of strategic significance to the overall network and State as a whole.
- Referencing the major capital investments required to develop the regional freight network to 2031.

General Context

The Plan considers relevant Commonwealth Government freight policies and programs to ensure that Western Australia's freight transport initiatives complement the development and performance of the national transport system including:

- The national transport reform agenda progressed by the Standing Council on Transport and Infrastructure.
- The strategic priorities articulated in the *National Land Freight Strategy* (current draft) by Infrastructure Australia and the *National Ports Strategy* by Infrastructure Australia and the National Transport Commission.

The Plan also draws on Western Australian Government policies and planning frameworks for strategic direction including:

- The long-term State land use planning priorities articulated in the *State Planning Strategy* (current draft).
- The strategic regional infrastructure priorities articulated in various region-based planning and infrastructure frameworks by the Western Australian Planning Commission, together with the Commission's extensive body of policies.
- The State's sub-regional and regional structure plans including the *Greater Bunbury Region Scheme*.

- Collaborative industrial land use planning strategies including the *South West Industrial Lands Strategy*.
- Various infrastructure development plans prepared by the Western Australian Government's Transport Portfolio and port authorities.

Local Government has an important role in managing the operation of the transport network through its responsibilities for local area planning and the local road network, which provides many of the important connections into the strategic transport network. The Western Australian Government recognises that many local governments in Western Australia's regions have or are preparing transport plans that address local freight transport issues, and will work with councils in the development and implementation of these plans, particularly in relation to the delivery of the *Western Australian Regional Freight Transport Network Plan*.

While the Plan focuses mainly on the Western Australian Government's role in the development of regional freight network infrastructure it also accounts for the central role private sector stakeholders play in the freight network.

The Plan reflects the Western Australian Government's long-standing practice of partnering with the private sector to deliver the major infrastructure, particularly in relation to port and rail network development. The Western Australian Government will explore opportunities to partner with the private sector to deliver key projects on a case-by-case basis, with the aim of maximising the value for money outcome for the State.

Consultation Process

The Western Australian Government has undertaken extensive stakeholder engagement to underpin the development of the *Western Australian Regional Freight Transport Network Plan*.

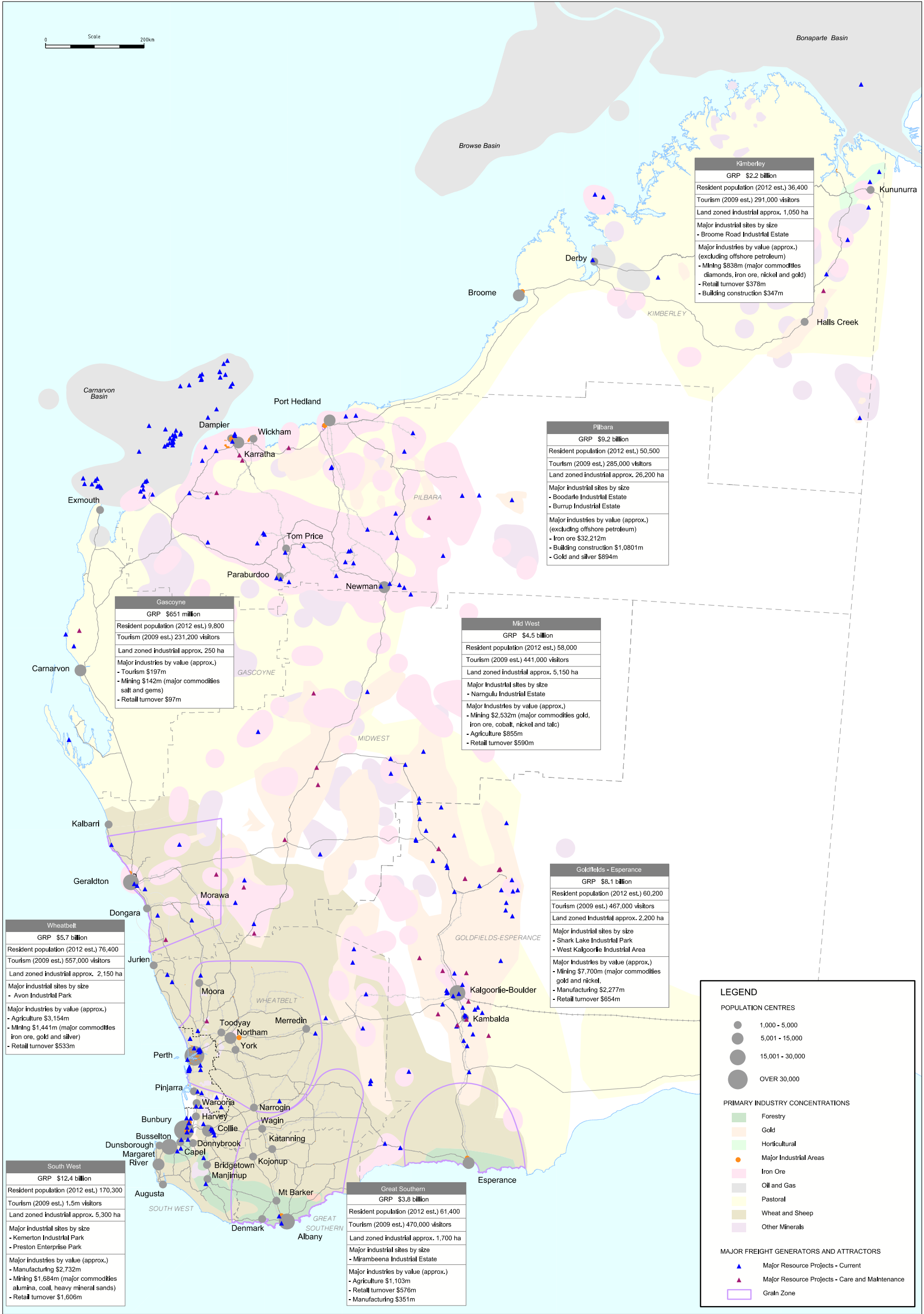
The process included:

- Public sector consultation targeting local government and regional development organisations. More than 80 stakeholder organisations across the entire State were consulted.
- Private sector consultation targeting major freight transport and logistics service providers and users. More than 70 private sector stakeholders were consulted.



Grain harvester working a field in Western Australia's Wheatbelt region

Map 1: Current Freight Drivers



OVERVIEW: THE WESTERN AUSTRALIAN REGIONAL FREIGHT TASK

THE REGIONAL FREIGHT NETWORK IN 2012

Major Drivers Influencing the Current Network

Economy

Freight demand is largely derived from the type and scale of economic activity in a region. Generally, economic expansion results in an overall increase in freight demand, while economic contraction results in an overall decrease in freight demand.

The Western Australian economy has grown strongly at more than 4 per cent per annum (on average) over the past 10 years.⁹ As the State has grown, so too has the demand for the movement of freight within the State's regions, with regional freight demand outstripping national averages over the same ten-year time period.

Industry

Freight demand is also a direct function of the types of industries in a region. Industries can be broadly classified into goods-related and service-related industries, each having unique impacts on freight movements.

Regional Western Australia is one of the great mineral resource provinces of the world. The State presently hosts an impressive 545 commercial mineral projects, most of which are located outside of the metropolitan and Peel regions, embracing 966 operating mine sites that produce over 50 different minerals. In 2010-11, there were also 73 operating oil and gas fields.¹⁰

Regional Western Australia also has a major agricultural sector. In 2010-11 the gross value of the State's agricultural production was estimated at \$5.4 billion, with exports representing around 85 per cent of the gross value of this production.¹¹

These export-commodity-based industries attract and generate large freight tasks relative to other industries. Indeed, the transport of Western Australian commodities translates into some of the nation's largest freight movements, with the State leading the nation in mineral, petroleum and grain export production.

Population

Personal consumption is demand generated by residential households for goods and services. An increase in this consumption generally translates into increased non-bulk freight movements particularly in the form of retail goods. Approximately 1.2 million tonnes per annum of fast-moving consumer goods are currently distributed across Western Australia's regions.¹² This task, given population distribution (shown in *Map 1*), tends to concentrate in the south-west corner of the State and in coastal areas, where the majority of population centres occur.

Land Supply and Use

The zoning, size and availability of industrial land, and its location relative to transport corridors and other freight centres, is a key enabler of freight demand. Regional Western Australia is currently serviced by more than 40,000 hectares of industrial-zoned land.¹³ Most large heavy and special industrial precincts are in relatively close proximity to the regional port network, concentrating related heavy freight movements in comparatively small, but freight-intensive areas.

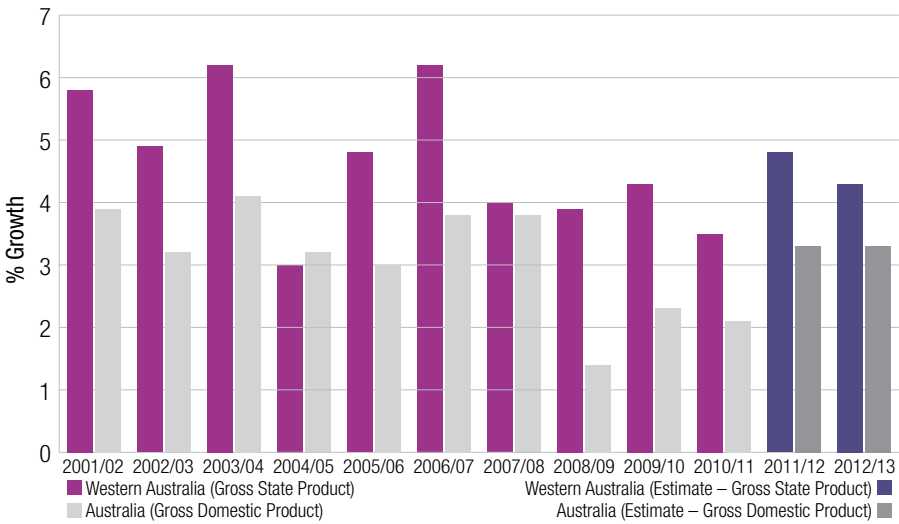


Figure 3: Gross Domestic and State (WA) Product Growth, (2001/02 – 2012/13)¹⁴

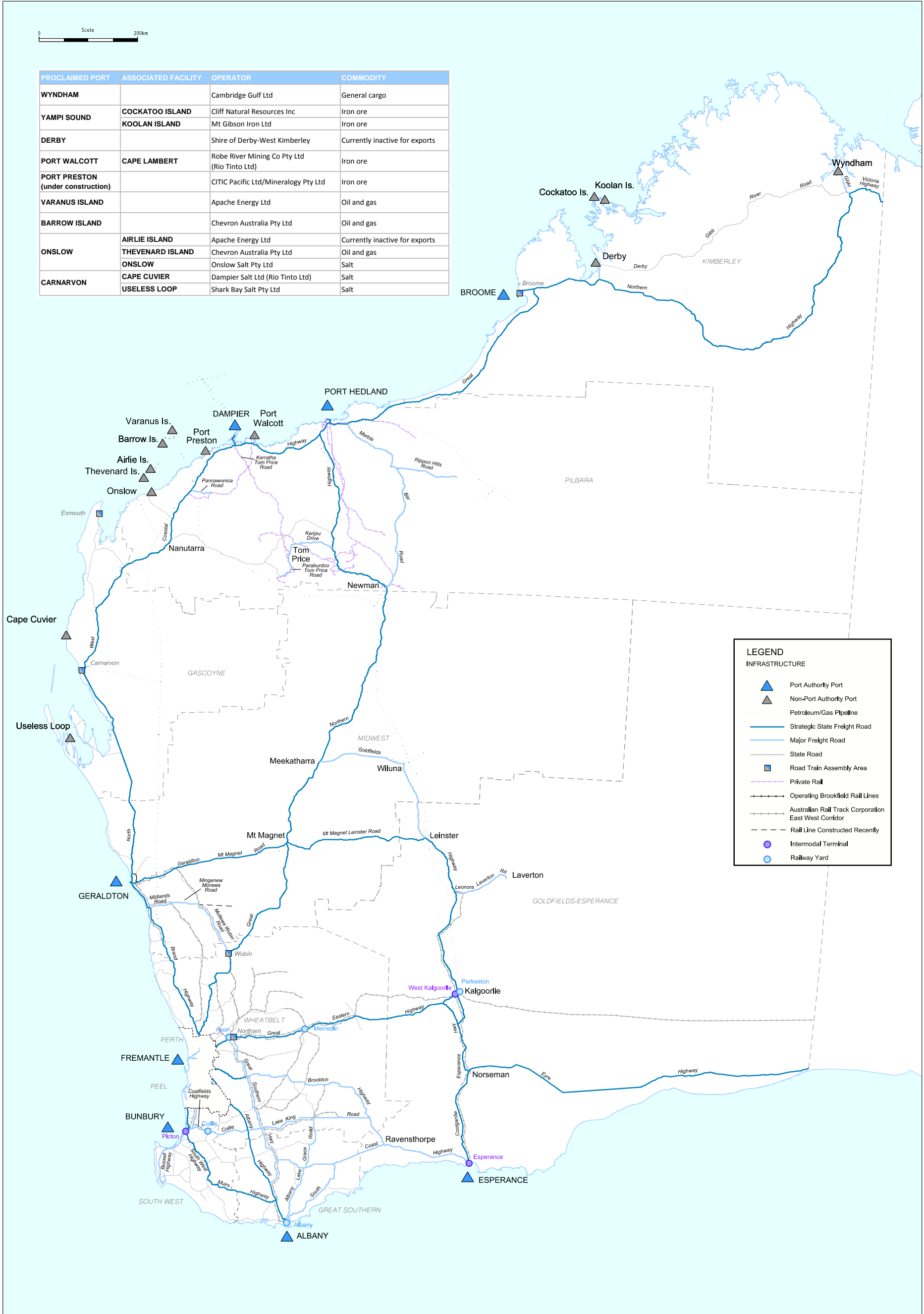
Region	2009/10	2010/11	Main Commodities by Region (2010/11)
Pilbara	53, 239	80,522	Iron ore (68%), Crude Oil (15%), LNG (11%)
Goldfields Esperance	7,722	8,617	Gold (60%), Nickel (37%)
Peel	4,424	5,171	Alumina (77%)
Mid West	2,532	2,679	Gold (28%), Iron Ore (25%)
Wheatbelt	1,441	2,466	Iron Ore (51%)
Kimberley	838	1,022	Iron ore (42%), Diamonds / Crude Oil (30%)
South West	526	525	Coal (61%)
Gascoyne	142	119	Salt and Gems (95%)
Perth	37	37	Construction Materials, Silica and Limestone Sand (100%)
Great Southern	5	6	Spongolite, Silica and Limestone Sand (100%)
Total	70,906	101,164	

Table 1: Value of Minerals and Petroleum by Department of Mines and Petroleum Region and by Commodity (\$ million)¹⁵

Region	2009/10	Main Commodities by Region (2010/11)
Central Agriculture	1,689	Wheat (49%), Barley (11%), Sheep sales (10%), Wool (9%)
Southern Agriculture	1,404	Wheat (25%),Canola (17%), Barley (15%), Sheep sales(12%)
Northern Agriculture	1,219	Wheat (52%), Canola (8%), Legumes (8%), Lupins (8%),
South West	1,097	Vegetables (20%), Fruit (15%), Cattle sales (13%), Wool (12%)
Northern Rangelands	247	Cattle sales (86%), Fruit (8%)
Southern Rangelands	96	Cattle Sales (18%), Fruit (18%), Vegetables (14%), Wool (12%)
Total	5,753	Wheat (32%), Cattle sales (9%), Sheep sales (8%), Canola (8%)

Table 2: Value of Agricultural Produce by Department of Agriculture and Food Western Australia Region and by Commodity (\$ million)¹⁶

Map 2: Current Regional Freight Network



Freight Network Overview

Road Network

Western Australia's road network comprises around 54,000 sealed kilometres and 95,000 unsealed kilometres of road.¹⁷ As shown in *Map 2*, much of the network is concentrated in the south-west corner of the State, where the majority of the population lives.

Main Roads Western Australia manages the State Road Network of 18,000 kilometres, while the remainder is independently managed by local governments and the Department of Conservation and Environment.¹⁸ While the network is extensive, only a relatively small number of roads move most of Western Australia's road-based freight task. The majority of arterial roads managed by Main Roads Western Australia are of particular importance and have been identified as Strategic Freight Roads and Major Freight Roads within the *Western Australia Regional Freight Transport Network Plan*.

The criteria for inclusion of routes as Strategic or Major Freight Roads in the Plan include having significant existing and forecast volumes of freight relative to other network routes, having strategic functionality within the overall road network (e.g. providing connectivity to ports, strategic heavy industrial estates or major resource provinces, or linking regional centres with the Perth metropolitan area) or the adequacy of the road infrastructure for the existing and future freight task. These roads are generally declared State Highways and Main Roads and allow for high-productivity freight vehicle configurations. A number of the most significant Strategic Freight Roads are also recognised under the National Land Transport Network and have priority for Commonwealth funding.

Rail Network

The freight rail network owned by the State connects Perth to major regional centres within the Bunbury-Geraldton-Kalgoorlie-Esperance arc (refer to *Map 2*) and consists of around 5,000 route kilometres of track.¹⁹ The network transports mainly export commodities through the ports of Geraldton, Bunbury, Albany, Esperance and Fremantle, with the exception of the interstate mainline which links Western Australia to the Eastern States and transports the majority of general freight along that transport corridor.

The State-owned freight rail network is privately operated by Brookfield Rail under a lease that is in force until 2049. Brookfield Rail operates the network as an open-access, multi-user network. The company provides track infrastructure and train control services and is responsible for negotiating commercial access with end users and above-rail service providers. The interstate mainline (together with the track east of Kalgoorlie, which is owned by the Australian Rail Track Corporation) and the south-west mainline are also recognised under the National Land Transport Network and have priority for Commonwealth funding.

In the north of the State there are a number of private heavy haulage rail lines that transport iron ore to the ports of Port Hedland, Dampier and Port Walcott (Cape Lambert). These rail lines carry the vast majority of the iron ore volumes exported from these three ports. While the tonnages carried are substantial, these rail lines have not been given detailed consideration within the *Western Australia Regional Freight Transport Network Plan* as they are privately owned and operated, although their interface with the broader regional freight network is considered.

Port Network

Western Australia has the nation's largest network of ports, with eight port authority ports and nine non-port authority ports operating across the State.²⁰ All ports are considered State Government ports, although there is considerable privately built, owned and operated infrastructure within many of them.

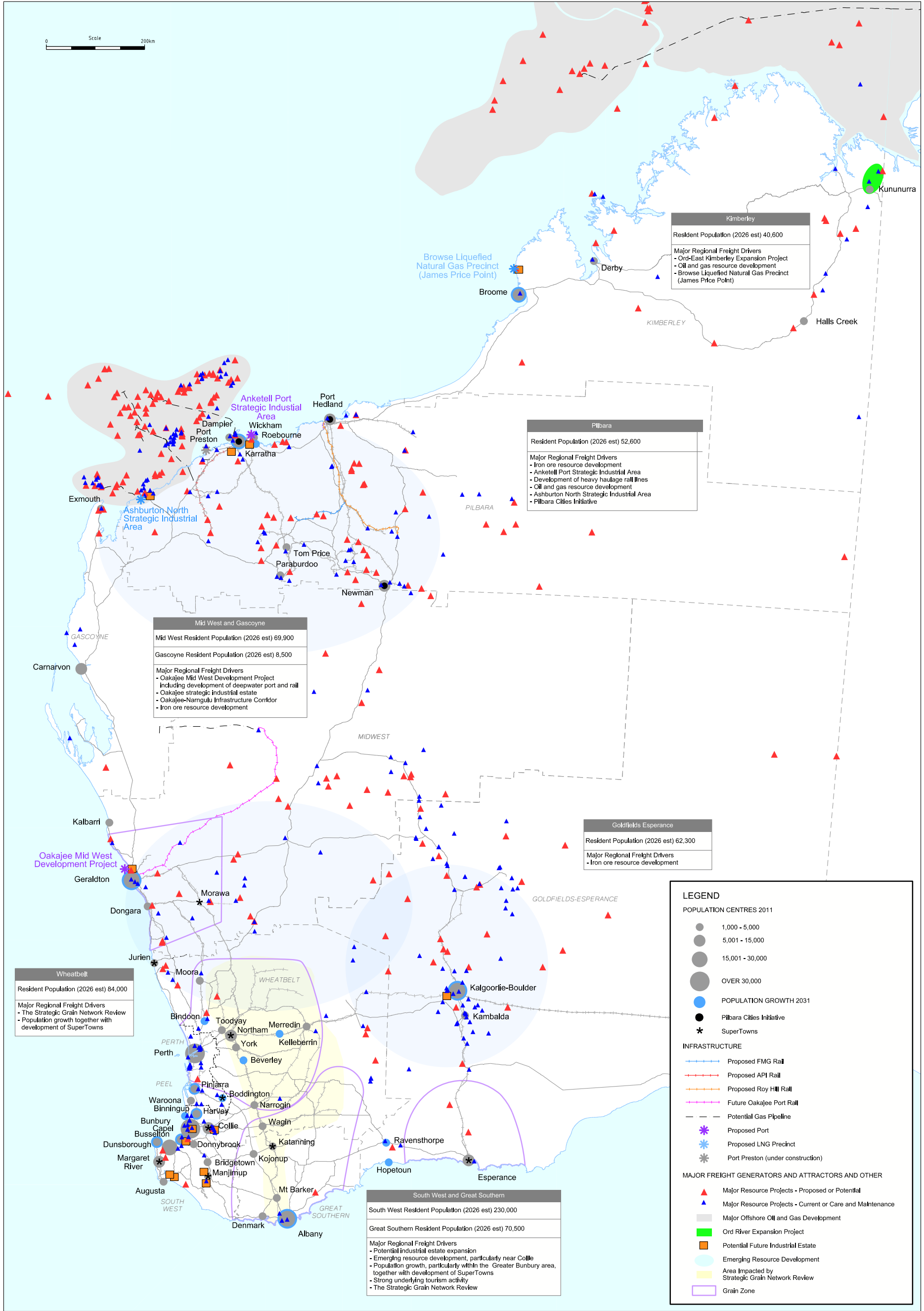
The Albany, Broome, Bunbury, Dampier, Esperance, Fremantle, Geraldton, and Port Hedland Port Authorities are established under the *Port Authorities Act 1999*. The non-port authority ports of Carnarvon (which includes Cape Cuvier and Useless Loop), Onslow (which includes Airlie Island, Thevenard Island and Onslow), Barrow Island, Varanus Island, Port Preston, Port Walcott (Cape Lambert), Derby, Yampi Sound (which includes Cockatoo Island and Koolan Island), and Wyndham are established under the *Shipping and Pilotage Act 1967*.

In general, non-port authority ports comprise one or more single-user export facilities operated by private resource companies. These ports and related facilities are operated with limited guidance from the State Government and, as such, have not been given detailed consideration within the *Western Australia Regional Freight Transport Network Plan*. It is, however, important to note the tonnages for some of these ports are substantial and further add to the State's existing and future port throughput. The port of Port Walcott located at Cape Lambert is of particular significance, exporting more than 80 million tonnes in 2011.²¹ A proposed expansion at Port Walcott is part of a plan to raise Rio Tinto's annual production from the Pilbara to more than 350 million tonnes per annum by 2015. To achieve this, the Port Walcott port capacity will be expanded to handle an additional 120 million tonnes per annum.



Image courtesy of Brookfield Rail

Map 3: Future Freight Drivers



THE REGIONAL FREIGHT NETWORK IN 2031

Major Change Drivers Influencing the Future Network

Resource Project Developments, Strategic Infrastructure Projects

As illustrated in *Map 3*, Western Australia's resources industry is expected to continue to grow strongly, with \$138 billion worth of major resource projects committed or under construction and a further \$169 billion planned or possible.²²

The scale and rate of development within the sector will create massively increased demand for freight transportation and influence regional freight network development to 2031.

In particular, a number of major resource projects, mainly in the iron ore and liquefied natural gas sectors, will underpin establishment of Strategic Infrastructure Projects in the Kimberley, Pilbara and Mid West regions, as shown in *Figure 4*. These projects will generate additional development-ready, serviced industrial land in regional Western Australia and enable the planning and development of major greenfield freight transport infrastructure, including ports and heavy haulage rail lines.

Major Strategic Infrastructure Projects include:

- Anketell Port Strategic Industrial Area – identified as the site for the next major multi-user deep-water port and industrial precinct for the Pilbara region.²³
- Ashburton North Strategic Industrial Area – identified as the site for the development of natural gas projects and associated industries in the Pilbara region to enable the commercialisation of natural gas discoveries in the Carnarvon Basin.²⁴
- Browse Liquefied Natural Gas Precinct – identified as the site for a potential liquefied natural gas precinct in the Kimberley to enable processing of natural gas from the Browse Basin.²⁵
- The Oakajee Mid West Development Project – identified as the site for an integrated deep-water port, rail and industrial estate to support the development of the resources sector in the Mid West region.²⁶

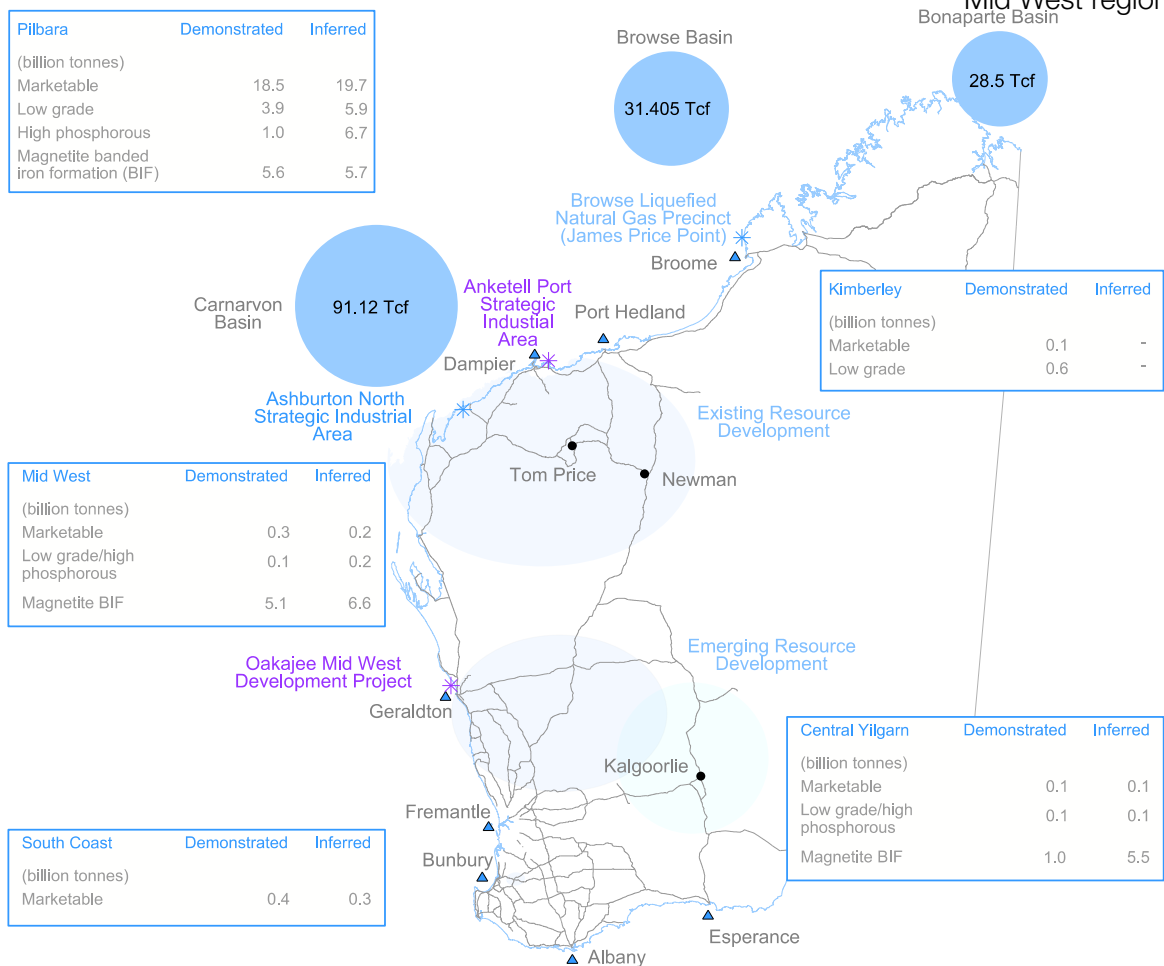


Figure 4: Iron Ore and Natural Gas Resources and Strategic Infrastructure Projects in Western Australia²⁷

Developments within the Freight and Logistics Sector – Improved Freight Efficiency

A number of structural and technical trends within the freight and logistics industry will continue to evolve and influence the way the industry uses the network to 2031. Strategic alliances and consolidation along supply chains over the last decade have, in many cases, resulted in a number of vertically integrated third-party transport and logistics companies playing an increasing role in freight and logistics infrastructure. Major technological changes within the sector, including advances in rolling stock and road freight vehicle performance, increasing vessel size and adoption of intermodal solutions, will also continue to evolve.

These trends will concentrate freight capacity and capability at certain strategic freight facilities, freight corridors and industrial areas.

