

# BULLETIN

## INTRODUCTION

### The freight network plays an essential role in society.

It ensures businesses and communities have reliable access to goods and services. It facilitates the movement of goods efficiently throughout our State, delivering exports and imports, keeping our economy moving. Freight is therefore fundamental to our day-to-day needs in life.

**“WITH GROWING URBAN PRESSURES AND INCREASING DEMANDS ON OUR FREIGHT AND LOGISTICS SUPPLY NETWORK, THERE IS AN IDENTIFIED NEED TO LOOK MUCH CLOSER AT FREIGHT ACTIVITIES AND ADJACENT LAND USE COMPATIBILITY ISSUES...”**

The amount of freight and the frequency of its movement within our urban landscape is increasing at a significant rate. Our metropolitan strategic road freight routes are becoming increasingly impacted upon by general traffic congestion.

With growing urban pressures and increasing demands on our freight and logistics supply network, there is an identified need to look much closer at freight activities and adjacent land use compatibility issues. There is a need to better define and protect critical parts of the freight network in the context of urban development pressures, and increase awareness about the economic importance of freight corridors and their role in the State's productivity.

The integration of freight planning with transport and land use planning disciplines is therefore a critical factor for the future prosperity and liveability of our State.

## PURPOSE

This information bulletin represents the first in a series to be released by the Freight and Logistics Council of Western Australia (FLCWA), informing and illustrating the operational and land use considerations that affect our freight and logistics industry. This bulletin discusses the following topics:

- The role of freight and why is it so important;
- What is driving freight demand;
- The growing freight industry and its relationship to urban amenity;
- The location of existing major metropolitan freight corridors and where intensification in freight movements will be in the future; and
- What are the implications for planners.

## WHAT IS FREIGHT & WHY IS IT SO IMPORTANT?

Freight is goods or produce transported by train, truck, van, ship, or aircraft through the various transport avenues of road, rail, shipping and air, including international and coastal shipping.

Domestic freight includes, but is not limited to, supermarket deliveries, building materials, rubbish collections, courier services and inter-terminal movements (both intrastate and interstate movements). International freight involves imports and exports through the port system.

Freight is fundamental to our way of life and economy; it is our supply chain for all products that surround us. The supply chain includes warehouses, depots, and storage yards for containers – from farms, mines, or factory to the consumer.

### Supplying Our Needs & Wants

Consider the coffee you may be drinking, the seat you are sitting on, the computer you are viewing, the clothes you are wearing, the building that shelters you. This would not be possible without freight serving our society. Like the water, gas and electricity networks which supply our society, so too does our freight. This supply line is fundamental to our modern day standard of living.

### Contribution To Our Economy

WA has an export-focused economy, the strongest in the nation. Its biggest driver is the resource sector (the mining industry sector made the largest industry contribution to Gross State Product accounting for 29% (or \$71 billion) in 2012-13. WA also has a major agricultural sector. In 2012-13 the gross value of the State's agricultural production was estimated at \$11 billion, with exports representing around 53 per cent of the gross value of this production.

Moreover, the freight and logistics sector makes a major contribution in its own right contributing \$11 billion, about 5%, to Gross State Product in 2010-11 and employs around 60,000 people in the industry (4.5% of the workforce).

## GROWING INDUSTRY

Growth in freight has been substantial, and this growth is projected to continue. In the Perth metropolitan region, estimates suggest a doubling of total freight over the period 2013 to 2030. Freight container movements through the Fremantle Port's current Inner Harbour and future container port in Cockburn Sound, for example, are expected to increase from 680,000 containers per annum in 2013-14 to approximately 1.5 million per annum by the year 2030 (base line scenario). This figure could potentially reach 2.5 million by the year 2035-36 (under a high growth scenario) Refer to Figure 1.

