Government of
Western
Australia

COUNCIL OF AUSTRALIAN GOVERNMENTS

5 YEARLY INFRASTRUCTURE REPORT

WESTERN AUSTRALIA

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COUNCIL OF AUSTRALIAN GOVERNMENTS

5 YEARLY INFRASTRUCTURE REPORT

EXECUTIVE SUMMARY

Infrastructure is critical to Western Australia's continued economic success and the wellbeing of its people. Efficient transport networks, modern information and communication technology and sustainable and reliable water and energy supplies, as well a social infrastructure such as schools and hospitals, are vital to maintain Western Australia's living standards.

Demands on the State's infrastructure and the need for more of it are greater than ever, and the situation is unlikely to change in the foreseeable future. Additionally, the type of infrastructure required will be influenced by factors such as the ageing of Western Australia's population, technological change, scarcity of resources and environmental considerations.

The high cost of building, operating and maintaining infrastructure means that great care must be taken in planning and prioritising its supply. Its long life and ability to deliver benefits across generations makes optimising its provision crucial, as mistakes can be very expensive and their legacy can endure for many years.

State Infrastructure Strategy

The Western Australian Government recognises that it is important for infrastructure planning to take a long-term view, and for the public and private sectors to work together more effectively to provide the best infrastructure for the good of the State. This is reflected in the Government's commitment to develop a State Infrastructure Strategy to guide the planning and provision of infrastructure in Western Australia over the next 20 years.

The Strategy aims to ensure that the infrastructure the State needs is provided in a timely and cost effective way, and that costs, risks and opportunities are allocated appropriately among stakeholders. To do this, it is important that the Strategy results in better processes for planning and delivering infrastructure in the State, and for engagement between the State Government and other stakeholders, such as the private sector and other governments, on infrastructure issues.

After its release in 2007, the Strategy will be updated regularly to maintain its relevance to infrastructure decision-making in Western Australia. The Strategy will also be reviewed comprehensively every five years in line with Western Australia's five-yearly infrastructure reports to the Council of Australian Governments' (COAG).

Strategic Asset Management Framework

In August 2005, the Western Australian Government published the Strategic Asset Management (SAM) Framework to improve asset management and capital investment across the State public sector. This includes better planning of procurement processes to minimise delays associated with community consultation and planning approvals, which continue to be essential components of the procurement process for capital projects.

Adoption and application of SAM Framework principles need to be progressed to achieve better-managed and more rigorous processes and, consequently, reduced scope for cost escalation and contract delay.

The Capital Investment Prioritisation methodology, used by the Department of Treasury and Finance to assess capital works proposals during the budget process, was developed to improve the quality of information available for the Government's capital works program, particularly to assist in the prioritisation of capital works. It is aimed at better informing decisions, ensuring technical, social, economic, environmental and political factors are taken into account effectively, and is designed to allow prioritisation to be undertaken across all portfolios on a whole-of-Government basis.

The methodology is being applied successfully, although there is scope for ongoing improvement in its application.

Capital Works Program

Western Australia's Capital Works Program in 2006/07 is estimated at $5.2 billion ($18.1 billion over four years to 2009/10).

Investment in economic infrastructure over four years to 2009/10 is estimated at: $2.33 billion on electricity, $2.36 billion on water, $1.95 billion on roads, $0.86 billion on public transport, and $487.3 million on port facilities.

Cost escalation in building projects is the most significant risk factor in the delivery of the Western Australian Government's $18.1 billion capital works program over the forward estimates period.

Emerging Issues and Challenges

Population Issues

Western Australia's relatively high population growth rate is a product of its strong natural rate of population growth, its traditional intake of a relatively large proportion of overseas migrants and, more recently, positive net interstate migration as people move to the State in response to the high demand for labour.

A rapidly growing and relatively young population yields economic benefits in the form of a growing demand base and higher labour supply - Western Australia's labour force participation rate is well above the national average - but also adds to demand for economic infrastructure. If the State's population growth were to slow, this would obviously slow growth in demand for infrastructure.

Western Australia's population profile is ageing, as are the populations of other Australian States and most western countries, and this needs to be factored into infrastructure provision.

The indigenous population growth rate is likely to imply a greater requirement for further infrastructure for indigenous communities over time, particularly in regional areas. In addition, the need to address adverse social outcomes for the indigenous population (particularly in relation to housing, health and education) will magnify this demand for infrastructure.

Cost Escalation

Western Australia's booming economy, strong employment growth and consequent low unemployment levels are creating pressures in the contracting and sub-contracting market. As a result, cost escalation issues related to the provision of infrastructure have emerged, and growing competition for resources is increasing the risk of construction deadlines not being met.

Cost escalation in building projects is a significant risk factor in the delivery of the Western Australian Government's $18.1 billion capital works program over the forward estimates period.

Energy

Long infrastructure lead times and the long lived nature of assets indicate a need for effective long range planning on a whole of Government basis including more explicit consideration of climate change factors in energy. Climate change potentially poses an additional threat to the reliability of power systems by accelerating demand growth, affecting production and transmission efficiencies and raising the prospect of more frequent storm related outages.

Load growth and the ageing of existing generating plant will combine to require the construction of substantial amounts of new capacity over the coming decade.

Of more immediate concern is the ability to meet peak demand loads in a more cost effective manner, also there is a need to plan, provide and fund additional network infrastructure, especially in regional areas, where local generation is not feasible in the longer term.

Western Australia's booming housing market will continue to be an important factor in the expansion of the reticulated gas network.

Water

Changes in rainfall levels and temperature have lead to a sharp decline in water flows, leading to environmental concerns and pressure on water supplies. Major investment in new water infrastructure has occurred to meet the reduced supply from existing water supplies. Development of new urban water infrastructure should include systematic inclusion of climate risk, on both the supply and demand side.

The primary strategic issue looking ahead for Western Australia is the State's drying climate that is impacting the availability of surface and groundwater. This is compounded by the strong population growth being experienced across the State, in particular in regional areas such as the south west corridor from Perth to Busselton and certain mining towns.

Transport

Western Australia is establishing a framework to take account of the need to better manage land use in the vicinity of corridors to support the State's growing freight transport task.

Additionally, it has to be recognised that the private sector needs to play a greater role in the provision of economic infrastructure, as the State may not have the financial capacity to respond to the transport needs generated by emerging and expanding regional economic activity.

Western Australia also needs to engage the Commonwealth Government more effectively when it comes to the provision of infrastructure funding.

Conclusion

It is important that Commonwealth, State and local governments work together to meet infrastructure needs. Western Australia will continue to support the Council of Australian Governments' endeavours to better plan, coordinate and harmonise infrastructure provision and regulation across the nation.

The Commonwealth receives the lion's share of fiscal benefits from resource projects in Western Australia, yet compared with the State Government, the Commonwealth contributes little to the infrastructure and other costs supporting these projects.

Also, Commonwealth funding arrangements for services and infrastructure tend to disadvantage Western Australia compared with other States, particularly in rural and remote areas. This has the potential to hinder economic development.

A more equitable share of infrastructure assistance from the Commonwealth, supported by analysis of the national welfare and economic benefits, would lead to more optimal investment in infrastructure. Commonwealth infrastructure provision in areas of State responsibility should be done in accordance with an agreed plan in consultation with the State.

COUNCIL OF AUSTRALIAN GOVERNMENTS

5 YEARLY INFRASTRUCTURE REPORT

1. INTRODUCTION

1.1 Importance of Infrastructure

Infrastructure is a critical resource for all Western Australians. It plays a vital role in the delivery of essential services such as energy, water and transport.

Good infrastructure is fundamental to Western Australia's continued economic and social success and the wellbeing of its communities. Good infrastructure is also important to the national economy as a whole and is reflected in the fact that the State produces about 30 per cent of the nation's exports by value and about 50 per cent by volume. Today, however, the demands on the State's infrastructure and the need for more of it are greater than ever, and this situation is unlikely to change in the foreseeable future.

1.2 Infrastructure Planning

The high cost of building, operating and maintaining infrastructure means that great care must be taken in planning and prioritising its supply. Its long life and ability to deliver benefits across generations makes optimising its provision crucial, as mistakes can be very expensive and their legacy can endure for many years.

<u>State Infrastructure Strategy</u>

The Western Australian Government recognises that it is important for infrastructure planning to take a long-term view, and for the public and private sectors to work together more effectively to provide the best infrastructure for the good of the State. This is reflected in the Government's commitment to develop a State Infrastructure Strategy to guide the planning and provision of infrastructure in Western Australia over the next 20 years.

The Strategy aims to ensure that the infrastructure the State needs is provided in a timely and cost effective way, and that costs, risks and opportunities are allocated appropriately among stakeholders. To do this, it is important that the Strategy results in better processes for planning and delivering infrastructure in the State, and for engagement between the State Government and other stakeholders, such as the private sector and other governments, on infrastructure issues.

Improved engagement will help the Government to plan and deliver infrastructure in response to potential economic development. In addition, the Strategy will strengthen the Government's ability to identify infrastructure opportunities that can lead economic development in the State.

The Strategy will draw on the expertise of the Western Australian community and its contents will contribute to better-informed decisions in both the public and private sectors, which in turn will benefit the State's economy and all Western Australians.

After its release in late 2007, the Strategy will be updated regularly to maintain its relevance to infrastructure decision-making in Western Australia. The Strategy will also be reviewed comprehensively every five years in line with Western Australia's five-yearly infrastructure reports to the Council of Australian Governments (COAG).

1.3 Economic and Demographic Context

Per head of population, the demand for and cost of infrastructure in Western Australia has consistently been higher than in other Australian States for a number of reasons, including:

- its relatively rapid economic growth and the importance of capital-intensive resource investment to that growth profile;
- population growth of 1.4 per cent per annum over the last five years – 0.2 percentage points higher than the national average and well ahead of most other developed countries;
- its growing trade opportunities arising from an abundance of natural resources and close proximity to rapidly growing Asian markets, which demand expanded infrastructure; and
- its large geographical area and low population density, which mean that the cost of building and maintaining infrastructure is high, and shared among relatively few customers or taxpayers.

Many major projects, especially in the resource sector, are in remote areas where basic economic infrastructure such as roads or railways are lacking. Even where infrastructure exists to support local population centres, it must often be enhanced to meet the extra demands of new industries and their employees. Transport and construction costs also tend to be high in regional and remote Western Australia.

Industrial Development and Economic Growth

Western Australia's Gross State Product (GSP) was valued at $107.9 billion in 2005/06, making it the fourth-largest State economy in Australia. The State accounts for 11.7 per cent of Australia's Gross Domestic Product (GDP) but just 10.0 per cent of its population, and Western Australia's GSP per person of $53.134 is 18.0 per cent higher than the Australian average.

The Western Australian economy has grown by an average of 5.6 per cent a year in real terms over the past five years, significantly faster than the 3.3 per cent annual average growth recorded Australia-wide.

Strong growth will continue in the near term, with the Western Australian Government's 2006/07 Mid Year Financial Projections Statement predicts that GSP will grow by 5.75 per cent in 2006/07 and by 4.0 per cent in 2007/08. Beyond this, the outlook for the State's economy still looks broadly positive, with GSP growth forecast to grow to 4.25 per cent in each of the 2008/09 and 2009/10 financial years.

Western Australia covers 2.5 million square kilometres, about a third of Australia's land mass, and includes some of the country's richest mining and agricultural areas.

Mining is Western Australia's largest single industry, accounting for 27.4 per cent of the State's GSP during 2005/06, compared to 7.7 per cent of Australia's GDP.

Strong growth in global demand for commodities (notably from China) and 30-year highs in commodity prices have fuelled rapid growth in both exports and investment.

Demography

Population Growth

Western Australia's relatively high population growth rate is a product of its strong natural rate of population growth, its traditional intake of a relatively large proportion of overseas migrants and, more recently, positive net interstate migration as people move to the State in response to the high demand for labour.

The State's population is currently projected to grow from 2.0 million people in 2005 to 2.7 million by 2026. If current trends continue, Perth's share of the State's population is expected to remain at around its current level of 73 per cent in 2026.

A rapidly growing and relatively young population yields economic benefits in the form of a growing demand base and higher labour supply - Western Australia's labour force participation rate is well above the national average - but also adds to demand for economic infrastructure. If the State's population growth were to slow, this would obviously slow growth in demand for infrastructure.

Ageing Population

Western Australia's population profile is ageing, as are the populations of other Australian States and most western countries, and this needs to be factored into infrastructure provision.

State-wide, those aged over 65 are projected to rise from 11.5 per cent of the population in 2004 to around 17.0 per cent of the population in 2025, and 18.5 per cent by 2031.

Socio-demographic trends also affect infrastructure demand. For example, the trend towards marrying and having children later, and the increasing propensity for single dwelling households, are factors that appear likely to continue. Also, as an increasing proportion of the adult population moves into retirement, the shrinking taxation base could limit the ability of governments to invest in infrastructure.

Geographical Population Distribution

The proportion of the population living in the metropolitan area compared to the regions has stabilised, but there are ongoing substantial shifts within the State, especially from inland areas towards the coast. 'Sea-change'-type population shifts within the State have already put stress on some regions' infrastructure (eg Mandurah, Margaret River and other coastal towns) while other regions, including some wheat-belt communities, suffer depopulation, which may result in infrastructure assets being under-utilised.

Population projections by region show that the metropolitan, South West, Peel and Kimberley regions are expected to be the fastest growing over the next 20 years.

Population Density

Western Australia's population density is less than a third of the national average and Australia's population density is among the lowest in the world. The cost of providing infrastructure in area with a more dispersed population is much higher than in densely settled areas. A dispersed population ultimately results in diseconomies of scale in the provision of services, resulting in higher costs of communications, water, energy, freight and roads.

A large and sparsely populated State means that costs associated with the provision of infrastructure such as roads and energy are especially large on a per capita or average basis. Construction costs for such infrastructure are also magnified by the lack of labour and the relative remoteness of sparsely populated areas. As a result, there is often a disincentive for private sector investment in these regions and the Government is required to step in and provide infrastructure.

Indigenous Population

Most indigenous populations are concentrated in the north of the State, where the cost of infrastructure provision is relatively high compared with the more populous South West. The remote location of many indigenous communities accentuates this cost impact, and their comparatively small scale can lead to high unit costs for essential infrastructure and ongoing operations and maintenance.

The indigenous population growth rate is likely to imply a greater requirement for further infrastructure for indigenous communities over time, particularly in regional areas. In addition, the need to address adverse social outcomes for the indigenous population (particularly in relation to housing, health and education) will magnify this demand for infrastructure.

1.4 Fiscal Constraints

The Western Australian Government adheres strongly to a policy of retaining a triple-A credit rating. To ensure retention of this rating, it has committed to two financial targets:

- maintain a net debt to revenue ratio for the total non-financial public sector at or below 47 per cent; and

- ensure that real per capita own purpose expenses for the general government sector do not increase.

The first target places a constraint on the amount of money that the Western Australian public sector can borrow to finance capital spending, potentially limiting the size of the Government's capital works program.

The second target limits the ability of the Government to incur operating, maintenance and depreciation expenses flowing from capital spending in the general government sector.

These constraints have implications for the extent to which the Government can meet the demand for infrastructure in the State.

1.5 The State Government's Role in Infrastructure Provision

Government will involve itself primarily in the supply of infrastructure if the market is unable to provide the amount and/or quality of infrastructure that society deems optimal. Historically, the government sector has played a major role in the provision of economic infrastructure such as roads, railways and ports and social infrastructure such as schools and hospitals because markets have lacked the maturity to provide sufficient quantities of services that require infrastructure for their delivery, at socially acceptable prices. This situation persists today in many infrastructure sectors, although the private sector's capacity to provide infrastructure in a market environment is increasing.

Should a government decide to intervene in an infrastructure market, it can do so by taking direct responsibility for the provision of the infrastructure, subsidising a private provider to reduce its costs of provision and, hence, the prices it charged, or subsidising consumers, enabling them to pay the prices sought by the private provider. For infrastructure supporting public goods, a government can take direct responsibility for its provision, although it may enter into arrangements where the private sector provides the infrastructure on its behalf, and finance some or all of the infrastructure from tax revenues.