Population Growth

Western Australia's population is expected to increase from 2.36 million people in 2011 to 3.06 million in 2026.²⁸ As *Map 3* illustrates, in regional Western Australia, population growth is likely to continue to concentrate in the south-west corner of the State, particularly the Greater Bunbury Area.

The development of the SuperTowns and Pilbara Cities initiatives (shown in *Map 3*) will play an important role in future regional development and will underpin additional growth in other areas of the State. The Pilbara Cities' vision includes the development of Karratha and Port Hedland to each support a population of 50,000 by 2035 and Newman developing as a sub-regional centre of 15,000.²⁹

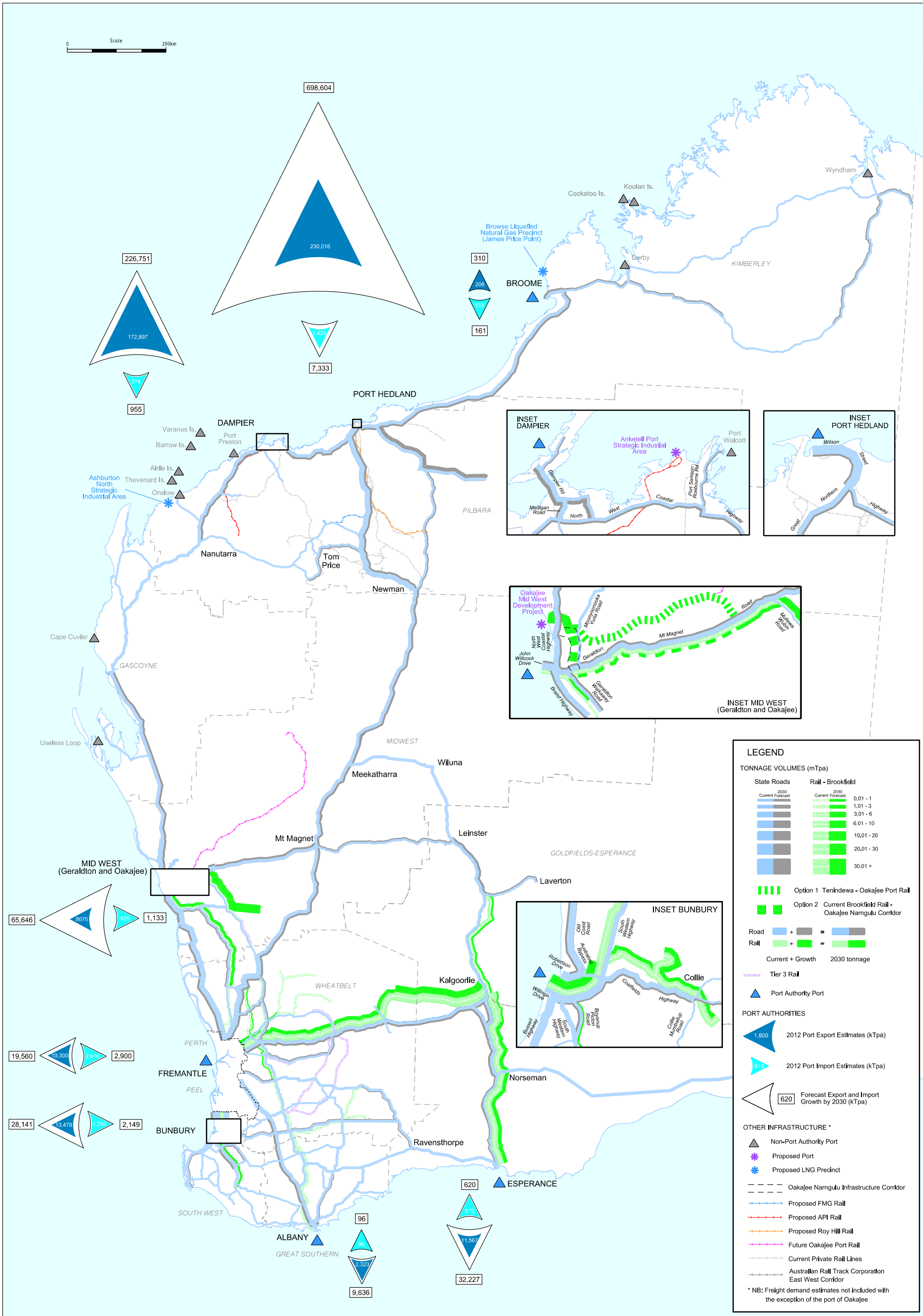
Regional population growth will translate into an increase in household consumption of non-bulk goods, with approximately 1.5-2 million tonnes per annum of fast-moving consumer goods likely to be distributed across regional Western Australia by 2031.³⁰

Sustainability – Changes in Social and Environmental Standards

Growth in transport demand will continue to place increasing pressure on the regional freight network to 2031. Over recent years this growth has resulted in increased community concerns regarding the adverse social and environmental impacts of freight transport.

While road freight noise and emission levels are being progressively reduced through the Australian Design Rules for new road vehicles, the need to mitigate the impact of heavy freight movements on regional communities will remain, as will the need for integrated land use and transport solutions to minimise incompatible development and encroachment on the peripheries of freight corridors and activity centres.

Map 4: Current and Future Demand



IMPLICATIONS

Freight Growth to 2031

A Principal Regional Freight Network

While freight moves throughout the State, a substantial proportion of current and future regional freight movements will continue to concentrate on a relatively small number of major corridors and facilities creating, in effect, a principal regional freight network for the State (refer to *Map 4*). This network of strategic freight corridors and facilities will continue to do much of the ‘heavy lifting’ in terms of moving Western Australia’s major freight tasks to 2031.

Focusing the State’s freight planning, policy and project initiatives on this principal regional freight network, and ensuring its integration with existing and potential metropolitan freight corridors and facilities, will reap the greatest net benefit to the State and ensure the robustness of the overall transport system.

Overview – Ports³¹

Trade through Western Australia’s port authorities has the potential to increase by up to 140 per cent to 2030, from 457 million tonnes per annum in 2012 to more than 1 billion tonnes per annum in 2030.³²

As illustrated in *Map 4*, the ports of Dampier and Port Hedland will continue to account for the majority of Western Australia’s total port throughput, accounting for approximately 90 per cent of trade in 2012 and 85 per cent of trade in 2030.³³

In the case of the State’s regional port authorities, exports will continue to account for most of the total port trade. Iron ore will represent up to 90 per cent of total export volumes by 2030, of which the vast proportion will be transported on existing and future proposed private rail infrastructure.³⁴

Future port export volume increases will be complemented by a corresponding increase in import volumes. Import volumes will increase from 7.8 million tonnes per annum in 2012 to 15.5 million tonnes per annum in 2030. Forecasts suggest that imports through the ports of Dampier and Port Hedland will sustain the most significant future growth, with Dampier expecting more than a 150 per cent increase in imports and Port Hedland expecting more than a 400 per cent increase in imports to 2030.³⁵

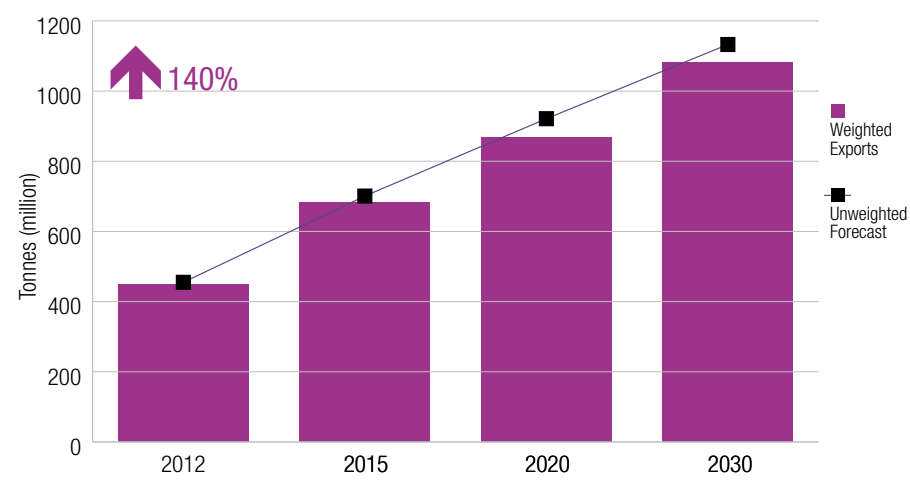


Figure 5: Exports – Port Authority Ports, Western Australia (2012 – 2030)³⁶

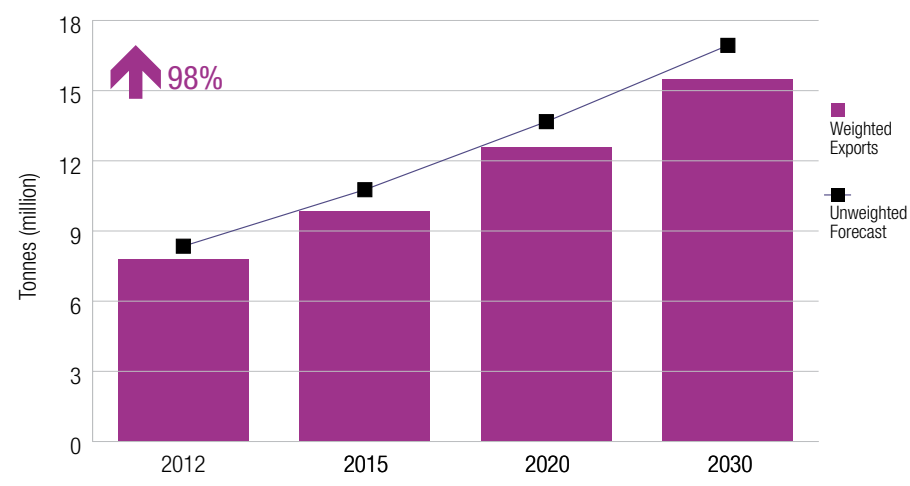


Figure 6: Imports – Port Authority Ports, Western Australia (2012 – 2030)³⁷



Image courtesy of Geraldton Port Authority

Overview – Rail

The State’s rail network will play an increasingly important role in the movement of the freight task in the southern regions of Western Australia in the future, as shown in *Map 4*. The regional rail freight task, managed by Brookfield Rail, has the potential to increase by up to 126 per cent in the future, from the current 50+ million net tonnes per annum to more than 130 million net tonnes per annum by 2030.³⁸

Iron ore demand, in particular, is forecast to increase significantly, from approximately 20 per cent of total rail demand to more than 40 per cent of total demand by 2030. Much of this increase is likely to occur in the shorter term given emerging industrial developments. Steady growth in grain is also likely over time, in line with improvements in crop yields.

In the Mid West region, the Morawa-Mullewa-Narngulu-Geraldton lines will experience significant growth to 2030, driven largely by developments in the southern Mid West resources sector.

In the Goldfields Esperance region, growth will be concentrated on the interstate mainline east of Koolyanobbing and the line from Kalgoorlie to Esperance. Demand is likely to originate from the emerging Yilgarn province, destined for export from the port of Esperance, with some tonnages destined for the port of Fremantle’s Outer Harbour at Kwinana.

In the South West region, much of the growth will be concentrated on the south-west mainline, Brunswick Junction to Bunbury Inner Harbour and Brunswick to Collie lines, driven largely by alumina, coal and industrial downstream processing exports destined for the ports of Bunbury and Kwinana.

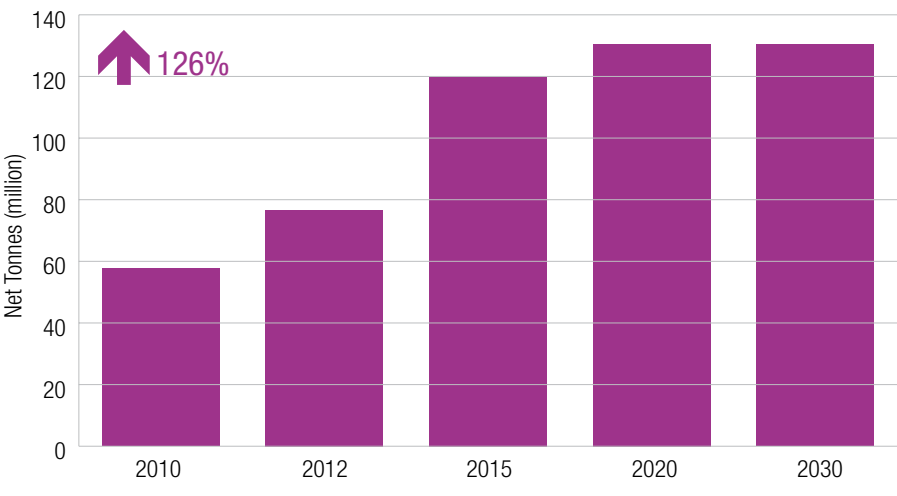


Figure 7: Net Freight Tonnes Transported by Brookfield Rail (2010 – 2030)³⁹

Overview – Road

Western Australia’s regional road freight task is likely to increase substantially, from 20 billion tonne kilometres per annum of freight in 2010 to 40 billion tonne kilometres per annum of freight moving into, within and out of the State’s regions by 2030. This corresponds to a doubling of the road freight task in the next two decades.⁴⁰

Recent analysis of the State’s northern supply chains suggests that the Great Northern Highway will continue to act as an important supply corridor in the future; however, with the increasing scale and scope of future inbound freight and project logistics by sea, the coastal strip will also experience substantial growth in road freight.⁴¹

This has implications for the North West Coastal Highway, Marble Bar Road, the Karratha-Tom Price Road and the Nanutarra-Munjina Road, as cargo is moved from port to new processing plants and industrial estates along the coast, or to the expanding network of mines located inland. Not only will these road corridors have to accommodate increased tonnage, there will also be a proportionate increase in the number of oversize loads to be moved on the network.

Analysis of the State’s southern regional supply chains suggests the Coalfields Highway is likely to become a significant corridor within the South West region in the short term. The corridor will experience significant growth as result of development within the Collie Basin and the Shotts Industrial Estate. Much of the region’s future road freight will continue to converge around the Greater Bunbury Area. The volume of road freight moving in and around the immediate area, together with the eastern and northern corridor freight flows traversing the area, is already substantial and is likely to continue.⁴²

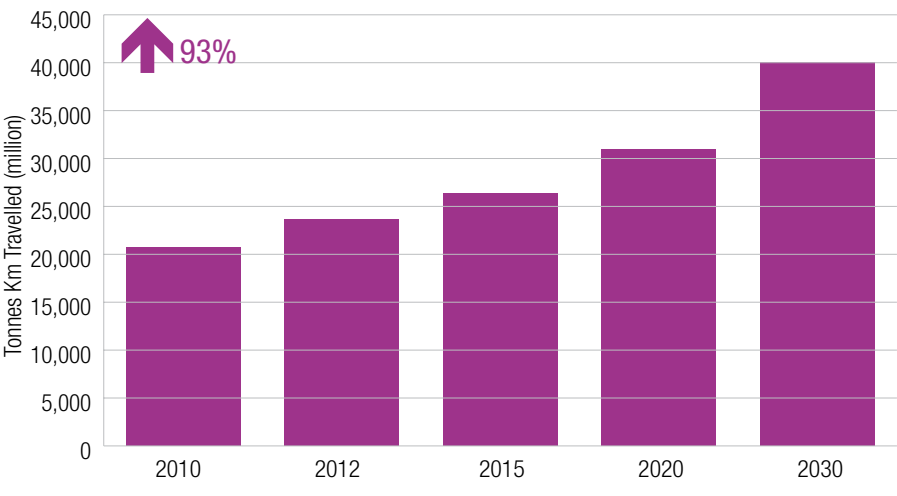


Figure 8: Regional Road Freight – Freight Vehicles Registered in Western Australia (2010 – 2030)⁴³



Image courtesy of
Main Roads Western Australia

Road Network Implications to 2031

Major Upgrades and Regeneration Programs

Regional Western Australia is presently well serviced by an extensive road network (refer to *Map 2*). The State's Strategic and Major Freight Roads effectively link major regional centres, commodity producing regions to marketplaces in Perth, and major export producers to freight centres including ports. Moreover, the road network is likely to meet the needs of the State's major drivers of change to 2031 – as illustrated in *Map 3*. The future freight task is thus not likely to require a large number of major new road links, but rather a focus on major upgrade and regeneration programs to certain existing road infrastructure.

The upgrade of a number of routes to meet the increased freight task in the Pilbara and South West regions will be an investment priority for Government to 2031. In the south of the State there are significant sections of ageing road infrastructure, which are more than 50 years old with substandard geometry, particularly in the Great Southern and Wheatbelt regions. Investment will be required to rehabilitate these assets to accommodate increasing freight tonnages and maximise safety outcomes for users.

Targeted Expansions

The establishment of Strategic Infrastructure Projects, particularly within the Pilbara, Kimberley and Mid West regions, will require Government to make selective, targeted expansions to the road network to meet emerging demands. Along with Oakajee Mid West Development Project, the integration of the wider regional road freight network with the future ports at the Ashburton North Strategic Industrial Area, the Anketell Port and Strategic Industrial Area, and the proposed Browse Liquefied Natural Gas Precinct is a particular priority.

Private companies are likely to play a significant role in key infrastructure within these regions. The challenge for Government will thus be to balance responsiveness with responsible investment. This will require decisions in relation to the funding and staging of new links, with regard to whether links should be constructed in line with freight demand or facilitated as private developments, as resource projects become viable and proceed to final investment decision.

Progressive High Wide Load and Restricted Access Vehicle Regimes

The efficiency of freight movement within the State's arterial road corridors will continue to be essential to the economy and will require Government to review the size and configuration of heavy vehicles operating on certain arterial routes. A more progressive approach to the State's existing High Wide Load and Restricted Access Vehicle regimes may potentially be required, together with an assessment of the current configuration, condition and location of road train assembly yards.

Realignments around Regional Centres

Road freight operations have a significant impact on the liveability of communities. The regional road network must continue to meet pressure for transport efficiency gains as well as satisfying increasing community interest in safety, environmental and social issues.

Population and economic growth will drive the need for, and timing of, heavy vehicle bypasses and major ring roads in the State's regions to 2031. Reconfiguring the road networks around regional centres to allow port-related through-traffic to flow without interfering with local traffic will require road realignments to be closely integrated with port access requirements.

Port Connectivity – Access Roads

The significant increase in export-related freight movements, together with the growing importance of inbound freight, will require a substantial program of port access road improvements to 2031, with ultimate development planning parameters that accommodate dual-highway standard routes in the medium to long term. Given the strategic relationship between the ports and nearby industrial estates, reconfiguration and upgrade of access roads will require road works programs to be closely integrated with industrial estate connectivity requirements.

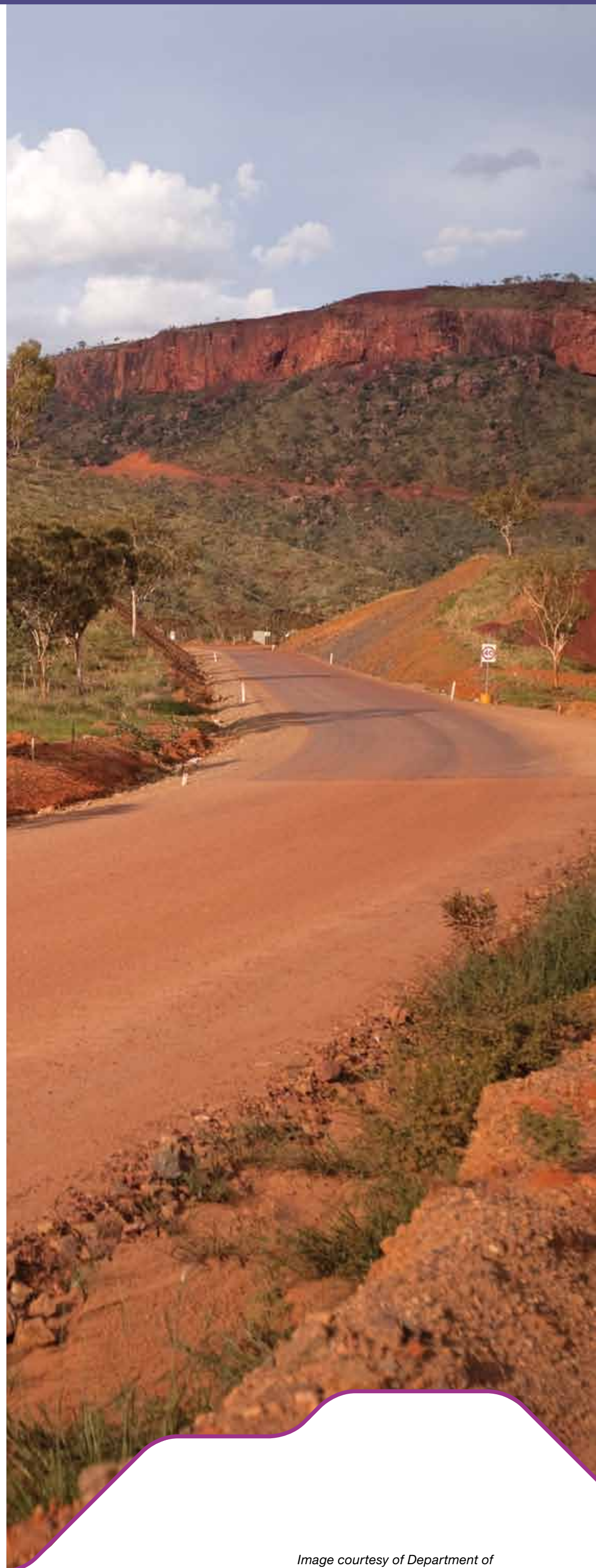


Image courtesy of Department of Regional Development and Lands

Rail Network Implications to 2031

Major Upgrades

To meet potential demand, Brookfield Rail will need to invest substantial capital in order to create the required capacity in the rail network. Exports of iron ore from the Mid West Region are likely to represent up to 50 per cent of Brookfield Rail's future trade growth. The company expects freight growth to increase exponentially to 2030, with much of the growth – and investment in additional capacity – likely to be concentrated on the Morawa-Mullewa-Narngulu-Geraldton arc.

The Goldfields Esperance and South West regions are also likely to be a focus for growth projects. In the Goldfields Esperance, future growth on the Leonora to Esperance Line (refer to *Map 4*) will necessitate capacity upgrades, including partial rail line duplication and the construction of new passing loops, as well as the upgrading and re-sleeping of the line to enable it to carry higher axle loads. In the South West, future growth on the Collie to Bunbury rail line (refer to *Map 4*) will underpin the need for capacity upgrades, including duplication of the line between Brunswick Junction and the port of Bunbury, where northern and eastern rail freight flows converge.

Continued Importance of the Interstate Mainline

The interstate mainline will continue its essential role as one of Western Australia's most critical supply routes, moving the majority of general freight from the east coast of Australia into the State. It will require ongoing forward planning by the State and Commonwealth Governments, Brookfield Rail and the Australian Rail Track Corporation to keep pace with increasing freight demand and to ensure the appropriate level of investment. The State will also need to continue to work with stakeholders to facilitate development of metropolitan-based

intermodal terminal facilities to service interstate freight movements, and their integration with the metropolitan road network to ensure the efficient distribution of the State's inbound supply requirements.

With increased interstate and intrastate rail movements, it is expected that amenity and safety impacts will arise. This is particularly so for the City of Kalgoorlie, being at the intersection of the interstate mainline and Leonora and Esperance branchlines.

Increasing Demand for Intermodal Solutions, Coordinated Corridor Planning and Protection

Demand for intermodal solutions in the State's regions will continue to grow and will compel activity centres, such as heavy industrial estates and intermodal terminals, to be better integrated with road and rail networks so that freight can be transported, stored and transhipped efficiently with minimum adverse social and environmental impacts.

A number of rail corridors across the south of the State, while currently not in use, may have potential to service new resource projects and industrial estate developments in the medium to long term and should be retained for potential incorporation into the future freight network.

In the Midwest, there is a need for Government to foster interoperability between the existing rail network and the Oakajee Mid West Development Project. In the Pilbara, potential new private heavy haulage rail lines will require strong emphasis on corridor planning to ensure efficient interfaces at port authority ports and to mitigate conflicts with the region's road network. The future rail freight task will also require the operation of more, longer and larger trains. This may necessitate grade separations at heavily trafficked level crossings.

Image courtesy of Brookfield Rail



Port Network Implications to 2031

Port Expansion

The immense scale of trade growth will necessitate significant expansions at existing port authority ports across most of the State and the development of greenfield ports in the Mid West and Pilbara regions, and potentially the Kimberley.

There are a number of major iron ore projects with potential to require substantial additional port capacity. The port of Oakajee is planned as the future site for a multi-user, deep-water port in the Mid West, with initial capacity of 45 million tonnes per annum and plans for further expansion as demand grows.⁴⁴ The port of Anketell is planned as the future site for a multi-user, deep-water port in the Pilbara region, capable of expanding to at least 350 million tonnes per annum.⁴⁵

Western Australia's conventional gas industry is also set for major expansion in the north of the State. Ashburton North Strategic Industrial Area is planned as the future site for a hydrocarbon and general cargo port in the Pilbara region. It is expected that the site will have an ultimate export capacity of up to 50 million tonnes of liquefied natural gas per annum.⁴⁶ In the Kimberley, the Browse Liquefied Natural Gas Precinct, with a production capacity of up to 50 million tonnes per annum, is proposed as the site for a liquefied natural gas precinct capable of accommodating processing and shipping facilities for at least two proponents developing these resources.⁴⁷

Port Governance and Port Planning

While much of the investment in future port capacity will be borne by the private sector, the Government will need to ensure the appropriate port planning frameworks, governance models and regulatory settings are in place to oversee future trade growth and the development of new ports. It will also need to provide clarity and certainty in the transport planning and policy environment to encourage appropriate private sector investment. In this regard the State Government recently completed the *Western Australian Ports Review*, which consolidates existing and future ports into appropriately managed regional port authority structures.

There is a particular need for all major port authority ports to produce long-term development plans to guide the development of the port and its environs into the future. The development plans will provide the basis for economically and environmentally sustainable port operations and establish the scale, scope and timing of future port development and infrastructure requirements. They will give port stakeholders an understanding of the future development of the port and its integration with transport infrastructure and freight networks, and assist national, state and local transport and land use planning agencies to integrate port and road and rail access corridors into broader planning processes.

Increasing Focus on Inbound Freight

The Government has substantially increased the level of investment in export capacity at regional port authorities over recent years in response to trade demand and the need to upgrade the land transport interface.⁴⁸ While much of the focus to date has centred on the ports' role in facilitating exports, in the case of regional ports, there will need to be a stronger focus on the management of the inbound freight task, which plays a critical role in enabling the State's strong economic activity, particularly within the Pilbara region.

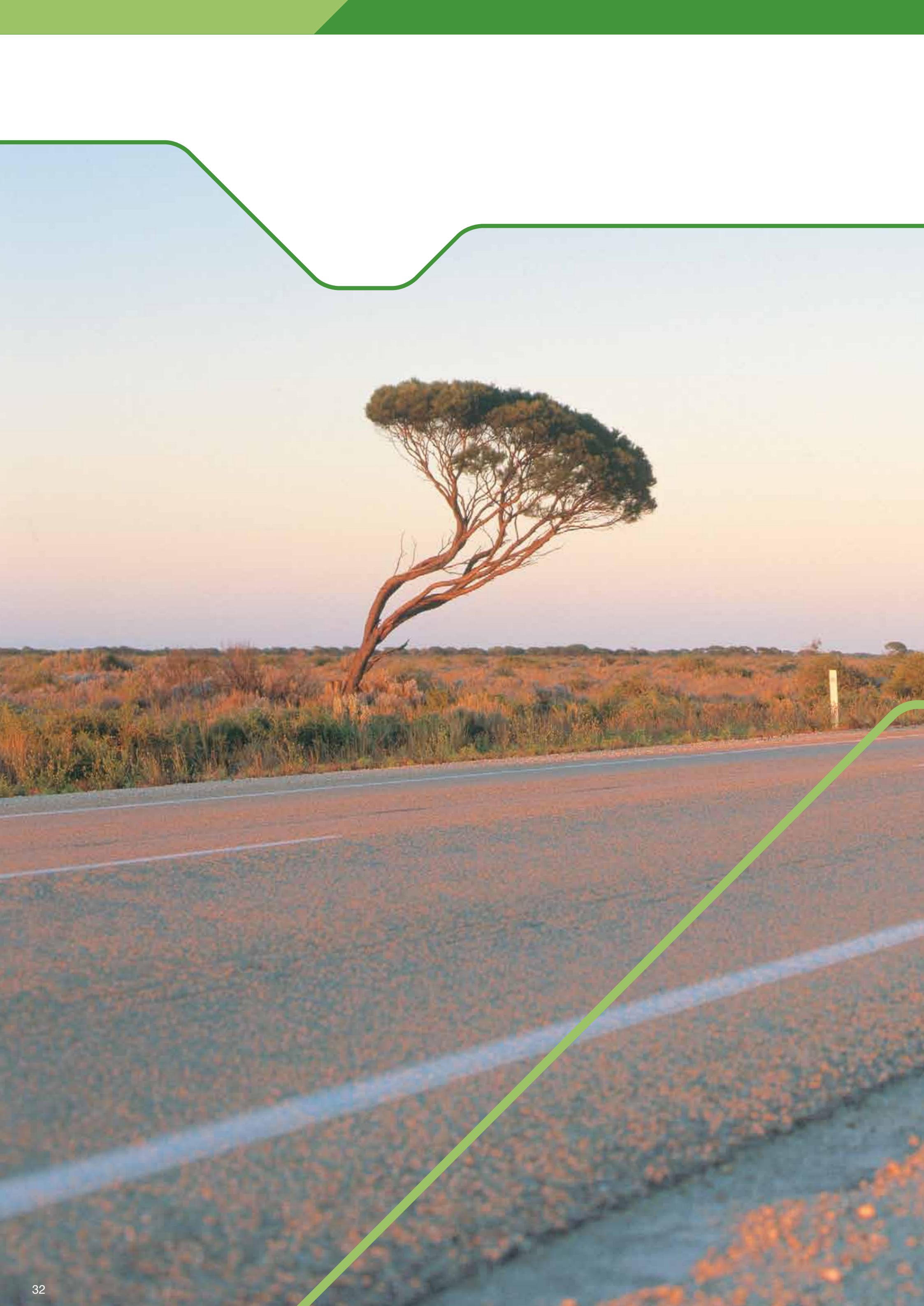
Expanded Port Precincts

Freight growth and the overall trend towards larger ship size will translate into larger cargo transfers per visit and thus a significant increase in peak periods of high intensity landside transport operations. This, combined with the increase in inbound project cargo to the regions, and the corresponding number of high-wide loads, will underpin the need for larger lay-down areas for cargo handling, staging and distribution at or near ports.