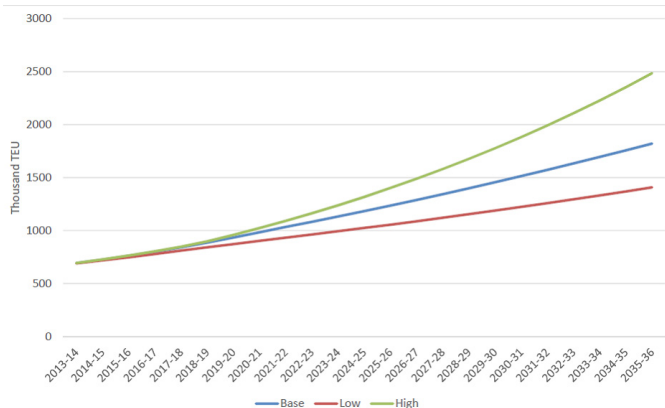


Figure 1: Forecast Freight Container Numbers at Fremantle Port's Inner and Outer Harbours (Low, Base and High Growth Scenarios). Source: Fremantle Ports Authority (TEU means 'Twenty-foot (6.1m) Equivalent) Units')

Figure 2 compares the historic and projected growth in road freight and population growth between the years 1990 to 2020. It is evident that road freight is growing exponentially to population growth, and general traffic congestion costs are expected to increase substantially to the detriment of all road users, including freight. The annual cost of avoidable urban congestion in Perth is expected to be \$2.1 billion in 2020 and \$3.5 billion by 2030.

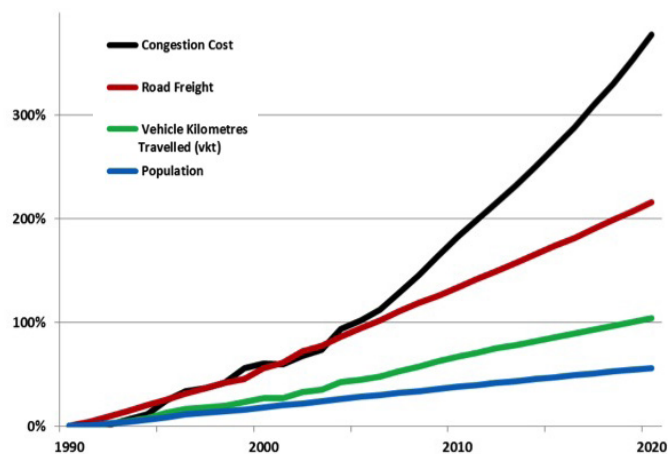


Figure 2: Forecast Congestion Costs, Road Freight and Population, WA. Source: Department of Transport 2013

As congestion increases, road freight movements will be affected, leading to inefficiencies in the industry, not only for the large freight trucks, but also the light commercial vehicles, and light rigid trucks in which we get our everyday needs including retail supplies, on line shopping, and building materials.

## WHAT IS DRIVING OUR FREIGHT DEMAND?

Freight demand is primarily driven by the pace of the economy, population growth and associated consumable demands, building industry activity drivers, and overseas trade drivers.

### Population Drivers – Consumables

Metropolitan Perth is growing rapidly. The Australian Bureau of Statistics estimates the population increasing from 1.9 million in 2012 to between 4.4 million and 6.6 million by 2061 (refer to Figure 3).

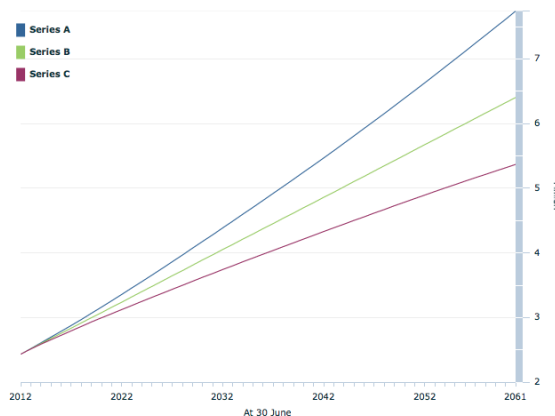


Figure 3: Forecast Population Growth – Source: ABS. [http://www.abs.gov.au/ausstats/abs@nsf/Lookup/3222.0main+features112012%20\(base\)%20to%202101](http://www.abs.gov.au/ausstats/abs@nsf/Lookup/3222.0main+features112012%20(base)%20to%202101)

Personal consumption is demand generated by residential households for goods and services. An increase in consumption translates into increased non-bulk freight movements, particularly in the form of retail goods. As the demographics of our city grow, so too do our demands on the freight network through increases in personal consumption.