The Western Australian Government is not prepared to supply infrastructure or assist private infrastructure if insufficient public benefits will be realised when compared over the medium to long-term with the cost to the Government of infrastructure supply or providing assistance to the private sector.

Regardless of whether infrastructure is provided by the public or private sectors, a government will seek to ensure that the infrastructure conforms to its economic, social and environmental policy objectives. Particular areas of focus include planning, environmental protection, native title and public safety.

Regulating infrastructure that has natural monopoly characteristics (with a view to promoting competition) is also necessary to encourage efficient investment in infrastructure.

It is therefore essential that the Western Australian Government ensures:

- timely, consultative, consistent and transparent approvals processes are followed; and
- economic regulatory regimes are applied fairly, reliably, transparently and in a timely manner.

If the Western Australian Government elects to provide the infrastructure directly, then economic benefits are likely to be optimised if the infrastructure is provided on a common-user basis. This reduces the risk of the infrastructure being left stranded if a sole user no longer requires the services it provides, and also enhances the opportunity for cost recovery.

If the Western Australian Government decides to assist a private firm to provide the infrastructure, then it should ensure the firm provides a suitable access regime so as not to discourage other potential users of the infrastructure. This will increase the potential effectiveness of the Government's assistance, in terms of encouraging economic development.

Government assistance that results in the development of single user infrastructure is provided only as a last resort and must accommodate the State's competition policy and Australia's international treaty obligations.

Regulation of Infrastructure

Owners of major infrastructure such as power lines, gas pipelines, railway lines, grain storage and handling facilities, seaports and airports, water facilities and telecommunications networks have natural monopoly powers because it is uneconomic for potential competitors to duplicate the infrastructure. Consequently, they have substantial potential to exploit market power, by restricting access to their services and raising prices.

Economic regulation is necessary to protect the interests of those seeking access to these types of infrastructure. Regulation is intended to permit the efficiency benefits from economies of scale to be exploited, while at the same time preventing adverse monopoly behaviour.

Regulatory Coverage and Potential Areas for Coverage in Western Australia

Current regulatory arrangements in Western Australia are as follows:

- the State's Economic Regulation Authority (ERA) regulates access to natural gas pipelines and, in the case of electricity, the South West Interconnected System;

- the ERA regulates all standard and narrow gauge rail track and associated infrastructure west of Kalgoorlie, comprising 5,000 route kilometres of track in the south-west of Western Australia, pursuant to the Railway (Access) Act (the Act) and Railways (Access) Code (the Code), which specifies the access regime applied by the ERA.

As a condition of the Railway and Port (The Pilbara Infrastructure Pty Ltd) Agreement Act [the State Agreement with Fortescue Metals Group Ltd (FMG)], the Act and Code also cover the FMG railway, which is yet to be built, in the Pilbara. Generally, privately operated tracks covered in individual State Agreement Acts (such as those Pilbara region railway lines operated by BHP Billiton) are not covered by the Western Australian access regime.

The track east of Kalgoorlie, which is owned by the Australian Rail Track Corporation, is governed by an access undertaking with the Australian Competition and Consumer Commission (ACCC), rather than by the Western Australian regime;

- Water is regulated by the ERA, the Department of Water (DoW), the Department of Environment and Conservation (DEC) and the Health Department. The DoW is responsible for protecting and managing the State’s water resources, including managing the licensing system for water source allocation. The ERA licences and monitors water service provision. The DEC regulates the discharge of treated wastewater into the environment. The Health Department advises the ERA on the appropriate health standards for drinking water supplied by the service providers;

- Port authorities in Western Australia are currently receiving light handed regulation in the form of the Port Authorities Act 1999, which requires approval by the responsible Minister, with the Treasurer's concurrence, of annual Statements of Corporate Intent specify, amongst other things, proposed pricing arrangements; and annual updates of five-year Strategic Development Plans; and

- Grain handling facilities, which in Western Australia are owned by Cooperative Bulk Handling (CBH), are not regulated. CBH’s wholly-owned grain trading subsidiary, Grain Pool Pty Ltd (GPPL), holds the Main Export Licence for bulk export of certain grains. Since Special Export Licences were granted in 2003 to independent grain traders who compete with GPPL, unregulated access to CBH’s infrastructure is beginning to represent a bottleneck to export.

A key concern of infrastructure providers is the potential for infrastructure investment decisions to be impacted adversely by slow regulatory decision marking processes. Every effort must be made to ensure that regulatory decisions are made in a timely manner, to avoid unreasonable delays in infrastructure provision that may constrain economic growth in the State.

Demand Management and Infrastructure Provision

As Western Australia's economy and population continues to expand, increased demand on existing infrastructure is leading to congestion and/or investment in expensive infrastructure expansions. In cases such as electricity, water and roads, demand on infrastructure capacity is driven by the load at peak times. While economic and population growth will inevitably be associated with the need for increased infrastructure capacity, well thought out demand management policies can address congestion and delay costly infrastructure expansion.

In pursuing solutions to shortages of infrastructure capacity, the Western Australian Government should, in the first instance, consider demand management solutions as a means of utilising existing capacity more efficiently, deferring additional capacity (if possible) and providing users with prices that signal more clearly the true cost of infrastructure service provision.

However, it is possible that supply-side solutions involving the installation of additional capacity (particularly those that incorporate technological advances that reduce the cost of service provision) may be more cost effective and result in a more efficient allocation of resources in the State's economy. This may be the case if demand management solutions involve significant implementation costs for consumers, or consumers show little response to demand management initiatives. In such circumstances, a supply-side solution should be preferred to demand management.

Promoting More Competition in Infrastructure-Related Markets

Supply-side solutions to the problem of excess demand in infrastructure-related markets in Western Australia must also be explored. Increasing supply should lead to greater competition and a consequent easing in price pressures in these markets.

Better Cooperation Between the Public and Private Sectors on Infrastructure

When it comes to infrastructure, the relationship between the private sector and the Western Australian public sector is complex. Depending on the circumstances, the public sector can:

- provide infrastructure that is used by the private sector;
- contract the private sector to construct, or construct and operate, infrastructure that will be owned by the public sector;
- assist the private sector to provide infrastructure;
- use infrastructure owned by the private sector;
- regulate infrastructure owned by the private sector; or
- compete with the private sector for resources to construct infrastructure.

Options should be pursued to improve the sectors' cooperation in the provision of infrastructure, with a view to enhancing its efficient and effective supply. It should be noted that the development and dissemination of the State Infrastructure Strategy is, in itself, an example of improved cooperation between the sectors.

1.6 The Private Sector's Role in the Provision of Infrastructure

Up until a few years ago, almost all common-user economic infrastructure was owned by the public sector. However, changing economic conditions and Government policy have increased the scope for private sector involvement in the provision of infrastructure.

Examples of privately built, owned and operated economic infrastructure in Western Australia include the Goldfields Gas Pipeline and Alinta's soon-to-be-commissioned gas-fired power station(s). Although not built by a private sector entity, the Dampier-to-Bunbury Natural Gas Pipeline is now owned and operated privately. The Perth Airport is currently operated privately.

It is expected that over the next 20 years, new ways of procuring infrastructure will evolve. There is likely to be a growing role for the private sector:

- in some cases the private sector may build, own and operate economic infrastructure. The scope for private sector involvement in the provision of this type of infrastructure has increased as markets for essential services (for example gas, electricity and rail) have been deregulated, and this is likely to continue into the future. Where such privately owned infrastructure exhibits natural monopoly characteristics, it will need to be subject to economic regulation;

- there may be circumstances where the State Government engages the private sector to build, own and operate infrastructure that will at some time be transferred to the public sector; and

- public private partnerships (PPPs) may be employed, under which public infrastructure and ancillary services are procured through a joint arrangement between the public and private sectors.

The State Infrastructure Strategy aims to articulate more clearly the nature of projects to be wholly funded by the State, those to be funded jointly by the State and the private sector, and those that can be provided totally by the private sector.

However, significant challenges still remain in securing private sector investment in support of public priorities in regional and remote locations where industrial infrastructure may be required.

1.7 Strategic Asset Management Framework

In August 2005, the Western Australian Government published the Strategic Asset Management Framework (SAMF) to improve asset management and capital investment across the State public sector. This includes better planning of procurement processes to minimise delays associated with community consultation and planning approvals, which continue to be essential components of the procurement process for capital projects.

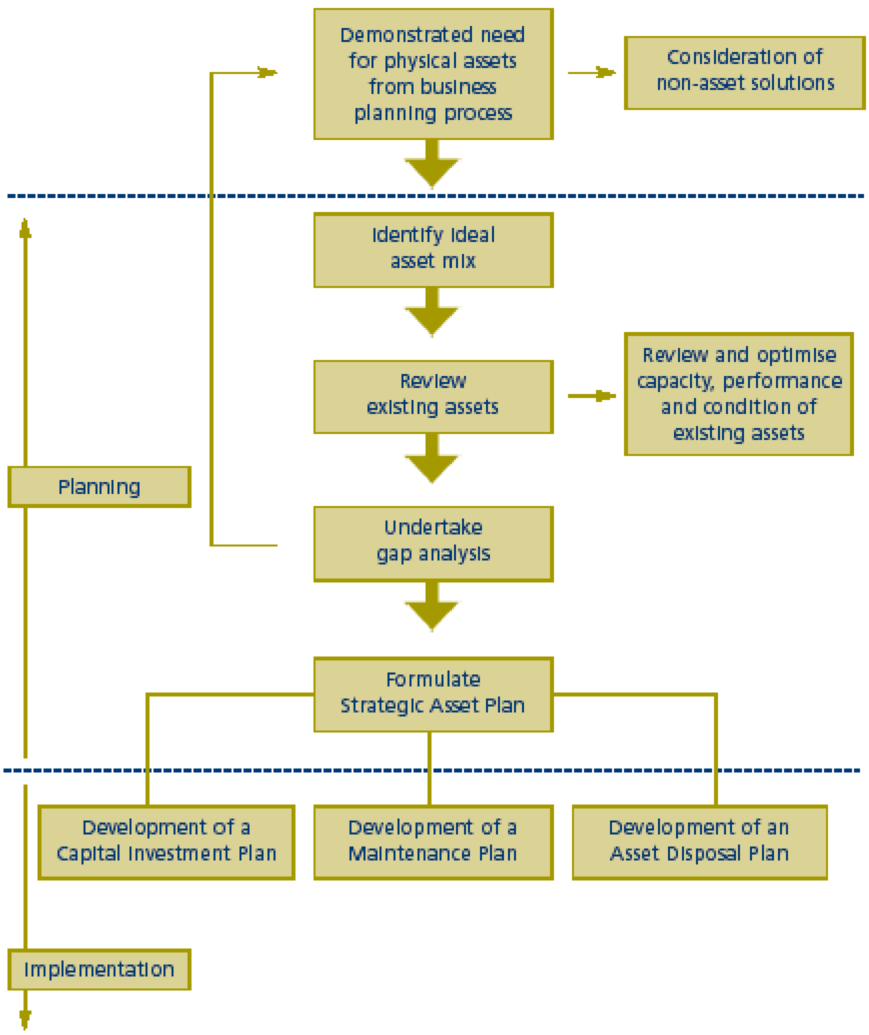
The SAMF includes several significant changes to current policy. All general government agencies and public financial and non-financial corporations that are not required by legislation, to prepare Statements of Corporate Intent and Strategic Development Plans, are requested to develop annual Strategic Asset Plans, to be approved by the Minister and submitted to the Treasurer as part of the annual budget process.

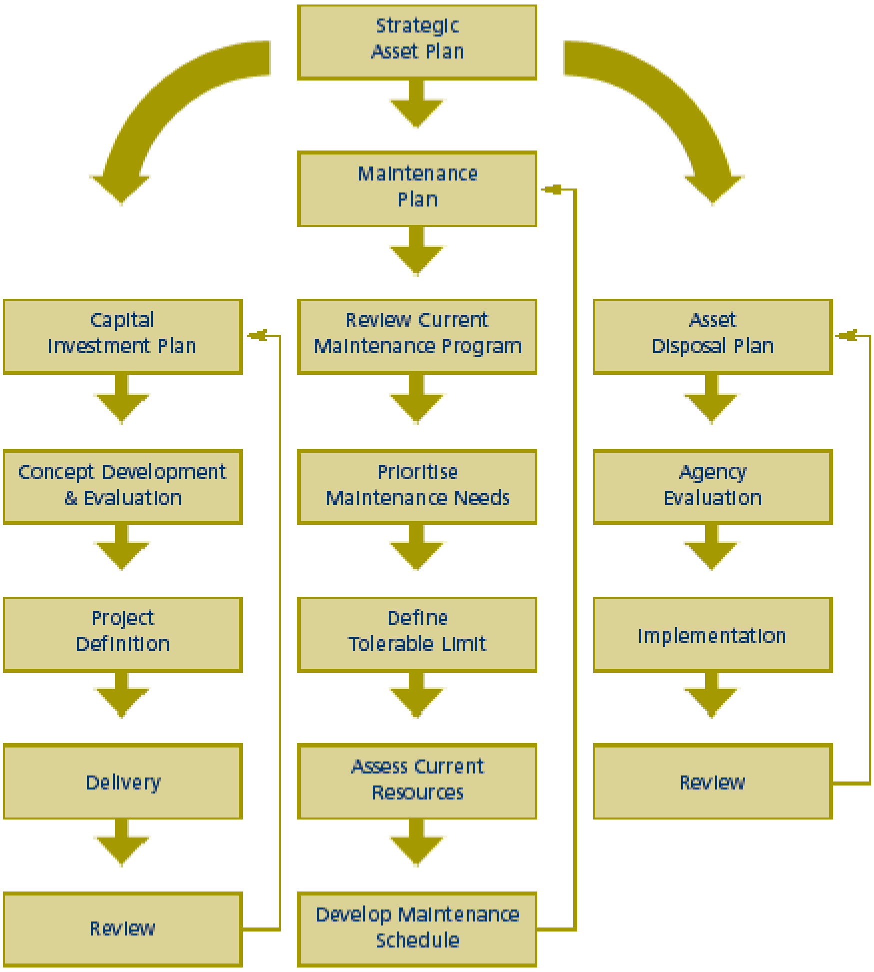
Strategic Asset Plans incorporate existing requirements for agencies to provide Capital Investments Plans and Asset Disposal Plans, and include a new reporting requirement for maintenance expenditure.

The SAMF requires controlling agencies to prepare business cases for all capital investments and Project Definition Plans (PDP) for projects over $5 million in value. PDPs outline the scope of the project, identify functional requirements, critical time plans and implications, accommodation schedules, risk assessments and include updated cost plans. Within the SAM Framework, cost management guidelines have been provided to guide agencies to satisfy their cost management responsibilities. A number of supplementary tools and techniques have been included to improve the effectiveness of cost management.

Adoption and application of SAM Framework principles need to be progressed to achieve better-managed and more rigorous processes and, consequently, reduced scope for cost escalation and contract delay.

The following diagrams outline the Asset Planning Process in accordance with the SAMF.




Strategic Asset Plan
Maintenance Plan
Capital Investment Plan
Review Current Maintenance Program
Asset Disposal Plan
Concept Development & Evaluation
Prioritise Maintenance Needs
Agency Evaluation
Project Definition
Define Tolerable Limit
Implementation
Delivery
Assess Current Resources
Review
Review
Develop Maintenance Schedule

1.8 Capital Investment Prioritisation Methodology

The Capital Investment Prioritisation methodology, used by the Department of Treasury and Finance to assess capital works proposals during the budget process, was developed to improve the quality of information available for the Government's capital works program, particularly to assist in the prioritisation of capital works. It has been designed as a structured, systematic, across-the-board method that is readily understandable, relevant and timely. It is aimed at better informing decisions, ensuring technical, social, economic, environmental and political factors are taken into account effectively, and is designed to allow prioritisation to be undertaken across all portfolios on a whole-of-Government basis.

The methodology is being applied successfully, although there is scope for ongoing improvement in its application.

It is essential that a set of criteria that makes possible valid comparisons is used to assess potential capital works projects. The key criteria against which all projects should be assessed are:

- the perceived importance of the program or project;

- the demonstrated benefits that will flow from the program or project. Benefits are the contribution made by a project to the achievement of Government outcomes, which are set out on the next page; and

- the likely achievability of the program or project.