There is a range of significant land development constraints within a number of the State's regional ports. However there are also opportunities that allow ports to maximise and rationalise existing land uses. In particular, there are substantial parcels of land allocated primarily outside the designated port area, which represent potential for expansion of land-constrained port activities, including servicing and supply functions. Opportunities, for example, include identifying potential marshalling areas for heavy vehicles in close proximity to ports to ensure the optimisation of the logistics chain through the port. Master planning activities will need to identify opportunities and, where appropriate, establish the grounds for enhanced connectivity and appropriate planning overlays to ensure the long-term competitiveness of the State's ports.

Image courtesy of
Bunbury Port Authority





PART 3: STRATEGIC DIRECTIONS AND PRIORITIES



APPROACH: COORDINATING THE FUTURE FREIGHT TRANSPORT NETWORK NEEDS OF REGIONAL WESTERN AUSTRALIA

NETWORK VISION AND OBJECTIVES

VISION:

An integrated regional freight transport network – connecting Western Australia, delivering freight to markets, balancing economic and social outcomes

OBJECTIVES:

- **Efficiency** – promoting the efficient movement of freight to facilitate economic development and productivity gains
- **Capacity** – providing sufficient network capacity to support growth
- **Reliability** – improving the reliability of the network servicing industries and communities
- **Safety** – providing a safe network that maximises safety for all network users
- **Sustainability** – minimising adverse environmental and social amenity impacts of freight operations on communities and the environment

STRATEGIC PURPOSE AND DIRECTIONS TO 2031

The following strategic directions reflect the Government’s main roles in the regional freight transport network and the general directions it will take to manage future freight growth and address cumulative impacts on the network.

These strategic directions will shape the development of the network. They will be relevant in any freight-operating environment that unfolds in Western Australia to 2031 and they will form an effective response that achieves the Government’s network vision and objectives.

Planning and Protecting the Network

In developing the *Western Australian Regional Freight Transport Network Plan*, the Western Australian Government recognises the important role the regional freight network plays in ensuring the robustness of the overall transport system and it gives priority to defining the strategic freight corridors and freight centres to support network development to 2031.

It recognises that the planning and protecting of freight corridors and centres will necessitate the need for land-use conflicts to be resolved that may, in some instances, result in cost imposts to the State. There will be constraints and opportunities in this regard, particularly in the more populated and dense land-use areas of the State.

For long-term planning to be successfully implemented, existing and future strategic freight corridors and centres will need to be identified and protected in appropriate town planning schemes, strategies and industrial estate structure plans in order to meet the needs of the future and ensure flexibility and capacity for the network to 2031.

Forward planning will need to extend beyond the regional freight network and encompass metropolitan Perth, as a better-integrated metropolitan and regional network will help to ensure more efficient freight distribution and potentially reduce the volume of freight being unnecessarily transported around the State, particularly in the metropolitan area.

- **Direction 1** Plan regional freight centres for future development
- **Direction 2** Prepare for growth in Western Australia’s regional freight task – ports
- **Direction 3** Plan regional freight corridors for future development
- **Direction 4** Strengthen connections between regional and metropolitan freight networks

Managing the Network

As the owner and regulator of many of the State’s strategic freight corridors, facilities and precincts, the Government plays a major role in overseeing the delivery of an efficient, safe, reliable and sustainable network that has the capacity to meet the freight task and brings about both social and economic benefits for Western Australia. It can also play a substantial role in optimising the network’s efficiency through the effective management of access and operating arrangements.

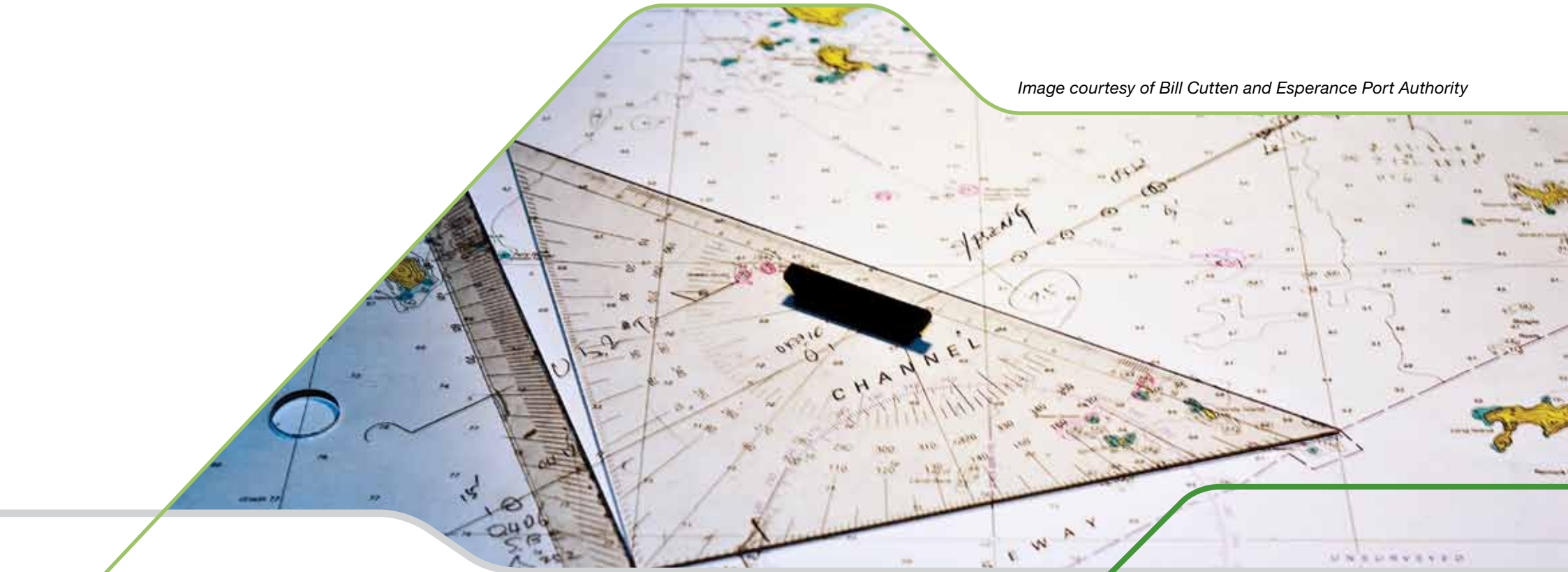
Significant growth in transport demand has resulted in increased community concerns regarding the adverse social and environmental impacts of freight transport. Government can help mitigate these adverse impacts through appropriate infrastructure and non-infrastructure responses.

The balance between infrastructure and non-infrastructure responses will vary over time and in accordance with the scale and scope of the future freight task and its impacts. It will be guided by a proactive freight research program and will depend on the degree to which freight transport network objectives are being achieved and the affordability of the solutions that may be required.

The Western Australian Government recognises the Commonwealth Government also has a role to play over the lifespan of the *Western Australian Regional Freight Transport Network Plan* in the development of the national transport system, including coordination between jurisdictions on national transport issues and regulations such as national transport competition policy and promotion of national coastal shipping services.

- **Direction 5** Optimise the efficient use of the freight network – road
- **Direction 6** Enhance port planning and governance arrangements
- **Direction 7** Improve safety and social amenity outcomes – road and rail
- **Direction 8** Design and implement a strategic freight research program

Image courtesy of Bill Cutten and Esperance Port Authority



Building and Maintaining the Road Network

The Western Australian Government recognises the need to plan ahead, to obtain the maximum value out of the network, and most visibly, to invest in and expand the network to support its development to 2031.

Infrastructure capacity constraints reduce the efficiency of freight movements and increase transport costs due to travel time delays and uncertainty. As capacity constraints develop, the Government recognises it must play its part in optimising existing network infrastructure and delivering new and upgraded infrastructure critical to the overall transport system and the State as a whole.

The Government will continue to invest in the existing regional road network, matching asset conditions and standards with freight demand. It will undertake major upgrade programs to accommodate increasing freight volumes, reconfigure roads to mitigate the impact of heavy freight movements on regional communities where necessary, and ensure construction is closely integrated with the State's regional port authority access roads to allow port-related traffic to flow efficiently.

Government will also ensure the adequate provision of recurrent funding to maintain the regional freight network in order to provide maximum user benefits at minimum whole-of-life cost.

While continuing its program of investment in the upgrade and targeted expansion of the regional arterial road network, the Western Australian Government will work closely with the Commonwealth Government to maximise funding partnerships to deliver critical network improvements and progress the necessary national reforms to obtain the best use of the network to 2031.

- **Direction 9** Invest in the road network – targeted expansions, major upgrades and asset renewal programs
- **Direction 10** Improve landside access to regional port authority ports
- **Direction 11** Alleviate the impact of heavy freight movements on regional centres



Image courtesy of Main Roads Western Australia

Facilitating and Selectively Investing in Strategic Rail and Port Network Projects

The *Western Australian Regional Freight Transport Network Plan* focuses mainly on the Western Australian Government's role in planning, managing, building and maintaining network infrastructure on which freight operations occur.

The Government recognises, however, that the movement of freight is largely a private-sector activity and many stakeholders have a role to play in the successful management and operation of freight supply chains. In many instances, Government's role is not an all-encompassing one and it is not always appropriate for it to invest in all aspects of the freight transport system across the State.

Some matters, nevertheless, require the attention and input of Government, particularly where there are strategic challenges and opportunities occurring with far-reaching impacts on the State or potentially significant implications for the overall freight network and its many users.

When deciding to invest in infrastructure that is controlled by the private sector, the Western Australian Government will continue to evaluate this investment in the context of the net benefits available to the State when compared to alternative options.

For example, the Government may decide to co-fund the upgrade of a privately managed railway to meet a defined freight task, because the alternatives available (such as building or upgrading a new road) may be more costly, have a negative environmental impact or lead to a reduction in road safety for all other road users. The strategic significance of the State's grain freight task currently falls within this case and has required Government to continue, in the short term, funding targeted upgrades to rail lines in partnership with Brookfield Rail and the Commonwealth Government, and overseeing a number of targeted investments in the road network throughout the Wheatbelt region to help manage freight impacts.

The Western Australian Government recognises that the ports play a particularly vital role in the State's overall economy and will continue to facilitate and selectively invest in projects that demonstrably improve the ability of regional ports to efficiently handle the changing mix and growing volume of trades into the future. It will take the necessary steps to plan ahead for the development and efficiency of existing and future ports, including ports proposed at Oakajee, Ashburton, Anketell and potentially James Price Point, with a focus on connecting ports to the broader regional freight network.

Western Australia's largest industry players, particularly those within the iron ore and oil and gas industries, have often provided their own rail transport and port-related infrastructure and this practice is likely to continue with provisions specified under an appropriate State Agreement Act. To this end, the Department of State Development will take a lead agency role to facilitate the development of ports proposed at Oakajee, Ashburton and Anketell, and potentially for the Browse Liquefied Natural Gas Precinct.

- **Direction 12** Support a growing role for rail in the distribution of the freight task
- **Direction 13** Invest towards common-user port infrastructure necessary to develop the Mid West resources industry – Oakajee Mid West Development Project
- **Direction 14** Progress transport infrastructure to support the development of the State's Strategic Infrastructure Projects
- **Direction 15** Enable port capacity expansion

TO 2031: STATEWIDE PLANNING, POLICY AND PROJECT PRIORITIES

PLANNING AND PROTECTING THE NETWORK

→→ DIRECTION 1: Plan regional freight centres for future development

Freight centres are broadly defined as major hubs where a high level of activity relating to transport, logistics and goods distribution occurs on a commercial basis by various operators. These centres include intermodal terminals, road-to-road terminals, ports, major rail yards, and transport, warehousing and distribution precincts.

With population and economic growth generating significant increases in freight volumes, it is essential to ensure existing freight centre operations are able to be fully optimised and that new freight centres are identified, defined and set aside with significant capacity to meet the efficiency needs of the network to 2031.

The level of activity expected to occur in the future will generate increased use of rail transport, which has already undergone significant growth in the last decade. The related demand for intermodal facilities in the State's regions will continue to evolve and will require freight centres being better integrated with road and rail infrastructure as well as other freight centres, to ensure that freight can be moved and staged efficiently with minimum adverse social and environmental impacts.

These factors point to the need for Government to plan ahead in order to maximise integrated transport and land use opportunities for the increased adoption of intermodal solutions, particularly planning for the provision of intermodal terminal sites.

An intermodal terminal is a location for the transfer of freight from one transport mode to another, for example between road and rail. Intermodal hubs will have a central role to play in easing the road traffic burden on the State's southern regional ports and immediate hinterlands, and are essential if rail is to increase its role in the freight transport and distribution system.

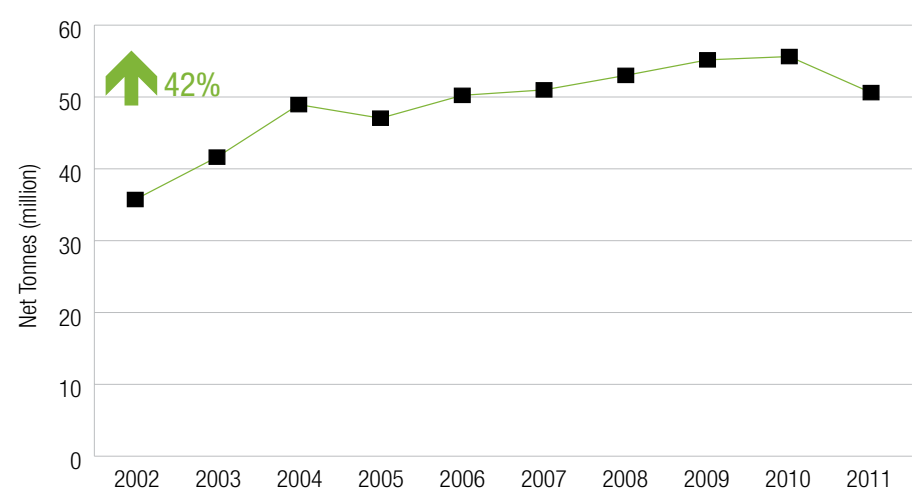


Figure 9: Net Freight Tonnes Transported by Brookfield Rail (2002 – 2011)⁴⁹

DIRECTION 1 – Priorities:

Regional Intermodal Terminal Network – Phase 1

- Undertake detailed planning to further assess the feasibility of a common-user intermodal terminal in the Kalgoorlie area. Subject to a satisfactory business case, proceed with detailed planning to establish land requirements, key design parameters, operational requirements and timeframes for testing the market for participation in the operation of various components of the facility. This investigation should consolidate and draw on the extensive body of planning work already undertaken in relation to a potential terminal in this locality.
- Work with stakeholders to plan for a longer-term intermodal terminal network within the south of the State by defining land reservation needs, and where appropriate, establishing appropriate planning overlays to identify and protect potential sites and road and rail accesses, should they be required in the future. Over the past decade, stakeholders have raised a number of potential sites for consideration, including sites located in the Collie and York/Brookton areas.

Rail Access to Major Industrial Estates – Phase 2

- Work with stakeholders to identify, plan and protect options for rail accesses at suitable strategic heavy industrial estates for future consideration, including:
 - Shark Lake Industrial Estate to connect industry to the Leonora Esperance rail line and the port of Esperance
 - Kemerton Industrial Estate to connect industry to the Perth-Bunbury rail line and the ports of Bunbury and Fremantle
 - Mirambeena Industrial Estate spur line extension to connect industry to the Great Southern Railway and the port of Albany

In particular, a number of new industrial areas are being planned for the South West region. Many of these areas are likely to accommodate large-scale industries in the future, with substantial freight tasks that may require connectivity to the rail network. A number of these industrial areas are near disused rail corridors and therefore these corridors will need to be identified and assessed for their importance to the industrial areas' development strategies.

Regional Intermodal Network Strategy – Phase 3

- In the medium term, develop a regional intermodal network strategy for the south of the State, subject to feasibility findings from the aforementioned planning investigations.

→→ DIRECTION 2: Prepare for growth in Western Australia's regional freight task – ports

Throughout Australia, freight centres and corridors are under pressure from non-industrial and residential uses. This is particularly so for ports that occupy prime waterfront land. While these issues are most evident at urban ports, they are also present at a number of Western Australian regional ports, which are also required to balance both social and economic outcomes to manage growth in the freight task.

The State's regional ports are major hubs for export of raw and processed materials, relying almost exclusively on road and rail connectivity to access international markets. They involve long-life, high-value assets and the optimal investment and use of these assets will depend on port authorities and government providing certainty regarding the provision of port capacity and the use of port lands, road and rail access, as well as fostering strategic relationships and connectivity with major industrial estates within port catchment zones.

Strategic, integrated land-use and transport-planning decisions are being made to address some of these issues and to unlock port capacity constraints at a number of the State's regional port authorities. For instance, in the south of the State, Bunbury Port Authority is proposing the diversion of the Preston River to further maximise its port lands, while in the north of the State, Broome Port Authority is planning to develop additional industrial land adjacent to the port's boundaries to position the port as a service hub for the Browse Basin.

While much of the planning focus to date has been on the export freight task, the demands associated with the inbound and project-logistics freight tasks are likely to increase significantly over the next 20 years. Shipping is likely to increase as a significant means of transporting freight into regional Western Australia in the future, particularly in the north west. It will be necessary for Government to secure and protect adequate freight precincts to complement coastal industrial developments and to support inbound general cargo wharves at select ports. Logistics precincts contiguous with general-purpose berths will need to be developed and long-term capacity and related corridor planning will need to reflect the future scale of inbound logistics cargo.

There is a growing need for ports to operate within a broader and declared strategic development framework that provides clarity of purpose for future growth and trade projections and allows effective integration with other key transport networks and State Government strategies. These factors point to the need for long-term development planning for Western Australia's regional ports. In particular, there is a need to develop plans that ensure that the long-term capacities of transport corridors – both road and rail – are aligned with the long-term capacity of ports. These plans should be consistent with *National Ports Strategy* recommendations and include an assessment of the economic, transport, planning and community issues associated with strategic port and industry development.

In the past, issues of corridor and broader precinct identification and preservation were generally not dealt with in such formalised long-term port development plans, because ports have limited influence over external issues. This is generally the responsibility of broader transport and land-use planning processes. In the future, Western Australia's port planning efforts need to be more explicitly directed towards articulating and accommodating requirements outside the port boundaries, with more consideration of broader infrastructure corridor and logistics precinct planning issues.

At Dampier, the Port Authority is working on a number of strategies to capitalise on the port's strategic locality by identifying opportunities to create new land for industrial and/or port purposes, providing for new multi-user infrastructure and planning for potential linkages to industrial areas in and around the Karratha area.

At Port Hedland, the expansion of the Wedgefield Industrial Estate by LandCorp, and planning by the Department of State Development for the future development of the Boodarie Industrial Estate, will add more than 4,000 hectares of industrial land through to 2030.⁵⁰ Connectivity between these estates and the port of Port Hedland will be further enhanced via the realignment of the Great Northern Highway and planning for the Boodarie Infrastructure Corridor. The Port Authority has identified land at Lumsden Point for development to complement the area's light and heavy industrial estates and to service the Pilbara industry's transport and logistics needs.

DIRECTION 2 – Priorities:

Inbound Maritime Freight Requirements

- Continue to plan for the long-term inbound maritime requirements of industry in regional Western Australia to ensure the necessary capacity is reserved to service the growing inbound freight task to 2031. In the shorter term, planning priorities will focus on the north of the State, in particular the Pilbara region, where major resource projects and industrial land developments will drive increased demand for inbound freight and project logistics requirements. The Department of Commerce's feasibility study identifying a preferred location for a Common User Facility based on the Australian Maritime Complex model at Lumsden Point will be an important strategic planning consideration in this regard.

Expanded Port Precincts

- Identify strategic land within close proximity to regional port authorities for potential future port and port user requirements including, where appropriate, further investigation of the concept of inland ports and their effective integration with the regional freight network to form central regional hubs. Initial assessments are to focus on the ports of Esperance, Albany and Dampier.

Long-Term Development Plans

- Build on master planning work undertaken by port authorities to determine the ultimate long-term development capacity of the regional ports, including identifying future infrastructure and spatial requirements and the provision for the ongoing expansion and protection of land-transport accesses.
- Subject to detailed assessment and consultation, establish appropriate planning frameworks and overlays to protect options for long-term port and land-transport corridor capacity, incorporating findings from inbound maritime assessments and port precinct scoping investigations.



Image courtesy of Dampier Port Authority

→→ DIRECTION 3: Plan regional freight corridors for future development

Freight corridors are broadly defined as geographic areas that accommodate infrastructure connecting freight-activity centres. Freight corridors include roads, rail lines, pipelines and shipping channels. Corridors can accommodate freight-only transport usage or they can accommodate shared usage, such as public and private passenger transport and possibly other service infrastructure such as power and water.

With population and economic growth generating significant increases in freight volumes, it is essential to undertake planning investigations to evaluate the expansion and interface requirements of existing freight corridors, as well as to identify potential new corridors that are likely to be required to meet long-term growth in the freight task.

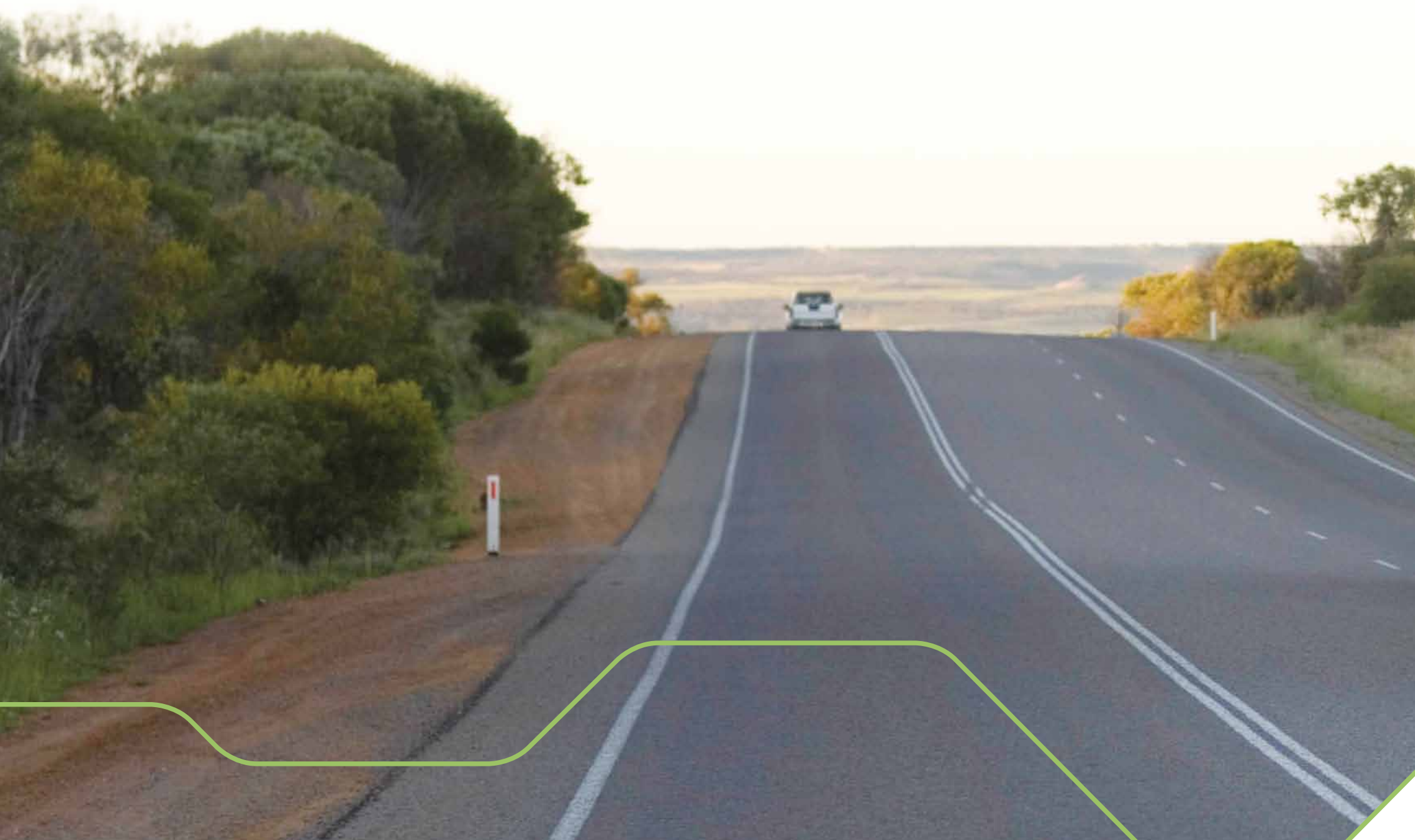
The *Western Australian Regional Freight Transport Network Plan* declares the State's regional freight network, its objectives and strategic project priorities. This includes complete and continuous access from production locations and freight centres along defined and designated corridors, most often through regional centres and gateway ports. Protection of these corridors will need detailed planning and reservation, involving achieving acceptance and agreement with local government and the communities affected.

In the case of road, preliminary investigations have shown that while the Great Northern Highway will continue to act as an important supply corridor to the north of the State, the increasing scale and scope of the future outbound and inbound freight task, together with the development of Strategic Industrial Areas and greenfield infrastructure along the Pilbara seaboard, will result in significant growth in freight movements along the coastal strip. The implications for both the North West Coastal Highway and the regional roads between it and the Great Northern Highway, as cargo is moved from port to projects along the coast or to mines located inland, will need further investigation and planning to ensure Government keeps pace with future road network requirements.

In the case of rail, the Government owns the rail corridor land in the south of the State and is the custodian of these corridors. A number of non-operational and disused rail corridors may have the potential to service new industrial developments in the medium to long term. These corridors will require safeguarding to ensure future flexibility for the freight network. This is particularly important in the south of the State, where population densities and development will require the separation of freight and private passenger movements as much as possible given the limited land available for new transport infrastructure.

A potential rail line connecting the Goldfields-Esperance and Mid West regions has been raised by a number of stakeholders over the past two decades, with a view to improving long-term rail connectivity between the State's regional ports. Similarly, there has been stakeholder interest in a potential line connecting the coast with the southern Wheatbelt at a point on the Great Southern Railway, potentially joining the Eastern Goldfields Railway and establishing a secondary rail access to Australia's eastern states.

In the Pilbara, the construction of private heavy haulage rail lines will require Government to place more emphasis on corridor planning to ensure efficient interfaces at port authority ports and to mitigate conflicts with the region's road network and other major services infrastructure. This will build on the Government's recent initiatives in the Mid West, where corridor planning work has been undertaken as part of the Oakajee Mid West Development Project.



DIRECTION 3 – Priorities:

Inter-Regional Corridors – Road and Rail

- Investigate the suitability and potential use of disused and/or non-operational rail corridors to service regional development needs, including the longer-term feasibility of recommissioning corridors to service emerging regional commodities and industrial estate expansions. Initial planning investigations include:
 - Collie-Narrogin corridor or Collie-Wagin corridor
 - Pindar-Wiluna historic line
- Undertake initial planning to ascertain the route options and feasibility of a potential longer-term rail connection between the Mid West and Goldfields regions. Subject to findings from the initial planning investigations, progress detailed studies to define a preferred alignment and establish appropriate planning overlays to protect a rail access corridor should it be required in the future. Planning will also consider the Pindar-Wiluna historic line in this context.
- Undertake initial planning to ascertain route options and feasibility of a potential longer-term rail connection to establish a secondary interstate rail access and improve the connectivity between the South West Main, the Great Southern Railway and the interstate mainline, including a cost-benefit assessment to ascertain the economic, social and network impacts of the connection.
- Continue to monitor and evaluate the expanded roles that the North West Coastal Highway and Great Northern Highway will play in servicing the freight task to 2031.