### Overseas Trade Drivers

The intensity of freight movements through WA is also linked to our export and import markets, and how these change through the economic cycles.

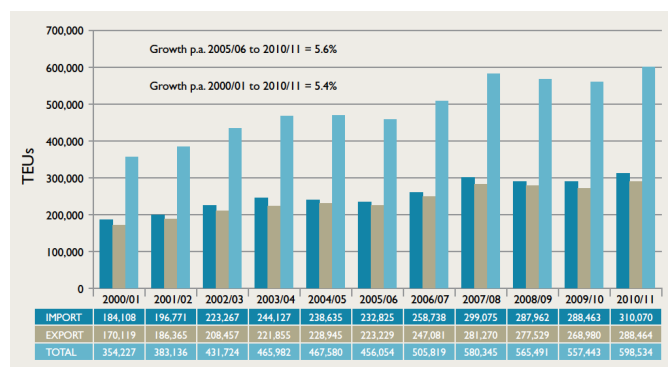


Figure 4: Fremantle Port Container Trade Growth (Exports and Imports) Since 2000-01. Source: Fremantle Ports. TEU means 'Twenty-foot (6.1m) Equivalent) Units'

### Construction Activity Drivers

There are significant freight movements including some very large vehicles for construction materials, mining equipment, tyres, fuel, chemicals and industrial consumables. Within the metropolitan region there is a constant movement of construction materials for local building industries and removal of waste.



Toll's intermodal interstate freight forwarding facility in Kewdale

## OUR METROPOLITAN FREIGHT CORRIDORS AND HUBS

Figure 5 (overleaf) identifies the key strategic road and rail freight networks in the Perth Metropolitan Region. The diagram identifies existing and planned freight corridors and the key freight destination nodes which form part of the freight and logistics supply chain.

The freight network is linked to a series of Intermodal Freight Terminals, some of which are rail to road and others of which are road to road, and container storage areas.

### WHAT IS AN INTERMODAL TERMINAL?

An intermodal terminal enables containers to be moved from one mode of transport to another (including ship, rail, and truck) without unpacking and repacking the contents of the container.

Terminals usually require between 3 ha to 5 ha in area to incorporate at least one rail siding from the main rail line, road access for trucks, working and storage areas for loading and unloading containers from trains and trucks, and lifting equipment (such as reach stackers and gantry cranes).

### THE PURPOSE OF CONTAINER YARDS

Container yards are used for the storage of imported freight containers. It is here that they are unloaded, stored, cleaned and transferred to road or rail for local delivery. When empty or re-loaded, they are moved back to the port, where they must again be stored before being transferred onto outgoing ships or onto the road or rail systems. Some empty container terminals are used only for servicing and storing empty containers.