A standard set of guidelines has been established to help determine the different levels of importance, benefits, and achievability for individual projects. The use of these guidelines ensures a consistent rating approach in the budget process. While all criteria maintain an equal weighting and projects are rated against each of them, the criteria themselves are prioritised, with consideration given in the order of importance, benefits and then achievability, in order to rank projects that receive equal ratings overall.

<u>'Better Planning: Better Futures – A Framework for the Strategic Management of the Western Australian Public Sector'</u>

'Better Planning: Better Futures' sets out the Government's Vision for Western Australia and its strategic outcomes for State Government agencies. The Government's principles will shape the way government services are delivered.

The Government through its agencies, and in partnership with the community and industry, will work towards creating the right conditions to achieve our vision of a sustainable Western Australia. Our planning and decision-making will ensure the Government is meeting the needs of current and future generations through an integration of environmental protection, social advancement and economic prosperity across the whole State. This will require Government agencies to operate collaboratively and cohesively and to engage with the Western Australian community.

There are five Strategic Goals associated with 'Better Planning: Better Futures'. These are:

Better Services

Enhancing the quality of life and wellbeing of all people throughout Western Australia by providing high quality, accessible services.

Jobs and Economic Development

Creating conditions that foster a strong economy delivering more jobs, opportunities and greater wealth for all Western Australians.

Lifestyle and the Environment

Protecting and enhancing the unique Western Australian lifestyle and ensuring sustainable management of the environment.

Regional Development

Ensuring that regional Western Australia is strong and vibrant.

Governance and Public Sector Improvement

Developing and maintaining a skilled, diverse and ethical public sector, serving the Government with consideration of public interest.

1.9 The State's Management of Infrastructure Project Costs and Timelines

Substantial excess demand in infrastructure-related markets has outstripped the capacity of the Western Australian economy to supply the necessary inputs.

A number of strategies can be pursued to address this imbalance. Some are solely the preserve of the State Government and relate principally to its own presence in markets – for example, improving processes underpinning the Government's capital works program. Other strategies, such as increasing training in infrastructure-related skills, lifting the intake of skilled migrants into Australia, or deepening infrastructure-related markets to increase the degree of competition within them - may require the involvement of the Federal Government and cooperation with the private sector.

1.10 Cost Escalation

Western Australia's booming economy, strong employment growth and consequent low unemployment levels are creating pressures in the contracting and sub-contracting market. As a result, cost escalation issues related to the provision of infrastructure have emerged, and growing competition for resources is increasing the risk of construction deadlines not being met.

Cost escalation in building projects is a significant risk factor in the delivery of the Western Australian Government's $18.1 billion capital works program over the forward estimates period.

Promoting More Competition in Infrastructure-Related Markets

Increasing supply should lead to greater competition and a consequent easing in price pressures in these markets.

1.11 Environment

One of the major environmental issues over the next decade is climate change. Since the middle of the 20th century, Australian temperatures have, on average, risen by about 1^{o}C with an increase in the frequency of heatwaves and a decrease in the numbers of frosts and cold days. Rainfall patterns have also changed – the northwest has seen an increase in rainfall over the last 50 years while the southwest has experienced a major decline.

Long infrastructure lead times and the long lived nature of assets indicate a need for more explicit consideration of climate change factors in energy and water planning. Climate change potentially poses an additional threat to the reliability of power systems by accelerating demand growth, affecting production and raising the prospect of more frequent storm related outages.

The changes in rainfall levels and temperature have lead to a sharp decline in water flows, leading to environmental concerns and pressure on water supplies. Major investment in new water infrastructure has occurred to meet the reduced supply from existing water supplies. Development of new urban water infrastructure should include systematic inclusion of climate risk, on both the supply and demand side.

Coastal infrastructure is of particular concern. Higher sea level and more frequent extreme storm events pose substantial risk to bridges, roads, ports and coastal industry.

1.12 Capital Works Program

Western Australia's Capital Works Program in 2006/07 is estimated at $5.2 billion ($18.1 billion over four years to 2009/10).

Investment in economic infrastructure in 2006/07 is estimated at: $633 million on electricity, $620 million on water, $475 million on roads, $491 million on public transport, and $88 million on port facilities.

Investment in economic infrastructure over four years to 2009/10 is estimated at: $2.33 billion on electricity, $2.36 billion on water, $1.95 billion on roads, and $0.86 billion on public transport.

Some of the major projects in the 2006/07 Capital Works Program include:

- Main Roads Western Australia - $475 million on strategic road projects:
  - $70 million on the Perth to Bunbury Highway;
  - $62 million on the Karratha-Tom Price Link Road Stage 2;
  - $19.7 million on the Eyre Highway (Caiguna-East to Balladonia); and
  - $27 million on the Mitchell Freeway (Hodges Drive to Burns Beach).

- Public Transport Authority - $491 million in 2006/07 primarily on the New MetroRail project and the bus acquisition program:

  - final stages of the New MetroRail project: $390.7 million providing for the completion of nine stations between Canning Bridge and Mandurah, the City tunnel and two stations at the Esplanade and William Street and infrastructure and track works between Perth and Mandurah;

  - continuation of the bus replacement program, $31 million to add 65 new compressed natural gas buses to be operational in 2006/07;

  - $10.2 million for upgrades and improvements to stations under the Better Stations program: work at Maddington, Kalgoorlie, Armadale, East Perth, Joondalup Special Event and Kelmscott stations; and

  - progression of the Rockingham City Centre Transit System.

- Water Corporation - $611 million on water and wastewater infrastructure:

  - $2.3 billion over four years, to meet the water and wastewater needs of the growing State and respond to the drying climate;

  - $58.8 million to complete the $387 million Perth Seawater Desalination Plant. The desalination plant will be the biggest single contributor of water to the Perth Integrated Water Supply scheme, providing a climate independent 17 per cent increase in the public water supply;

  - $58.7 million on the new Alkimos Wastewater Scheme to service unprecedented land development and population growth in the north-west metropolitan corridor;

  - $89.5 million will be spent on country water distribution;

  - $74.9 million on metropolitan sewerage treatment and conveyance;

  - $41.4 million on new water sources;

  - $30.6 million on infill sewerage; and

  - $8.6 million for a potable water supply scheme at Coral Bay.

- Electricity - $632 million on power generation, transmission and distribution infrastructure:

  - Western Power (Networks) provides a program to develop the network infrastructure required to support the State's fast growing economy, and improving the safety and reliability of electricity networks in the South West Interconnected System, with the aim being to improve the reliability of the system by 25 per cent over 4 years.

  - Western Power (Networks) total capital works program is forecast at $2.0 billion over four years, of which $483.2 million has been allocated in 2006/07:

    – $10.4 million to upgrade the Southern Terminal network to cater for new private sector generators ($30.1 million for the period 2006/07 to 2009/10);

    – $7.7 million to connect a private sector generator (Alinta Wagerup) to the network ($12.2 million for the period 2006/07 to 2009/10);

    – $3.5 million to upgrade the existing supply line from Collie to Boddington to service the Boddington coal mine ($71.7 million for the period 2006/07 to 2009/10); and

    – $27.1 million on the Underground Power Program.

  - Verve Energy's (Generation) total capital works program is forecast at $205.1 million over four years, of which $101.2 million has been allocated in 2006/07:

    – $20.8 million for the upgrade of control and instrumentation systems for Muja C & D;

    – $32.4 million for the Muja D upgrade – half-life upgrade to a major base load generator; and

    – $7.1 million and $2.0 million on wind-diesel sustainable energy in Coral Bay and Hopetoun respectively.

  - Horizon Power's (Regional) total capital works program is forecast at $99.6 million over four years, of which $31.6 million has been allocated in 2006/07:

    - $11 million for network enhancements to improve reliability;

    - $3.7 million for regularisation of power supplies to five aboriginal communities in the Kimberley; and

    - $3.1 million for underground power in Port Hedland.

  - Synergy's (Retail) total capital works program is forecast at $42.1 million over four years, of which $16.6 million has been allocated in 2006/07 primarily for ICT systems.

- Port Authorities - $88 million on port enhancement and infrastructure:

  - Fremantle Port: $37 million for accommodation of larger ships and the completion of the port's security upgrade;

  - Geraldton Port: $25 million for the creation of a specific iron ore berth; and

  - Dampier Port: $8 million for the construction of a cyclone-proof storage shed, acquisition of advanced navigational aids and enhancements to the cargo wharf.

1.13 Overall Levels of Investment

Western Australia's overall levels of investment in economic infrastructure (2005/06 non-current assets) are estimated at: $5.3 billion on electricity, $2.6 billion on gas (privately owned by Alinta Gas), $10.6 billion on water, $22.4 billion on roads, $3.1 billion on public transport, and $655.9 million on ports.

1.14 Conclusions

Energy

Load growth and the ageing of existing generating plant will combine to require the construction of substantial amounts of new capacity over the coming decade.

Of more immediate concern is the ability to meet peak demand loads in a more cost effective.

Western Australia's booming housing market will continue to be an important factor in the expansion of the reticulated gas network.

Water

The primary strategic issue facing for Western Australia is the State's drying climate that is impacting the availability of surface and groundwater. This is compounded by the strong population growth being experienced across the State, in particular in regional areas such as the south west corridor from Perth to Busselton and certain mining towns.

The State Government has taken steps to address these pressures with the creation of the State Water Strategy in 2003, signing the National Water Initiative in April 2006, and the current development of the State Water Plan. In conjunction with this policy framework, the Government has worked to ensure security of supply by investing heavily in alternate water sources such as desalinated water, recycled wastewater and treated groundwater whilst encouraging households and industry to embrace water use efficiency.

Transport

Western Australia, through initiatives such as the State Infrastructure Infrastructure Plan and the State Infrastructure Strategy, is establishing a framework to take account of the need to:

- better manage land use in the vicinity of corridors to support the State's growing freight transport task;
- recognise that the private sector needs to play a greater role in the provision of economic infrastructure, as the State may not have the financial capacity to respond to the transport needs generated by emerging and expanding regional economic activity;
- engage the Commonwealth Government more effectively for infrastructure funding; and
- determine a strategy for addressing rail inter-modal issues relating to sidings and unloading/loading facilities.

Policy and Planning Framework

Efficient and effective infrastructure is fundamental to Western Australia's continued economic and social success and the wellbeing of its communities. Today, however, the demands on the State's infrastructure and the need for more of it are greater than ever, and unlikely to change in the foreseeable future.

The Western Australian Government recognises that it is important for infrastructure planning to take a long-term view, and for the public and private sectors to work together more effectively to provide the best infrastructure for the good of the State. This is reflected in the Government's commitment to develop a State Infrastructure Strategy to guide the planning and provision of infrastructure in Western Australia over the next 20 years.

The Strategy will draw on the expertise of the Western Australian community and its contents will contribute to better-informed decisions in both the public and private sectors, which in turn will benefit the State's economy and all Western Australians.

APPENDIX A - ENERGY

Electricity

Infrastructure: Supply, Demand and Performance.

Western Australia's electricity consumption increased by 4.2 percent in 2004/05, and has more than tripled in the last 25 years. About 840,000 properties (homes, offices and factories) are currently connected to the network.

Distance precludes Western Australia from interconnecting with interstate generators or the National Electricity Market - this requires Western Australia to be self-reliant for its electricity needs.

Western Power (Networks), Verve Energy, Horizon Power and Synergy came into existence on 1 April 2006 as a result of the disaggregation of the former Electricity Corporation (Western Power Corporation).

Market reforms have established a new wholesale market framework and structure, supporting new entrants into the industry and creating more competition, leading to better services and downward pressure on prices.

A unique feature of the Western Australian electricity system is that there are three completely independent main networks, one serving the northwest (North West Interconnected System), the southwest (South West Interconnected System [SWIS]), and the Esperance power system, in addition to 28 regional networks.

$632.6 million of capital works expenditure has been committed in 2006/07 on power generation, transmission, distribution and retail infrastructure.

Western Power (Networks) total capital works program is forecast at $2.0 billion over four years, of which $483.2 million has been allocated in 2006/07.

Verve Energy's (Generation) total capital works program is forecast at $205.1 million over four years, of which $101.2 million has been allocated in 2006/07.

Horizon Power's (Regional) total capital works program is forecast at $99.6 million over four years, of which $31.6 million has been allocated in 2006/07.

Synergy's (Retail) total capital works program is forecast at $42.1 million over four years, of which $16.6 million has been allocated in 2006/07 primarily for ICT systems.

Key Performance Indicators

The Electricity Corporations Act requires the electricity entities to release Strategic Development Plans and Statements of Corporate Intent. These key planning documents require each of the four electricity corporations to commit to performance indicators:

- Verve Energy has energy, corporate reputation, financial, efficiency, reliability, fuel mix, employee efficiency and training and safety targets.

- Western Power has system reliability, customer responsiveness, financial, corporate reputation and employee safety targets.

- Synergy has customer responsiveness and access, business innovation, financial, brand awareness and employee satisfaction targets.

- Horizon Power has financial, employee safety and wellbeing, regulatory compliance, project completion, reliability and service standards, and corporate reputation targets.

As an example, Western Power's performance targets are determined by the Economic Regulation Authority based on a comprehensive submission by Western Power. The following table outlines the current KPI's for Western Power as outlined in its 2006-07 Statement of Corporate Intent.

Indicator description	Strategic Outcome	2005/06 Forecast	2006/07 Target
Lost Time Injury Frequency Rate (LTIFR)	Safety	5	<5
All Medical Frequency Rate (AMFR)	Safety	20	<20
System Average Interruption Duration Index (SAIDI)			
- SWIS	Reliable	289	277
- Urban	Reliable	252	242
- Rural	Reliable	531	509
Systems minutes interrupted (mins)	Reliable	8.3	7.8
Enquiries responded to within 10 days (%)	Reliable, Efficient	96	96
Complaints responded to within 20 days (%)	Reliable, Efficient	92	92
Subdivision Energisation rate (%)	Reliable, Efficient	80	>80
EBITDA ($m)	Efficient	117.6 [2]	414.1
Net accruals to Government ($m)	Efficient	39.8 [2]	109.5
Corporate Reputation (%)	Reliable, Efficient	58	60

Western Australia's growing summer demand for electricity presents challenges to the adequacy of the existing infrastructure since peak demand occurs for only very short periods of time but requires the provision of costly generation and network infrastructure in order that it is satisfied. In addition, growth of peak demand in established areas, particularly through the rapid increase in air-conditioner loads, means that the distribution system capacity in some areas requires costly upgrades.

A quality and reliability of supply code has recently been established to set minimum standards for electricity supply, enhance network performance reporting and drive improvements in network performance. These new standards will be monitored to ensure that Western Power Networks achieves its goals of improved customer focus, but in a way that is financially responsible.

Infrastructure Planning and Regulation

Electricity Reform Program

Electricity reform in Western Australia has been driven by the Electricity Reform Implementation Unit of the Office of Energy. This unit was established to implement the recommendations of the Electricity Reform Task Force. Key reforms overseen by the Unit included:

- restructuring of Western Power;
- establishment of a wholesale electricity market;
- development and implementation of a State Electricity Access Code;
- implementation of regulatory and customer protection arrangements, including an Energy Ombudsman and Customer Service Code;
- transitional arrangements including an energy balancing service known as Top Up and Spill; and
- all necessary legislation.

The restructuring of Western Power was completed on 1 April 2006 when it was separated into four successor companies: Synergy (the former retail business); Western Power (the former networks business); Verve Energy (the former generation business) and Horizon Power (an integrated utility providing power outside the South West Interconnected System). Western Australia's wholesale electricity market commenced on 21 September 2006, overseen by the Independent Market Operator.