Intra-Regional Corridors – Road and Rail

- Undertake further planning investigations to ascertain the economic feasibility and preferred route alignment of a potential direct-road connection between the Goldfields Highway and the Great Northern Highway, should it be required in the future.
- Investigate the suitability and potential use of disused and/or non-operational rail corridors to service regional development

needs, including the longer-term feasibility of recommissioning corridors to service emerging regional commodities and industrial estate expansions. Initial planning investigations include:

- Boyanup-Capel corridor
- Donnybrook-Wilga corridor

- Reassess the merits of investing in the re-sleepering of the Greenbushes rail line between North Greenbushes and Picton to reduce the impact of trucks on the South West community when industry circumstances change and the rail service becomes viable.

Ports – Infrastructure Corridor Planning

- Continue to work with stakeholders to undertake port infrastructure corridor planning exercises and promote design and construction standards that achieve overall interoperability with the wider Western Australian freight transport network. Planning work includes:
 - Promoting an overall plan for the Great Northern Highway's interface with the Boodarie Western Transport Infrastructure Corridor in Port Hedland, which takes into account proponent requirements and creates and sets aside proponent infrastructure corridors. The Boodarie Western Transport Infrastructure Corridor will accommodate proponent road and railway alignments and other services and port access requirements between the Great Northern Highway and the proposed stockpile areas at the port of Port Hedland. It will include the planning and future staged construction of Great Northern Highway bridgeworks, in accordance with proponents' development timeframes.
 - Progressing further Oakajee Narngulu Infrastructure Corridor planning work, as required. The Oakajee Mid West Development Project will ultimately require the Oakajee Narngulu Infrastructure Corridor to connect users to the Oakajee port and strategic industrial estate via new road and potential rail links.



Image courtesy of Main Roads Western Australia

→→ DIRECTION 4: Strengthen connections between regional and metropolitan freight networks

An integrated metropolitan and regional freight network will help to ensure more efficient freight distribution practices, particularly in the metropolitan area. Government recognises the strategic importance of both the metropolitan and regional freight networks, and is concurrently developing a freight and intermodal plan for the Perth and Peel regions that will complement the *Western Australian Regional Freight Transport Network Plan* and ensure a coordinated approach to freight network planning for the State.

Trends in logistics management, particularly just-in-time replenishment systems, will continue to speed up the flow of goods in production and distribution processes to supply markets more quickly and reduce the value of freight in inventory. In general, this will result in large integrated warehouse distribution points located at the less-costly Perth urban fringe, increased adoption of intermodal transport solutions to minimise product handling, and greater concern with transport service reliability.

Progressing new and expanded outer-metropolitan corridors and intermodal facilities to improve freight distribution to Western Australia's regions and to reduce the impact of heavy freight movements on metropolitan communities will be an important strategic planning consideration for Government.

In the inner-metropolitan area, the growing role of the Kewdale, Forrestfield, Perth Airport and Kwinana areas in supporting the State's freight task will be an important consideration for Government, as these areas will continue to represent convergence points for both metropolitan and regional freight and logistics activities.

The Kewdale and Forrestfield areas are home to nationally significant intermodal freight terminals and numerous other businesses, many of which are related to freight transport and logistics. These terminals operate like an inland harbour, handling interstate as well as international containers along with bulk regional products such as grain.

While the port of Fremantle is metropolitan-based, its trade zone is statewide. Many of the port's trades, particularly bulk trades associated with the Kwinana-based Outer Harbour, have an origin or destination in the State's regions. The 2,400 hectare Kwinana Industrial Area is one of Western Australia's major strategic heavy industrial areas and accommodates industries ranging from fabrication and construction facilities through to large-scale processing. The Australian Marine Complex, a manufacturing and technology development centre servicing the marine, defence and resources sector, is another important facility in this locality. Among other services, the Complex provides pre-assembled project cargo to resource projects, particularly in the north of the State.⁵¹

The level of activity that is likely to occur in these inner-metropolitan locations in the future will generate demand for additional intermodal facilities, with the potential in the longer term to more directly service regional markets.

DIRECTION 4 – Priorities:

Inner-Metropolitan Intermodal Facilities

- Provide for additional intermodal terminal capacity and facilities in the Kewdale/Forrestfield area to service increased metropolitan and regional container freight.
- Progress a delivery strategy for the Kwinana-based Latitude 32 intermodal terminal, including the development and redevelopment of land within the Latitude 32 industrial zone in accordance with the *Latitude 32 District Structure Plan* and *Hope Valley-Wattleup Redevelopment Act 2000*.

Outer-Metropolitan Intermodal Facilities

- Plan and protect options for an expanded intermodal terminal network located in outer-metropolitan Perth areas to ensure efficient freight distribution to the State's north-eastern and south-eastern regional areas. Initial investigations are to focus on assessing the suitability of intermodal freight terminals in the Bullsbrook/North Ellenbrook and Mundijong areas, including road and rail connections, site options and essential services requirements.

Inner-Metropolitan and Outer-Metropolitan Roads

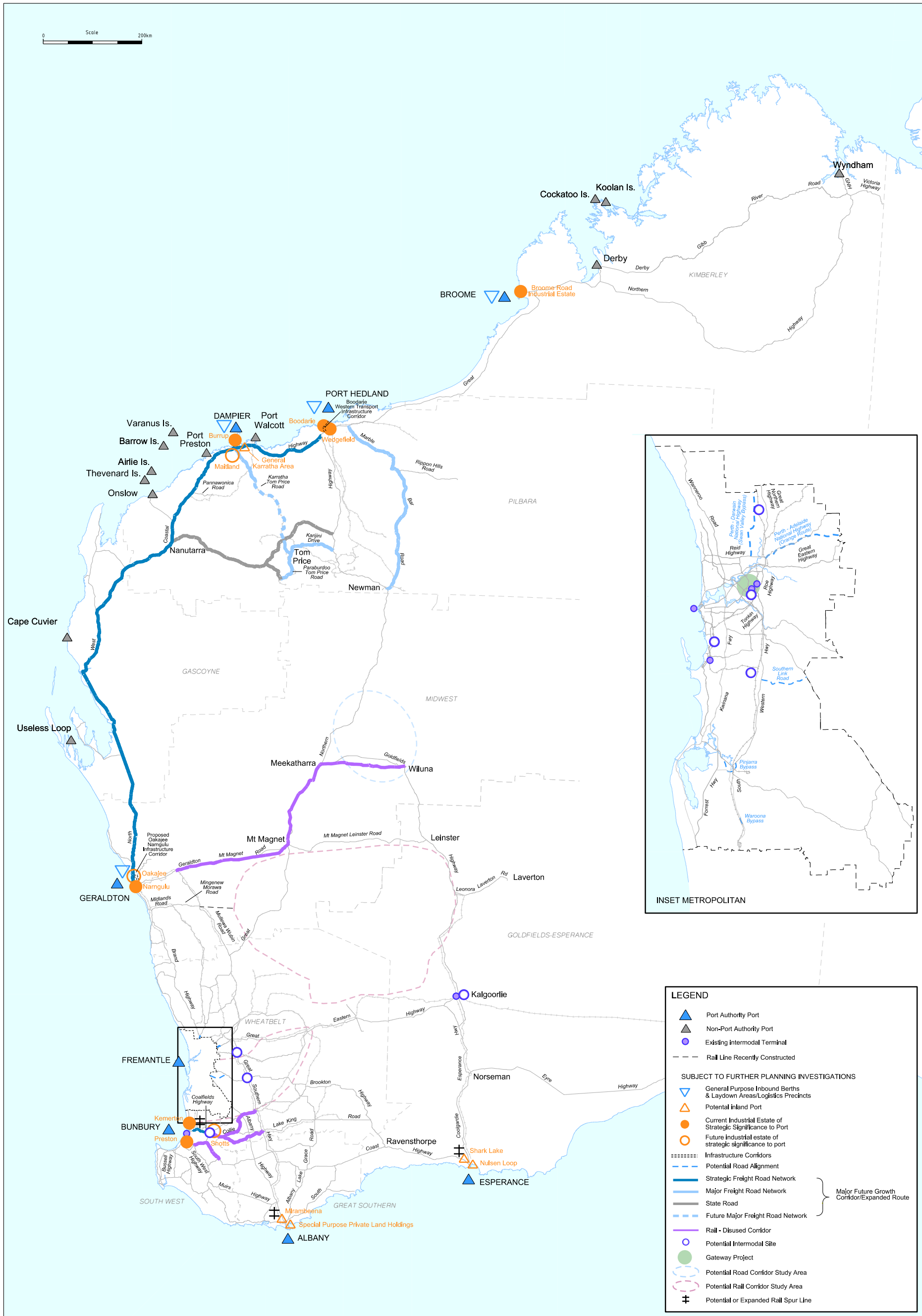
- Inner metropolitan: Continue to implement the *Gateway WA Project Master Plan* to ensure growth in background traffic does not constrain the freight performance of the Kewdale and Forrestfield intermodal terminals and Perth Airport and adjacent industrial precincts.
- North-eastern corridor: Progress construction of the Great Northern Highway on a new alignment to bypass the Swan Valley from Reid Highway to Muchea near the Brand Highway.

- Eastern corridor: Progress a long-term solution to address safety, noise and capacity issues on the Northam to Perth section of the Great Eastern Highway and to improve safe access from the area to metropolitan Perth. This will require consideration of the proposed Perth-Adelaide 'Orange Route'. The Greenmount Hill entrance to Perth on the Great Eastern Highway has steep grades and is in close proximity to residential areas. This section of road has had considerable upgrading over the years but safety and amenity issues will continue to occur as traffic and urban development grow along this route.
- South-eastern corridor: Progress planning for a new route for heavy vehicles to address traffic growth in the south-eastern metropolitan area. This may require reconsideration of the proposed 'Southern Link Road', which will connect the Brookton, Albany and South Western Highways with Tonkin Highway at Mundijong Road, providing a south-eastern freight gateway and removing freight traffic from built-up urban areas.
- South-west corridor: Progress planning to realign the South Western Highway to bypass the towns of Pinjarra and Waroona. As general traffic grows on the Kwinana Freeway route, regional traffic, particularly road freight to the south-west of the State, will increase on the South Western Highway through town sites including Pinjarra and Waroona. The planned Pinjarra eastern bypass and Waroona bypass will be required to improve transport efficiency and the safety and amenity in these town sites.

Perth and Peel Regions Freight and Intermodal Network Plan

- Complete the formulation of a freight and intermodal plan for the Perth and Peel regions to ensure enhanced integration between the metropolitan and regional freight networks and to improve freight distribution throughout the State.

Map 5: Planning and Protecting the Network –
Regional Freight Network Priorities



MANAGING THE NETWORK

→→ DIRECTION 5: Optimise the efficient use of the freight network – roads

Given the size of Western Australia and the dispersed location of its regional production and population centres, goods are generally transported vast distances, and maintaining the efficiency of the network in terms of delivering products to market at a reasonable cost is paramount. This efficiency imperative, together with the expected increase in freight movements, will require Government to consider whether there is a case for a more progressive access regime, underpinning the size and configuration of heavy vehicles and related cargos operating on certain regional arterial routes.

Improvement in freight productivity reduces the cost of freight transport and contributes to State and national economic output. Higher productivity vehicles offer operators the opportunity to achieve significant cost reductions by providing greater volumetric capacity, reducing the number of trips for a given volume of freight. Freight productivity growth also benefits other transport system users by reducing the number of vehicles on the road network, improving road safety and reducing emissions per unit of freight moved. In Australia, total road freight has grown six-fold over the past three decades, from around 27 billion tonne kilometres in 1971 to over 180 billion tonne kilometres in 2007. Over that period, the average productivity of road freight vehicles (the freight carried per registered freight vehicle, including light commercial vehicles) has more than doubled. As a result, the 2007 road freight task required half as many vehicles as would have been required in the absence of productivity growth.⁵²

The movement of oversize loads (High Wide Loads) is of high economic value and is increasing at a significant rate, although they remain infrequent relative to the movement of all trucks. Government recently agreed to underground a number of power lines over the Great Northern Highway to improve over-dimensional load access to the north of the State. In the future, Government will identify other road routes where improving infrastructure specifically to accommodate over-dimensional loads will benefit industry and work with stakeholders to investigate options for reasonable cost recovery where appropriate. Government has also recently introduced a new 'one-stop shop' to simplify heavy vehicle permit matters. The creation of the one-stop shop for permits means that a transport operator needs to make only one application to Main Roads Western Australia in order to obtain an oversize load permit, book a police escort and obtain a referral for power line clearance.

The Western Australian Government will continue to keep the heavy vehicle regulatory environment responsive to the changing requirements of the community and industry. It will balance these requirements with the need to ensure safety outcomes and manage the risk of damage or excessive wear to bridges, roadside furniture and road pavements. It will consider the impact that progressive heavy vehicle access regimes may have on other freight transport modes, including rail services and the Government's contracted shipping service, which currently provides an alternative transport option for regional and remote communities and business in the north of the State.

The Western Australian Government will also work with Commonwealth, State and Territory Governments to develop and progress the national heavy vehicle regulatory reform agenda. It will implement these national reforms where they unlock greater productivity from the State's freight network and deliver economic benefits to Western Australia.

DIRECTION 5 – Priorities:

Heavy Vehicle Productivity – High Wide Loads

- Complete a review of High Wide Load corridors within the State, in consultation with industry, port authorities and other stakeholders, with a view to identifying a strategic trunk route network and determining the case for its development and requirements. Initial route assessments are to include the Great Northern Highway, to facilitate the transfer of increasing oversize cargoes from metropolitan Perth to the State's north, as well as a network of trunk routes to facilitate large cargo transfers from the State's ports.
- Continue to improve Main Roads Western Australia's processes for facilitating efficient management and safe movement of over-mass and oversize vehicles in Western Australia.

Heavy Vehicle Productivity – Review of the Restricted Access Vehicle Regime⁵³

- Undertake, from time to time, selective reviews of the Restricted Access Vehicle regime within the State, taking into account potential impacts on other transport modes, including coastal shipping and rail, in consultation with industry, port authorities and other stakeholders, with a view to determining the case for a more progressive access regime on certain arterial routes.

Route assessments will focus on road train operations on the Great Eastern Highway between Northam and Kalgoorlie, the North West Coastal Highway south of Carnarvon and potentially to Muchea on the Brand Highway, and the Goldfields and Coolgardie-Esperance Highways south of Kambalda to the Port of Esperance.

Both the High Wide Load and Restricted Access Vehicle assessments will consider the capacity of freight routes to sustain oversize and larger combination vehicles and identify and prioritise additional construction works and traffic management measures required to enable their safe operation.
- Review the Main Roads Western Australia's concessional loading policy and pricing model to assess the effectiveness of the current scheme applying to the mining industry and the scope for wider application.

Heavy Vehicle Productivity – Heavy Vehicle Assembly Yards

- Undertake a review of Main Roads Western Australia's policies relating to the location, condition and configuration of major road train assembly areas to support the development of the regional freight network and improve connectivity of heavy vehicle operations between regional and metropolitan Western Australia.

→→ DIRECTION 6: Enhance port planning and governance arrangements

In 2012, the State Government approved the recommendations of the *Western Australian Ports Review* which articulated a number of changes to port governance settings designed to further improve the performance of Western Australia's ports and their ability to integrate effectively with related land-freight infrastructure.

There are currently eight port authority ports and nine non-port authority ports in Western Australia⁵⁴ and new ports are likely to be constructed at Oakajee, Anketell, Ashburton North and potentially James Price Point. As trade grows, there is a need to consolidate existing and future ports into appropriately managed regional port authority structures to ensure better planning and co-ordination of port development across the State and to ensure that smaller ports, many of which currently fall under the *Shipping and Pilotage Act 1967*, can be adequately managed.

A number of changes to port-related institutional and planning frameworks and legislative settings will be required to enable the consolidation of port authorities and to deal with the increasing complexity of regional freight markets and the major port-related infrastructure projects necessary to facilitate trade to 2031.

The regional ports arrangement lends itself to port authorities taking on a stronger role in influencing transport corridor planning and management. This role reflects a wider supply-chain view that port authorities must have their remit broadened to facilitate strategic planning for the port itself and the port precinct for optimum operation and performance. This expanded role will require robust coordination and collaborative relationships with government agencies, local government, port service providers, regulators and port users.

While the outlook is presently favourable, with major exports increasing year on year, the challenge is to ensure that port capacity and operations match the State's development objectives, and regional port authorities are given the authority and capability to plan and manage their ports and influence port corridor planning to meet the strategic plans of the State.

DIRECTION 6 – Priorities:

Amalgamation – Western Australian Ports

- Progressively implement a phased consolidation program of Western Australian port authorities, including the creation of:
 - A Kimberley Ports Authority comprising the ports of Broome, Derby, Wyndham, Cockatoo Island, Koolan Island and the proposed port at James Price Point
 - A Pilbara Ports Authority comprising the ports of Port Hedland and Dampier, the proposed ports at Anketell and Ashburton North, and the ports at Cape Preston, Port Walcott, Varanus Island, Barrow Island, Airlie Island, Thevenard Island and Onslow
 - A Mid West Ports Authority comprising the port of Geraldton, the proposed port at Oakajee, and the ports at Cape Cuvier and Useless Loop
 - A Southern Ports Authority comprising the ports of Bunbury, Albany and Esperance.

The timing and extent of amalgamations will depend on contracts and the potential impact on port customers and industry. The amalgamation of existing port authorities is to be the primary focus, with *Shipping and Pilotage Act* ports being brought into new amalgamated port authorities as appropriate. Fremantle is to remain a stand-alone port authority.

Regulatory Reform

- Review the regulatory arrangements impacting Western Australian ports to enable the implementation of the recommendations of the *Ports Review*. An initial priority is to progress amendments to the *Shipping and Pilotage Act 1967* and the *Port Authorities Act 1999* to enable the consolidation of regional port authorities. Legislation is to be drafted and presented to State Parliament in 2013, with a staged implementation to commence from 2014.

Port Planning Frameworks

- Adopt the transport planning framework outlined in the *National Ports Strategy* including:
 - Developing a *State Port Strategic Plan* to reaffirm port trade roles and development under the amalgamated regional port authority arrangements outlined in the *Ports Review*.
 - Streamlining the strategic planning processes for Western Australian port authorities, requiring ports to prepare, publish and regularly update long-term development plans aligned with the *National Ports Strategy* and Strategic Development Plans under the *Port Authorities Act 1999*.

Corporate Governance

- Refresh the charters of port authorities and their boards to bring the planning and management of authorities in line with a more contemporary port operating environment and the port amalgamation arrangements outlined in the *Ports Review*.
- Progressively review and strengthen capital funding and financial management arrangements for Western Australian port authorities to provide institutional settings that enable ports to actively identify and pursue appropriate opportunities for the private sector to invest in necessary infrastructure and port services.

→→ DIRECTION 7: Improve safety and social amenity outcomes – road and rail

Efficient freight transport helps to reduce the everyday costs encountered by businesses and communities, thereby contributing to the long-term prosperity of the Western Australian economy. Some of the side effects of freight transport, however, can have adverse amenity and safety impacts. Freight often moves long distances through various localities in response to distant economic demands, while the majority of passenger travel occurs between local origins and destinations. Freight movement can thus create local impacts without local benefits.

Policy interventions are sometimes necessary to ensure the wellbeing of the community, the environment and the overall efficiency and integration of the state's transport network. Freight transport dynamics, however, necessitate that potential interventions are applied in a targeted, case-by-case manner and are subject to regular monitoring and review.

The Government recognises the overriding importance of a safe transport network and will give high priority to regulatory, enforcement and infrastructure investment in road and rail safety across the regional freight network. It will continue to work with industry to ensure safe management of heavy vehicles through the deployment of Main Roads Transport Inspectors to verify that high productivity and oversize vehicles are operating in accordance with the conditions set down under the State's permits, notices and accreditation systems. Targeting heavy vehicle compliance and enforcement of Heavy Vehicle Fatigue Management, Chain of Responsibility and Driver Fatigue laws will be a priority, together with compliance for the movement of dangerous goods.

A range of actions will be needed to ensure the future increase in the freight task does not result in a higher number of heavy vehicle safety incidents. The provision of high-standard freight routes and town bypasses will decrease heavy vehicle traffic in built-up areas and separate heavy vehicles from passenger traffic to the greatest extent possible. Availability of adequate heavy vehicle rest areas will be critical, particularly in reducing driver fatigue. The State Government is committed to a program that ensures heavy vehicle rest areas are appropriately located, adequately signed and suitable for long-distance truck drivers. This will be supported by the recent commitment from the Federal Government to the Heavy Vehicle Safety and Productivity Funding Program. There have also been several recent major investments by the private sector in heavy vehicle rest stops on the Perth-Darwin route.

While network safety is largely a State responsibility, it is important for safety initiatives to be integrated into national safety policies and programs, and for Government to work with the Standing Council on Transport and Infrastructure on national initiatives such as the 'Safe System' approach. The Black Spot Program is part of both the State Government and Commonwealth Government's commitment to reduce crashes on roads. Black Spot projects target those road locations where crashes are occurring. By funding measures such as traffic signals and roundabouts at dangerous locations, the program reduces the risk of crashes.

The State has a very good rail safety record and will continue involvement in implementation of a number of initiatives such as nationally consistent rail safety legislation, including requirements for and scope of rail-road interface agreements, and a national strategy for the standardisation of rail safety data and the upcoming national rail safety regulation and investigation framework.

In the Goldfields-Esperance region, much of the region's future rail freight will be focussed around the City of Kalgoorlie where there is a five-kilometre section of highly trafficked line between West Kalgoorlie and Kalgoorlie, on which interstate mainline train traffic converges with the Leonora to Esperance rail corridor intrastate traffic. This section of track is a significant urban amenity issue in terms of noise and severance as the track traverses the main city centre. Given the volume of freight moving through the immediate area is already substantial and is likely to increase, there is a need for realignment of the rail line away from the city centre to address increasing community concerns.



Image courtesy of Main Roads Western Australia

DIRECTION 7 – Priorities:

Main Roads Safety Strategy 2011-2015 – *The Road Towards Zero*

The Main Roads Road Safety Strategy *The Road Towards Zero* is designed to embed safer systems for all road users and to significantly reduce road trauma. Four areas of focus have been identified to achieve this: governance; safe system procedures, practices and programs; research and knowledge sharing; and capability and skills. To facilitate the delivery of the focus areas an action plan has been developed, outlined in *The Road Towards Zero Action Plan* to 2015. Implementation of priority actions will take time. Three effective and recognised policy initiatives are being implemented immediately, including:

- Adopt a minimum standard of 1m sealed shoulders and audible edgelines on all new Main Roads projects and upgrades where appropriate – this forms the foundation of a move towards providing a safe system network.
- Reduce speeds by 10 km/hr in any high-pedestrian areas where there is community support.
- Adopt the practice of reviewing all major projects during design and construction stages against the safe system principles – this will build safe systems knowledge amongst Main Roads project managers and deliver a safer road system for the community.

Road – National Safety Initiatives

- Work with Commonwealth and other State and Territory Governments in relation to national safety initiatives including:
 - Maximising the coverage of the National Black Spot Program in Western Australia and continuing to ensure that the State and National Black Spot Programs are integrated to provide holistic programs targeting roads with proven crash histories or high-risk locations.
 - Implementing the *National Road Safety Strategy 2011-2020* in Western Australia.

Rail – Safety and Social Amenity Initiatives

- Continue to work with Commonwealth, State and Territory Governments toward the establishment of a single, national regulator and single, national body of law to govern rail safety (the National Rail Safety Regulator and Rail Safety National Law) and the establishment of the Australian Transport Safety Bureau as the single National Rail Safety Investigator.
- Continue to assess at-grade level crossing impacts, with a view to developing a grade separation policy to oversee greenfield rail line developments interacting with the regional network as well as address potential constraints associated with growth in traffic on brownfield lines.
- Progress longer-term planning for necessary rail realignments around regional centres in the south of the State to reduce the impact of heavy freight movements on communities. Planning priorities are to include:
 - Kalgoorlie – detailed planning to define a preferred rail realignment around the City of Kalgoorlie-Boulder to minimise impacts associated with the increase in interstate and intrastate rail movements.

Medium to Long-Term Planning for Heavy Vehicle Routes and Deviations

- Progress planning for heavy vehicle realignments and bypasses around regional centres to address heavy vehicle traffic conflicts and to improve amenity and road safety by separating heavy vehicles from passenger traffic to the greatest extent possible. Planning priorities include:
 - Margaret River, Wyndham, Roebourne, Mullewa, Dongara, New Norcia, Narrogin, Williams, Kulin, Manjimup, Boyanup and Kalgoorlie.
- Continue to work with stakeholders including local government to review and make appropriate changes to relevant town planning strategies, schemes and structure plans to formally recognise and protect future network options.

Provision of Heavy Vehicle Rest Stops and Road Enhancements

- Work with the Western Australian Road Transport Association and the Livestock and Rural Transport Association to identify and prioritise heavy vehicle parking, assembly and rest facilities, and examine options for delivery of facilities by the private sector and the Government through the Heavy Vehicle Safety and Productivity Funding Program.



Image courtesy of Brookfield Rail

→→ DIRECTION 8: Design and implement a strategic freight research program

Access to freight data and information about best-practice freight network asset and operations management will become increasingly important as Western Australia's freight task grows.

Freight transport differs from that of commuting and other passenger transport in a number of ways. Firstly, freight movements fluctuate more quickly and in greater relative amounts than passenger travel. While both passenger travel and freight respond to long-term demographic change, freight responds more quickly than passenger travel to shorter-term economic fluctuations. The addition or loss of just one major business can dramatically change freight activity within a locality. Secondly, freight movement is heterogeneous compared to passenger travel. The freight transportation demands of agriculture, resource, and retail sectors differ fundamentally from one another. Network planning and policy solutions aimed at average conditions are therefore less likely to work because the demands of industry sectors vary widely.

These factors point to the need for Government to establish a freight research program for regional Western Australia and to underpin it with an expanded freight network data collection and analysis capability tailored to accommodate Western Australia's unique freight challenges, including the dominance of bulk, rather than containerised, freight utilising the State's regional freight network. In order to achieve this Government will work in collaboration with other agencies such as the Planning and Transport Research Centre (PATREC). The role of PATREC is to build academic and professional capability in planning and transport research, with a specific focus on the institutional, industry and community needs of Western Australia. It is a collaborative research program which, with support from the Western Australian Government, pools resources from the four public universities in the State to facilitate research in a wide range of issues, including integrated transport and land-use planning, transport economics, logistics management, transport modelling and data management, transport sustainability, and transport safety and risk management.

While local government roads are not included in the strategic network identified in the Plan, they provide essential feeders and support network functions that must not be ignored if the State transport system is to effectively meet expected needs. There is a particular need in the short term to better understand "last kilometre" access and interface issues in regional Western Australia. The Government is committed to working with local government to better understand these issues and their impact on local communities and to achieve efficient and sustainable freight transport outcomes for the State.

Given the dynamics of market demand for export commodities and the high-cost implications for public funding of infrastructure, a strategic economic assessment of commodity and support trade prospects for each regional port authority is also a priority. The assessments, which will be tied to port forecasting activities, will facilitate the development of port and precinct development plans to guide the matching of capacity and demand in a more timely way, while addressing land footprint and access corridor requirements and community amenity pressures. By considering trade prospects by commodity and region across time, the State can ensure that the greater economic benefits of port and precinct investment are fully assessed over a much longer period than the usual benefit-cost financial analysis used to determine port infrastructure investment. These strategic economic assessments will also provide a fit with State development policy goals and objectives, thereby leading to a more systematic approach to public and private investment planning and funding.