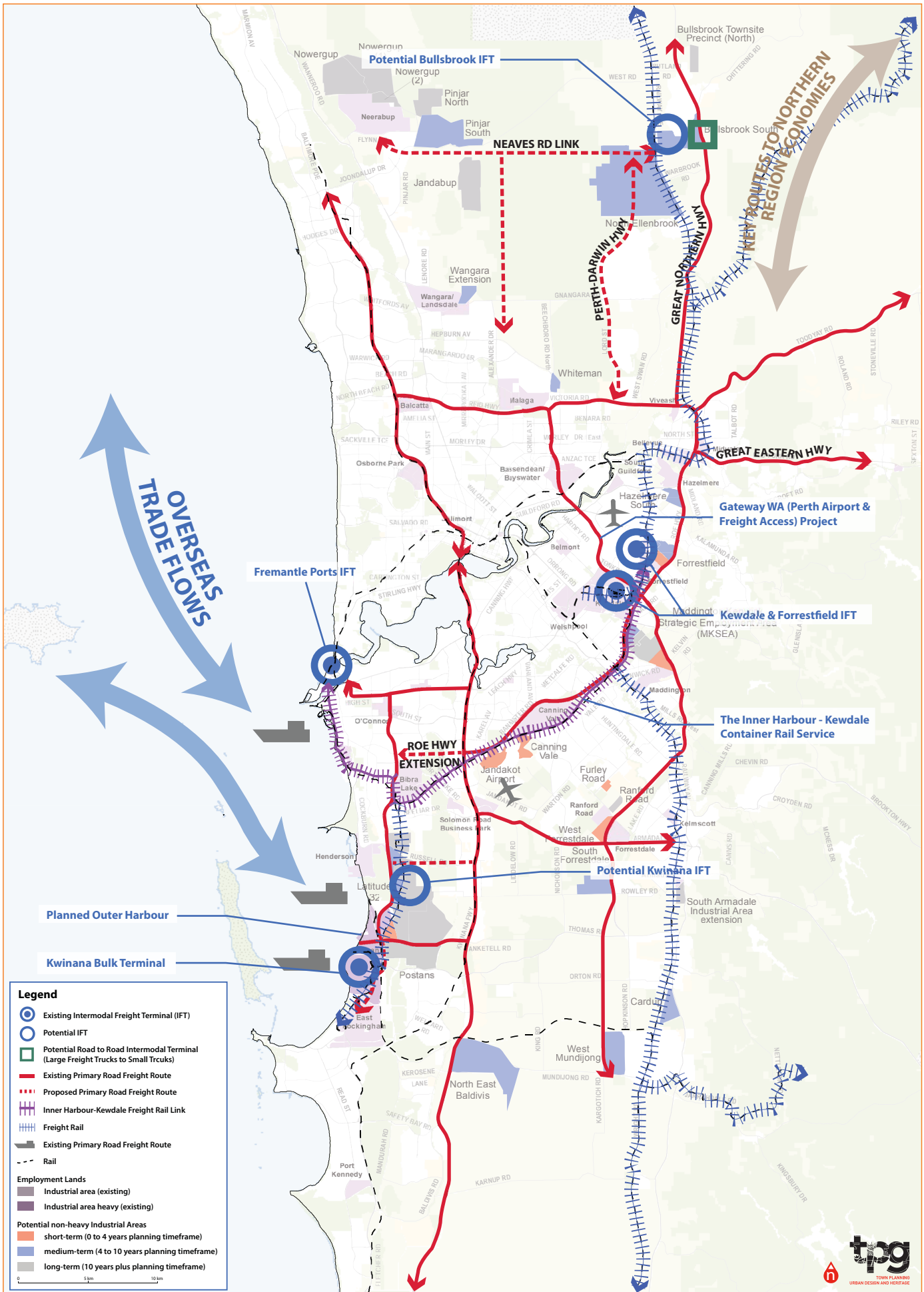


Figure 5: Metropolitan road and rail freight corridors and hubs.

## ROAD & RAIL FREIGHT DEMANDS NOW & INTO THE FUTURE

The intensification of freight movements along existing and planned metropolitan road and rail freight corridors is anticipated to occur over the coming decades. These strategic transport corridors serve an essential function for the freight network and need to be protected. The indicative changes in road freight traffic in these corridors is illustrated in the two figures below. The first figure shows the total heavy commercial vehicle (HCV) tonnage as of 2011. Roe Highway and a portion of Kwinana Freeway are the most intensely used movement networks for HCV's.