The role of the Independent Market Operator is to:

- administer the Market Rules;
- operate the Reserve Capacity Mechanism (RCM), the Short Term Energy Market (STEM) and the balancing process;
- settle such transactions as required under the Market Rules;
- carry out a Long Term Projected Assessment of System Adequacy (PASA) study and publish a Statement of Opportunities Report;
- administer tender processes for Network Control Services where required by the Market Rules and enter into Network Control Service Contracts;
- process applications for participation, and for the registration, de-registration and transfer of facilities;
- release information required to be released by the Market Rules;
- publish information required to be published by the Market Rules;
- develop amendments to the Market Rules and replacements for them;
- develop Market Procedures, and amendments and replacements for them;
- where required by the Market Rules, make available copies of the Market Rules and Market Procedures, as are in force at the time;
- monitor the compliance with the Market Rules of other Rule Participants, investigate potential breaches of the Market Rules, and if thought appropriate, initiate enforcement action under the Regulations and the Market Rules;
- support the Economic Regulation Authority (ERA) in its market surveillance role, including providing any market related information required by the ERA;
- support the ERA in its role of monitoring market effectiveness, including providing any market related information required by the ERA ; and
- carry out any other functions conferred, and perform any obligations imposed, on it under the Market Rules.

The four Government-owned electricity corporations have developed Statements of Corporate Intent that include:

- performance targets;
- objectives;
- functions and undertakings;
- dividend and accounting policies;
- information to be supplied to the Minister for Energy; and
- details of Community Service Obligations.

The role of the Economic Regulation Authority (ERA) in the reformed electricity system is to:

- regulate access to the South West Interconnected System by approving access arrangements on the terms and conditions of access; and
- issue and enforce electricity licences in generation, transmission, distribution and retail, monitor compliance with and conduct reviews of the Code of Conduct.

Government Initiatives to Encourage Private Sector Developments in Generation.

While the Government is keen to facilitate private developments in the electricity industry, such developments must in themselves be viable and competitive. Any Government support must be provided in a way that is fair and equitable, that does not encourage cross-subsidy and that reflects a thorough assessment of any broader benefits. The establishment of the Western Australian Electricity Market is central to the Government's strategy. Examples of important new and future entrants to the market include:

- major cogeneration plants at Alcoa's Pinjarra and Wagerup refineries;
- $200 million 90 MW Alinta Wind Farm;
- 80 MW Griffin Emu Downs Wind Farm; and
- $450 million Bluewaters 1 coal fired power station by Griffin Energy (near Collie).

The electricity reforms provide an opportunity for private generators to enter the market by establishing a new market framework and structure to enable new participants to enter the industry. Features of this market include:

- ensuring that new entrants can use the electricity grid on an equal basis, via the *Electricity Networks Access Code 2004*. The Code is independently administered by the Economic Regulation Authority;
- retailers and generators are able to buy and sell electricity, in accordance with independently regulated market rules, now that the Wholesale Electricity Market has commenced operation; and
- the Independent Market Operator has been established to run the market and ensure adequate generation capacity is available to each.

Future investment in the electricity network will be required to remove emerging constraints from the network, provide for growth and respond to changes in the location and type of generation.

Key Challenges

New Generation Capacity

Load growth and ageing of existing generating plant will combine to require the construction of substantial amounts of new capacity over the coming decade. The South West Interconnected System demand is growing at 100-150MW each year. In addition, many existing generating plants are approaching the end of their economic lives. Present plans involve the decommissioning of 720 MW of generation over the next 3 years. Also, although not presently scheduled for retirement, by 2010 a further 400MW of generation will be 34 years old followed by another 400MW at 29 years. Competition from newer and more efficient generators could mean that this older plant might no longer be financially viable.

Peak Demand

As peak demand occurs for only very short periods of time but requires generation and network infrastructure to be available, meeting peak demand is expensive. Growth of peak demand in established areas, particularly through the rapid increase in air-conditioner loads, also means that the distribution system capacity in some areas requires costly upgrade.

Meeting peak demand through demand side management rather than additional capacity is a more efficient solution. In 2005/06, demand side capacity contributed around 4 per cent to system peak capacity. This is expected to rise over time, particularly with the new attention to system reliability provided by the introduction of the Reserve Capacity Mechanism in the new electricity market.

Renewable Energy

The proportion of energy on the SWIS generated from renewable energy sources has increased from less than 1 per cent in 2002/03 to over 4 per cent in 2006. The Government has a policy for 6 per cent of electricity on the SWIS to come from renewable sources by 2010 and has committed to establishing a target for 2020. The connection of large resource projects to the grid has the potential to significantly increase the quantum of energy required on the system

A recent study on the capacity of the SWIS to accommodate intermittent generation (such as wind farms) indicated that the system was not yet constrained. However, some sections of the transmission system can not accommodate any more generation (i.e. Perth to Geraldton line). Achievement of a higher renewable energy target is likely to require significant investment in the network.

Competitive Fuel Supply

A key issue in competitive electricity supply is fuel costs. In recent years, gas and coal have been competing against each other as alternative base load fuels. However, without competitively priced gas supplies into the future, competitive discipline on coal is likely to be lessened, leading to possible future increases in generation fuel costs.

Gas

Infrastructure: Supply, Demand and Performance.

The Government privatised the gas industry with the sale of the Dampier to Bunbury Natural Gas Pipeline (DBNGP) in 1998 and Alinta Gas in 2000, ownership of gas infrastructure in Western Australia now lies solely with the private sector.

Alinta Gas (now re-named Alinta) is currently the major supplier of natural gas to the residential and commercial markets in the State's southwest. Alinta distributed gas to over 532,000 domestic, commercial and industrial customers as at 31 December 2005.

Additional gas suppliers that are licensed to operate in specific regions of Western Australia include Wesfarmers Kleenheat Gas (Leinster and Margaret River) and Burns & Roe Worley (Esperance).

Gas Full Retail Contestability was introduced in Western Australia on 31 May 2004, and gives all gas customers the ability to choose their own gas supplier. A gas moratorium has been placed on Synergy and Verve Energy prohibiting them from selling gas to small retail customers (those that consume less than 1 terajoule per annum). However, in an effort to increase competition in the gas retail market, and to create parity with contestability levels in the electricity industry, the Government has decided to lift any restrictions placed on Verve Energy and reduce the supply threshold on Synergy from 1 terajoule per annum to 180 gigajoules per annum from 1 July 2007.

The majority of Western Australia's natural gas sources and production originate from the North West Shelf with additional supplies from the Perth Basin servicing the South West market via the Parmelia Pipeline.

The major users of gas in Western Australia are predominantly major resources companies and electricity generators;

	Terajoules per day
Midwest Lateral	20
Wesfarmers	53
Alcoa	180
Worsley	40
Western Power	100
Alinta (Domestic)	40
Alinta (Industry)	200
	633 out of 645 in total

Note: for Mid West, the number is capacity, not use.

The DBNGP is the key transmission pipeline to the South West of the State, with a maximum capacity of 635 TJ/d. Firm capacity in the DBNGP is fully committed, with any significant additional gas loads requiring pipeline expansion to meet their needs. However, expansion is governed by a Standard Shipper Contract under which current and planned expansions will increase capacity to:

- Stage 4, 735 TJ/d (completed on 1 December 2006); and
- Stage 5, approximately 1000 TJ/d (following progressive Stage 5 A, B & C expansions spanning from 2007 to 2010).

There are currently three other major privately owned natural gas transmission pipelines supplying the Western Australian gas market with other smaller pipelines servicing other areas of the State:

- Goldfields Gas Pipeline;
- Parmelia Pipeline; and
- Pilbara Energy Pipeline.

The pipelines are required to provide a variety of financial information to the ERA as part of their access arrangements and distribution licences. Technical regulation of transmission pipelines is undertaken by the Energy Safety Directorate of the Department of Consumer and Employment Protection.

Infrastructure Planning and Regulation

Regulation through the National Gas Code

COAG gas reforms in the 1990's have resulted in a number of competing suppliers, a privately owned and separate transmission entity, a privately owned and ring fenced distribution/retailing entity and access conditions regulated by the ERA.

The ERA provides economic regulation of transmission and distribution of gas in Western Australia via access arrangements that establish standard terms and conditions as a basis for commercial negotiation under the National Access Code. The ERA also administers trading and distribution licences covering supply to customers taking less than 1 TJ per annum (small use customers).

Western Australia is participating in the development of the National Gas Law to govern access to gas pipelines and networks on a consistent national basis. When implemented in late 2007, the National Gas Law will replace the National Gas Code.

Western Australia's gas reserves currently stand at 113 trillion cubic feet (Tcf).

- This accounts for approximately 80 per cent of Australia's total gas reserves.
- There is over 50 years' supply of gas (likely to be considerably more) to meet forecast domestic and international demand (LNG exports).

Domestic use of natural gas has been rising steadily and is expected to continue to do so into the future.

- Current domestic consumption is 0.27 Tcf per annum increasing to 0.51 Tcf per annum by 2020.

- This demand is due mainly to growing availability and competitiveness of natural gas, as well as the increased incentives for reducing greenhouse emissions and increasing the diversity of fuel supply.

- Natural gas consumption is likely to continue to rise in processing requirements and as fuel for electricity generation.

- This has been underpinned by adequate supplies of competitively priced gas, which has resulted from securing a domestic reservation of gas as part of new gas developments.

- Historical domestic gas prices in Western Australia have been around $2-2.50 per gigajoule ex-delivery, however, more recent prices have been in excess of $3. This compares with LNG netback prices of at least $3.50, indicating a significant increase in Western Australian domestic gas prices if local demand is required to compete with LNG export. Such an outcome would constrain the use of gas as an industrial and commercial fuel as well as generation use, leading to a substitution of coal.

- The Government is keen to ensure that adequate supplies of competitively priced gas are available into the future and has released its Domestic Gas Supply Policy on 12 October which outlined the Government's policy of ensuring continued gas supply by securing domestic gas commitments up to the equivalent of 12 per cent of LNG production from each export gas project.

New demand is predicted to come from a growing share of gas-fired electricity generation in the total generation mix. However, this will be contingent on gas continuing to remain cost competitive with coal.

Western Australia's booming housing market will continue to be an important factor in the expansion of the reticulated gas network.

APPENDIX B - *WATER*

The Western Australian water industry provides services to over 1.8 million customers throughout the State. These customers are provided with a mixture of potable and non-potable water, sewage and drainage services by a number of organisations.

Total potable and non-potable water consumption in WA in 2005/06 was estimated to be 2,471 giga-litres (GL). The following table provides a breakdown of total use in 2005/06, by industry sector.

Sector	**2005-06 Usage**	**per cent of Total**
Agriculture	1,063 GL	43
Mining	593 GL	24
Industry	272 GL	11
Urban/Residential	445 GL	18
Recreation	98 GL	4
Total	**2,471 GL**	**100**

At present 67 per cent of Western Australia's water use is groundwater, 30 per cent is surface water and approximately 3 per cent is from industrial re-use and recycling. Supply has been augmented by 45 GL per annum from November 2006, with the commissioning of the Perth Seawater Desalination Plant. The Plant is largest, single source of water supplying 17 per cent of the city's needs.

Western Australia's economy is experiencing an unprecedented period of growth, driven by the resources industry. This economic growth is fuelling similar growth in the State's population, with the 250 km coastal area from Perth to Busselton being one of Australia's fastest growing regions (projected population growth of 5 per cent per annum). Empirical evidence contained in *The State Water Strategy* shows that if economic and population growth continues, potable and non-potable usage is predicted to increase to 3,500 GL per annum by 2020.

Over the last 30 years there has been a 15 per cent decline in State-wide rainfall, resulting in a 40 per cent reduction in capture of run-off in the State's dams. Reduced supply is forcing service providers to investigate alternate sources that include:

- increased recycling of water;
- increased use of desalinated water; and
- stormwater capture strategies.

A comparatively heavy reliance on groundwater increases infrastructure costs due to the higher cost of extraction. This is particularly relevant for the region from Perth to Busselton, which extracts 60 per cent of it's potable and irrigation water from aquifers. These higher water source costs are somewhat offset by lower treatment costs, as groundwater is generally cleaner than surface water.

Utilities

Western Australia's three largest water utilities are the Water Corporation, AQWEST (Bunbury Water Board) and the Busselton Water Board. All three are vertically integrated service providers with the Water Corporation supplying water and wastewater services on a State-wide basis, whilst AQWEST and the Busselton Water Board supply potable water to their respective regional centres of Bunbury and Busselton. Table 1 shows each service provider's assets, customer numbers and capital expenditure for the financial year 2005/06 while Table 2 shows each service provider's assets by type.

Table 1. Utility Assets and Customer Numbers.

Service Provider	Asset Base Value	Customer Numbers	Capital Expenditure 2005-06
Water Corporation	$9.2 billion	1,008,553	$715 million
AQWEST	$47.5 million	14,459	$1.8 million
Busselton Water Board	$18.4 million	9,213	$1.1 million

Table 2. Utility Assets by Type, Quantity and Value.

Service Provider	Asset Type	Quantity	Asset Value
Water Corporation	Water Mains	31,760 km	$4 billion
	Wastewater Mains	13,865 km	$1.1 billion
	Dams	114	$1.2 billion
	W/water Treatment Plants	102	$1 billion
	Water Treatment Plants	253	$465 million
	Water Pumping Stations	460	$315 million
	W/water Pumping Stations	994	$811 million
AQWEST	Water Mains	334 km	$27 million
	Dams	4	$11.6 million
	Water Treatment Plants	6	$5.4 million
	Water Pumping Stations	20	$3.4 million
Busselton Water Board	Water Mains	255 km	$8.2 million
	Water Treatment Plants	5	$9.8 million

Key Performance Indicators

As monopoly service providers, the utilities are required to submit corporate planning documents to the Government that report on a range of key performance indicators (KPIs).

Each utility supplies a Statement of Corporate Intent (SCI) that lists KPIs in broad categories that include water quality, customer service, forward planning, sustainability, human resources and regulatory compliance and customer engagement. The SCI also show each utility's performance against the KPIs, with all service providers performing to the Government's satisfaction to this date.

As an example, the KPIs for the Water Corporation as detailed in its 2006-07 SCI are as follows:

Financial Outcomes	2005/06 Forecast	2006/07 Plan
Assumptions		
Growth (general customers)	2.5%	2.1%
Operating efficiency (cumulative average)	3.8%	2.7%
CPI (annual change)	3.5%	3.0%
General Price Increase (GPI)	2.2%	3.6%
Specific Price Increase - water	0.0%	1.6%
Dividend provision rate	85%	85%
Financial Outcomes		
Operating profit before income tax	$641m	$639m
Operating profit after income tax	$450m	$447m
Dividends provided	$346m	$348m
Total debt	$1,523m	$1,873m
Net debt	$1,513m	$1,858m
Borrowings taken (repaid)	$450m	$340m
Capital expenditure (incl. capitalised interest)	$706m	$628m
Performance Indicators		
Target return on fixed assets	4.6%	4.6%
Projected return on fixed assets	4.5%	4.5%
Debt to equity ratio	17.9%	21.8%
Return on equity	5.3%	5.2%
Accruals to Government		
Indirect tax equivalents (net of deferred tax adjustments)	$3m	$3m
Income tax equivalents	$187m	$197m
Dividends provided	$346m	$348m
Total	$536m	$548m
Payments from Government		
Community Service Obligations	$340m	$368m
Net Accrual to Government	$196m	$180m

Business Targets	2005/06	2006/07
Our Customers and Stakeholders		
Effectiveness of water supply management	Maintain or Improve	Maintain or Improve
Customer Satisfaction Measure	Maintain or Improve	Maintain or Improve
Water consumption per capita – annual Perth metro	155kL	155kL
Our Business		
Total cost per property	$1,324	$1,386
Net accruals to Government	$196m	$180m
Use of recycled water	14%	16.6%
Our People		
Significant incident frequency rate (rolling year)	8.6	8.2

Water Corporation

The Water Corporation is a government trading enterprise established by the *Water Corporation Act 1995* (the Act) that supplies a range of services including:

- the supply of potable drinking water to both urban and regional areas;
- the bulk supply of irrigation water to regional areas;
- the receipt, treatment and management of wastewater in both urban and regional areas; and
- the management of drainage systems in urban and regional areas.

The bulk of the Water Corporation's potable supply is delivered via the Integrated Water Supply Scheme (IWSS) which includes the Goldfields and Agricultural Water Scheme (GAWS), supplying water to Kalgoorlie and Boulder. The IWSS is a fully integrated water services system regarded as one of the most complete water cycle management systems in Australia.

Supplying the IWSS and other regional centres are Water Corporation-owned and operated metropolitan and regional dams, which provide water to 95 per cent of the towns in the State.