DIRECTION 8 – Priorities:

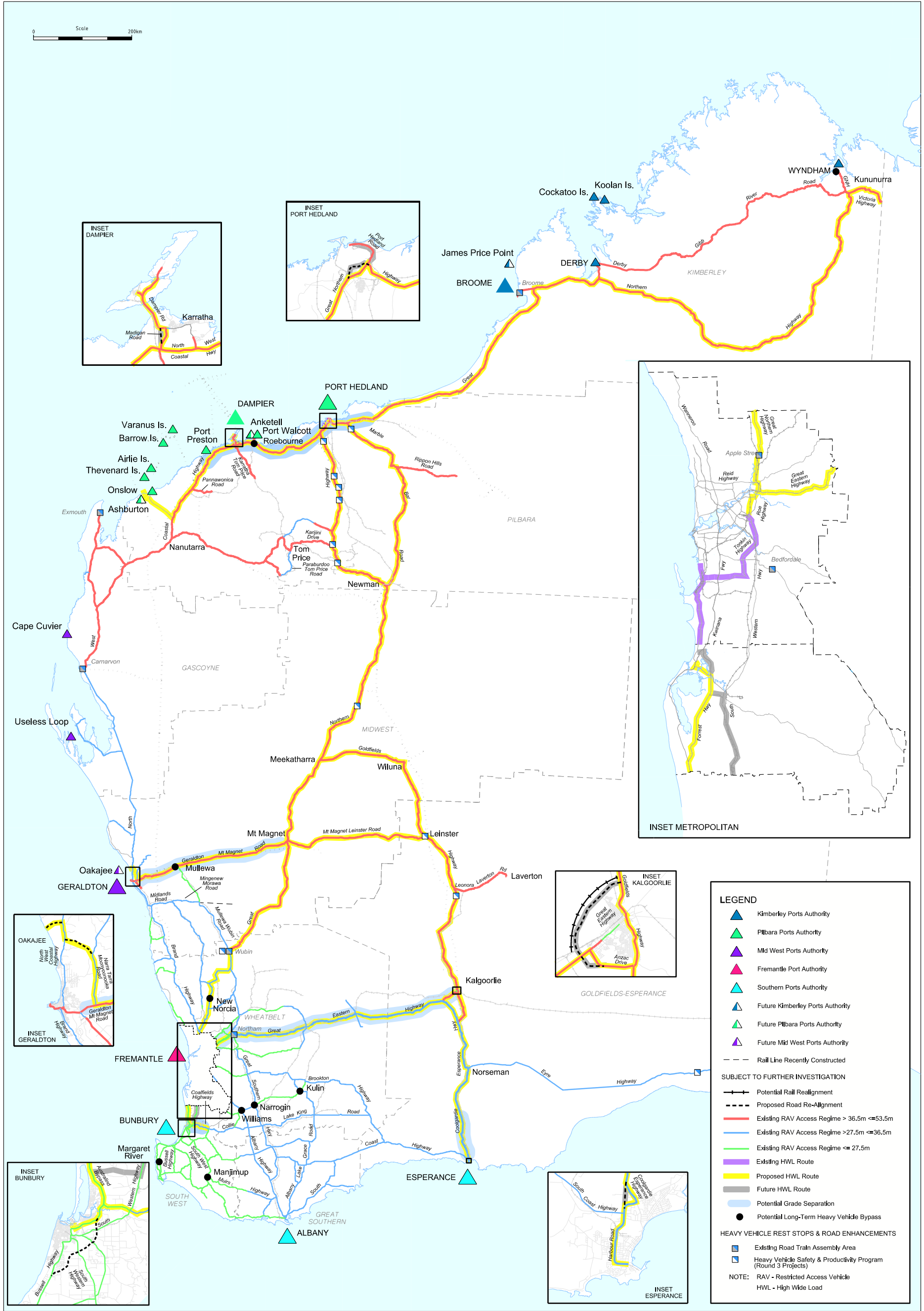
Off-Network Access Issues – Last Kilometre Journeys

- Improve planning for first/last kilometre of regional road freight journeys by developing a transport productivity action plan that identifies significant first/last kilometre impediments. The plan is to be undertaken in partnership with stakeholders, particularly local government, port authorities and industry, to support the efficient working of strategic regional supply chains.
- In conjunction with local government, seek Commonwealth Government funding of local road upgrades to address first/last kilometre transport productivity and economic development issues.

A Strategic Research Program Supported by Enhanced Data Management Capability

- Further develop data collection and analysis capability within the Department of Transport to enhance understanding of Western Australia's regional freight task.
 - Initial work is to focus on enhancing medium to long-term port authority trade forecasting procedures, to better inform understanding of commodity-specific impacts on the regional freight network. This is to include involvement from agencies such as the Department of State Development and the Department of Planning to ensure general alignment across State strategic planning frameworks.
- Develop a co-ordinated strategic freight research program to improve understanding of high-impact aspects of Western Australia's freight task.
 - Initial work will draw on enhanced port trade forecasts to undertake network-wide scenario planning around potential long-term freight rail network configurations (incorporating regional intermodal terminals, regional rail connections and major upgrades, such as the conversion of the south-west mainline to standard gauge) to ascertain the strategic and economic implications for the State's freight markets and infrastructure.

Map 6: Managing the Network – Regional Freight Network Priorities



BUILDING AND MAINTAINING THE ROAD NETWORK

→→ DIRECTION 9: Invest in the road network – targeted expansions, major upgrades and asset renewal programs

While increases in the use of rail transport and coastal shipping will play an important role in accommodating the future freight task, road transport will remain the most practical transport mode for much of Western Australia's regional freight transport requirements, particularly where freight origins and destinations are widely dispersed and where remote and timely delivery of goods is required.

Transport infrastructure performance and deficiency assessments identify the adequacy of existing and future infrastructure by providing a comparison of transport system performance or physical infrastructure indicators with benchmarks that identify aspects of the network requiring improvement and help determine infrastructure priorities. Road and bridge assets for the State Road network are assessed annually to identify deficiencies and improvement needs as part of Main Roads Western Australia's integrated asset management planning process. The assessment process considers criteria including configuration (curve rating, seal width, bridge width), condition (roughness, rutting, age, strength), and current and future road use (safety, rest areas, intersections, overtaking). Identified needs are prioritised on a Statewide basis, using agreed prioritisation criteria.

The configuration, condition and road-use profile of a number of the State's Strategic and Major freight roads are already built to a standard able to support freight growth to 2031. Certain other routes will require upgrading to improve safety, reliability and add additional capacity, particularly in the Pilbara and Mid West regions, where major resource developments are expected, and in the South West region, where the majority of the State's regional-based population occurs. Strategic and Major regional freight routes in the Great Southern and Wheatbelt regions, where much of the network is more than 50 years of age, will also require improvement programs to renew and strengthen ageing road infrastructure.

While continuing its program of investment in the regional arterial road network, the Western Australian Government will also work closely with the Commonwealth Government to pursue opportunities to maximise funding partnerships to deliver a number of these critical improvements. A number of the programs mentioned in the *Western Australian Freight Transport Network Plan* relate to corridors that are part of the broader transport system, and fall under the national Land Transport Network, the focus of the Commonwealth Government's planning and funding responsibility.

KIMBERLEY REGION

In the Kimberley region, road transport service reliability is crucial to community and business activity due to the population distribution characteristics of the region and distances to major markets and suppliers. Heavy rains in the wet season can cause serious damage to roads, isolating communities and making consistent road freight delivery difficult. Industry relies heavily on the road network as a major supply route and for moving goods to local and interstate markets and exports to regional ports, particularly given there is no rail transport in the region.

The reliability of access on the Great Northern and Victoria Highways, as the region's main sealed freight routes, will continue to be paramount. These highways service the needs of the region's communities and industries, providing a sealed high-standard link between the major population centres of the Kimberley, remote Aboriginal and pastoral communities, the Ord East Kimberley Development and the Northern Territory.

The investment focus to 2031 will be on integrating Great Northern Highway and Victoria Highway improvements with large-scale bridge works, to provide a comprehensive flood-mitigation program targeting flood-prone sections of the highways, sections with proven crash history and other high-risk locations.

DIRECTION 9 – Priorities:

- Kimberley Flood-Mitigation Program: Great Northern Highway: Derby to Fitzroy Crossing, Halls Creek to Victoria Highway – undertake flood-mitigation works, including constructing new bridges across flood-prone sections of the highway and reconstructing existing bridges in the Fitzroy Crossing, Gogo and Bow River areas.



Image courtesy of Main Roads Western Australia

PILBARA REGION

The Pilbara Region covers a vast area of the State and is undergoing a major resources boom that has significant implications for the entire freight transport network. Freight volumes will continue to increase significantly in line with growth in commodity production, creating one of the nation's largest regional logistics precincts.

Population patterns within the Pilbara have largely been determined by the mining industry, as have the links between the coast and the inland mining areas. In the future, the Pilbara Cities initiative will help to reshape the region's population distribution, and better road connections between the interior and the coast will be required to support the population and the expansion of the mining industry in the eastern and southern Pilbara.

The Great Northern Highway will continue to act as an important transport corridor supporting the Pilbara; however, capacity expansion at the existing port authorities and the establishment of Strategic Infrastructure Projects along the Pilbara seaboard will result in substantial growth in road freight along the coastal strip. The North West Coastal Highway will play a significant role in accommodating the region's transport needs into the future. The highway is the primary coastal route between Geraldton, Carnarvon, Karratha and Port Hedland and provides access to tourist destinations and mining and pastoral communities. It is for these reasons that the North West Coastal Highway will be an investment priority for the Western Australian Government.

Some major roads in the eastern Pilbara are still unsealed, most notably the Marble Bar Road. Marble Bar Road services local and regional pastoral needs, remote communities and the resources industry. Further expansion of the resource industry in the eastern Pilbara will require the upgrading of roads in that part of the region. Upgrading the condition and capacity of the Marble Bar Road will open up the potential for mining in the area and improve safety and the cost competitiveness of the existing mines by decreasing travel times to ports and reducing fuel consumption and damage to vehicles.

DIRECTION 9 – Priorities:

- Completion of Karratha Tom Price Road: Millstream to Nanautarra-Munjina Road – construct new road to seal standard.
- North West Coastal Highway Upgrade: Minilya to Main Roads Gascoyne Boundary – widen road and construct bridges across flood-prone sections of the highway.
- Marble Bar Road Upgrade: Coongan Gorge realignment.
- Marble Bar Road Upgrade: Newman to Rippon Hills Road Turnoff – upgrade to seal standard, improve alignment and undertake flood-mitigation works including replacing the bridge over Fortescue River (part funded).



Image courtesy of Main Roads Western Australia

MID WEST AND GASCOYNE REGIONS

The Mid West and Gascoyne regions are well serviced by a network of major inter-regional sealed roads connecting Geraldton and Carnarvon to Perth, the north-west and the hinterland. Major inter-regional roads include the Brand Highway and new Indian Ocean Drive linking Perth to Geraldton, the North West Coastal Highway from Geraldton to the north-west via Carnarvon, Karratha and Port Hedland, and the recently sealed Geraldton-Mount Magnet-Leinster Road which forms part of the Geraldton-Leinster-Esperance strategic transport corridor.

Recent investment in urban freight transport in Geraldton has focussed on integrated port, road, and rail infrastructure projects to support the development of the resources sector and exports via the port of Geraldton, while improving access to industrial estates for heavy vehicles. The Southern Transport Corridor provides a new direct transport link to the port of Geraldton for both road and rail from the Narngulu Industrial Estate and enhances the separation of light and heavy vehicles within the inner Greater Geraldton area.

The Oakajee Mid West Development Project builds on the region's capability for integrated transport infrastructure projects, albeit on a much larger scale, to provide the infrastructure necessary for the development of the Mid West resource industry. The Project will ultimately require the Oakajee Narngulu Infrastructure Corridor to connect users to the Oakajee port and strategic industrial estate via new road and potential rail links.

A number of road investment priorities in the region will integrate the future Oakajee Mid West Development Project and the Oakajee Narngulu Infrastructure Corridor with the existing Greater Geraldton Area's freight network, by realigning the trunk routes to reduce the future impact of regional and project-related traffic on residential communities.

North of the Greater Geraldton area, the North West Coastal Highway passes through the town of Northampton. Traffic, particularly heavy vehicles, travelling along the main street results in safety and amenity issues for the town. A bypass is planned to the east of the town to reduce these impacts. South of the Greater Geraldton Area, upgrading of the Brand Highway by the realignment of the highway at Bookarra and the S-Bends, the realignment and replacement of Pell Bridge, and the replacement of bridges at Greenough River and at Irwin River are required to improve the efficiency, safety and reliability of this section of the highway.

DIRECTION 9 – Priorities:

- Geraldton Outer Bypass Stage 1: Upgrade the Narra Tarra Moonyoonooka Road and utilise the northern sections of the Oakajee Infrastructure Corridor to construct a heavy haulage link to the North West Coastal Highway. The bypass will connect the Oakajee Port and Industrial Estate to the Geraldton-Mount Magnet Road, creating an outer bypass of the City of Geraldton.
- Geraldton Inner Bypass Stage 1: Brand Highway to Geraldton-Mount Magnet Road – construct the southern section of a north-south link road for Geraldton.
- North West Coastal Highway: Uta Karra Road to Green Street – construct dual carriageway.
- Brand Highway Upgrade: realign substandard sections of the highway at Bookarra and the S-Bends, Pell Bridge replacement and realignment, replace bridges at Greenough River (funded) and Irwin River.

GOLDFIELDS ESPERANCE

The Great Eastern Highway is the major road linking Perth and Kalgoorlie and is a key route for heavy vehicles accessing the Wheatbelt and Goldfields Esperance regions. Importantly, it also forms the main road transportation link between Perth and the east coast of Australia, playing a vital role in the social and economic integration of Western Australia with Australia's eastern states and providing a lifeline for many remote communities. The Western Australian Government recognises the importance of this route as the State's principal east-west road link and will continue to work with the Commonwealth to ensure the appropriate level of investment in the route to 2031.

The Goldfields-Esperance region is also served by a number of other Strategic and Major freight roads. The recently sealed Mount Magnet-Leinster Road creates a western link with the Mid West region, while the Goldfields Highway creates a northern link towards the Pilbara region. The Goldfields Highway between Wiluna and Meekatharra is, however, currently unsealed and will require upgrading to seal standard in the medium term. The Coolgardie-Esperance Highway, commencing south-east of Kalgoorlie Boulder, links the Goldfields district with Esperance and the port and will also require upgrading, particularly at its northern end, to accommodate the future freight task, which will continue to include a substantial component of interstate freight.

Much of the region's future road freight task will continue to converge on the Greater Kalgoorlie Area, given its central role as a hub for the region, and create urban amenity issues in terms of noise, safety and severance. Given the substantial volume and likely increase in intra-regional road freight moving in and around the area, and the interstate freight flows traversing it, there is a potential need for realignment of the road away from the Kalgoorlie City centre to address growing community concerns. Greater integration between the area's industrial estates and local, inter-regional and interstate freight routes will also be required in the future.

DIRECTION 9 – Priorities:

- Great Eastern Highway Upgrade: Walgoolan to Karalee, Bullabulling to Coolgardie West – widen and reconstruct sections of pavement.
- Great Eastern Highway Upgrade: Southern Cross to Kalgoorlie – passing lane program.
- Great Eastern Highway Upgrade: Anzac Drive to Gatacre Street – construct second carriageway.
- Goldfields Highway: Wiluna to Meekatharra – upgrade to seal standard (sealing of overtaking opportunities and floodways at strategic locations part funded).
- Coolgardie-Esperance Highway Upgrade: Emu Rocks North to Widgiemooltha – widen and reconstruct sections of pavement.

Image courtesy of Main Roads Western Australia



WHEATBELT AND GREAT SOUTHERN REGIONS

The Wheatbelt and Great Southern regions are serviced by an extensive road network, which is complemented by narrow-gauge rail infrastructure used to transport grain to Western Australia's export grain ports.

The adequacy of the regions' ageing road network, built mainly in the 1950s and 1960s, is being tested by general traffic growth and the cyclical nature of agricultural and forestry harvesting practices that create peak periods of high-intensity heavy freight movements. Investment priorities for the regions' Strategic and Major freight routes therefore centre on road upgrades and renewal programs to increase capacity by widening and duplicating certain sections of the road and rehabilitating and strengthening ageing pavements and bridges.

The Albany Highway is the main road connecting Perth and Albany, as well as a number of the southern Wheatbelt's major regional centres. The route supports a range of agricultural-related freight movements, including grain, wool and livestock, as well as fuel and general freight, and is also a significant route for the tourist industry. Heavy and light traffic between Perth and Albany will continue to grow, particularly at the northern end of the highway. Sections of the highway will require major upgrades in the future, including a substantial program of passing lanes.

The Brookton Highway is a major inter-regional route linking Perth to the southern areas of the Wheatbelt and Goldfields-Esperance regions. The highway is a designated double road train route supporting a diverse mix of vehicle types, from cars towing caravans to heavy vehicles carting grain. A large number of tourists also use this route to access tourist attractions around Hyden and Wave Rock. Widening and realigning substandard sections of the highway to improve safety and heavy vehicle transport efficiency will be an investment priority for Government.

The southern sections of the Great Northern Highway, which connect the northern Wheatbelt to Perth, are experiencing significant traffic volume increases. The section of the highway between Muchea and Wubin has narrow seal widths and substandard alignments resulting in reduced transport efficiency and safety for users. While upgrade works have been completed between Muchea and Bindoon, the upgrade of the section between Bindi Bindi and Pithara is a high priority for Government.

DIRECTION 9 – Priorities:

- Albany Highway Upgrade: Bedforddale Hill to Arthur River – construct additional passing lanes, improve alignments and reconstruct bridges at Williams town site.
- Albany Highway Upgrade: Harold Road to Settlement Road – construct additional passing lanes.
- Brookton Highway Road Renewal Program: Corrigin to Hyden East – widen road sections and improve alignments.
- Albany-Lake Grace Road Renewal Program: Branson Road to Nightwell Road – widen road sections and reconstruct sections of pavement.
- Great Northern Highway Upgrade: Muchea to Wubin Stage 2 – widen road sections and improve alignments (Bindi Bindi Curves upgrade funded).

SOUTH WEST REGION

Freight volumes in the South West region are already substantial and will continue to grow significantly over the next 20 years. Much of region's future freight demand will be underpinned by growth in the alumina sector, together with potential increases in coal and related downstream processing from the Collie Basin. Heavy and special industrial estate developments across the region, particularly at the Shotts Industrial Park at Collie, will also generate significant freight volumes.

Recent investment in the South West region has focused on the Perth Bunbury Highway, the State's largest road upgrade. The highway will continue to act as an important corridor supporting the South West region; however, with the increasing scale of the freight task to and from the Collie area, the Bunbury-Collie corridor will experience substantial growth in road freight and emerge as a major freight route. This will necessitate that road projects focus on Coalfields Highway capacity upgrades and, given the expected increase in light vehicle traffic, upgrades will also need to target areas with a crash history.

Integrated port, rail and road planning will continue to be paramount in order to mitigate light and heavy vehicle conflicts as much as possible in the Greater Bunbury Area, particularly given the future population growth predicted for the area. The Bunbury Outer Ring Road Stage 1 and the Bunbury Port Access Road Stage 2 are currently funded and being delivered to meet these objectives. The projects will provide a more direct route to the port of Bunbury for heavy vehicles and reduce the volume of heavy traffic in the Greater Bunbury Area.

The South Western Highway will also continue to be an important part of the South West and Great Southern regions' transport network and will require targeted upgrades to improve safety and heavy vehicle transport efficiency.

DIRECTION 9 – Priorities:

- Coalfields Highway Upgrade: widen road sections, improve alignments and add additional passing lanes (Wellington Dam turnoff to Allanson funded).
- South Western Highway Upgrade: Donnybrook to Bridgetown – widen road sections and improve alignments (funded).

→→ DIRECTION 10: Improve landside access to regional port authority ports

The State's port authority ports play a key role in the economy and act as focal points for the regional freight network. The capacity of these ports and their efficient operation are determined not only by how cargo is handled inside the port gate, but also by the effectiveness with which cargo is moved to and from the port and the level of impact these transport movements have on the amenity of the communities through which cargo passes.

The Government takes a direct role in planning, investing and maintaining port authority interfaces and overseeing road infrastructure delivery, particularly where there are potentially significant impacts on multiple port users and the community in general. It will continue in this lead role and formulate short, medium and long-term road access needs for existing and planned port authority ports to 2031.

The Government has invested heavily in a number of important road infrastructure projects to ensure efficient and sustainable access to port authority ports. The benefits of these projects are considerable and include a reduction in the volume of heavy traffic on regional townsite roads and associated intersections, and improved freight efficiency into and out of ports. These benefits also help to secure the long-term sustainability of Western Australia's regional ports in current locations as the freight task grows. The State Government has worked with the Commonwealth Government on a number of these projects, including the Bunbury Port Access Road and the Esperance Port Access Corridor, and will continue to partner with the Commonwealth to deliver a number of the programs mentioned into the future.

In general, the port facilities at non-port authority ports have been developed and are managed and operated pursuant to State Agreement Acts, which provide for regulation of activities from mining through to the loading of commodities on to ships. The planning and future development of the port facilities and accesses at non-port authority ports is largely at the discretion of the port facility operator and is generally driven by changes in global demand for the commodity handled by the individual port facility.

DIRECTION 10 – Priorities:

Port Access Roads – Regional Port Authority Ports

- Port Hedland Port: Great Northern Highway – realign to create a bypass of Wedgefield Industrial Estate to improve traffic flows between the port and South Hedland and reduce heavy vehicle (including 53.5m road trains) conflicts with local traffic (underway). In the longer term:
 - Great Northern Highway: strengthen bridges east of Port Hedland to improve eastern access to the port.
 - Port Hedland Road Upgrade: Roche Road to Short Street – construct second carriageway to provide a consistent standard of road between South Hedland and Port Hedland and improve access to the port and town centre.
- Dampier Port: Dampier Road, Balmoral to Burrup Road – construct four-lane divided road to upgrade access to the port of Dampier and the Burrup Peninsula (underway).
- Bunbury Port: complete the Bunbury Port Access Road – Bunbury Port Access Road Stage 2, South Western Highway to Stage 1 of the Bunbury Outer Ring Road (funded).
- Esperance Port: Coolgardie-Esperance Highway Upgrade (Esperance Port Access Corridor Project) – construct road and rail improvements south of Harbour Road-Pink Lake Road intersection to the port (underway). The project involves realigning 1.8km of Harbour Road to enter Esperance Port on the south side of the railway. In the longer term:
 - Coolgardie-Esperance Highway Upgrade: realign Barney Hill and construct dual carriageway for harbour access.



Image courtesy of
Main Roads Western Australia

→→ DIRECTION 11: Alleviate the impact of heavy freight movements on regional centres

The Western Australian Government recognises that road freight operations have a significant impact on the liveability of regional communities and has implemented, in conjunction with industry, a number of non-infrastructure measures that have reduced impacts on communities over recent years. Despite the effectiveness of the measures taken, the continuing growth of the freight task is likely to generate increased pressure on community amenity in some regional areas. Major road infrastructure programs to mitigate the impact of heavy truck movements on regional communities will therefore be required in the future.

In regional Western Australia, industrial developments and increasing population are generating significant community pressures for the construction of ring roads and bypasses or alternative heavy vehicle routes to enhance the separation of light and heavy vehicles within built-up areas of regional centres. This is particularly the case for communities located in close proximity to regional ports, where there are large numbers of heavy truck movements generated by the need to transfer cargo quickly and efficiently to and from the port.

The Western Australian Government will continue to work with local government authorities to assess the need and location for future heavy haulage bypasses and ring roads in Western Australia's regions. Reconfiguring the road networks around regional centres to allow port-related through traffic to flow, without interfering with local traffic, will require road realignments to be closely integrated with port access road requirements.

Population growth across the South West region, together with strong underlying tourism activity, point to the need to complete the Bunbury Outer Ring Road. The Bunbury Outer Ring Road is planned as a Controlled Access Highway, linking the four major highways radiating from Bunbury on the outer edge of the city (namely the Forrest Highway, South Western Highway, Boyanup Picton Road and Bussell Highway) to the Bunbury Port Access Road. The road will be a four-lane dual carriageway with the capacity to be upgraded to freeway status in the long term. Once completed, the project will also provide an effective bypass of Bunbury for inter-regional traffic.

In the Great Southern region, the City of Albany provides the only port for the region, and is the region's major industrial, commercial and retail centre. In the longer term, the investment focus for the area will be on the completion of the Albany Ring Road. Stage 1 of the ring road is already in place, with planning finalised for Stages 2 and 3. The ring road will cater for increased heavy vehicle traffic and is an important factor in managing sustainable land use for the development of the City of Albany. The road is planned as a high-standard divided road and will link the major roads in and out of Albany and provide improved access to the Mirambeena Industrial Estate and the port of Albany.

DIRECTION 11 – Priorities:

Ring Roads – Bunbury and Albany

- Bunbury – complete Bunbury Outer Ring Road: Bunbury Outer Ring Road Stages 2 and 3 – construct new links connecting Perth to Bunbury Highway and Boyanup-Picton Road and South Western Highway and Bussell Highway.
- Albany – complete the Albany Ring Road: Albany Ring Road Stages 2 and 3 – extend Albany Ring Road to provide a heavy haulage link from the Albany Highway to South Coast Highway and Albany Port Road.

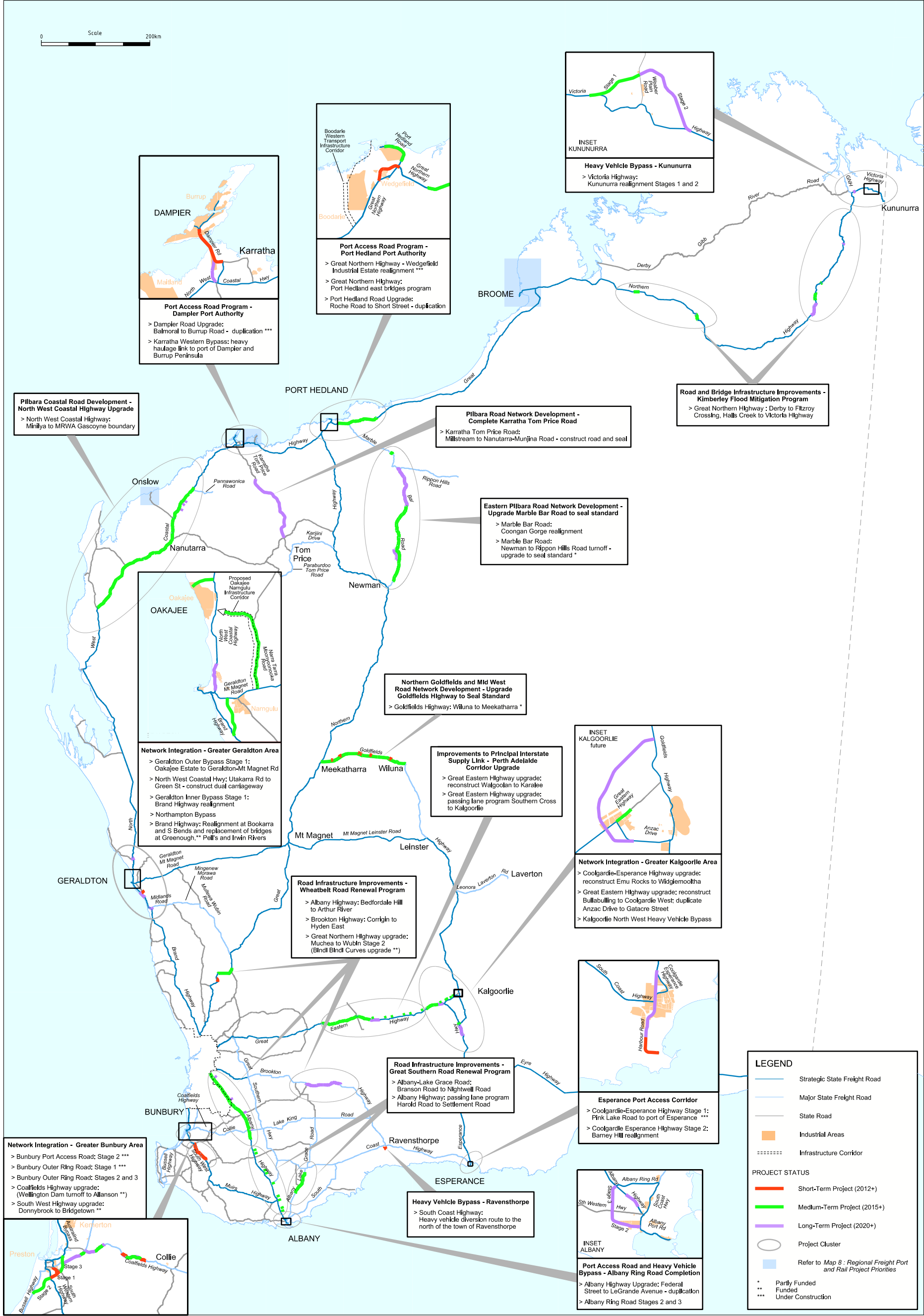
Heavy Haulage Realignments – Kununurra, Karratha, Kalgoorlie, Northampton and Ravensthorpe

- Kununurra: Kununurra Heavy Vehicle bypass, Victoria Highway realignment Stages 1 and 2 – construct a new road link from Victoria Highway to Weaber Plain Road (Stage 1) and construct a second link from Weaber Plain Road to Victoria Highway (Stage 2).
- Karratha: Karratha Western Bypass – construct a new road south-west of Karratha to provide a heavy haulage link from the North West Coastal Highway to Dampier Road, replacing Madigan Road as the primary freight route to the port of Dampier and Burrup Peninsula.
- Kalgoorlie – construct a north-western road realignment including the extension of Anzac Drive to provide a heavy haulage link from the Great Eastern Highway to the Goldfields Highway, bypassing the City of Kalgoorlie and improving connectivity between the area's industrial lands.
- Northampton – realign the North West Coastal Highway to create a heavy vehicle bypass of the town of Northampton.
- Ravensthorpe – construct a new road alignment to the north of the town of Ravensthorpe to create a heavy vehicle diversion route (funded).



Image courtesy of Main Roads Western Australia

Map 7: Building and Maintaining the Road Network – Regional Freight Network Priorities



FACILITATING AND SELECTIVELY INVESTING IN STRATEGIC RAIL AND PORT NETWORK PROJECTS

→→ DIRECTION 12: Support a growing role for rail in the distribution of the freight task

The State-owned freight rail network, managed by Brookfield Rail, will play an increasingly important role in the transportation of Western Australia's freight task in the future. Freight volumes are expected to increase by up to 126 per cent by 2030, driven largely by iron ore from the Yilgarn and Mid West provinces and coal from the Collie Basin.⁵⁵ Investment in infrastructure will be vital to meet this future task and to preserve network asset condition. Since 2000, Brookfield Rail has invested more than \$1 billion in the network and plans to spend an additional \$500 million on new infrastructure projects to support growth of a further 25 million tonnes in the next eighteen months.⁵⁶

As a privately leased and operated network⁵⁷, there is further scope for investment by industry and Brookfield Rail to address anticipated needs to 2031. To this end, Brookfield's investment program will take place within a long-term network planning framework that is focused on potential opportunities being realised and justified over time, and preserving the operating integrity of the network.