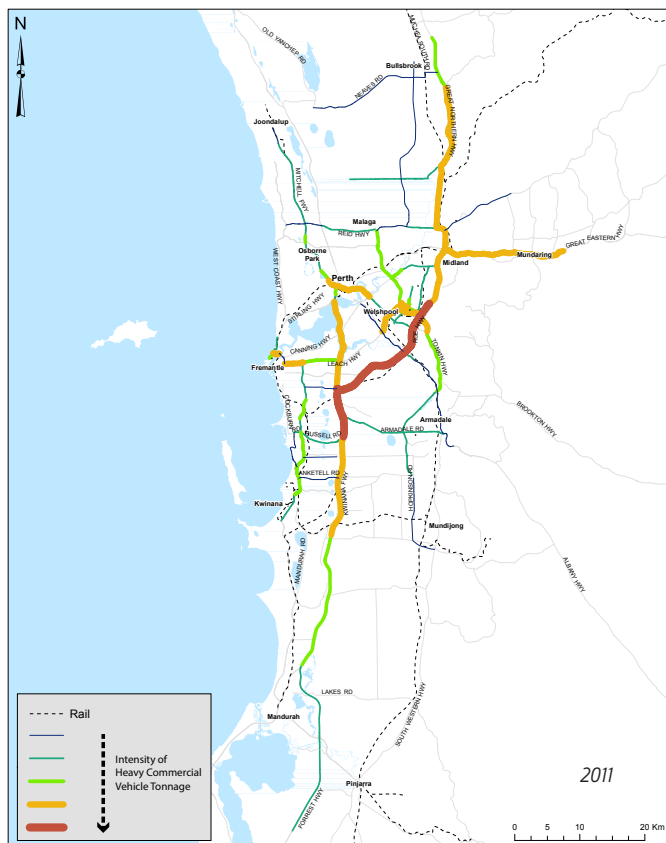
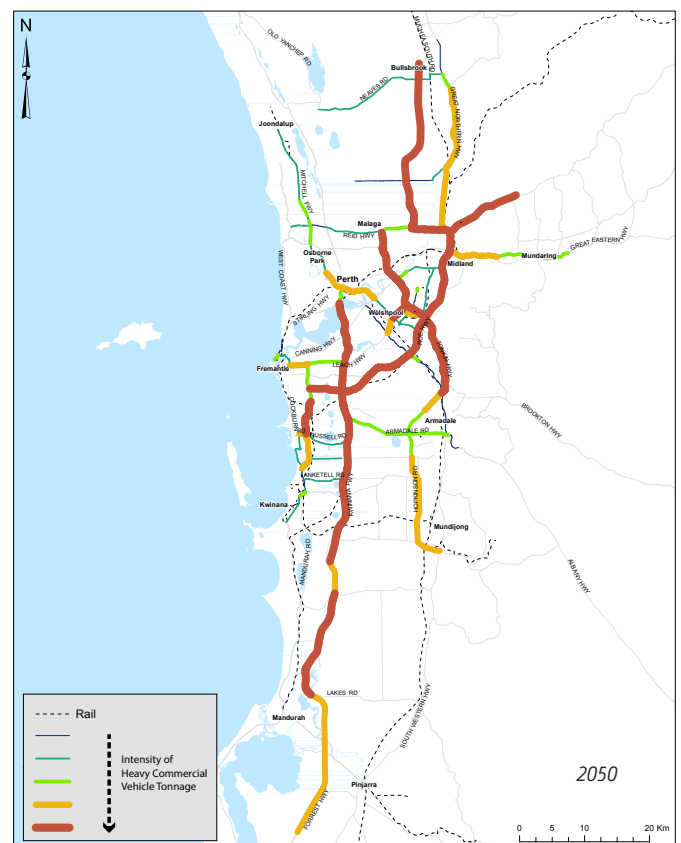


Figure 6: Indicative Changes In Road Freight Traffic Between the Year 2011 and 2050

By the year 2050 the intensity of HCV's is forecast to be much more widespread throughout the metropolitan road network; spanning from Bullsbrook down through the planned Perth-Darwin Highway, Roe Highway (and extension), Tonkin Highway and the Kwinana Freeway through to Mandurah and beyond. All other freight routes also intensify as a result of increased freight tonnage movements.