Each year the State Government approves the Water Corporation's 5 year Capital Investment Program, as part of the Corporation's Strategic Development Plan, which is designed to meet a variety of stakeholder needs that include:

- base capital maintenance aimed at sustaining the current level of service to existing customers;
- supply and demand balance to meet new capacity requirements;
- quality and standards enhancement to meet new standards imposed externally;
- improved standards of service for existing customers; and
- commercial business development to undertake commercially justified projects.

In 2006/07, the State Government approved capital funding of $610.7 million to infrastructure development, upgrade and maintenance. This included allocations for:

- $58.5 million on the completion of the Perth Seawater Desalination Plant and associated assets to integrate with the IWSS;
- $161 million on the replacement and augmentation of the metropolitan and country water distribution networks;
- $30.6 million on infill sewerage;
- $200.7 million on new and existing wastewater treatment plants and conveyance networks; and
- $26 million on fulfilling Australian Drinking Water Guidelines and meeting aesthetic standards in regional areas.

The Water Corporation's Strategic Asset Management Framework, which determines the spending priorities, has been assessed by the Economic Regulation Authority (the independent regulator) and found to be acceptable.

AQWEST (Bunbury Water Board)

AQWEST is a statutory authority operating under the *Water Boards Act 1904* that provides potable water services to the regional centre of Bunbury, approximately 150 kilometres south of Perth.

AQWEST's infrastructure will be put under pressure as demand increases through greater urbanisation of the region. AQWEST's 4 year Capital Works Program includes:

- $7.1 million on distribution and reticulation costs for new developments and existing infrastructure;
- $6.5 million to upgrade existing water treatment plants; and
- $3.9 million for plant purchases and other minor works.

Busselton Water Board

The Busselton Water Board (BWB) is a statutory authority operating under the *Water Boards Act 1904* that provides potable water services to the regional centre of Busselton, approximately 250 kilometres south of Perth.

The BWB has prepared a 10 year Capital Works Program that is designed to cater for a projected residential growth rate of 5 per cent per annum. This program budgeted $12.1 million for the period 2005/06 to 2009/10 and includes:

- $4.5 million on the construction of new water treatment plants;
- $3.2 million on plant and other purchases;
- $3.3 million on the installation of new water mains; and
- $1.1 million on other works.

Irrigation Cooperatives

Western Australia's four largest irrigation cooperatives are Harvey Water, Ord Irrigation Cooperative (OIC), Gascoyne Water Cooperative (GWC) and Preston Valley Irrigation Cooperative (PVIC). These organisations are members' cooperatives, with Harvey Water and PVIC supplying irrigation water alone, whilst the OIC and GWC supply a mixture of irrigation and non-potable water.

Table 3 shows each cooperative's assets, member numbers and capital expenditure for the year 2005/06 while Table 4 shows each cooperative's asset by type and value.

Table 3. Cooperative Assets and Member Numbers.

Irrigation Cooperative	Asset Base Value	Member Numbers	Capital Expenditure 2005-06
Harvey Water	$100 million	840	$25 million
Ord Irrigation Cooperative	$48 million	57	$400,000
Gascoyne Water Cooperative	$18 million	225	$150,000
Preston Valley Irrigation Cooperative	$17,000	65	$6,000

Table 4. Irrigation Cooperative Assets by Type, Quantity and Value.

Cooperative	Asset Type	Quantity	Asset Value
Harvey Water	Delivery Channels	605 km	$100 million
Ord Irrigation Cooperative	Delivery Channels Flow regulators	159 km 120	$48 million (combined total)
Gascoyne Water Cooperative	Delivery Channels	36 km	$18 million
Preston Valley Irrigation Cooperative	Meters	Not available	$17,000

Harvey Water

Harvey Water extracts water from the seven Water Corporation dams located in the south west of Western Australia under terms set out in a Bulk Water Supply Agreement.

A strategy initiated by Harvey Water to augment supply has been to replace its open irrigation channels with a gravity fed pipe system. Harvey Water is currently negotiating with the State and Federal Government's and the Water Corporation to fund the completion of the piping project and sell the expected 17.1 GL per annum savings to the IWSS.

Gascoyne Water Cooperative

GWC receives an annual water allocation that it extracts from Water Corporation storage facilities located near Carnarvon that are supplied from a bore field in the upper Gascoyne catchment. To supplement this, GWC members also self-supply through bores located on their properties and in times of cyclonic activity, through extractions from the river.

In 2005-06, GWC spent $150,000 on the repair and maintenance of it's ageing pipe system. GWC does not, however have a formal strategic asset management plan.

Ord Irrigation Cooperative

Ord Irrigation Cooperative (OIC) is Western Australia's second largest private irrigation cooperative in terms of asset base, extracting water from Lake Kununurra at two main off-take points: the M1 off-take and the Packsaddle Pump Station.

Due to the abundance of supply in the Ord River, the OIC is not planning for any supply augmentation. It is, however investigating a 10 year program to install remote SCADA monitoring and metering equipment, as member funds will allow.

The only possible expansion of the OIC's operations will be if the Ord – Stage 2 is developed and the OIC is chosen as the preferred management body. This would likely expand the irrigation area by 16,000 ha and the water supply required by farms by 700 GL per annum.

Preston Valley Irrigation Cooperative

PVIC holds an annual allocation of 895 ML of irrigation water for extraction from the Glen Mervyn Dam located near Donnybrook during a peak irrigation season of October to April. Unfortunately, PVIC has insufficient resources to investigate strategies to either protect or augment supply.

Since 2001, the cooperative has forward planned to replace 10 per cent of it's meters per year. However as the meters currently in place are in good working order this has not occurred. In addition, PVIC also budgets approximately $6,000 per annum for testing and maintenance of its meters.

Other Service Providers

There are some remaining regions of Western Australia that do not receive water services from a major service provider. These areas are either not economically viable to supply, are purpose-built towns receiving essential services from a large regional organisation or are physically isolated from service providers.

The Resource Sector self-supplies almost all water used in extraction and production processes, with the industry committing $100 million per annum to water asset maintenance and upgrades. Some large resource companies also supply potable water and wastewater services to mining towns and settlements. It is not possible to identify all the assets by quantity and value as there are a vast number of industry participants.

Local councils in isolated regional areas provide non-potable and wastewater services to shire residents. The total number of connected properties is approximately 3,500 across 19 shires and districts. Information on asset quantity and value cannot be provided as council reporting functions do not differentiate water assets from other plant and equipment.

The Resources Sector

The resources sector is responsible for 24 per cent of Western Australia's total water consumption, and is almost completely reliant on hyper-saline groundwater. 95 per cent of the groundwater used by the mining sector is self-sourced and to this point, $700 million has been invested by the industry in water source development.

At this time, Hamersley Iron is the only mining organisation that holds a water licence for the supply of potable water and sewerage services to its mine sites surrounding Dampier in the State's Pilbara Region. Hamersley Iron has invested in re-use and recycling strategies to the point that usage has dropped from 80 per cent to 9 per cent of the total water allocation.

Rottnest Island Authority

Rottnest Island Authority (RIA) is a statutory authority that manages Rottnest Island, located approximately 19 kilometres off the Western Australian coast. With no mainland connectivity, RIA has to supply all water services for the island and derives this supply from three major sources that include:

- desalination (71 per cent of total supply);
- bore abstraction (21 per cent of total supply); and
- artificial catchments (8 per cent of total supply).

Desalination supply capacity was increased in 2000 by approximately 125 per cent with the commissioning of a second plant. Current supply capacity has been designed to meet the peak demand of the holiday months from October to April and at these times RIA's water supply system is operating close to full capacity.

A capital works program was developed for the period 2004/05 to 2009/10 that allocated $710,500 for water infrastructure upgrade and maintenance on projects that include:

- upgrade of the existing artificial bitumen catchment;
- repair of water storage tanks; and
- replacement of old water pipes with new PVC pipes.

RIA may prove to be an interesting case study for future urban supply management strategies due to the heavy reliance on desalinated water.

Key Challenges

Water is clearly an area where governments will continue to face serious, and quite possibly growing, challenges.

The National Water Initiative (NWI) is Australia's blueprint for national water reform.

The NWI builds on the previous Council of Australian Governments (COAG) framework for water reform agreed to in 1994. The overall objective of the NWI is to achieve a nationally compatible market, regulatory and planning based system of managing surface and groundwater resources for rural and urban use that optimises economic, social and environmental outcomes.

The NWI agreement includes objectives, outcomes and agreed actions to be undertaken by governments across eight inter-related elements of water management including:

- Water markets and trading;
- Water access entitlements and planning framework;
- Best practice water pricing;
- Integrated management of water for environmental and other public benefit outcomes;
- Water resource accounting;
- Urban water reform;
- Community partnerships and adjustment; and
- Knowledge and capacity building.

Western Australia's NWI Implementation Plan was coordinated by the Department of Water's Water Reform Branch. A draft of the Plan was released in February 2007 and is currently open for public comment.

APPENDIX C - *TRANSPORT*

Western Australia's transport network is extensive, allowing access to almost every part of the vast State. Most of the transport infrastructure is concentrated in the southwest corner, where most of the population live. Because of the concentration of population in this area, it is the destination for most of the freight coming into the State.

On the other hand, the fact that the bulk of the State's export production occurs outside this corner gives rise to a vital need to link the various parts of the State for the movement of people and goods from one area to the next.

Those links are found in a vast road network, rail lines between resource and agricultural areas to the export ports and to interstate destinations, aviation services across the State, and a system of public transport that enhances personal mobility.

Western Australia's transport network, in terms of both distance and coverage, is dominated by the road system for the movement of both people and goods. Extensive parts of this road network are open to large articulated freight vehicles hauling freight to every corner of the State.

By contrast, the rail network has a more limited coverage, being mainly confined to the south west quadrant of the State, and the privately owned iron ore railways in the North West. These rail networks haul mainly bulk commodities, with the exception of the East-West line, which also dominates the movement of general freight in that corridor.

The freight rail network connects Perth to major regional cities and centres in the Geraldton-Bunbury-Albany-Kalgoorlie arc. The network handles most of the freight export commodities through the ports of Geraldton, Bunbury, Albany, Esperance and Kwinana. A number of major mining companies have built and are operating for their exclusive use, heavy duty iron ore railway networks in the Pilbara region at the present.

The freight task in Western Australia is substantial. Goods are transported across vast distances because of the size of the State, its isolation from other Australian States and Territories and the dispersed location of its agricultural, mining, production and population centres. Maintaining the efficiency and effectiveness of the freight transport system, in terms of delivering products to market both on time and at reasonable cost, is paramount.

It is thought that the State's existing transport network has the scope to use excess capacity in the network to cater for the majority of a short to mid term increase in the freight task. However, there are some areas of the transport network that require planning beyond 'business as usual' to meet this growing freight task.

Infrastructure measures can aid the State in achieving freight transport objectives by providing an appropriate land use and transport infrastructure framework that:

- where feasible, provides inter-modal transport options by, in particular, planning for inter-modal facilities in regions that are served by rail;

- provides for appropriate rail links to and within the ports, thus increasing the choice available to freight haulers as to whether product is taken to and from the ports by road or rail; and

- ensures that transport corridors, especially rail and ports, are appropriately planned, managed and protected so that community concerns over noise and vibration can be minimised allowing potentially greater use of those corridors at all times of the day, as a result.

Western Australia, through initiatives such as the State Transport Infrastructure Plan and the State Infrastructure Strategy, is establishing a framework to take account of the need to:

- better manage land use in the vicinity or corridors to support the State's growing freight transport task;

- recognise that the private sector will need in future to play a greater role in the provision of economic infrastructure, this is because the State may not have the financial capacity to respond to the transport needs generated by emerging and expanding regional economic activity;

- more effectively engage the Commonwealth Government for infrastructure funding; and

- determine a strategy for addressing rail inter-modal issues relating to sidings and unloading/loading facilities.

KEY PERFORMANCE INDICATORS

Detailed below are examples of the types of indicators and examples of results from relevant agencies.

ROADS

EFFECTIVENESS		
Indicator	**Measure**	**2005/06 Result**
Community Satisfaction	Community Perceptions Survey	90% satisfaction (down from 92% in 2004/05)
Road Network permitted for use by Heavy Freight Vehicles	Per cent of State Road Network Accessible	Class 10 vehicles – 98% accessible Class 11 Vehicles – 98% accessible Class 12 vehicles – 40% accessible
Road Standards	Vehicle kilometres travelled on roads meeting operational standards	51% of total vehicle kilometres travelled (similar to 2004/05 result)
Bridge Standards	Accessible to National Transport Commission vehicles	97% accessible (similar to 2004/05 result)
Peak Hour Travel Times	Various minutes of travel in metropolitan area	Eg: am peak travel times between CBD and Joondalup – 36 minutes (down from 40 in 2004/05)
Road Fatality Rate	Fatality Rates per 100 million vehicle kilometres travelled (MVKT)	0.75/100 MVKT (in comparison to 0.81/100 for Australia)
Community perception of road safety	Community Perceptions Survey	Eg: 90% satisfaction for Metro Freeways (down from 93% in 2004/05)
Smooth travel exposure	Percent of vehicle kilometres travelled on roads meeting roughness standards	98.2% of roads meet the standard

EFFECTIVENESS – *Cont'd*		
Indicator	**Measure**	**2005/06 Result**
Community perception of ride quality	Community Perceptions Survey	Eg: 98% satisfaction on Metro Freeways (similar to 2004/05 result)
Return on construction expenditure	Annual road expansion program Benefit Cost Ratio (BCR)	Eg: 33% of expansion expenditure is spent on projects with a BCR greater than 3 but less than 4.

EFFICIENCY	**2005/06 Result**
Average cost per lane kilometre of network managed	Approx $2,100 (Up from approx 1,700 in 2004/05)
Average road improvement cost per lane kilometre	$500,000 (up from $300,000 in 2004/05)
Average cost per intersection improvement	Approx $190,000 (down from approx $201,000 in 2004/05)
Average cost for bridge strengthening per square metre	$1,000 (up from $800 in 2004/05)
Average cost of road construction per lane kilometre (by road type)	Eg: $1.0 m in 2005/06 for rural main roads (up from $602,000 in 2004/05)
Average cost of treatment undertaken	Nil in 2005/06 (down from approx $900,000 in 2004/05)
Average cost of bridge deck constructed per square metre	Approx $12,000 (up from $9,500 in 2004/05)
Average cost of road construction per lane km (by road type)	Eg: $200,000 in 2005/06 for rural main roads (up from approx $100,000 in 2004/05)

EFFICIENCY – *Cont't*	**2005/06 Result**
Average cost of improvements undertaken	$190,000 in 2005/06 (up from $150,000 in 2004/5)
Average cost per lane kilometre of road network maintained	$5,100 (up from $4,900 in 2004/05)
Average cost of road construction per lane kilometre (by road type)	Eg: approx $2.0 million for Urban Highways (up from approx $1.6 m in 2004/05)
Average cost of bridge deck construction per square metre	Approx $10,500 (up from approx $2,200 in 2004/05)

Source: Main Roads Western Australia Annual Report 2006

RAIL

Track Quality

Maximum axle load and maximum speed	Main lines; all users
Increase/decrease in the number of temporary speed restrictions on the network from the base year as a result of: ▪ Safety issues ▪ Infrastructure failure ▪ Other factors	Main lines; all users
Increase/decrease in the number of permanent speed restrictions on the network from the base year as a result of: ▪ Safety issues ▪ Infrastructure failure ▪ Other factors	Main lines; all users
Instances of axle load restrictions imposed on operators	Main lines; all users
Periods of Master Control Diagram where track will not be available to train services or alternate paths cannot be negotiated, where the Master Control Diagram indicates it should be available and that cause of the unavailability is due to a factor under the railway owners control	Main lines; all users
Number and percent of train services scheduled to the Master Control Diagram cancelled due to a reason that can be attributable directly to the railway owner.	Main lines; all users

Source: Economic Regulation Authority.