While the State-owned freight rail network is under a lease that is in force until 2049, Government also recognises that the provision, maintenance and usage of rail assets require careful management and planning to concentrate scarce funding at strategic rail and road corridors. This is essential in order to avoid duplication of investments, ensure longevity of valuable State assets, and minimise the impact of heavy freight movements on population centres and other users of transport corridors.

The Western Australian Government has an important role in achieving coordinated statewide and national land transport planning, funding and investment decision-making, particularly given that a number of the projects in Brookfield Rail's network planning framework relate to corridors that are part of the broader National Land Transport Network. The National Land Transport Network is the passenger and freight backbone of the national land transport system and is the focus of the Commonwealth Government's transport planning and funding responsibility. The corridors that are part of the National Land Transport Network play a critical role in supporting the economic integration of Western Australia with Australia's eastern states. The Western Australian Government will thus continue to work with Brookfield Rail, industry and the Commonwealth to strategically plan and grow capacity in this vital network.

Looking to the future, there will be increasing pressure on transport networks as the freight task continues to grow within and between the State's regions. In this context, rail is an essential transport mode, given community expectations regarding the provision of freight transport that balances economic objectives with issues of sustainability and safety. The Government will continue its commitment to maintaining a strong regional rail network and consider necessary long-term development needs on a case-by-case basis.

Ultimately however, the Government recognises that Brookfield Rail has the financial capacity and expertise to facilitate the development of rail infrastructure and that many of the projects incorporated into Brookfield Rail's network planning framework will be funded through commercial arrangements with industry and rail users. Private-sector investment in rail will require consideration of required commercial returns and the mitigation of risk associated with the significant capital investments involved.

NARROW-GAUGE GRAIN RAIL NETWORK

Western Australia's grain sector produces an average of 11 million tonnes of grain per annum, with 80-90 per cent of production destined for export markets.⁵⁸ The rail network is vital to this industry, providing the means of moving around 60 per cent by volume and 80 per cent by net tonne kilometres of the sector's freight task.⁵⁹

In recognition of the significance of the State's grain network, the State Government undertook the *Strategic Grain Network Review* (the Review), which concluded that there was a sound economic rationale and wide grower support for maintaining a strong grain rail network.

State and Commonwealth Government funding will underwrite the Tier 1 and 2 narrow-gauge rail re-sleeper program, which will see around 1,265 kilometres of rail lines re-sleepered over the short term.⁶⁰ The State Government will continue to work with all parties to facilitate a sustainable arrangement to keep Tier 3 lines operational.

The Western Australian Government will continue to maintain an ongoing dialogue with stakeholders to progress and coordinate the Review's funding approvals within Government as well as the implementation of the roll-out of Government-funded rail and road upgrades, with a focus on investment in a core network of Tier 1 rail lines and selected Tier 2 rail lines. It will also implement a staged complementary program of road works necessary to upgrade and maintain regional roads significantly impacted by grain freight traffic increases.

DIRECTION 12 – Priorities:

Secure the Future of Western Australia's Grain Rail Network

- Upgrade narrow-gauge network Tier 1 and selected Tier 2 lines serving the regional grain silo network.
- Continue to work with all parties to facilitate a sustainable arrangement to keep Tier 3 lines operational.



Image courtesy of Brookfield Rail

EASTERN GOLDFIELDS RAILWAY

The Eastern Goldfields Railway is the main freight supply link into the State, carrying the majority of the State's interstate freight movements. The line also has a key role in supporting export-oriented industries, including iron ore, nickel and grain. Passenger country and interstate trains, including the major tourist icon, the Indian Pacific, also operate on parts of the line. The standard-gauge line is part of the National Land Transport Network; between Kewdale and Kalgoorlie the track is managed by Brookfield Rail and east of Kalgoorlie the track is owned and managed by the Australian Rail Track Corporation.

In 2010, the freight task on the Western Australian section of the line ranged between about 5 million tonnes per annum east of Kalgoorlie (mainly interstate trade), approximately 9.5 million tonnes per annum near the Perth metropolitan limits, and 17 million tonnes per annum between Koolyanobbing and Kalgoorlie – boosted by mining exports destined for the port of Esperance.⁶¹

The Eastern Goldfields Railway will require various capacity and efficiency upgrades to support future demand from diverse sectors and multiple rail providers. Some sections of the line are subject to permanent speed restrictions that are progressively being removed. The Eastern Goldfields Railway Freight Gateway Project, funded under the Commonwealth Government's Nation Building Program, is replacing 185 kilometres of rail to improve service to rail users with enhanced safety, increased speeds and heavier axle loads.⁶² The Kalgoorlie to Koolyanobbing line section is heavily trafficked by interstate freight trains, iron ore trains and passenger trains and will likely require partial duplication in the medium term. The Koolyanobbing to Avon line section is also likely to require an extensive program of additional crossing loops in the medium term to create additional capacity and the section between Merredin and Avon potentially needs partial duplication.

In the future, the Government will continue to ensure Western Australia's principal interstate supply link keeps pace with freight demand by working with the Commonwealth and other State Governments, Brookfield Rail and the Australian Rail Track Corporation to ensure there is the appropriate level of investment in the interstate mainline to Western Australia to achieve Defined Interstate Rail Network standard. This requires a minimum standard of 23-tonne axle loads and 115 kilometres per hour travel speed.⁶³ Government will also progress longer-term planning for necessary rail realignments around regional centres to reduce the impact of heavy freight movements on communities, including undertaking detailed planning to define a realignment around the city of Kalgoorlie, coincident with a proposed heavy vehicle bypass route, to minimise impacts associated with the increase in interstate and intrastate rail movements.

DIRECTION 12 – Priorities:

Continue to Improve the State's Principal Interstate Rail Supply Link

- Kalgoorlie to Koolyanobbing – partial duplication.
- Koolyanobbing to Avon:
 - Extensive passing loop program
 - Partial duplication from Merredin to Avon.

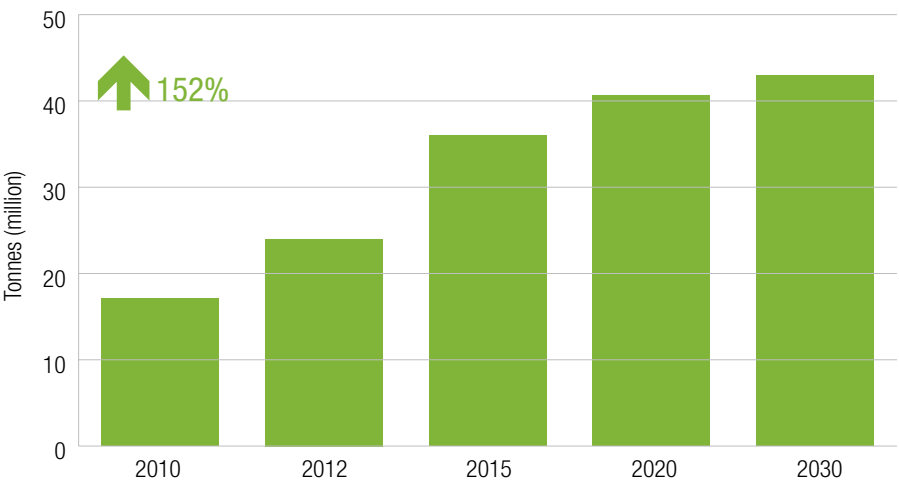


Figure 10: Koolyanobbing – Kalgoorlie Section Freight Growth (2010 – 2030)⁶⁴

MID WEST RAIL NETWORK

Exports of iron ore from the Mid West region are likely to represent up to 50 per cent of Brookfield Rail's future trade growth.⁶⁵ The company expects freight growth to increase exponentially to 2030 with much of the growth – and investment in additional capacity – likely to be concentrated on the Morawa-Mullewa-Narngulu-Geraldton arc. To this end, recent private investment to construct a new dual-gauge line between Morawa and Mullewa and upgrade the existing line to dual gauge between Mullewa and the Narngulu Industrial Estate will ensure the railway now has the capacity to support 27.5 million tonnes per annum and, through staged incremental investment, can grow to 75 million tonnes per annum. In the medium term, there are emerging growth opportunities in the region that may further maximise the investments made and warrant a potential additional dual-gauge extension to Brookfield's southern Mid West network.

The future Oakajee Mid West Development Project provides for two potential rail links between the integrated deep-water port, rail and industrial estate and the Brookfield Rail-managed rail network currently serving the region and the port of Geraldton. The project incorporates the provision of rail links between the greenfield rail network and existing Brookfield rail network at Narngulu Industrial Estate, 12 kilometres south-east of Geraldton (Oakajee Narngulu Infrastructure Corridor) and also at Tenindewa, 16 kilometres west of Mullewa. With the development of the rail network in the future, the opportunity exists for the Mid West iron ore industry to export via the new Oakajee port, alleviating the need for major expansion at the port of Geraldton.

While future network upgrades and expansions will be funded by industry and Brookfield Rail, the Western Australian Government will ensure that new rail lines built to service expanding mining operations are constructed with long-term planning in mind to provide on-going benefits and transport options to the regions in which they are located. To this end, it will work with stakeholders to progress development of a coordinated freight rail network in the Mid West region, including third-party rail access, and alignment, design and construction standards that ensure overall interoperability between Brookfield Rail's dual and narrow-gauge system and the ports of Geraldton and Oakajee and industrial precincts of Narngulu and Oakajee.

DIRECTION 12 – Priorities:

Link Mid West Industry to Mid West Ports

- Potential dual-gauge extension to Brookfield's southern Mid West network.



Image courtesy of Brookfield Rail

SOUTH WEST RAIL NETWORK

The South West rail network includes the South West Main, which is part of the National Land Transport Network. The corridor is 185 kilometres of single-track, narrow-gauge line from Kwinana to the Port of Bunbury. The line services a number of other lines, extending east to Collie from Brunswick Junction and west to the Bunbury passenger terminal. To the north, the line connects to the Fremantle Outer Harbour at Kwinana, Fremantle Inner Harbour and Kewdale.

Freight volumes on the South West Main are already substantial, as the line currently carries the majority of the region's bulk freight movements. The track in its current configuration is nearing capacity, particularly in the southern sections from Brunswick Junction to discharge points within Bunbury Port. Most crossing loops and sidings south of Pinjarra are less than 700 metres, which also affects the maximum length of trains that can be accommodated on the track.

In the medium term, the South West Main will likely require a progressive increase to 23-25 tonnes for increased overall train-carrying capacity. In the longer term, subject to demand from major users and dependent on complementary upgrades at user sidings, duplication of the line between Pinjarra to Kwinana will be needed.

There are a number of developments in the Collie Basin and the Shotts Industrial Estate that will see the Brunswick to Collie rail corridor emerge as a major freight route. The existing rail configuration is likely to be unable to provide adequate capacity for these levels of demand without major track-strengthening and capacity upgrades being undertaken, including section duplications. Much of the region's future rail freight will continue to converge around Brunswick Junction, which is the focal point for northern and eastern rail freight flows traversing the area. Rail freight demand is forecast to increase more than 300 per cent on the Brunswick to Bunbury Inner Harbour section, necessitating capacity upgrades, including duplication works, in the short term.

In the future, Government will continue to enhance connections between South West industry and the State's ports and intermodal terminals. It will continue to work with the Commonwealth Government, Brookfield Rail and industry to keep pace with increasing freight demand and to ensure the appropriate level of investment in the South West Main, including revisiting, at the appropriate time, the need to convert the narrow-gauge line to standard gauge to connect the South West region of the State to the interstate network. It will also oversee integrated port, rail and road planning to facilitate the efficient movement of exports that support the economic development of the South West region, including developing a long-term master plan for the port of Bunbury to ensure that the long-term capacities of transport corridors – both road and rail – are aligned with the future capacity of the port.

DIRECTION 12 – Priorities:

Link South West Industry to Bulk Ports at Bunbury and Kwinana

- ➔ Upgrade the South West Main:
 - Brunswick Junction to Bunbury Inner Harbour – duplication
 - Brunswick Junction to Pinjarra – crossing loop extension program
 - Progressive improvements to increase axle loads to 23-25 tonnes
 - Pinjarra to Kwinana – duplication.
- ➔ Upgrade the Collie Line:
 - Upgrade Stages 1, 2 and 3
 - Brunswick Junction to Ewington Junction – duplication.

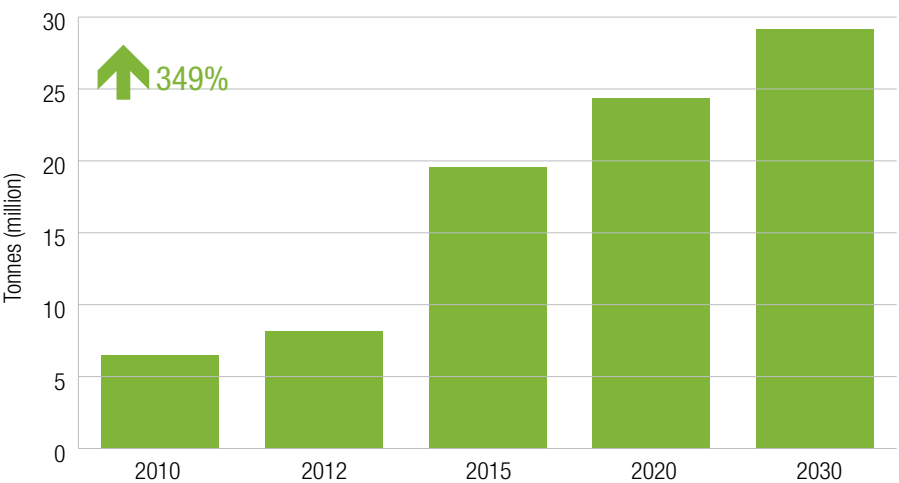


Figure 11: Brunswick Junction – Collie / Premier Section Freight Growth (2010 – 2030)⁶⁶

GOLDFIELDS ESPERANCE RAIL NETWORK

Much of the future growth in bulk freight is likely to be concentrated on the interstate mainline east of Koolyanobbing and the line from West Kalgoorlie to Esperance. In many cases, demand is likely to be iron ore originating from the Yilgarn province destined for export from the port of Esperance, with some tonnages destined for Kwinana.

The Leonora to Kalgoorlie and West Kalgoorlie to Esperance lines were upgraded from narrow to standard gauge in the early 1970s. The conversion to standard gauge did not include upgrading the underlying formation of the track from the narrow-gauge standards to which it was originally constructed, however. The underlying narrow-gauge track formation contributes to axle load constraints and this deficiency has an impact on productivity. In addition, sub-optimal track grades contribute to less efficient above-rail operations.

While sufficient capacity exists on the line to accommodate the current freight task, the corridor is incapable, in its current form, of accommodating significant additional tonnages at acceptable levels of service. Track strengthening and capacity upgrades of both the Kalgoorlie to Esperance line and Kalgoorlie to Koolyanobbing line section are being undertaken to accommodate freight increases for the short term. A train control, communications and signals systems upgrade is also a priority on the entire Leonora to Esperance line. An extensive crossing loop program will be required in the short term and a partial re-railing and re-sleepering program will be required in the medium term to allow for efficient operation of 1800-metre trains, to handle increased iron ore volumes.

Future growth opportunities from the emerging mines in the Yilgarn province are likely to require further capacity-related upgrades of the Leonora to Kalgoorlie line and, subject to demand, potentially a new spur line connecting key sites in the medium term. Ultimately, an extension to the Mid West network may be required in the long term.

While industry and Brookfield Rail will fund future network upgrades and expansions, Government will continue to enhance connections between Goldfields-Esperance industry and the State's port network. It will also undertake initial planning to ascertain the route options and feasibility of a potential rail connection between the Mid West and Goldfields region and proceed with a detailed alignment definition study that will define a preferred corridor alignment and establish appropriate planning overlays to preserve rail access should it be required in the future. It will oversee integrated port, rail and road planning to facilitate the efficient movement of exports, including developing a long-term master plan for the port of Esperance, to ensure that the long-term capacities of transport corridors – both road and rail – are aligned with the future capacity of the port. In this regard the State and Commonwealth have committed to jointly fund the Esperance Port Access Corridor project.

DIRECTION 12 – Priorities:

Keep Pace with Emerging Resource Developments in Goldfields Esperance region

- ➔ Kalgoorlie to Esperance – partial rail duplication.
- ➔ Potential spur line connecting key Yilgarn sites.
- ➔ Upgrade Leonora to Esperance Line
 - Train control, communications and signal system upgrades
 - Crossing loop program
 - Re-rail and re-sleepering program
 - Grade and axle load improvements.

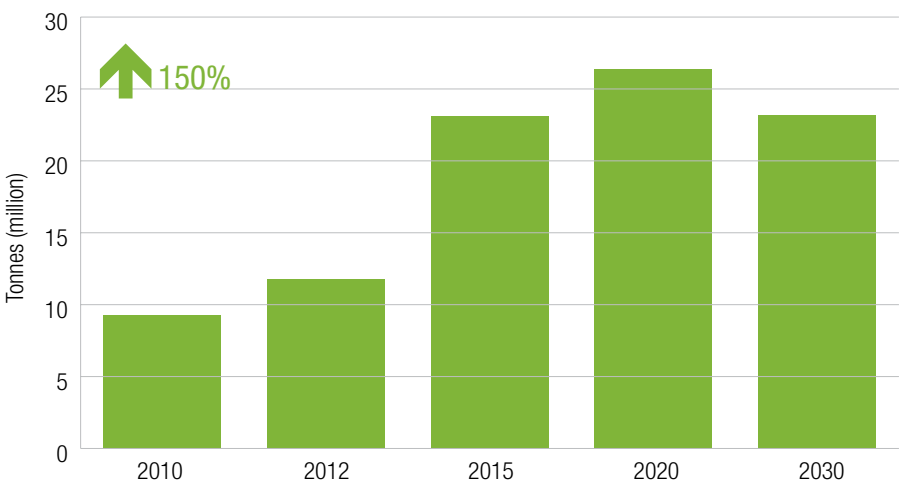


Figure 12: Kambalda – Esperance Section Freight Growth (2010 – 2030)⁶⁷

→→ **DIRECTION 13:** Invest towards common-user port infrastructure necessary to develop the Mid West resources industry – Oakajee Mid West Development Project

The development of the Mid West resources sector, with estimated magnetite iron ore resources of 13 billion tonnes,⁶⁸ holds prospects for substantial economic growth that will set the context for the region's wider strategic direction and public and private sector infrastructure investment programs well into the future.

The Oakajee Mid West Development Project is a key component of the Western Australian Government's long-term vision for resource development in the Mid West region. The Project proposes to establish an integrated multi-user deep-water port, rail and industrial estate 25km north of Geraldton principally for the transport of iron ore. The port is planned to have an initial capacity of 45 million tonnes per annum⁶⁹ with scope for further expansion as demand grows, and ultimately consist of an enclosed port with berthing capacity to service a range of different vessels, including berths dedicated to the export and import of bulk and general materials. The port will operate under the jurisdiction of the Geraldton Port Authority.

State and Commonwealth government funding will be directed to common-user port infrastructure and be subject to a final investment decision by the private sector. Oakajee common-user port infrastructure includes construction of the channel, breakwater, turning basin and navigational aids, as well as provision for tug and pilot boat pens, port administration offices and associated roads and utilities. This infrastructure will be Government-owned with port users being charged for its use on a commercial basis. The State will also own the adjacent industrial estate.

The Department of State Development will coordinate the Oakajee Mid West Development Project under the Western Australian Government's Lead Agency Framework, while the Department of Transport, the Geraldton Port Authority, Main Roads Western Australia and the Public Transport Authority will undertake a number of actions to progress the transport infrastructure required for the project and enable the development of a major new iron ore export province in the Mid West.

DIRECTION 13 – Priorities:

Port Infrastructure, Facilities and Services

- Ensure port infrastructure design is consistent with the State Government's vision for the ultimate port development, including performance requirements and specifications, articulated in the Geraldton Port Authority's *Oakajee Port Master Plan*.
- Support proponents in developing and accessing port infrastructure, including overseeing the development approval process.
- Undertake or arrange for port works and services necessary for the operation of the port and the future growth and development of the port.

Port Roads and Network Integration

- Undertake priority road projects to support and integrate the Oakajee Mid West Development Project and reduce the future impact of project-related traffic on residential communities.
- Ensure integration of port and rail designs with the development of the project's complementary strategic industrial estate articulated in LandCorp's *Oakajee Industrial Estate Structure Plan*.



Image courtesy
of Brookfield Rail

→→ DIRECTION 14: Progress transport infrastructure to support the development of the State's Strategic Infrastructure Projects

The system of ownership of major port infrastructure in Western Australia is likely to change further in the future, with private companies playing a larger role in greenfield-integrated port and industrial estate developments at Ashburton North Strategic Industrial Area, Anketell Port and Strategic Industrial Area, and the proposed Browse Liquefied Natural Gas Precinct.

These development areas will act as future focal points for the regional freight network and will play an important role in the State's economy to 2031. The Department of State Development will coordinate the progress of the Ashburton North Strategic Industrial Area, Anketell Port and Strategic Industrial Area, and proposed Browse Liquefied Natural Gas Precinct under the Western Australian Government's Lead Agency Framework. The Department of Transport, the relevant port authority, LandCorp and Main Roads Western Australia will take the necessary steps to plan ahead for the development and efficiency of associated future ports at Ashburton, Anketell and James Price Point, including ensuring best use of port land areas.

In particular, the Department of Transport, the relevant port authority and Main Roads Western Australia will focus on connecting the future ports to the broader regional freight network and build on the capabilities and competitive strengths of the existing port network by ensuring the future ports are managed and operated by the appropriate port authority in accordance with the *Port Authorities Act 1999*.

Ashburton North Strategic Industrial Area

The 8,000-hectare Ashburton North Strategic Industrial Area, immediately south of Onslow, will feature a common-user coastal area, multi-user access corridor and heavy industry area for liquefied natural gas and hydrocarbon processing industries. The area is to include a multi-user port with an ultimate export capacity of up to 50 million tonnes of liquefied natural gas per annum. This includes export capacity for other hydrocarbon-based products (including value-added products), and capacity for the import/export of related general cargo trade, including fuel. The foundation proponent, Chevron, will construct private-use facilities and common-user port facilities, with the latter being subsequently managed and owned by the Dampier Port Authority, which will have overall jurisdiction for the port of Ashburton.

Browse Liquefied Natural Gas Precinct

The Browse Liquefied Natural Gas Precinct near James Price Point, 60 kilometres north of Broome, has been identified as the site for the processing of liquefied natural gas in the Kimberley region. The precinct will limit the environmental footprint and impacts on cultural and heritage sites in the region by providing a single site capable of accommodating at least two liquefied natural gas projects.

It is proposed that the precinct will have production capacity of up to 50 million tonnes of liquefied natural gas per annum. The area will have an overall land footprint of about 3,414 hectares. Some 110 hectares of land and approximately 1,000 hectares of marine area will be vested in and managed by the Broome Port Authority for specific port and export activities related to the operation of the precinct.

As a potential foundation proponent, Woodside Energy Limited, on behalf of the Browse LNG Development Joint Venture Participants, is expected to construct a wharf and other private-use infrastructure, together with common-use infrastructure including the breakwater, shipping channel and materials-offload facility. The use of the materials-offload facility will not be exclusive to any one proponent.

Anketell Port and Strategic Industrial Area

The Anketell Area, approximately 25 kilometres north-east of Karratha and one kilometre south of Dixon Island, has been identified as the site for a new deep-water port and strategic industrial area for the development of iron-ore exports and other industry in the Pilbara region.

The port and access corridor will have a terrestrial footprint of 3,465 hectares. An additional area of 838 hectares is also proposed for future industrial use. The area is to include a multi-user port capable of expanding to at least 350 million tonnes per annum. Other proposed infrastructure includes a multi-user infrastructure corridor to accommodate utilities and transport links including roads and rail lines. The multi-user port is likely to be developed by the private sector under the *Port Authorities Act 1999*.

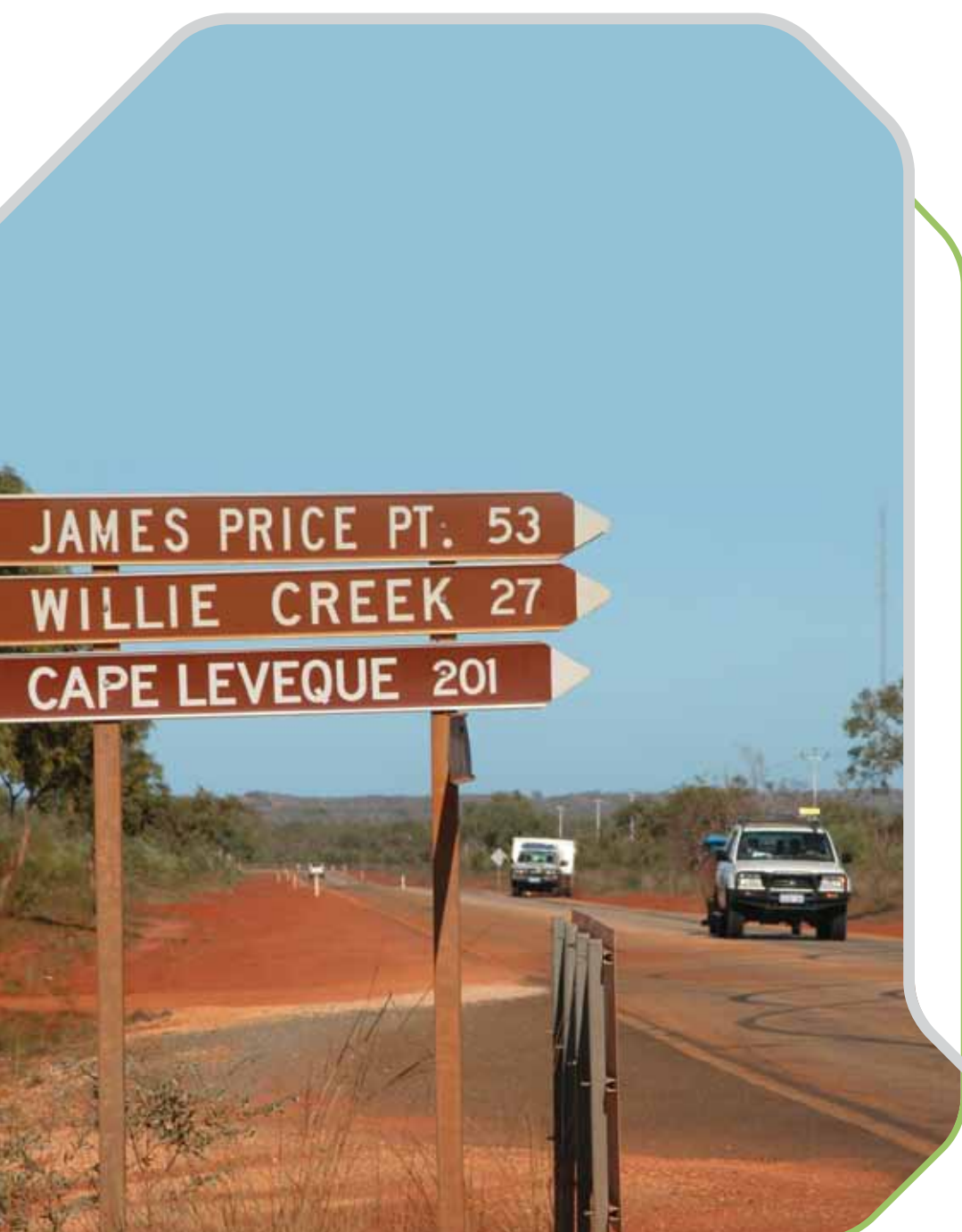




Image courtesy of Main Roads Western Australia

DIRECTION 14 – Priorities:

Port Infrastructure, Facilities and Services

- Plan for the future development and operation of ports associated with the development areas, including formulating port master plans to ensure best use of port lands in the long term.
- Formulate and apply legal frameworks relating to the development and operation of the port, including leases and licences relating to tenure, construction and operation of port infrastructure, marine safety, and environment and shipping operational procedures.
- Support proponents in developing and accessing port infrastructure, including overseeing the development approval process.
- Provide port services, as required, in accordance with the *Port Authorities Act 1999*, including the provision of pilotage and towage, stevedoring, mooring and other necessary services such as dredging and the provision and maintenance of navigation aids.
- Upgrade and manage small-vessel boat harbours in the vicinity of the strategic development areas to cater for vessels that are needed to service major offshore oil and gas projects. A priority in this regard is the upgrade of the Beadon Creek Boat Harbour to accommodate marine service industries that will serve the offshore components of Chevron's Wheatstone project, as well as to handle an increase in the number of recreational vessels that will occur as a result of population increase at Onslow.

Port Roads and Network Integration

- Ashburton North Strategic Industrial Area – upgrade Onslow Road and construct a new access road from Onslow Road to the port of Ashburton's boundary. The foundation proponent, Chevron, is contributing towards the upgrade of Onslow Road to ensure road safety is maintained. In the instance of the Ashburton North Strategic Industrial Area, the proponent is funding and constructing a new access road to the port facility in accordance with Main Roads Western Australia standards. Once the port is operational, control of the access road will revert to a State Road to the port boundary.
- Browse Liquefied Natural Gas Precinct – Improve access to the precinct, including upgrading the existing Broome-Cape Leveque Road from Broome Highway and constructing a new, fully sealed, all-weather access road from the Broome-Cape Leveque Road to the site. The State Government will manage road improvements and the road expansion project required to access the site and to maintain access to James Price Point.
- Anketell Port and Strategic Industrial Area – Identify the future road access requirements and a preferred alignment, and construct a new access road, subject to a final investment decision by private stakeholders.
- In the case of proponent-funded access roads, assist proponents with technical advice and ensure the undertaking of appropriate traffic management studies and application of road design standards necessary for connectivity and integration with the wider Western Australian regional road freight network.