It is anticipated there will be a significant increase in rail freight movement by 2031. Preliminary forecasts suggest there will be substantial increases in traffic along the Fremantle to Kwinana line and through to Forrestfield.



### Truck Sizes and Operations

In seeking efficiencies in road freight movements to achieve economies of scale, there is a strong continuing trend towards the use of larger trucks on our roads and these are working longer hours to keep up with demand. Previously, 20 foot freight containers were commonplace in the industry. Now, longer trucks are capable of transporting 2 x 40 foot freight containers. Larger trucks on our roads, for longer periods during the day and night, increases the potential for conflict with sensitive land uses such as the amenity of residential areas and private car traffic.



Semitrailer with 40 Foot (12.2m) Container



B-Double with 20 Foot (6.1m) and 40 Foot (12.2m) Containers



Semitrailer with Side Lifter

## RECONCILING THE FREIGHT & URBAN AMENITY RELATIONSHIP

**There is an identified need to protect our urban communities from the adverse operational impacts of freight (such as noise, vibration, accident risk, dust and light spill), and conversely protect the efficiency of our freight networks.**

This is becoming increasingly more challenging in the context of our growing population, and the implementation of higher urban density targets within metropolitan Perth, where potential conflicts between competing and/or incompatible land uses along some freight routes and around some freight activities may occur.

In order to accommodate population growth the Western Australia Planning Commission's strategic document Directions 2031 and Beyond (Directions 2031) estimates the need for at least 328,000 additional dwellings by 2031. A primary strategy underpinning the document is establishing targets to improve on current infill development trends in order to accommodate the rapidly growing population of Perth. Directions 2031 has set a target of 47% or 154,000 of the required 328,000 dwellings as infill development, as a way of managing growth.

According to calculations undertaken by the Urban Development Institute of Australia in September 2013, more than half of Perth's population currently live within the Outer and Peel subregions, and the remaining 42% reside within the Central subregion. Refer to Figure 7 - Existing Population Density.

As the intensification of our urban area continues, there is a greater potential for more people to be adversely affected by the operations of the freight network along the highways, railways and freight hubs. Proactive strategic and statutory planning decisions are therefore essential to minimise adverse interface issues with freight movement.