PUBLIC TRANSPORT

EFFECTIVENESS			
Indicator	**Measure**	**2005/06 Target**	**2005/06 Actual**
Use of Public Transport	Passengers per service kilometre for:		
	▪ Transperth Train Operations		
	▪ Transperth Bus Operations	4.07	4.19
	▪ Regional Bus Services	1.29	1.30
	Intra-town		
	Inter-town	0.952	0.966
	▪ Transperth Ferry Operations	0.007	0.016
	▪ Transwa Rail	12.49	14.55
	▪ Transwa Road Coaches	0.266	0.272
		0.078	0.074
Accessible Public Transport	Proportion of street addresses within the Perth Public Transport Area which are within 500 meters of a Transperth stop providing an acceptable level of service	70%	74.1%
Service Reliability	Percentage of services arriving within 'on time' arrival parameter for:		
	▪ Transperth Train Operations	95%	86.93%
	▪ Transperth Bus Operations	85%	91.71%
	▪ Transwa Rail		
	Prospector	90%	73%
	Australind	90%	88%
	AvonLink	95%	99%
	MerredinLink	95%	89%
	▪ Transwa Road Coaches	95%	95%
	Pick up and drop off before/after school:		
	▪ Regional School Bus Services	90%	97%
Customer Satisfaction	Percentage of respondents "Very satisfied" or "Satisfied" with:		
	▪ Transperth Train Services	92%	89%
	▪ Transperth Bus Services	82%	80%
	▪ Trasnperth Ferry Services	95%	96%
	▪ Transwa Train and Road Coach Services	90%	88%
Customer Perception of Safety	Perception of security for:		
	Transperth Train Operations		
	Daytime		
	- Stations	96%	96%
	- On Board Trains	96%	98%
	Nightime		
	- Stations	70%	63%
	- On Board Trains	80%	74%
	▪ Transperth Bus Operations		
	Daytime		
	- Stations	97%	95%
	- On Board Buses	99%	98%
	Nightime		
	- Stations	68%	66%
	- On Board Buses	86%	78%

EFFECTIVENESS – *CON'T*			
Indicator	**Measure**	**2005/06 Target**	**2005/06 Actual**
Notifiable Occurrences	▪ Transperth Train Operations Category A occurrences - per million passenger boardings - per million train kms Category B occurrences - per million passenger boardings - per million train kms ▪ Regional School Bus Services	 n/a n/a n/a n/a 6	 0.56 2.08 18.27 67.60 16
EFFICIENCY			
Indicator	**Measure**		**Measure**
Average Cost per Passenger Kilometre	Average cost for: ▪ Transperth Train Services ▪ Transperth Bus Services ▪ Transperth Ferry Services ▪ Transwa Rail Services ▪ Transwa Road Coach Services ▪ Regional School Bus Services	 $1.09 $0.67 $1.48 $0.31 $0.20 $79.12	 $1.05 $0.69 $1.49 $0.36 $0.19 $81.96
Cost per 1000 Student Place Kilometre	Regional School Bus Services	$79.12	$81.96
Cost of managing rail corridor and residual freight issues	Rail and Freight Corridors	$51,544	$52,912

Source: PTA Annual Report 2005/06

PORTS

The eight public sector Port Authorities are unique in their location, type and volume of cargo, shipping volume and size and type of infrastructure. This creates problems when trying to detail relevant performance indicators that are constant and reliable.

An example of the types of indicators that are available is detailed below. This does not mean that these indicators are available for all ports as indicators vary from port to port. There may, however, be some constants.

- **Liquidity Ratio**
  Current Ratio

- **Cash Management Ratio**
  Free Cash Ratio

- **Debt Management Ratio**
  Debt to Equity
  Interest Cover

- **Profitability Ratios**
  Return on Assets
  Return on Shareholders
  Economic Rate of Return

- **Port Efficiency Ratios**
  Revenue earned per unit throughput ($/tonne) - nominal
  Revenue earned per unit throughput ($/tonne) - real
  Revenue earned per ship ($/ship) - nominal
  Revenue earned per ship ($/ship) - real
  Port authority costs per unit throughput ($/tonne) – nominal
  Port authority costs per unit throughput ($/tonne) - real
  Cargo units berth (tonnes per berth)
  Ship utilisation berth (berth utilisations)
  Ship turnaround time (hours)
  Average ship turnaround time (hours)
  Average port productiveness (tonne/ship-hour)

Source: Geraldton Port Authority Annual Report 2004/05.

Infrastructure: Supply, Demand and Performance

Western Australia's general economic growth is generating increased freight volumes, and this, combined with the need for facilities to improve transfers of bulk commodities, is driving demand and the need for investment in transport infrastructure.

A population increase of roughly 650,000 people has been projected for the Perth area over the next 25 years (although regional centres other than those in the extreme south west and Kimberly are expected to experience limited population growth). This increase will create demand for around 300,000 additional dwellings within the Metropolitan area, as well as for the associated transport networks.

Although modal dynamics often favour the use of rail or coastal shipping transport, such transport is not available throughout all of regional Western Australia. The impact of aviation relative to other modes is also limited - it is used to transport passengers such as tourists or fly-in fly-out mine employees, rather than for carrying freight, and this is not expected to change in the foreseeable future. As a result, road remains the predominant modal choice in regional areas. Driven in part by the increased level of activity in the mining industry, volumes of not only light but also heavy vehicle traffic are rising in regional Western Australia.

With the exception of Western Australia's South West region (with a projected population increase of some 50,000 people between 2005 and 2031), current (and likely future demand) for road and rail transport infrastructure in regional WA is driven by industry, rather than population growth.

With population density in the southern part of Western Australia higher than in the north, not only the higher number of heavy vehicles accessing industrial areas and ports need to be accommodated, but also light traffic increases and upgrading or extending the (limited) existing public transport network (passenger rail is, for example, only available between Perth-Bunbury and Perth-Kalgoorlie). Although there is a substantial narrow-gauge rail network in the southern part of the State (up to the Geraldton area), the majority of rail traffic is limited to a few lines. The rail network in the north is limited to the Pilbara, where major minor companies have built and are operating heavy-duty iron ore railway networks.

The proportion of heavy vehicles using sections of major regional routes such as the Great Northern, Brand and North West Coastal Highways (Perth-Darwin corridor) appear to be rising faster than light vehicle traffic. This is increasingly associated with safety and environmental concerns for towns along the routes, especially when the routes pass through town centres, and in several places point to an urgent need to construct bypasses (e.g. in Geraldton and Karratha).

Other road issues in regional Western Australia relate to, for example, narrow bridges (often narrower than their approach road), sections of certain roads being prone to closure as a result of flooding in the wet season, the mix of traffic on the roads (with an increasing number of double and triple road trains, caravans, trailers and campervans of different widths, and travelling at different speeds), as well as a lack of passing opportunities along busy sections of major roads.

As much of the heavy freight movement is either in or out of regional ports, major routes connecting the hinterland with ports such as Geraldton, Dampier and Port Hedland, the main routes connecting the different ports, and in particular port access roads, all require special attention.

Recent developments in the mining industry are encouraging new mining activities and an expansion of existing activities, placing additional demand on regional roads. Most of the freight carriers are heavy vehicles. Although much of the mining output in north western Western Australia is moved to port by (privately constructed and operated) rail, all inputs still arrive by road. Thus the road network remains a crucial link in the supply chain of most growing industries in Western Australia. Given the important role of the road network in industry supply chains, investment in rail (actively being encouraged at present) should not be at the expense of Western Australia's road network.

The combination of booming industrial activity in most parts of the state (which has in turn resulted in increased traffic on roads leading to ports), an increase in tourist numbers, and strong population growth, the types of vehicles on regional roads has become increasingly mixed, ranging from double and triple road trains, to standard passenger vehicles, four wheel drives and caravans. This has implications both for ongoing road maintenance and safety, and has created a need to focus on streamlining traffic options such as bypass roads in port towns.

About 90 per cent of business, social and tourism trips are conducted on roads, and nearly 80 per cent of imports to the State and 40 per cent of exports travel by road. Road freight movement is therefore an integral part of the production and distribution chain within the State.

Transwa buses cover about 275 locations throughout the western quadrant of the State, but do not service the eastern part of the State due to insufficient demand in this sparsely populated part of the State.

Current and Future Supply and Demand in the Sector

Within metropolitan Perth, future demand for transport is expected to correspond with population growth, the ageing population, personal affluence levels (which impact upon, amongst other things, vehicle ownership) as well as general economic growth (which impacts upon the freight task). Land related issues such as urban expansion and housing density will also affect transport planning, particularly in the case of roads.

Metropolitan Perth's urban development is restricted by the Darling Escarpment in the east and the Indian Ocean in the west. As a result of further restrictions on urban development due to the Jandakot and Gnangara Water Mounds, Perth will most likely develop into a consolidated central sector and three major narrow north-south and largely continuous urban corridors - the North West, South West and South East Corridors. Two other less densely developed corridors, the North East and Eastern Corridors, also extend out from the central sector. Because of this shape of urban development, adequate provision of north-south regional roads will be critical in meeting the future travel demands.

Projected increases in freight carried by road within metropolitan Perth (in particular between Fremantle Harbour and intermodal facilities such as that at Kewdale), as well as on the highways connecting the major regional Ports, will exacerbate existing pressures on the road network. Projected strong economic growth over the short to medium term (driven largely by the resources sector, and in particular international demand for iron ore), is expected to lead to a doubling of freight demand over the next 10 years.

Heavy truck movements within metropolitan Perth are associated mainly with major industrial areas such as Kwinana, Kewdale/Welshpool, Canning Vale, Malaga, etc and major inter-modal facilities such as the Fremantle Port and road/rail transfer development at Kewdale. These areas are located strategically next to major highways such as Reid, Roe, Tonkin and Fremantle-Rockingham Highways, which connect the industrial and port areas. An exception is the North West Corridor where the Neerabup and Wangara Industrial areas are served primarily by Wanneroo Road, which is unlikely to have the capacity to carry a significantly higher volume of heavy vehicles due to the frontage access development along the road and a limited reserve width for upgrading.

In the south east corridor, heavy trucks to and from Brookton, Albany and South Western Highways have to negotiate winding roads through built up areas that are generally not well suited to heavy truck movements (as a result of low geometric standards and adjacent developments). Heavy freight movements through these areas are undesirable from a local community perspective because of their negative impacts on safety, environment, social and amenity.

In view of predictions that the Western Australia's grain freight task will increase by 50 per cent or more over the next 25 years, the future viability of using the narrow gauge rail system solely for the transport of grain is currently under consideration. A Grain Freight Network Strategy is under development that, among other things, will lead to the establishment of a defined sustainable rail and road freight network that enables security for required long-term investment by industry and government.

Further investment in railway terminal and loader/unloader infrastructure by freight forwarding and commodity export companies would potentially open up opportunities for new rail business. This is because non-railway companies are not currently inclined to invest in high-cost railway infrastructure where and when road transport can perform the tasks needed without any such infrastructure investment. In these instances, road transport has a competitive edge over rail and allows the regional communities served by road to obtain services and goods at reasonable cost.

The current network-based Western Australian Grain Freight Agreement, which tied the grains industry to predominantly using rail, expires on 31 October 2007. Any future non-network based outcome would likely result in a significant transfer of grain freight from rail to road. Stakeholders are especially concerned about significant rail closures (under the current rail lease agreement, WestNet Rail can commence proceedings to surrender rail lines to Government deemed uneconomically viable from the end of 2007) and the increased use of road freight by the grains industry, which adversely impact on the state and local road network.

Mining companies operating within the State with their own rail tracks leading from mine to port have not agreed to third party track access. Such access, to BHP Billiton Iron Ore's Mount Newman rail line, is currently the subject of legal proceedings. While it appears difficult to clearly identify or quantify benefits of such an arrangement, BHP Billiton is reported to have calculated the present value of direct costs to itself through the introduction of third party iron ore shipments at almost $1.7 billion.[1] The State Government is currently developing a haulage regime with BHP and Rio Tinto.

Ports have specific drivers for infrastructure investment, which result from demands associated with growth in existing trades, new trades, and changes in the types and sizes of vessels. These demands, which may be of an operational, safety, security or commercial nature, have the potential to change over time, thus affecting the scope, timing and, in some cases the continued need for the investment. Existing port facilities and services are adequate to meet current needs, however sustained demand for the State's mineral products in particular and economic growth in general suggest that there will need to be substantial future investment in improving facilities at existing ports and the establishment of new ports within the next ten years.

The State Government is currently considering the development of a privately built, run and operated port at Oakajee, north of Geraldton, to support proposed iron-ore mining ventures in the Mid-West of the State. Discussions are continuing with proponents.

The Government has also recently announced a proposal to develop a man-made island within the Port of Fremantle waters to cater for the expected increase in container trade and overflow trade from the Fremantle Inner Harbour. Planning and public consultation is ongoing so as to meet relevant needs when required in approximately 2016.

The Government has recently completed an investigation into the need for a new port in the Pilbara to manage the anticipated export demand for the area's iron ore. The report concluded that a new port with an ultimate capacity greater than 300 million tonnes per annum was likely to be needed within six to ten years. A preferred site for the new port (Ronsard Island), has been identified, but is subject to further investigation before a final decision is made.

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[1] Fisher, B and R. Rose, June 2006, *Export Infrastructure and Access*, in Australian Commodities, Vol. 13, no. 2, from ABARE website www.abareconomics.com

Patronage on public transport in Perth has grown significantly during the last six years. Government efforts are now directed towards increasing the current public transport "share of trips" from the current level of 6 per cent to 9 per cent trip share by 2015. However, if public transport is to make a significant contribution to the long-term health of our communities, usage needs to be increased to at least 12 per cent in the medium term (twenty years), with a longer-term target of 20 per cent of trip share.

In recent years there has been significant investment and expansion of the public transport vehicle fleet. Since the late 1990s the bus and train fleets have grown significantly, by 19 per cent and 74 per cent respectively. Feeder bus services on the new Mandurah Train line are expected to increase the size of the Transperth bus fleet by a further 20 buses to 1,070 by 2007. Between 2007 and 2013, demand generated through general population growth is expected to result in further fleet growth of 2 per cent per annum.

Levels of Investment

The funding of transport infrastructure is targeted at those initiatives that provide the greatest economic, social and environmental benefits for the Western Australian community. Looking for 'other than capital solutions' remains a high priority in determining appropriate transport solutions.

Inter-modal Facilities

Information about capital funding for inter-modal facilities is not available at this time, with the exception of ports. Port investment is discussed elsewhere in this report.

Roads

Capital investment in road infrastructure in Western Australia averages in the order of $400 million per annum. Investment planning has identified road needs for the next ten years based on a set of agreed Intervention criteria. The majority of these needs are identified in the immediate short term because gaps have already been identified. Over the medium to longer term other deficiencies are identified using existing knowledge of likely demand and infrastructure condition.

Although the road network could be considered "mature", there is a need to maintain the existing asset, make efficiency improvements to that asset and make occasional additions to the asset to meet emerging needs.

Rail

In looking for railway infrastructure investment opportunities, the Government works with WestNet Rail to identify what can be achieved that is outside the operational obligations of the company.

Public Transport

The Western Australian Government has made a significant investment in public transport in recent years. The New Metrorail project, which forms the major part of this investment, will expand the existing railway of almost 100km by 81km of new track and will almost double the existing fleet of 96 raulcars. Annual patronage is expected to grow from about 31 million to 51 million passenger boardings in 2008, and 14 new stations will be built.

In 2006/07, $491 million has been budgeted for public transport capital investment. This forms part of a $2.5 billion investment in public transport infrastructure, including $1.6 billion spent on the New Metrorail project, extending the suburban passenger rail system south to Mandurah and north to Clarkson. A further $356 million is budgeted for capital works for the three year period from 2007/08 to 2009/10.

Ports

Some $87.6 million has been budgeted for investment in port enhancement and infrastructure at the eight statutory port authorities during 2006/07. The main sources of funding will come from borrowings and the ports' internal funds.

All the statutory port authorities are continually responding to the increased demand for their facilities and services. Over the four year period 2006/07 to 2009/10 inclusive, some $487.3 million has currently been budgeted for investment in capital works at these ports and this is likely to increase.

Key Drivers for demand and investment in the sector

Key drivers for demand and investment in the transport sector are the following:

Economic Drivers:

- General economic growth;
- Freight efficiency/international competitiveness;
- New and expanded resource projects; and
- Maintenance/replacement of the asset.