→→ DIRECTION 15: Enable port capacity expansion

The State's port authorities have undergone major growth in recent years with trade volumes more than doubling over the last decade.⁷⁰

Traditionally, Western Australia's regional port authorities have concentrated on handling a few key primary commodities. This saw an historic focus on agriculture at the State's southern ports and on mining at the northern ports. This picture has changed in recent years, particularly in relation to the southern ports. Here, grain handling has now been supplemented, and in some cases overtaken by the shipping of minerals or other industrial trades. The servicing of the oil and gas industries has also become increasingly important at the northern ports.

More large increases in trade are expected in the future. Total trade throughput through the State's port authorities is forecast to increase by up to 140 per cent over the next two decades. The Western Australian Government acknowledges the major changes in the ports' trade profiles and will continue to facilitate and selectively invest in projects that demonstrably improve the ability of ports to efficiently handle the changing mix and growing volume of trades into the future. In recent years, the Western Australian Government has substantially increased the level of export capacity investment at port authorities. More than \$217 million was spent on port infrastructure in 2010-11 and the Government has committed another \$491 million over the next four years to further enhance port infrastructure.⁷¹

The demand for funding nevertheless exceeds the capacity of the financial resources of the State and improved mechanisms are necessary to inform the relative contribution made by all levels of government and industry. The Western Australian Government's position is that there should be limited need for public-sector investment within port boundaries and Western Australia's ports should be funded on a private-sector investment and user-pays basis where possible.

Generally, port users are expected to fund single-use infrastructure such as shiploaders and berths, while Government develops and considers funding common-user infrastructure applying user-pay principles where appropriate. Increasing port infrastructure investment needs, however, have shifted the policy focus towards facilitating private proponents to fund and develop additional port infrastructure where possible, subject to government or port authority operational jurisdiction and the transfer of common-user infrastructure to the relevant port authority. The port authority is then responsible for facilitating third-party access, while ensuring that the foundation proponent is able to recoup its investment over a period of time through an agreed capital-pricing regime. Often this approach utilises market-based infrastructure providers to provide the required capital and operate facilities, allowing them to achieve investment returns on the facilities whilst providing ports with commercial returns for access to the port. The Western Australian Government, however, also recognises that the scope and diversity of ports and their users, together with the circumstances under which certain ports have been developed and currently operate, create unique challenges for developing a universal access and funding strategy.

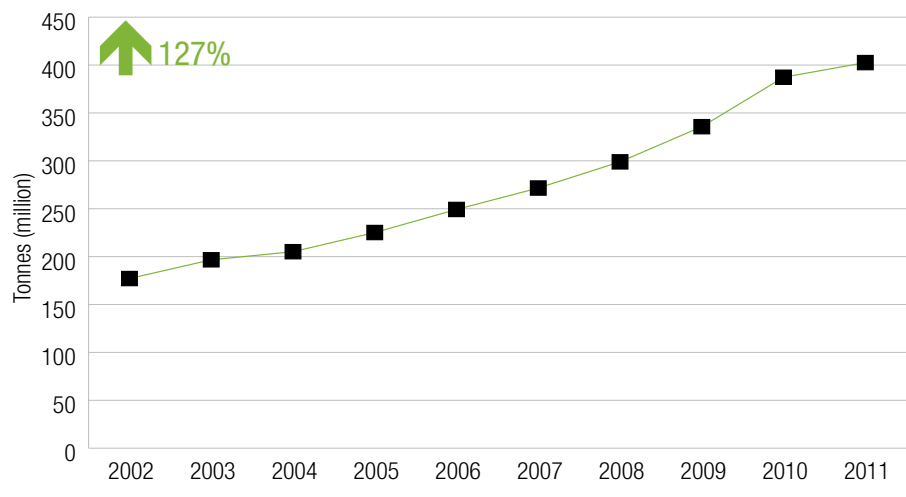


Figure 13: Total Throughput – Port Authority Ports, Western Australia (2002 – 2011)⁷²

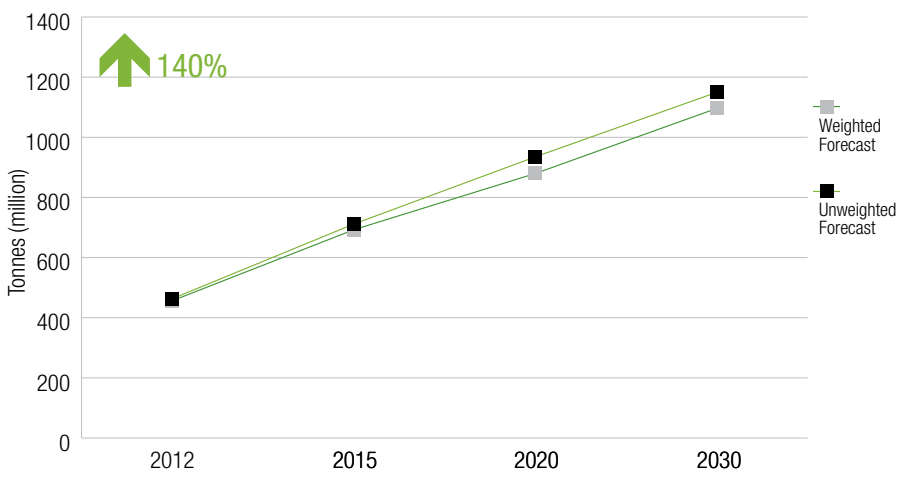


Figure 14: Total Throughput – Port Authority Ports, Western Australia (2012 – 2030)⁷³

PORT OF BROOME

The port of Broome is the major port for Western Australia’s Kimberley region. The port’s throughput in 2010-11 was 233,564 tonnes comprised mainly of petroleum product imports.⁷⁴ Other port trades include livestock and building materials and a growing container trade.

In the future, the development of the Browse Basin, with natural gas reserves of 31.4 trillion cubic feet,⁷⁵ holds prospects for substantial regional growth and a potentially significant role for the Broome Port Authority.

The port is expected to build on its existing role as a service hub for the offshore oil and gas exploration and development industry and expand its jurisdiction to include the port at James Price Point, proposed as part of the Browse Liquefied Natural Gas Precinct. It is also expected that the port authority will provide regional governance processes when the Kimberley Ports Authority is formed circa 2014.

The port of Broome’s existing principal infrastructure consists of a steel-piled wharf structure connecting three common-user berths: a 331m outer berth and two inner berths of 170m and 96m. The design life of the main wharf is due to expire in the near future and will require a significant investment to extend the life of the wharf.

The development of the Browse Basin and the Browse Liquefied Natural Gas Precinct is likely to bring new and diverse opportunities for the port authority in the future and set the context for its wider strategic direction and infrastructure investment program, including the funding opportunities and sources required to support the initial upgrade and eventual replacement of the port authority’s wharf.

The Broome Port Authority is currently planning to develop additional industrial land to further position the port as a service hub for the Browse Basin. The construction of a new utilities corridor will support the development of a substantial 73-hectare marine supply base precinct adjacent to the port’s boundaries that will be managed by the port authority in partnership with the traditional owner corporation.

DIRECTION 15 – Priorities:

Development of the Browse Basin to Set Wider Strategic Direction for the Port of Broome

- Upgrade main wharf.
- Develop near-port land.

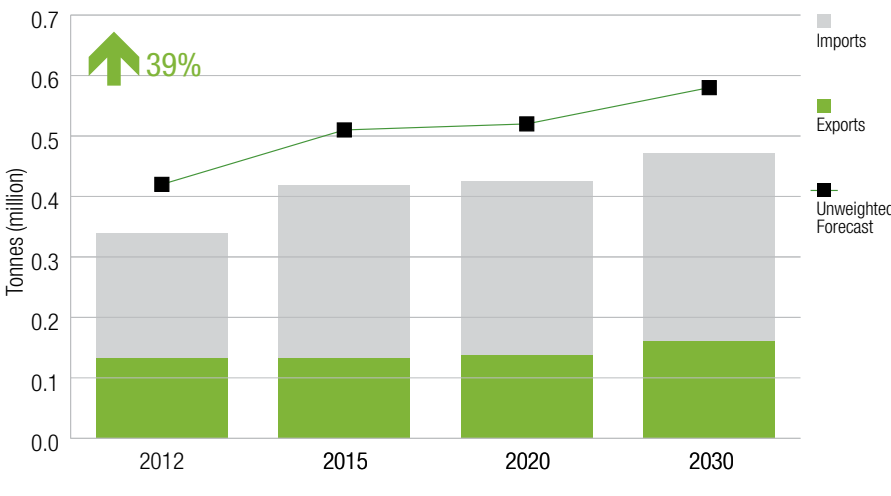


Figure 15: Total Throughput – Broome Port (2012 – 2030)⁷⁶



PORT OF PORT HEDLAND

The port of Port Hedland is the largest bulk export port in the world and the largest port by tonnage in Australia. In 2010-11, the Port Hedland Port Authority experienced significant growth in total throughput, mainly due to an increase in iron ore exports, which totalled 192.5 million tonnes and accounted for approximately 97 per cent of the port's total trade throughput of 199 million tonnes.⁷⁷ Other commodities handled at the port include bulk minerals, salt, general cargo, livestock and fuel imports.

Port throughput is expected to increase to more than 700 million tonnes per annum by 2030, with growth in export trade generating commensurate import growth in general and project cargo. Much of the future trade growth is likely to be due to the expansion of the iron ore industry in the Pilbara region, with recent and new entrants resulting in the port's continued operation as a complex multi-user iron ore port.

Iron ore export capacity allocation discussions between the Port Hedland Port Authority and major current and future port users have identified the Inner Harbour's maximum capacity as 495 million tonnes per annum, subject to a number of operational enhancements, such as larger capacity tugs, selective dredging and improved vessel scheduling. A multi-user Outer Harbour off Finucane Island (to the west of Port Hedland) with an additional long-term capacity of approximately 400 million tonnes per annum will be required to meet future bulk iron ore export demand from the Pilbara before 2020. The Inner Harbour capacity of 495 million tonnes per annum combined with the proposed Outer Harbour capacity of 400 million tonnes per annum will provide the port authority with a projected long-term total port capacity of up to 900 million tonnes per annum.

The port will require an extensive capital projects program to deliver its ultimate development plan. The development of an additional 11 bulk berths within the Inner Harbour's creek system will be required over the next five years. Construction of five of the total 11 planned berths is at varying stages of completion within the South West Creek area. The development of the additional berths will bring the total number of Inner Harbour berths to 24, comprising 17 Capesized berths and 7 general berths. The dredging of a new channel will be required to support the proposed Outer Harbour development, together with the construction of up to 16 offshore berths on two separate jetties.

The port authority owns and operates four berths within the Inner Harbour. Three berths (PH1, PH2 and PH3) are used for handling bulk products and general cargo. The PH4 berth at Utah Point is a multi-user bulk commodities berth. Trade through the port's general cargo facilities has continued to grow as a result of regional project developments, and a number of facilities are reaching capacity.

Planning is underway to develop additional berthing infrastructure at the proposed Lumsden Point Facility to accommodate the growth in general cargo and containerised trade, the emergence of new port services, and to address the imminent saturation of public berths PH1-3. The Lumsden Point Facility will be located in close proximity to the deep-water dredged harbour basin, capitalising on the 140 hectares of land reclaimed following the dredging of Burgess Point in 2010. It will be located to the north of the Wedgefield Light Industrial Estate and will be designed to handle future general cargo trade as well as accommodate future port support trades and services. The initial stage of development will complement and release capacity at public berths PH 1-3, providing berths capable of handling Handymax vessels for ammonium nitrate, cement, service vehicles and general cargo shipping industries. The Lumsden Point Facility development is closely aligned with the vision of the Town of Port Hedland and LandCorp for the development of the Wedgefield industrial area as a major freight hub for the region.

DIRECTION 15 – Priorities:

Progress Planning to Increase Total Port Capacity up to 900 Million Tonnes Per Annum

- ➔ Inner Harbour development – construct an additional 11 bulk berths and undertake an associated channel improvement program.
- ➔ Outer Harbour development – dredge a new channel and construct up to 16 offshore berths, subject to necessary Government approvals.
- ➔ Develop Lumsden Point Berths PH5 and 6 as a logistics hub to service the Pilbara and north west region.

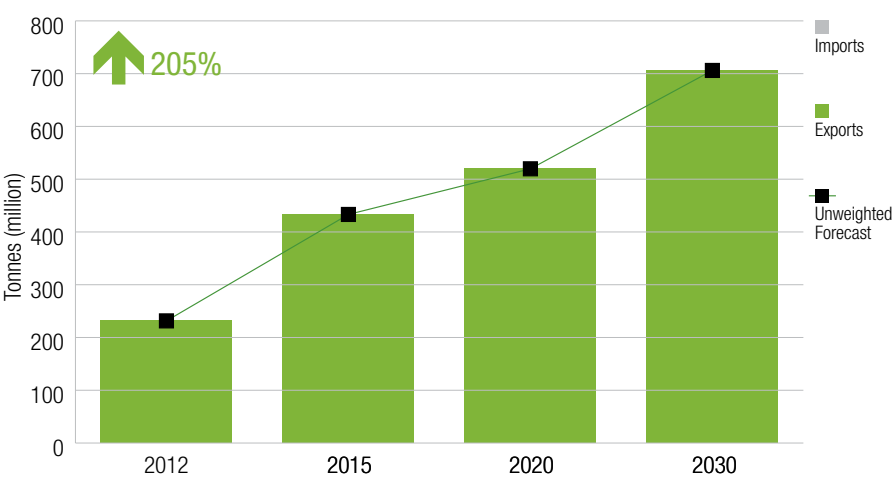


Figure 16: Total Throughput – Port Hedland Port (2012 – 2030)⁷⁸



Image courtesy of
Port Hedland Port Authority



Image courtesy of Dampier Port Authority

PORT OF DAMPIER

The port of Dampier is the second-largest port in Western Australia in terms of throughput, with 165 million tonnes passing through the port in 2010-11.⁷⁹ Iron ore exports represented 83 per cent of total port trade and liquefied natural gas exports accounted for 10 per cent of trade.⁸⁰ Other commodities handled at the port include salt, condensate, ammonia, and petroleum products.

The Dampier Port Authority operates the 209.6m Dampier Cargo Wharf-Main, the 142m Dampier Cargo Wharf-Inner and the 215m Bulk Liquids berth.⁸¹ Other infrastructure at the port is split among the various industries that trade through the port. Rio Tinto operates on the western side of the port, with wharf facilities at Parker Point and East Intercourse Island. Each wharf has facilities for train unloading, product stockpiling and ship loading. Rio Tinto's operations also include maintenance of its shipping channels and management of its vessels. Dampier Salt operates on the western side of Mermaid Strait, with wharf facilities at Mistaken Island. Liquefied natural gas, liquefied petroleum gas and condensate loading takes place at the Withnell Bay Terminal located on the eastern side of the port, operated by Woodside Energy Ltd. Woodside also operates a dedicated supply base and wharf at King Bay to service offshore facilities and fuel storage tanks.

Port throughput is expected to increase to approximately 230 million tonnes per annum by 2030. Much of the future trade growth will be due to iron ore and liquefied natural gas exports, with growth in this export trade generating commensurate import growth in general and project cargo.

A major constraint on the effective operation of the port is the inadequate availability of laydown areas adjacent to key infrastructure, such as the lack of a short-term laydown area abutting the Dampier Cargo Wharf. The port authority is proposing to construct a new Dampier Marine Services Facility to supplement the services provided at the Dampier Cargo Wharf. General cargo trade through the Dampier Cargo Wharf has continued to grow in support of regional project construction activity and the wharf has reached capacity. The proposed Dampier Marine Services Facility project will see further berth space (up to 240m of land-backed berth and 600m of added jetty berth space), as well as proposed dredging works and land reclamation.⁸² The Dampier Marine Services Facility will be specifically designed to meet the expanding needs of the offshore oil and gas industry, as well as the needs of the mining, processing and infrastructure industries. The port authority has undertaken significant investigation, preliminary concept and detailed design work, environmental and heritage planning, and business case work to ensure that the facility can be expanded to keep pace with future demand. The facility will service a diverse range of uses and users, and as such, will adhere to common-user/multi-user infrastructure principles.

While it is recognised that there are a range of significant constraints to development within the port of Dampier and the adjacent Burrup Industrial Estate, the *Dampier Development Plan 2010-20* identifies opportunities to create new land for industrial and/or port purposes,

as well as to provide new and effective multi-user export infrastructure. Over the next five years, the Dampier Port Authority will continue its program of upgrading the King Bay Estate. It has also identified potential for linkages to the Maitland Industrial Estate area to the south of the port, and the use of other industrial areas in and around the Karratha area for off-site port support servicing activities.

The port will be involved in the planning of the Ashburton North Strategic Industrial Area, adjacent to the port of Onslow. The State Government has allocated land to the Dampier Port Authority to facilitate common-user port access and nominated the port authority as the operator of the proposed port facilities at Ashburton.⁸³ Further opportunities to extend the jurisdiction of the Dampier Port Authority are expected over the next five years and may include port operations at the proposed Anketell Port Strategic Industrial Area, which is adjacent to the existing Port Walcott area. The State Government, through the Department of State Development, in consultation with the Dampier Port Authority, is progressing the master planning for the port of Anketell and design of Stage 1 of the port's development with various potential participants.

DIRECTION 15 – Priorities:

Provide Multi-User Marine Facility, Improve Linkages with Industrial Land to Overcome Port Land Constraints

- Construct Dampier Marine Services Facility. The proposed facility involves two stages: reclamation of 22 hectares of land and creation of land backed wharves, followed by the Stage 2 construction of a 300-metre jetty.
- Upgrade the King Bay Estate.

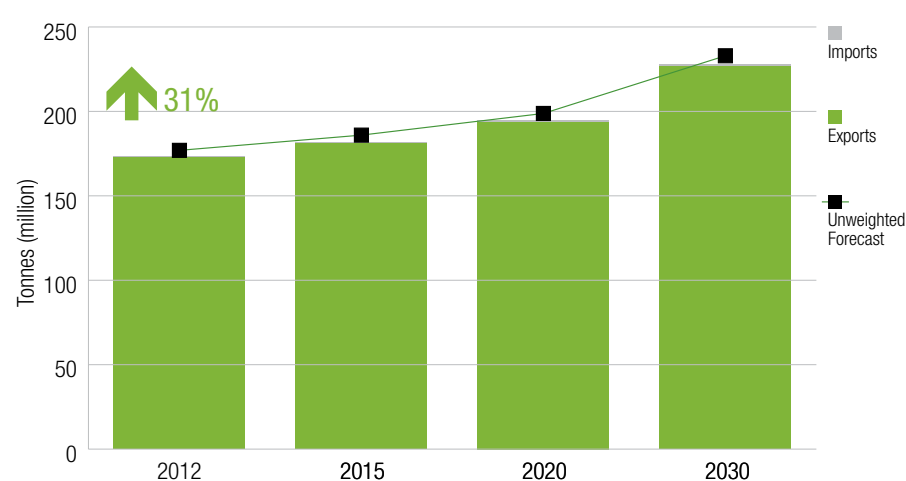


Figure 17: Total Throughput – Dampier Port (2012 – 2030)⁸⁴



PORT OF GERALDTON

The port of Geraldton's throughput in 2010-11 was 10 million tonnes, comprised mainly of iron ore exports.⁸⁵ Recent trade growth was principally as a result of improved performance by existing port users, particularly mineral sands customers, although some iron ore from Karara Mining's mine site east of Morawa was handled through the port for the first time via the Sinosteel Midwest facilities. Imports totalled 1.14 million tonnes, a 142 per cent increase over the previous year. The biggest share of this increase can be attributed to the importation of part-processed mineral sands from deposits in South Australia.⁸⁶

The development of the Mid West resource industry and the Oakajee Mid West Development Project hold prospects for substantial regional growth and a significant role for the Geraldton Port Authority, as both the major existing port in the region and the future port authority with jurisdiction for the port of Oakajee.

The port authority's focus will continue to be on preparing for the expected surge in iron ore exports at Geraldton to ensure port capacity can accommodate demand while Oakajee is developed. A substantial volume of the iron ore export trade at the port of Geraldton will then be transitioned to Oakajee upon its start-up.

The port of Geraldton's throughput is expected to range between 20-30 million tonnes per annum in the next five years. Most of the iron ore will be transported to the port by rail via Brookfield Rail's Mid West network, which is undergoing major upgrades to handle the significant increase in freight volumes.

Additional berth capacity will be required at the port of Geraldton to handle the expected increase in iron ore exports as well as improvements to existing berth utilisation to accommodate the diversity in the other commodities handled by the port. Projects to 2031 include the extension of multi-user Berth 2 to improve quay length and increase berth utilisation, and the extension of Berth 6 to allow Panamax vessels to be accommodated concurrently with Berth 5. With only one high-tide per day, this project will also allow Berth 6 to be used as a layup berth for Berth 5 loading and will substantially improve port operating efficiency and ship loading times. A harbour surge mitigation program and the installation of advanced mooring systems will be needed in the short term to improve mooring stability and safety and reduce berth congestion.

DIRECTION 15 – Priorities:

Undertake Berth Expansion and Optimisation to Service Short-Term Mid West Resource Demand, Transition to Oakajee Port

- Extend Berth 6.
- Extend multi-user Berth 2.
- Undertake harbour surge mitigation program and install advanced mooring systems.
- Upgrade shiploaders at Berths 4 and 5.

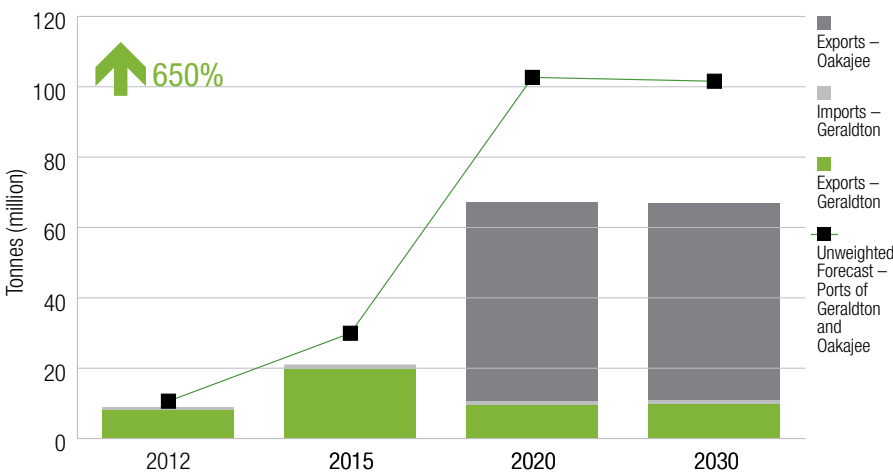


Figure 18: Total Throughput – Ports of Geraldton and Oakajee (2012 – 2030)⁸⁷

PORT OF FREMANTLE

The port of Fremantle is located on two sites in metropolitan Perth – the Inner Harbour at Fremantle and the Outer Harbour at Kwinana. The Inner Harbour handles most of Western Australia’s container trade while the Outer Harbour is a major bulk port.

Total port trade remained steady at 26 million mass tonnes in 2010-11, with bulk trades through the Outer Harbour amounting to 19.2 million tonnes per annum.⁸⁸ Grain (3.18 million tonnes), alumina (2.8 million tonnes), refined petroleum (2.15 million tonnes) and black coal (1.13 million tonnes) were the port’s largest exports, representing most of the port’s total export trade. Other commodities include fertilisers, motor vehicles, livestock and containers.

Many of the port’s trades, particularly bulk trades associated with the Outer Harbour, have an origin or a destination in the State’s regions. Regional bulk trade is expected to grow from 12.92 million tonnes per annum in 2011-12 to more than 22 million tonnes per annum by 2030. The future growth is likely to be due to increased volumes from existing trades, including iron ore, which commenced in 2011-12 and will reach 4.5 million tonnes per annum by 2015.

Working with the Department of Transport and other State Government agencies, the port will continue to plan for additional port facilities and associated road and rail links at the Outer Harbour, commensurate with future trade needs.

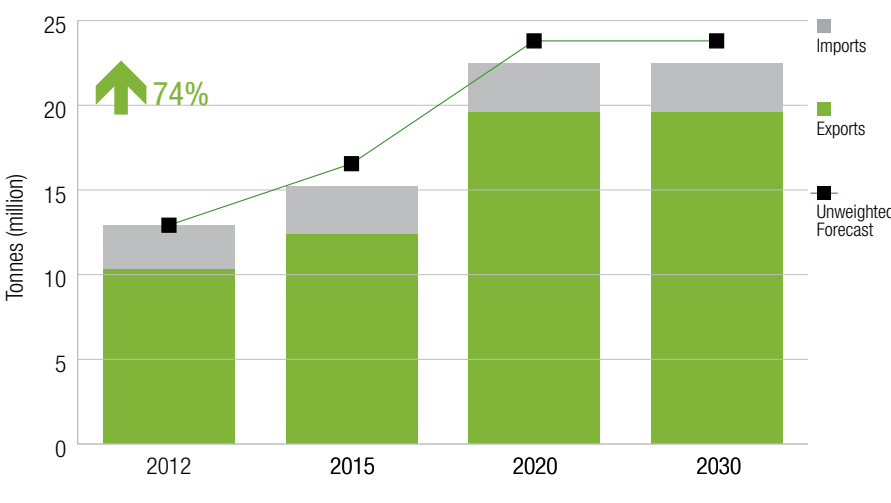


Figure 19: Regional Bulk Freight Throughput – Fremantle Port Authority (2012 – 2030)⁸⁹



Image courtesy of Fremantle Port Authority

PORT OF BUNBURY

The port of Bunbury is the major commercial deep-water port for Western Australia’s South West Region. The port recorded a throughput of 14 million tonnes in 2010-11, comprised mainly of alumina exports.⁹⁰ Other port trades include woodchips, mineral sands and spodumene.

Port throughput is expected to grow from 14 million tonnes per annum to more than 30 million tonnes per annum by 2030. Much of the future trade growth is likely to be due to the introduction of new trades, including coal from the Collie Basin and urea from the nearby Shotts Industrial Estate.⁹¹ These trades will be transported to the port by rail via the Collie to Brunswick Junction and Brunswick Junction to Inner Harbour rail lines, which will require upgrades to handle the significant increase in freight volumes.

The Bunbury Port Authority has extensive capital project plans focussed on delivering increased berth capacity and enhanced handling facilities and has commenced the implementation of an *Inner Harbour Structure Plan* to pave the way for the construction of up to five additional berths, complemented by a dredging program to service Panamax ships. The Structure Plan highlights the fundamental need for the relocation of the Preston River to enable the port to consolidate its land holdings and development of the Inner Harbour to provide the facilities necessary to accommodate future trade and to provide more efficient rail storage and delivery infrastructure.

Planned projects to 2031 include the redevelopment of Berth 3 from a dolphin structure to a land-backed berth, and the installation of a common-use shiploader and upgrade of Berth 5. The upgraded Berth 5 facility is to incorporate the installation of a shiploader and conveyor system and the construction of a new rail siding and discharge facility. Other associated works include realignment of the Inner Harbour’s internal access road to allow for future trade development, and the installation of a third-party road hopper connected directly to the urea conveyor to allow other compatible cargoes to be loaded over the urea shiploader.

Construction of a new 300m Berth 14 will be required for the export of coal and other compatible bulk products. The new berth facility is to incorporate the installation of two fully enclosed shiploaders and conveyor systems and the construction of an additional coal rail loop. All storage of coal at the Port of Bunbury will be in new, fully enclosed storage sheds. The project will be proponent-funded.⁹²

The port of Bunbury has also identified the potential introduction of a container facility at the port as an important development to 2031. Given the significant implications that this is likely to have on Western Australia’s overall metropolitan and regional freight network, the trade and its development will be further considered in the *State Port Strategic Plan*, which is to be developed in 2013. Construction of a new multi-user Berth 7 would be required to progress the development of the facility.

DIRECTION 15 – Priorities:

Divert the Preston River to Unlock Port Land, Construct up to Five Additional Berths to Service Major New Trades

- Relocate the Preston River.
- Redevelop Berth 3 and install shiploader.
- Upgrade Berth 5, install shiploader and conveyor system and construct new rail siding.
- Construct Berth 14 for coal exports and other compatible bulk exports, install shiploaders and conveyors, and construct an additional rail loop.