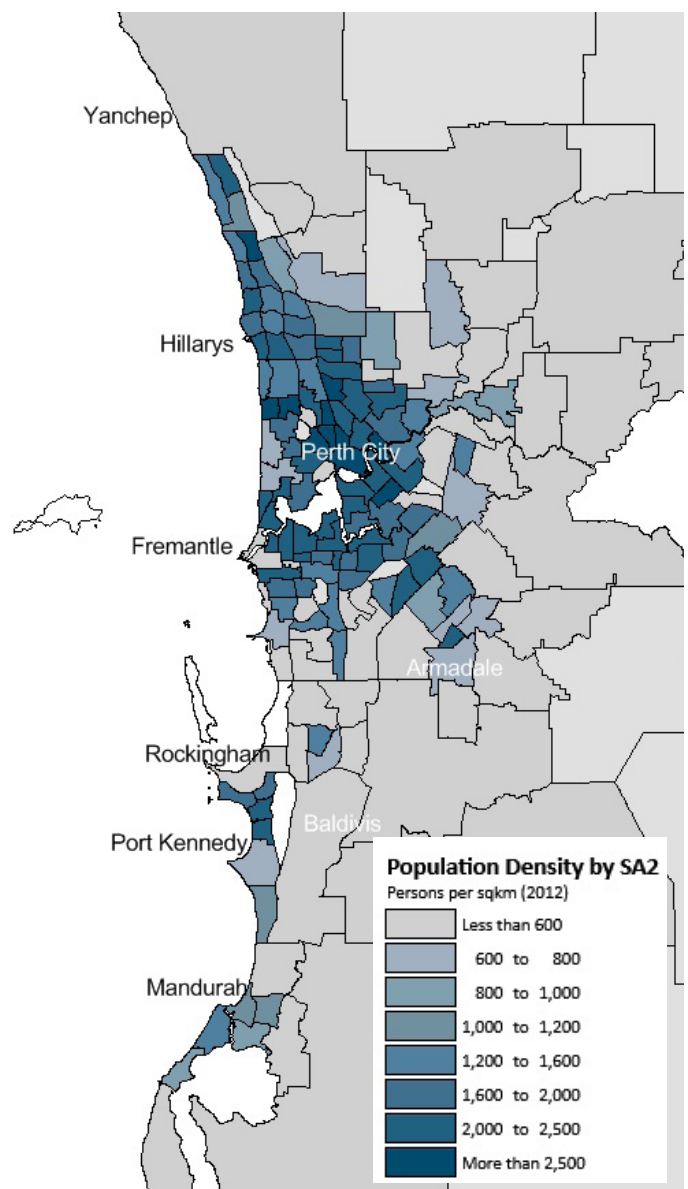


Figure 7 - Existing Population Density. Source: UDIA September 2013.

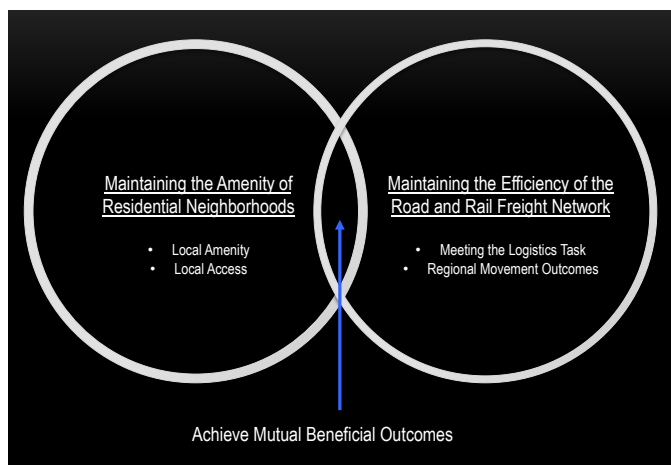
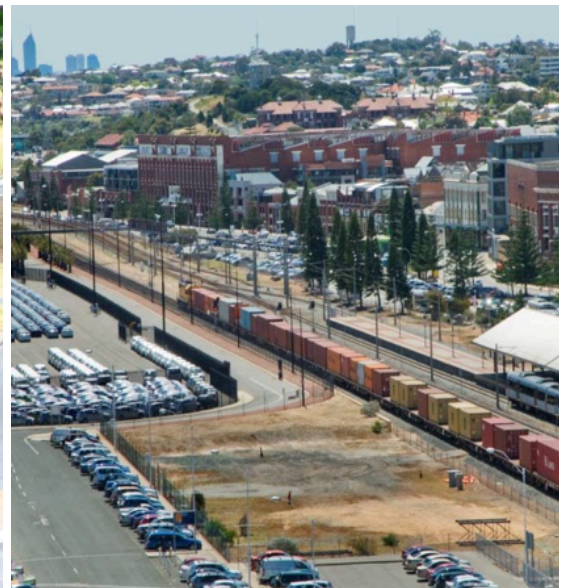


Figure 8 – Reconciling the freight and amenity relationship

Mutually beneficial outcomes are becoming more elusive (refer to Figure 8). If freight activity corridors, strategic transport initiatives and logistics nodes are not understood and planned for carefully and protected with respect to the location and availability of transport routes, there is a risk of high road traffic congestion, conflict with urban amenity and ultimately economic inefficiencies.

A collaborative approach between the transport planning and land use planning disciplines is therefore essential. The proactive and appropriate application of strategic and statutory transport and land use planning (such as the Western Australian Planning Commission's State Planning Policy No. 5.4 - Road and Rail Transport Noise and Freight Considerations In Land Use Planning) is therefore essential to minimise unnecessary conflicts.