Social Drivers

- Population growth;
- Demographic shifts;
- Safety;
- Urban growth;
- Congestion management/prevention;
- Access to employment; and
- Access and equity;

Environmental Drivers

- Climate change;
- More efficient use of limited resources; and
- Reduction in greenhouse gas emissions.

Regional Development Drivers

- Tourism;
- Regional economic viability; and
- Regional connectivity.

Analysis by Transport Mode

Inter-modal Transport

Inter-modal transport[2] can be defined as "the interaction of operations between transport modes". Key inter-modal facilities, such as freight terminals, ports and airports act as the interfaces between land, sea, and air transport. In practice, inter-modal facilities are the almost invisible grease that lubricates transport and logistics systems. However, particularly to the public, they can be a very large and visible symbol of transport in the community, especially where negative impacts occur.

There are three major categories of Inter-modal Terminals (IMTs): bulk product (eg grain), international non-bulk and interstate non-bulk (both primarily containers). The first two of these are primarily within ports. IMTs are also dependent on other transport infrastructure (road, rail ports or airports) and cannot exist in isolation.

Western Australia's IMTs are based primarily on containers for the import-export trade and interstate transport. Fremantle Port land transport currently includes about 6 per cent of movements by rail to Kewdale Freight Terminal. The Government has targeted an increase in this proportion to 30 per cent over ten years through the Freight Network Strategy. Kewdale Freight Terminal is owned by the Government and the majority of the area is operated by the Toll Group. Other terminals are privately owned and operated.

There have been calls for additional IMTs to be provided in places such as Kalgoorlie, Kwinana (to serve the Fremantle Outer Harbour Expansion) and in the hinterland (eg at Northam, York or Brookton). While the transport demands for these sites are identifiable, the levels of activity are currently too low to justify new terminals. Planning work on inland terminals continues to ensure they can be provided in the future. IMTs have also been investigated in or around Perth airport to serve the grocery distribution depots.

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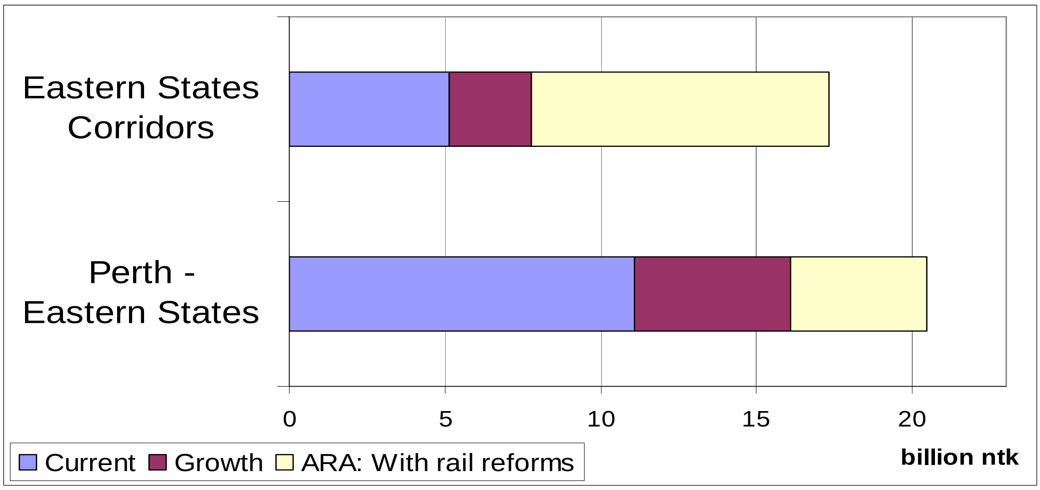
[2] Inter-Governmental Agreement for Regulatory and Operational Reform in Road, Rail and Intermodal Transport (2003),

IMTs are likely to become proportionately more significant in future, as the logistics industry and companies continually seek to improve efficiencies to reduce costs. As discussed elsewhere, freight volume growth generally is outstripping economic development and some new commodities are moving into containers for transport, compounding the growth of IMTs. While IMTs will be the largest freight handling locations, it is anticipated that they will still handle only a small proportion of the total freight task.

Measured in tonne-km, the Perth to Eastern States corridor is the heaviest interstate transport task in Australia[3]. In fact, it accounts for more transport than all other interstate corridors combined. All of this transport is funnelled through inter-modal terminals at each end of the trip.



There are indications that continuing evolution and maturing of logistics handling as markets, technology and business change will result in more containerisation (eg hay or specialised grain). Hence the need for IMT's will continue to increase.

[3] Adapted from *Future of Freight*, Australian Railway Association 2005.

Road

There are 17,800 kilometres of National Highways and State Roads in Western Australia, with a value of more than $21.4 billion. In addition, there are more than 129,200 kilometres of local roads, 88 per cent of the total state road network.[4]

The road network has a pivotal role in meeting the present and future transport needs of the community and promoting the economic growth of Western Australia.

As road transport is the dominant mode for moving freight and people within Western Australia, there is a heavy reliance on the road network for economic development and social connectivity. An important function of the road network is also that it accommodates public transport infrastructure.

This role is complicated by the State's size, the relatively small population and the extremely uneven geographical distribution of the population, which result in a wide variety of unusual transport problems.

Until recently the main focus of road agencies has been to build, expand and maintain road networks. However, both internationally and locally there is a major shift away from viewing the road network in isolation, and towards emphasising the effective operation of the entire transport network. Traditional solutions, such as expanding the network and adding capacity, are no longer viewed as always being the most appropriate. Increasing traffic volumes, congestion, limited funding, concerns about impacts on the environment and community expectations mean that focusing on sustaining network operations provides a powerful mechanism for addressing these and many other issues.

Although some regional areas of Western Australia have limited population and economic growth prospects, the prospects for others such as the Perth-Bunbury corridor and the Geraldton area (with the fastest growing port in Australia) are very good. The expected strong growth in and around Bunbury and Geraldton, in particular, is anticipated to translate into significant freight growth on the routes leading to these port towns (arguably up to three times the current freight task on the Perth-Geraldton route).

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[4] Main Roads WA website: http://www.mainroads.wa.gov.au/NR/mrwa/run/start.asp. , viewed 21 September, 2006.

Rising fuel prices are more likely to impact directly upon private vehicle use than the use of freight carriers. Over the medium to longer term higher fuel prices may force more people onto public transport. However, notwithstanding any possible decrease of passenger vehicles on the road, the number of freight carriers is likely to continue to increase in step with industry growth, in particular on roads leading to ports.

Taking the foregoing into account, the challenges facing future road freight transport in Western Australia are to:

- plan appropriately for growth in the road freight task, which is anticipated to increase at a rate greater than that of gross State product;

- recognise that in assessing inter-modal opportunities, most freight trips have a road element and/or it may simply not be financially viable for companies to move freight from road onto rail or sea transport;

- meet community expectations that roads will continue to enhance the quality of life and wellbeing of Western Australians.;

- achieve heightened requirements for an environmentally and ecologically sustainable road network and to keep pace with the demands of an ageing network, through Government adopting and funding a suitable maintenance program;

- ensure that regional roads are maintained adequately so that the condition (roughness, rutting, skid resistance) and configuration (width and geometry) of roads do not impact adversely on the efficiency and effectiveness of the road freight task, particularly in regard to high-value and capacity vehicles (eg road trains). This also ensures that large road transport vehicles do not restrict the movement of other vehicles as the traffic volume grows;

- increase the efficiency and capacity of the road network by ensuring adequate bridge strength on all road freight routes (State and Local roads);

- meet increasing road user expectations for better access and safer, more efficient roads; and

- address the application and use of new and emerging technologies to optimise the benefits that can be obtained from the existing network (eg GPS).

Private vehicle use in Perth remains very high and is unlikely to change within a short period of time, given the extent of urban sprawl. However, efforts to address the latter and to raise density in both existing and new suburbs are intensifying.

A major issue in Perth is that there are few employment opportunities within the outer corridors. As a result, a large number of workers must find employment outside the corridor areas they live. This increases inter-corridor traffic and contributes to congestion on main arterial roads and highways, especially those leading to the city centre. As the employment situation in outer suburbs is unlikely to change significantly within the short to medium term, this situation will worsen unless more is done to encourage those living in outer suburbs to turn to public transport.

In the central sector (broadly speaking, the area bounded by Reid and Roe Highways), the separation of regional and local traffic through a rationalisation of the frontage access along the older highways is a major issue. Today, frontage access onto the highways has implications for safety, efficiency and amenity access.

Both Perth's North West and South West Corridors are developing at a rapid rate. In relation to the latter, an important issue from a road network planning perspective is the future expansion of port facilities in the Kwinana area. With some minor improvements, the existing road network can provide suitable access to the port in the short term, but other transport options such as the extension of existing roads require further investigation. The possibility of a new container port at the northern end of the port expansion site in Naval Base is also being considered, although this is a longer term requirement aimed at complementing the Fremantle Inner Harbour which is approaching capacity.

The eastern corridors of Perth are trafficked by a substantial number of heavy trucks destined for Fremantle Inner / Kwinana Outer Harbours, the Perth Grain Centre in Forrestfield and major industrial areas currently travel through built up areas, causing environmental, social, transport efficiency and safety problems. Further development of inter modal facilities such as Kewdale facilitate the use of rail to transport freight to the port of Fremantle and thus limiting the numbers of trip journeys through the South West portion of the city.

In the North East Corridor, a new Perth – Darwin National Highway could ideally replace the existing route along Great Northern Highway to bypass the Swan Valley and built-up areas. However, as there is no timetable for the construction of such a highway (which will need to be funded by the Federal Government), the existing roads will continue to serve the regional transport demands in the corridor in the immediate future.

Recent developments in the mining industry are encouraging new mining activities and an expansion of existing activities, placing additional demand on regional roads. Most of the freight carriers are heavy vehicles. Although much of the mining output in north-western Western Australia is moved to port by (privately built and operated) rail, all inputs still arrive by road. The road network remains a crucial link in the supply chain of most growing industries in Western Australia. Given the important role of the road network in industry supply chains, investment in rail (actively being encouraged at present) complements the equally important investment in maintaining and improving roads.

The combination of booming economic activity in most parts of the state (which has in turn resulted in increased traffic on roads leading to ports), an increase in tourist numbers, and strong population growth (mainly in the South West), has resulted in the type of vehicles on regional roads becoming increasingly mixed. Double and triple road trains share the roads with standard passenger vehicles, four-wheel drives and caravans. This has implications both for ongoing road maintenance and safety, and has created a need to focus on streamlining traffic options such as bypass roads in port towns.

Rail

Rail infrastructure in Western Australia is provided through a mix of public and private ownership arrangements.

The State's rail access regime does not apply to the Pilbara railways, the line east of Kalgoorlie and private sidings. Their exclusion from the regime is in line with a Federal Court (1997) ruling that railways integral to the production process are exempt from third party access claims. If the decision of the Federal Court is subsequently overturned in future, then the issue as to whether the State's rail access regime might apply to such railways could be revisited.

Nonetheless, it is noted that the proposed railway line to be built under the Fortescue Metals Group State Agreement Act (2004) in the Pilbara will require third party access arrangements as determined by the State's rail access regime. When this railway line is constructed it will, therefore, allow the State to investigate opportunities for that specific railway.

Opportunities for rail are therefore limited to the State's South West network, which comprises about 5000 route kilometres of track. Apart from 112 kilometres of track currently held by the Public Transport

Authority, the network is managed under a 49-year State lease agreement with WestNet Rail.

Currently, more than 40 million tonnes of freight is hauled on the WestNet Rail system, with the bulk of that product related to wheat, alumina, iron ore, mineral sands and silica and their respective inputs. In the next 15 years it is anticipated that this freight task will increase significantly.

Under the Rail Freight Network Use Agreement and Railway Infrastructure Lease, WestNet Rail is obliged to maintain the leased railway infrastructure in a 'fit-for-purpose' condition. Essentially means the lessee must keep the railway infrastructure in a condition that supports the work demanded of it. In addition, the lessee is to keep the network in such a condition that when it is returned to the Minister at the end of the lease, the infrastructure must be in a condition no worse than at the beginning of the lease.

Industry and the Government can therefore expect that the railway system will be able to provide services as required in a viable commercial environment. Where new business develops, the railway network will be upgraded to meet that growth in traffic. Nonetheless, such decisions would necessarily be commercial in nature.

Key drivers for demand and investment are the growth in rail freight arising from the growth in the mining sector in particular. However, as the State's rail access regime does not apply to the Pilbara railway lines, the infrastructure needs for this area as a whole remain undefined. The following list, by no means complete, provides examples of identified needs:

- For the Goldfields-Esperance region, various crossing loops on the East West line are required to effect efficiencies in the movement of goods.

- Concrete re-sleepering of the East West line is also required (particularly from Koolyanobbing to Kalgoorlie).

- Grade separation of major level crossing infer-faces on the Eastern Goldfields Railway.

- In terms of Mid West iron ore, connectivity from mine sites to the railway and upgrading of the existing railway may be required. (WestNet will only provide the infrastructure if it is financially viable to do so).

- Breakwater infill and rail track construction near Geraldton Port (to be funded by the Geraldton Port Authority and users) to support the Southern Transport Corridor.

- Concrete sleepering of southwest main line (Kwinana to Bunbury) (to be paid by WestNet Rail).

- There is a need for various loading/unloading facilities and rail sidings and rail into/out of Bunbury and Albany ports.

- Spur rail lines linking ports and industrial areas in Albany, Esperance and Bunbury.

- A roll-on roll-off semi-trailer inter-modal transfer station is required at Albany (Down Road).

- Greenbushes to Manjimup: a road/rail transfer facility and related upgrades are required.

- Improved freight efficiency, and in particular the need to encourage better use of rail into and out of Fremantle Port.

- Further rail links into Fremantle Port.

- Need for additional terminal space at Kewdale.

- Noise abatement measures for railway operations.

- Investment in the rail network (road, rail and loading infrastructure) to support a sustainable grain industry.

In developing concepts for infrastructure investment for rail, there is a need to recognise that most of the key infrastructure that supports rail freight operations belongs to industry organisations other than the railway operators. This includes:

- railway loading facilities and railway sidings for grain belonging to Cooperative Bulk Handling (CBH), both in the wheatbelt and at regional ports;

- railway loading facilities and railway sidings for minerals belonging to mining companies, at the mine sites and at regional ports;

- fertiliser, coal and bulk fuel facilities all belonging to the commodity suppliers;

- container terminals at Fremantle Harbour and at Kewdale belonging to the freight handling/forwarding companies;

- railway loading facilities and railway sidings for woodchips belonging to plantation timber companies both at chipping sites and regional ports; and

- terminals that are not defined as 'railway infrastructure' under the Railways (Access) Code 2000, meaning they are excluded from third-party access arrangements.

The provision of funding to invest in railway terminal and loader/unloader infrastructure by freight forwarding and commodity export companies would open up opportunities for new rail business.

This is because non-railway companies are not inclined to invest in high-cost railway infrastructure where and when road transport can perform the tasks needed without any such infrastructure investment. In these ever-increasing instances, road transport has a competitive edge over rail and allows the regional communities served by road to obtain services and goods at reasonable cost.

Where it is warranted to do so, the benefits of the Government continuing to invest in new infrastructure would include:

- encouraging partnerships between freight forwarders, rail operators and Government in infrastructure projects that would not otherwise be considered; and

- improving the utility of the rail network overall, through allowing freight haulers genuine choice as to whether to undertake the freight task by road or rail.

However, in providing this form of subsidy, the Government must ensure that the company concerned and/or WestNet Rail also contribute to specific initiatives. In addition, an appropriate mechanism needs to be put in place so that those specific rail track investments are either cost recovered by government or reflected in prices offered to customers whose products are being hauled.

Public Transport (Rail and Road)

The WA Government is committed to developing public transport as the travel mode of choice by promoting it as a safe, reliable and relatively inexpensive travel option.

Public transport in Western Australia is the responsibility of the Public Transport Authority (PTA). The PTA provides rail, bus, ferry and school bus services within the Perth metropolitan area, public transport bus services in major regional centres, inter-regional coach and rail passenger services to the lower half of Western Australia, and the PTA also manages Government contracted school bus services across the State.