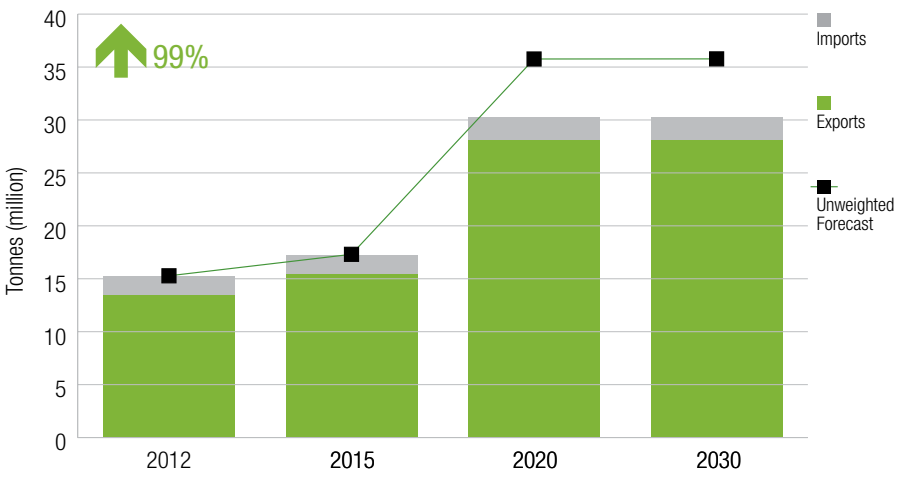


Figure 20: Total Throughput – Bunbury Port (2012 – 2030)⁹³

Image courtesy of Bunbury Port Authority



PORT OF ALBANY

The port of Albany is the major commercial deep-water port in Western Australia's Great Southern Region. The port recorded a throughput of 3.1 million tonnes in 2010-11, comprised mainly of woodchip and grain exports. Other port trades include fertiliser, silica sand and biomass fuel pellets.⁹⁴

Port throughput is forecast to range between 10-14 million tonnes per annum by 2030. Much of the port's future trade growth is likely to be due to the potential development of the region's resources sector, namely the Southdown Joint Venture progressing its proposal to develop a magnetite mine near Wellstead, approximately 90 kilometres north-east of Albany.

Magnetite will be pumped as slurry via an underground pipeline to a proposed facility at the port. The project's outbound freight task is therefore unlikely to have a major impact on the region's land transport network.

Port facilities will be funded, constructed and operated by the Southdown Joint Venture and will include a new berth, concentrate thickener tank, filter plant, storage shed and shiploader. The Southdown Joint Venture will also be required to fund the associated dredging program, which will allow Capesize ships to service the port. Port planning work for the project, including due diligence, is well advanced.

The Southdown Joint Venture project, if progressed, will more than triple trade at the port and bring about a new era in the port's trade and development role within the Great Southern region.

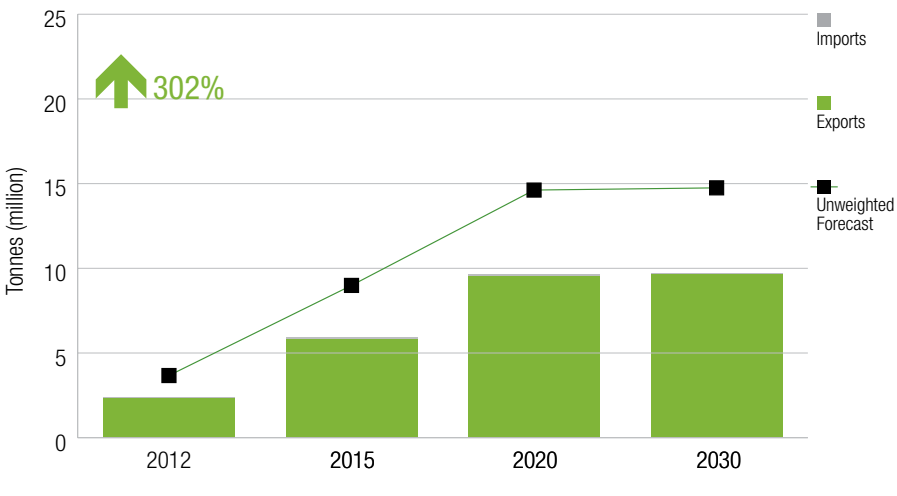


Figure 21: Total Throughput – Albany Port (2012 – 2030)⁹⁵



Image courtesy of Albany Port Authority

PORT OF ESPERANCE

The port of Esperance is the major commercial deep-water port in Western Australia’s Goldfields Esperance Region. The port’s main export is iron ore, which constituted 79 per cent of the port’s total 11.1 million tonne throughput in 2010-11. Other commodities handled by the port include grain, which represented 14.4 per cent of the port’s total throughput. The port also remains the largest nickel-exporting port in the southern hemisphere, with 290,647 tonnes of nickel exported in 2010-11.⁹⁶

The port’s existing infrastructure consists of two land berths, with a combined berth face of 457m, and a third berth located on the main breakwater, with a berth face of 230m.⁹⁷ The first land berth specialises in the export of grain, while the second berth is used for the import of fuel and export of nickel. The breakwater berth specialises in the export of iron ore and includes a travelling shiploader.

The development of the Yilgarn province, with its potential source of more than 15 billion tonnes of magnetite and one billion tonnes of high-grade haematite ore, holds prospects for substantial regional growth and a significant future role for the Esperance Port Authority. Port throughput is expected to grow from 11.1 million tonnes per annum to up to 32.8 million tonnes per annum by 2030, with much of the future trade growth likely to be due to a staged increase in iron ore exports from the Yilgarn.

The trade will be transported to the port by rail via the Kalgoorlie to Esperance rail line, which will require upgrades to handle the significant increase in freight volumes. The port’s capacity to expand will be further underpinned by the Government’s recent \$120 million investment commitment in the Esperance Port Access Corridor, due for completion by the end of 2013.

The existing iron export facilities at the port are based around a single berth designed to accommodate Capesized bulk carriers. They are not presently configured for multi-exporter operations. The port will engage in a market sounding exercise in 2012-13 to identify private sector interest in expanding the port’s capacity for iron ore exports by up to 20 million tonnes per annum. The market sounding exercise will help to inform the market about the proposed Esperance Multi-User Iron Ore Facility and assist the port in its development approach, including the nature and design of the tendering process to be used to progress the project.

Initial engineering conceptual work outlining a range of viable steps for the staged development of port infrastructure is underway. There is a need to determine whether further development of the existing Berth 3 is warranted, and whether it is practicable for Berth 3 to deliver incremental iron ore capacity in the short term to handle the increase in iron ore trade across a multiplicity of miners, or whether it is necessary to build a separate berth for new iron ore trade.

An upgraded materials handling system and associated strengthening of the wharf structure will be required, together with a reconfigured storage area and rapid car dumper capable of operating independently from the existing facility. The expansion of capacity at Berth 3 is, however, most likely to be an interim measure, with the construction of an additional berth required in the short to medium term. Given the limited availability of port land, it will also be necessary to identify and develop potential additional inland terminal and storage facilities that would be linked to the port, such as the Shark Lake Industrial Area and Nulsen. A master plan prepared for the port in 2009 postulated the possibility of constructing a rail head facility at Nulsen where iron ore and other bulk materials could be unloaded and transported to the port by conveyor, thereby saving on storage space at the port and avoiding the need for major land reclamation that would otherwise be required.

DIRECTION 15 – Priorities:

Port Expansion Proposal – Progress Options for Further Development of Multi-User Iron Ore Facilities

- Conduct market sounding exercise to identify private sector interest in expanding the port’s capacity for iron ore exports.
- Bring forward additional terminal capacity subject to satisfactory business case, funding model and necessary Government approvals.
- Consider potential development of inland terminal and storage facilities linked to the port.

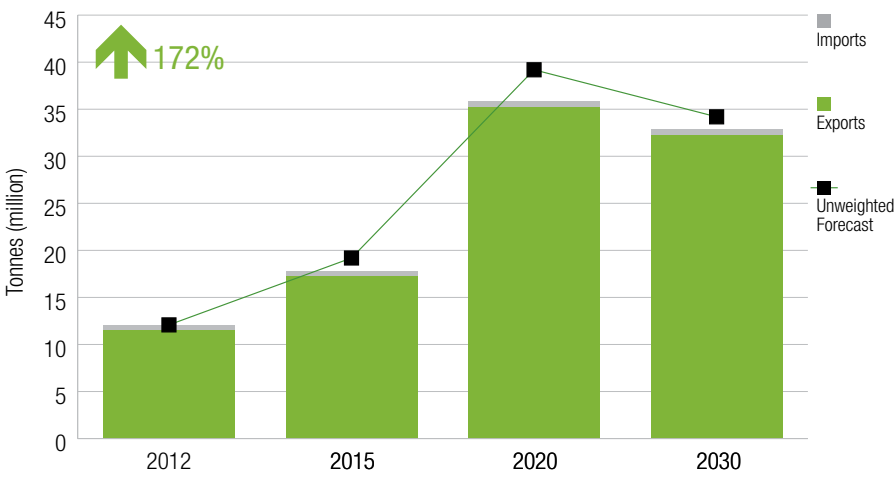
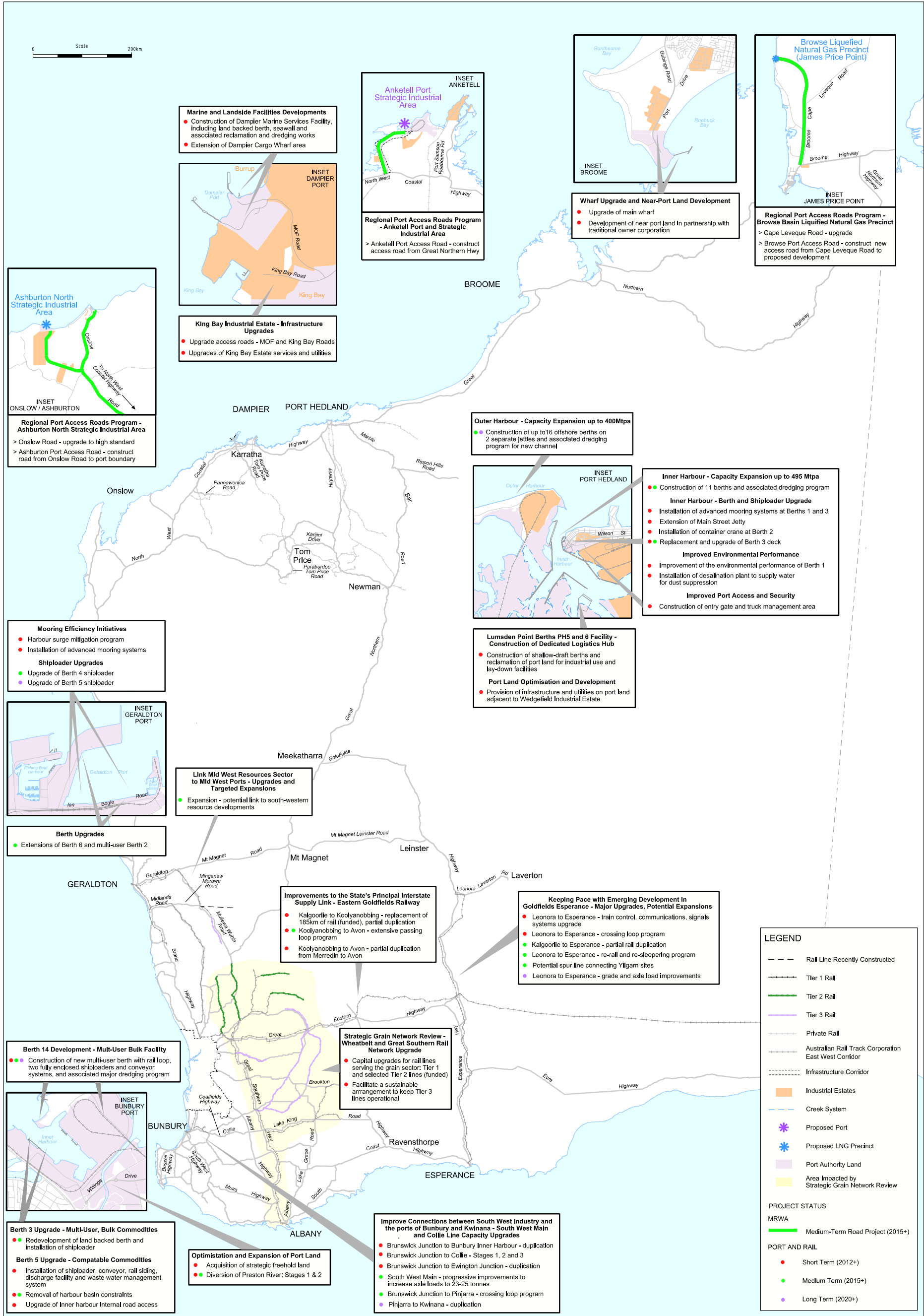


Figure 22: Total Throughput – Esperance Port (2012 - 2030)⁹⁸



Image courtesy of Bill Cutten and Esperance Port Authority

Map 8: Facilitating and Selectively Investing in Strategic Rail and Port Network Projects – Regional Freight Network Priorities





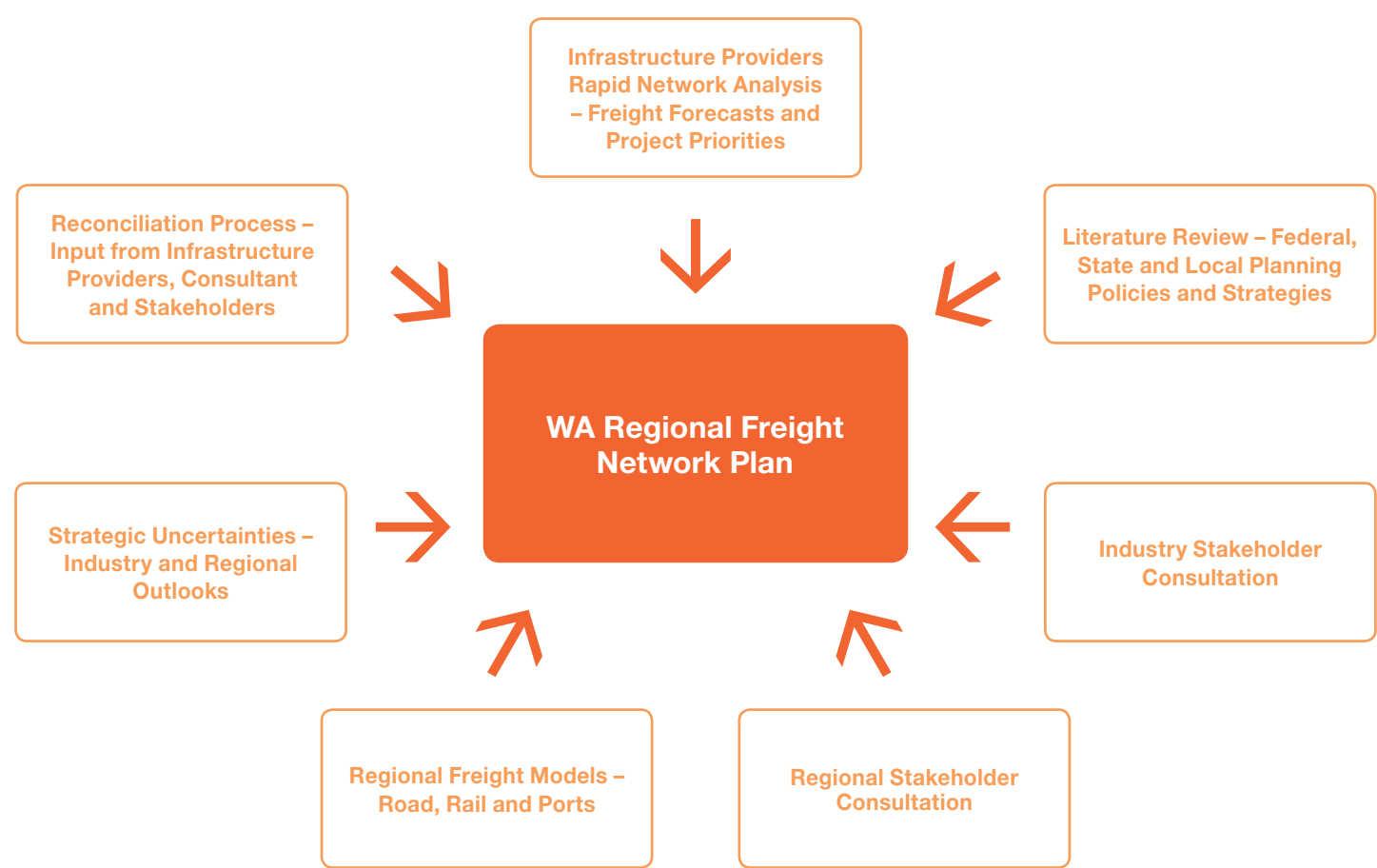
PART 4: FURTHER GUIDANCE FOR THE READER



A cornfield in the Ord River irrigation area, Western Australia

METHODOLOGY: EVIDENCE-BASED PLANNING

THE PROCESS OF DEVELOPING THE NETWORK PLAN



Methodology

STAGE 1: Rapid Analysis

The initial stage of the development of the *Western Australian Regional Freight Transport Network Plan* engaged the State’s major freight infrastructure providers – the port authorities, Brookfield Rail and Main Roads Western Australia, to identify the strategic regional freight network, develop current and future freight demand estimates as well as identify future freight infrastructure priorities to support network development to 2031. This culminated in an alignment process, where representatives from each of the infrastructure providers shared and refined outputs.

STAGE 2: Detailed Analysis

The second stage of the development of the Plan involved a comprehensive review of the existing relevant literature, together with an extensive consultation process involving input from more than 70 private sector organisations and 80 public sector organisations, including local government representatives across regional Western Australia. This process identified existing network performance issues, emerging strategic regional developments that will impact future freight demand, future network performance issues, and strategic priorities to support network development to 2031.

Following on from this process, an independent consultant completed a number of freight transport and logistics outlooks assessing strategic uncertainties across a number of industry sectors and regions likely to impact the State’s freight outlook to 2031.

The outputs from the rapid analysis (Stage 1) and detailed analysis (Stage 2) were then used to create freight models to confirm forecasts, where appropriate, and make the adjustments necessary to estimate the scale and scope of changes in the freight task to 2031.

STAGE 3: Reconciliation Process

The final stage of the development of the Plan focused on a reconciliation process to balance the views of the infrastructure providers (Stage 1), stakeholders and the independent consultant (Stage 2) to enable the final formulation of the planning, policy and project priorities for the Plan.

Network Infrastructure Performance and Deficiency Assessment

Transport infrastructure performance and deficiency assessments identify the adequacy of existing and future infrastructure by comparing transport system performance or physical infrastructure indicators and targets against benchmarks to identify aspects of the network requiring improvement and to determine non-infrastructure and infrastructure priorities for the network.

It was not deemed necessary to undertake a network-wide assessment for the sole purposes of the *Western Australian Regional Freight Transport Network Plan*, as infrastructure providers utilised their own asset management planning processes to identify non-infrastructure and infrastructure priorities for the Plan. In the case of the road network, assets are assessed annually to identify deficiencies and improvement needs as part of Main Roads Western Australia's integrated asset management planning process.

Acknowledgements and References

The Project Team supplemented the project-specific methodology with a number of best-practice transport planning principles recommended by the Standing Council on Transport and Infrastructure in the *National Guidelines for Transport System Management in Australia* and by Infrastructure Australia in the *Better Infrastructure Decision Making Guidelines*.

Project Governance

Given the scale and scope of the Plan and its wide-ranging implications for a number of agencies, the Department of Transport established a Project Steering Committee to ensure a coordinated approach to the ongoing development of the freight transport network in regional Western Australia.

The Department of Regional Development and Lands chaired the Steering Committee, given the important role the Department plays in addressing regional development priorities and working with stakeholders to improve and expand regional infrastructure.

Project Steering Committee

- Department of Regional Development and Lands (Chair)
- Department of Transport
- Department of Treasury
- Department of Planning
- Department of State Development
- Department of Agriculture and Food
- Department of Mines and Petroleum
- Western Australian Local Government Association
- West Australian Planning Commission



Image courtesy of Fremantle Port Authority

MAJOR PLANNING AND POLICY ISSUES FOR FURTHER CONSIDERATION

Interface and Consistency with the Metropolitan Freight Network

The *Western Australian Regional Freight Transport Network Plan* focuses on the regional freight network but does not articulate the Government's planning, policy or project priorities for metropolitan Perth and Peel in any great detail, as these regions are to be addressed by a separate Plan.

In 2013 the Department of Transport will complete the *Perth and Peel Regions Freight and Intermodal Plan* which will articulate a coordinated approach to the ongoing development of the freight transport network for the metropolitan and Peel regions of Western Australia to 2031.

Confirming Port Trade Roles and Development

The State's ports make significant contributions to the economy. Ports are the gateways for international trade and represent critical activity centres within the regional freight transport network. As the freight task grows in size and complexity, there is a need for Government to articulate its agenda to enhance commercial port capacity, efficiency and integration across Western Australia.

In 2013 the Department of Transport will develop the *State Port Strategic Plan*, which will update and elaborate on the port planning and policy settings required to deal with the increasing complexity of regional freight markets, including principles for better defining port trade roles and development sequences.

Freight Forecasting – Managing Change and Uncertainty

The long-term outlook for commodities will underpin much of regional Western Australia's future industrial freight growth prospects. Import demand for the State's mineral and petroleum products from developing economies, particularly China and India, will play a key role in this outlook.

The Project Team has undertaken a comprehensive freight forecasting exercise to determine road, rail and port infrastructure demands to 2031. Exports of minerals and agricultural commodities will, however, continue to fluctuate in response to world market conditions and, in the case of agriculture, also seasonal variations.

The *Western Australian Regional Freight Transport Network Plan* establishes a strategic forecasting framework incorporating the major drivers of the State's regional freight task, assessment of the quantum and certainty of freight movements over time, the network to be used, and port, road and rail infrastructure needs to 2031. The data collected and the modelling and analysis of freight demand offer the opportunity for review and recalibration of the freight task in the future if circumstances change. This is a positive benefit of the rigorous process adopted and models created in the development of the Plan.

The Government will continue to develop its data collection and analysis capability to better monitor and review key aspects of Western Australia's future regional freight task. Initial work will focus on enhancing medium to long-term port authority trade forecasting procedures, given the defining role ports play in the regional freight network and their often integral link with commodity-specific impacts on the land freight transport network.

Greenfield Integrated Port and Industrial Developments

The development of a number of major resource projects, mainly in the iron ore and liquefied natural gas sectors, will underpin establishment of integrated port and industrial estate developments in the Mid West, Pilbara and Kimberley regions. These developments, namely the Oakajee Mid West Development Project, Ashburton North Strategic Industrial Area, Anketell Port Strategic Industrial Area and the proposed Browse Liquefied Natural Gas Precinct, will impact freight network development in coming years.

The Project Team has considered these developments and factored network demands and requirements into the Plan where possible, although more detailed planning work will be required as major resource projects become viable and proceed to final investment decision.

Aviation

Western Australia is by far the largest state in Australia and its major regional centres are separated from metropolitan Perth and each other by vast distances. The geographical isolation and extreme environmental conditions faced by many Western Australian regional and remote communities has meant that these communities rely heavily on air transport. The State Government's aim is to develop and maintain safe, efficient, effective and reliable networks of international, interstate and intrastate air services that meet the business, tourism, social and economic needs of passengers and the community.

Given that regional airports across the State are primarily focused on the task of moving people rather than goods, and the regional air freight task is relatively small compared with the road, rail and sea freight tasks, the *Western Australian Regional Freight Transport Network Plan* has not considered regional air freight matters.

The Department of Transport is the key Western Australian Government body coordinating and advising on aviation-related issues and will complete its *State Aviation Strategy* in 2013 to provide a framework for policy setting and future planning and investment in Western Australian international and domestic air services and airport infrastructure. This strategy will consider projected air freight movements and the changes required to accommodate long-term regional development needs.



Image courtesy of Fremantle Port Authority



PART 5: APPENDICES



APPENDIX A: PROJECT PARTNERS

The following project partners are acknowledged for their participation and contribution in the preparation of the *Western Australian Regional Freight Transport Network Plan*:

- **Department of Transport** – *Project Methodology and Management, Stakeholder Consultation and Relations, Freight Policy and Integrated Transport Planning, Plan Formulation and Cartography*
- **Hyder Consulting Ltd** – *Stakeholder Consultation, Freight Industry Research, Independent Modelling and Forecast Validation, Freight Strategy, Final Peer Review*
- **Main Roads Western Australia** – *Forecasting and Project Prioritisation*
- **Brookfield Rail** – *Forecasting and Project Prioritisation*
- **Western Australian Port Authorities** – *Forecasting and Project Prioritisation*
 - Albany Port Authority
 - Broome Port Authority
 - Bunbury Port Authority
 - Dampier Port Authority
 - Esperance Port Authority
 - Fremantle Port Authority
 - Geraldton Port Authority
 - Port Hedland Port Authority

APPENDIX B: GLOSSARY OF TERMS

Corridor

The parallel or competing modal routes between two locations (e.g. road and rail routes between two cities). A corridor is multi-modal where more than one mode operates, and uni-modal where only a single mode operates (as is the case in many rural areas).

Demand Forecasting

Estimating transport demand in a particular year or over a particular period.

Freight Centres

The term freight centre defines a key node where intense freight and logistics activity takes place. These centres may include ports, airports, rail yards, inter-modal terminals, manufacturing activity, warehouses and distribution centres. Freight centres are connected by the Principal Freight Network.

Freight Task

The freight task is defined as the aggregate movement of freight of all kinds (bulk and non-bulk), typically over a year. There are several ways in which it can be measured. Unless otherwise specified, in this report, reference to the road freight task is expressed in terms of tonnes or tonne kilometres (where a tonne kilometre is one tonne transported one kilometre). The rail freight task is expressed in terms of tonnes and the port freight task is expressed in terms of tonnes. All tonnages expressed are net tonnes.

High Productivity Freight Vehicle (HPFV)

High Productivity Freight Vehicles are vehicle configurations that are permitted to operate after gaining approvals through the national Performance-Based Standards (PBS) process. These vehicles must comply with approved safety and infrastructure protection performance measures. HPFVs can range from specialist rigid trucks, through to multi-combination articulated configurations.

High Wide Load (HWL)

High Wide Loads are defined as over-dimensional loads up to 8m high, 8m wide and 24m long, with a maximum 270t net mass.

Infrastructure

Infrastructure refers to civil engineering structures that have been built to facilitate the movement of people and/or goods for various social and business reasons.

‘First/last kilometre’ freight access

The first/last kilometre of a freight movement or supply chain refers to the initial or final leg of delivery of goods to their destination. It can be a high-cost leg due to a number of factors, including limited road space in cities and towns, specific customer requirements, customers not being open to take delivery, and other practical or financial constraints.

Light Commercial Vehicles (LCVs)

The Light Commercial Vehicle Group is defined by the Australian Bureau of Statistics as “Vehicles primarily constructed for the carriage of goods, and which are less than or equal to 3.5 tonnes gross vehicle mass”. Included are utilities, panel vans, cab-chassis, and forward-control load carrying vehicles, whether four wheel drive or not.

National Land Transport Network

The National Land Transport Network is a single, integrated network of land transport linkages of strategic national importance. It is based on national and inter-regional transport corridors (including connections through urban areas), connections to ports and airports and other rail / road inter-modal connections that together are of critical importance to national and regional economic growth, development and connectivity.

Network

A network is a collection of routes that provide inter-connected pathways between multiple locations for similar traffics. They can be multi-modal (typically comprising several uni-modal networks) or uni-modal.

Port Authority/Non-Port Authority Port

Port authority ports are established under the *Port Authorities Act 1999* and comprise Albany, Broome, Bunbury, Dampier, Esperance, Fremantle, Geraldton, and Port Hedland port authorities; non-port authority ports are established under the *Shipping and Pilotage Act 1967*, and include Carnarvon (which includes Cape Cuvier and Useless Loop), Onslow (which includes Airlie Island, Thevenard Island and Onslow), Barrow Island, Varanus Island, Port Walcott (at Cape Lambert), Derby, Port Preston, Wyndham, and Yampi Sound (which includes Cockatoo Island and Koolan Island).

Program

A program is a suite of appraised initiatives to be delivered within a specified time frame and sequence.

Regional Freight Network

The Regional Freight Network is the network of Strategic and Major Freight Routes that are located outside of the Perth and Peel Regions.

Restricted Access Vehicle (RAV)

A vehicle is classed as a Restricted Access Vehicle (RAV) if that vehicle alone or together with any load, exceeds one or more of the following limits:

- Mass limit prescribed in *Part 3 of the Road Traffic (Vehicle Standards) Regulations 2002*; or
- One of the following dimension limits:
 - a width of 2.5 metres;
 - a height of 4.3 metres;
 - a length of 12.5 metres in the case of a motor vehicle that is not part of a combination; or
 - a length of 19 metres in the case of a combination;
 - any other dimension specified in the:
 - *Road Traffic (Vehicle Standards) Regulations 2002*; or
 - *Road Traffic (Vehicle Standards) Rule 2002*.

Route

A route is defined as a physical pathway connecting two locations for a particular mode. In land transport, this consists of a continuous length of infrastructure (road, rail line). In shipping and aviation, it is delineated by operating or regulatory or administrative practices (shipping lane, air route).

State Regions

Western Australia’s State Regions as defined by the Department of Planning comprise the regions of Kimberley, Pilbara, Gascoyne, Mid West, Goldfields Esperance, Wheatbelt, Great Southern and South West (regional), as well as the regions of Perth (Metropolitan) and Peel.

State Road Network

The State Road Network consists of Declared Highways and Main Roads, which form the primary road network for Western Australia. Main Roads Western Australia manages this network on behalf of the State. Public roads not part of the State Road Network are generally local roads managed by local government or minor roads managed by other State Government agencies, such as national park roads managed by the Department of Environment and Conservation.

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