## IMPLICATIONS FOR PLANNERS

From the preceding analysis it is evident that the freight task is expected to grow significantly in parallel with the growth of population and transport demand overall. The actual and potential impact on adjoining sensitive land uses is likely to grow over time. This presents a significant challenge if the State is to maintain and expand an efficient and competitive freight and logistics sector, whilst protecting the amenity of our communities. Planners will need to respond to this in a number of ways, which include:

- applying suitable separation distances to sensitive land uses when designing or assessing proposals adjacent to freight activities ;
- applying compatible transition land uses adjacent to freight activities ; and
- requiring noise and vibration abatement solutions through built form design guidelines.

Guidance is currently available to planners through the Western Australian Planning Commission's State Planning Policy No. 5.4 - Road and Rail Transport Noise and Freight Considerations In Land Use Planning and the associated Implementation Guidelines. These documents are available through this link:

<http://www.planning.wa.gov.au/publications/1182.asp>

The key objectives of the policy are to:

- protect people from unreasonable levels of transport noise by establishing a standardised set of criteria to be used in the assessment of development proposals;
- protect major transport corridors and freight operations from incompatible urban encroachment; and
- facilitate the development and operation of an efficient freight network, and strategic co-location of freight handling facilities.

The Western Australian Planning Commission's Infrastructure Coordinating Committee has recently commenced work on

reviewing infrastructure corridor protection, including consideration beyond audible noise.

Planners should also be aware that the Department of Transport is currently preparing a Freight and Intermodal Network Plan for the Perth Metropolitan Region, which is anticipated for public release in 2014. The objectives of this study include:

- the assessment and definition of the medium and long term strategic road and rail freight networks;
- the identification and implementation of new and enhanced measures to protect the road and rail freight network from urban encroachment, ensuring the long term productivity for freight movement; and
- to define a network of intermodal terminals, including brownfield expansion and greenfield site integration with industrial land.

Future FLCWA Bulletins will consider and discuss the existing provisions of SPP 5.4.

Further information:

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## REFERENCES:

- Australian Bureau of Statistics, 2012. Population Projections, Australia 2012 (base to 2101), [http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3222.0main+features112012%20\(base\)%20to%202101](http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/3222.0main+features112012%20(base)%20to%202101)
- Australian Bureau of Statistics, 2013. Labour Force, Australia, Detailed, Quarterly, Nov 2013. cat. no. 6291.0.55.003
- Bureau of Infrastructure Transport and Regional Economics, 2011. Report 123 – Truck productivity: sources, trends and future prospects.
- CBRE Research, 2013. Australia ViewPoint: From Mining Boom to Dining Boom – Investor Demand For Refrigerated Logistics Facilities Rise.
- Colliers International, 2013. Research and Forecast Report, Australia and New Zealand, First Half. Industrial Is The New Black – A Moving Story.
- Department of Planning, 2013. Economic and Employment Lands Strategy: Non-heavy Industrial, Perth metropolitan and Peel Regions, Implementation Report Card.
- Department of State Development, 2014, Western Australia Economic Profile – January 2014.
- Department of Transport, 2013. PortLink Inland Freight Corridor Development Plan, Information Brochure.
- Department of Transport, 2013. Western Australian Regional Freight Transport Network Plan.
- Freight and Logistics Council of WA, 2013. Stakeholder Workshops 1 and 2.
- Fremantle Ports, 2011. Optimising our port infrastructure and planning for growth.
- Fremantle Ports, 2012. Container Movement Study.
- Fremantle Ports, 2013. Developing the Rous Head Industrial Park.
- Fremantle Ports, 2013. Website.
- Fremantle Ports, undated. Western Gateway to World Trade.
- L.Piggott, Laurie Piggott Consulting Pty Ltd, personal conversation, 21 October 2013.
- Northern Gateway Industrial Park, 2013. Website.
- Western Australia Port Operations Task Force, 2012. Advancing Container and Supply Chain Efficiency, Annual Report.