Perth as a city is growing. By 2031 the projected total population of Perth and Peel will be some 2.22 million, or a 52 per cent increase over 2001. Without an efficient transport system high volumes of commuter traffic in private cars will increasingly impact on the efficient movement of freight.

It is expected in Perth over the next 20 years that 63 per cent of jobs will be within a 10km radius of the City CBD. Given this, the community transport task is going to be fundamental to our City's economic efficiency and livability. Western Australia has the highest rate of vehicle ownership of all Australian states and territories, with 763 vehicles per 1,000 residents in 2005. There are estimated to be over one million cars in Perth,[5] travelling a total of more than 30 million kilometres every day. This is projected to grow by 44 per cent over the next 15 years, compared to projected average growth of 37 per cent across all Australian capital cities.[6]

Western Australia also has the highest percentage of freight moved on road out of all Australian states - 42 per cent and a relatively low percentage of work trips on public transport - 9.7 per cent (compared to Melbourne: 15.9 per cent, Sydney: 25 per cent, the Australian avg: 14.5 per cent).[7]

The cost resulting from vehicle travel in Metropolitan Perth towards air and water pollution has been calculated at about $600 per person annually, or around $832 million for the population of Perth alone. [8]

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[5] Government, of Australia, 2005, *Motor Vehicle Census* 9309.0, ABS, Canberra.

[6] Cosgrove, D. and Gargett, D., 2006, *Urban Congestion: Causes, Trends and Impacts*, Draft Bureau for Transport and Regional Economics paper for COAG Congestion review, BTRE, Canberra.

[7] Government of Western Australia, source to be confirmed.

[8] Government of Western Australia, 2006.

Transport generates about 16 per cent of Western Australia's greenhouse gas emissions.[9]

It is impossible to sensibly plan freight transport in cities in isolation from all forms of passenger transport and from land planning. This means addressing all transport systems that impact on the transport task; road networks, freight networks and public transport networks. It also means ensuring land planning encourages and facilitates efficiencies in the transport task.

A holistic approach is taken to public transport infrastructure planning in Western Australia. The PTA is part of the Planning and Infrastructure portfolio combining all transport and planning policy areas. Underlying the planning for public transport planning is the Government's urban planning policy *Network City*.

Network City (2004) provides a new direction for the development of the metropolitan Perth and Peel regions. It aims to protect the environment and enhance sustainability mainly by reducing Perth's car dependency, allowing for the efficient movement of metropolitan freight, controlling urban sprawl.

The *Network City* strategy has an emphasis on urban growth management, containing urban sprawl, and enhancing opportunities for urban regeneration. The unifying theme is the integration of transport and land use. This is to be achieved through the development of a network of activity centres, connected by activity corridors and transport corridors that allow for the movement of people and freight. This spatial framework emphasizes the interrelationship between land use activity and the transport network components.

Urban development and regeneration focussed on public transport nodes (TOD) has become a recognised and widely applied public policy initiative in Australia and elsewhere. It ensures that maximum benefit is obtained from public transport infrastructure. Subi Centro, Leighton, Cockburn Central, and a number of other new developments along the southern suburbs line developments in Perth have gained recognition for WA as a leader in this field. These developments allow people to live close to where they work and recreate, further reducing the transport task. Other project are such as the Maylands to Guildford TOD study are looking at the revitalisation of older town centre on the railway along the Perth to Midland activity corridor.

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[9] Government of Western Australia, September 2004, *Western Australian Greenhouse Strategy*, Department of Environment and Conservation, Perth.

The operational responsibility for *Transperth*'s bus train and ferry services varies across the three modes. The urban rail network incorporates the five passenger train lines to Armadale, Thornlie, Fremantle, Midland and Joondalup, and in mid 2007 will also expand to include the new Mandurah line.

Transperth is pursuing the latest environmentally friendly transport options – since 2002 all new buses have been powered by Compressed Natural Gas, while Perth has also been the only southern hemisphere city to participate in the world-wide Fuel Cell Bus trial, which has been ongoing since 2004. *Transperth* electric train cars produce no emissions. With regard to disability access, all new *Transperth* buses are 'low floor' accessible buses, and have a 'kneeling' capacity, which lowers floor height when required. Accessible buses are being introduced progressively, with the aim of having all *Transperth* bus services fully accessible by 2015.

Although all general *Transperth* services charge fares, there are two free (complimentary) public transport services in the Perth CBD and immediately surrounding areas– the Central Area Transit (CAT) bus network and the Free Transit Zone (FTZ). In 2004 there were about 9.7 million passenger movements on the two systems combined, representing an increase of some 35 per cent between 2000 and 2004.

One of the outstanding features of transport within metropolitan Perth is the *Transperth* public transport service model, fully integrated in terms of all three modes (bus, train, ferry) as regards ticketing and zonal fares. Transperth are in the final process of introducing *Smartrider* ticketing system. *SmarRider* uses smartcard technology utilising contactless smartcards that communicate with processors on board buses and ferries and at train stations to record trip details and to calculate the lowest appropriate fare. Some of the key features of *SmartRider* include quicker boarding times, flexibility of use across all zones, reduction in fare evasion and making travel on the system safer.

Transperth services not only provide considerable support to the economically and socially disadvantaged groups in our community, but it also supports Government objectives in environmental management, economic development and greenhouse gas reduction.

On an average weekday there are over 11,000 scheduled services travelling close to 200,000km across the *Transperth* network. The network is divided into 9 fare zones that extend in concentric circles of about 8km in radius. Around 90per cent of passenger journeys typically cross only one or two fare zones. Transperth aims to provide an 'acceptable level of service' (i.e. defined as a stop within 500m of a street address [commercial establishments included]) to 75 per cent of street addresses by 2013. Currently, this figure is just over is 70 per cent.

Another public transport option for the city centre and immediate areas surrounding it is light rail, which usually generates a higher patronage than equivalent bus services, provided the light rail has priority over other traffic and stations are reasonably spaced. The possibility of introducing a 12km light rail route through the Perth city centre is currently under review.

The Perth city foreshore adjacent to the Swan river is relatively free of development, especially high-density housing. Given that road transport is an effective, comprehensive and fast travel choice for navigating along the Swan river, the need for expanding ferry services in the immediate future appears limited, although this may change if further nodal foreshore development occur in East Perth, Burswood or on the foreshore.

In addition to being responsible for rail, bus, ferry and school bus services within the metropolitan area, the Public Transport Authority (PTA) is also responsible for public transport services in regional centres and coach and rail passenger services to regional areas (through *Transwa*). *Transwa* provides a modern, comprehensive range of high-comfort rail and coach services across the southern half of Western Australia (from Meekatharra to Esperance, Albany and Augusta in the south, and Kalgoorlie in the east) servicing around 275 locations across the western quadrant of the State. For demand and cost reasons, such services are not provided across the northern half of Western Australia, or the far eastern part of the State.

In addition to the *Transwa* system of regional bus services, other bus services are provided throughout the State, from Augusta and Manjimup in the south, to Wyndham and Kununurra in the far north, and Leinster and Laverton in the east. These services are privately provided, and provide access and regional connectivity to remote parts of the State. Without these services, many settlements would otherwise only be accessible by private motor vehicle.

General population growth, the ageing of the population, and rapidly rising fuel costs are arguably the three factors most likely to have the greatest impact on the future provision of public transport.

Housing density in Perth has traditionally been very low, and people at present travel considerable distances to get to work – mainly by private vehicle. Car ownership has become easier and more affordable over time. In the current economic climate, low income households are increasingly pushed further to the fringes of the city in search of cheaper housing options. These households are especially vulnerable to rising fuel prices. Research, sponsored by the State Government, is being undertaken to map Perth to determine the oil price rise sensitivity of each suburb. This will provide a demand and need predictor for public transport.

Public Transport Services are to be provided to new suburbs through a combination of extending existing bus routes and/or the introduction of new services. The introduced services will connect new areas to existing public transport nodes such as train or bus stations, as well as eduction, shopping and commercial precincts.

The number of people over 65 in Perth is growing by roughly 3per cent per annum. Public transport allows the aged to access health and other social services, and will play an increasingly important role as the general population ages.

Public transport services must be affordable, easy to access, operate frequently and reliably at a good speed, and be as environmentally friendly as possible. These factors will continue to drive the future development of services in WA.

Adequate funding levels for public transport services will continue to be an issue, with the quality of services being directly related to the level of funding. Public transport funding competes with community funding requirements for schools, hospitals and law enforcement, all of which are already under pressure.

A critical factor in increasing patronage levels for public transport is the speed at which the service can be delivered. Buses, for example, share road use with other vehicles, and often experience delays and reduced effectiveness as a result of congestion. This will need to receive further attention.

Fuel costs are a significant element of public transport and are likely to grow in importance. The price of fuel has already risen by roughly 30per cent since the middle of 2005. This trend is expected to continue as a result of diminishing sources of fossil fuels and the geo-political climate in most oil-rich parts of the world.

Ports

There are 16 ports around the Western Australian coastline, half of which are 'Port Authority' ports (Albany, Bunbury, Esperance, Geraldton, Broome, Dampier, Fremantle and Port Hedland). The other half are 'non Port Authority' ports (Barrow Island, Carnarvon, Derby, Onslow, Port Walcott, Varanus Island, Whydham and Yampi Sound). All are considered State Government ports, although there is considerable privately built, owned, and/or operated infrastructure within many of them.

Port Authorities have the freedom to control the day to day running of the port, while the Government retains strategic control, including the ability to set performance goals and broad limits for capital expenditure.

The Port Authorities Act 1999 (the Act) defines the functions of port authorities, which are:

- to facilitate trade within and through the port and plan for future growth and development of the port;
- to undertake or arrange for activities that will encourage and facilitate the development of trade and commerce generally for the economic benefit of the State through the use of the port and related facilities;
- to control business and other activities in the port or in connection with the operation of the port;
- to be responsible for the safe and efficient operation of the port;
- to be responsible for the maintenance and preservation of vested property and other property held by it; and
- to protect the environment of the port and minimise the impact of port activities on that environment.

In 2005-06, around 274 million tonnes of product flowed through the State's port authority ports, a figure that highlights their importance to the State's economy.

In response to customer demand (particularly from the resources sector) and the need to upgrade the transport interface, the Government has substantially increased the level of capital investment at these ports over recent years.

Western Australian port authorities are operating efficiently and effectively. There are no bottlenecks being experienced at these ports. The needs of port customers are being met efficiently and on time. These ports are not subject to regulation by an independent entity such as the State's Economic Regulation Authority as is the case in some other States. In addition to a functional need to keep prices down to facilitate trade, sole ownership enables the Government to monitor pricing under Statement of Corporate Intent (SCI) and Strategic Development Plan (SDP) approval requirements.

With the exception of Port Walcott, which handles over 50 million tonnes of ore annually, non port authority ports are generally small in size. Almost all are operated under contract with the Department for Planning and Infrastructure. The exceptions are the ports of Derby and Wyndham, which are operated by the Shire of Derby/West Kimberlay and the Ord River Co-operative respectively.

Most non port authority ports have a single maritime export facility, generally handling raw bulk commodity exports such as iron ore, petroleum and salt. Fishermen, charter operators and other small boat users often cross port waters or even tie up at jetties within the port.

The significant items of budgeted expenditure include:

Fremantle Port Authority

- HIsmelt Infrastructure ($109.759 million);
- Kwinana Bulk Jetty ($88.752 million);
- North Quay berth upgrades and rail terminal ($61.964 million) and
- Rous Head Seawall ($20.838 million).

Geraldton Port Authority

- Berth 5 upgrade to support iron ore expansion ($24.5 million).

Port Hedland Port Authority

- Maintenance dredging ($11.0 million).

Bunbury Port Authority

- Multipurpose portainer crane ($6.450 million).

It should be noted these figures represent State Government investment in the ports. Many of the ports have substantial private company investment in infrastructure, storage and handling facilities on port land. These figures do not include private company investment at the ports.

Other needs that have been identified to meet current demand for port infrastructure include:

- Derby Port Enhancement Project (to improves the use of the wharf for all users);
- construction of common-user corridors and facilities at the ports;
- port expansion and increased storage facilities required (to be largely funded by the port and users);
- if the Oakajee Port is considered feasible, its development should be considered as part of an integrated transport plan, including investigation of rail links;
- issues surrounding the product diversification of ports (in terms of product coming into and out of the port) need to be addressed to avoid potential 'contamination' issues;
- common-user loading and unloading facilities are required;
- expansion of Bunbury Port is required, including more storage facilities (to be funded by the port and users);
- access to Albany Port requires improvement; and
- Storage and handling facilities at Esperance port for the mining industry (to be funded by the port and users).

Infrastructure Planning and Regulation

Transport infrastructure planning in Western Australia is guided by the following:

State Infrastructure Strategy (SIS)

Refer to Section 1.2 Infrastructure Planning for detail.

State Transport Infrastructure Plan

The State Transport Infrastructure Plan, currently under development, will form the Planning and Infrastructure portfolio's contribution to the transport components of the State Infrastructure Strategy. It will describe:

- physical infrastructure for all transport modes;
- urban, rural and remote areas;
- freight, public transport and general transport;
- major projects;
- major programs; and
- four, ten and twenty year timeframes.

The Plan will also discuss some non-infrastructure issues, such as regulation, pricing, education, enforcement, skills, and planning issues. At this stage it is not expected that the Plan will be publicly available.

Mode Specific Planning

Transport agencies (Department for Planning and Infrastructure, Public Transport Authority, Main Roads, individual port authorities) also have responsibilities for specific project planning relevant to the mode for which they are responsible.

- Main Roads Western Australia manages approximately 17,800 kilometres of roads comprising the State Road Network. The average pavement age of this network is 31 years, with 54% of the network having a pavement age of 30 years or older. Based upon these statistics, Main Roads faces the challenge of managing an ageing road network.

- The average remaining service life of the State Road network (estimated from the recently endorsed Average Remaining Service Life KPI) is estimated to be 30 years.

- Condition measures indicate that the network is not currently deteriorating to any great extent. It is not clear if this trend will continue.

- The backlog of older pavements might indicate a future need for rehabilitation once condition criteria are triggered.

- There are over 1200 Main Roads bridges and over 1300 bridges on Local Roads. Bridge maintenance is aimed at maintaining the capacity (strength) and durability of bridges in particular those timber bridges which are nearing the end of their expected life.

- Main Roads has released a Road Network Operations Strategy 2006-2010, known as "Smarter Road Better Journeys". This strategy is focused on delivering outcomes including; informed traveller choices, (traveller information), safer journeys (incident management, reliable journeys (traffic management) and sustainable road access (demand management). Greater focus is also being given to adopting new transport systems and technologies.

- Main Roads has also prepared an Intelligent Transport System (ITS) Strategy that identifies how Main Roads will apply ITS technology and infrastructure to deliver these strategic outcomes.

- The Public Transport Authority is in the process of developing a ten year public transport plan.

- DPI is currently undertaking a study of future Pilbara port capacity.

The statutory port authority boards are each required under the *Port Authorities Act 1999* (the Act) to annually develop and obtain Government approval of:

- Statements of Corporate Intent (SCIs) and;

- Strategic Development Plans (SDPs).

The Act specifies the minimum content areas of each document, in which the port authority must identify objectives and outcomes it expects to achieve over the next year (in an SCI) and over the next five years (in an SDP). A port authority is required to identify in its SCI an outline of capital expenditure and borrowing requirements, while in its SDP it must give consideration to strategies for land use and infrastructure maintenance and capital expenditure, amongst other things.

Under the Act, port authority boards are responsible for maintenance of port authority property, which includes fixtures. Port authorities have the power to levy fees, including a profit margin, as well as borrow in their own right. They are therefore generally financially self-sufficient. However, Government monitors pricing via approval of annual SCIs.

All transport modes addressed in this report are covered by the following broad policy settings.

A discussion of regulation in the sector is still in preparation and is not available for this draft.

General Freight Policy

Freight transport policy in Western Australia aims to:

- allow for a balanced transport network system that invests in new roads and improved roads where they are needed and better maintains what is there, and gives a much stronger commitment to rail freight (and passenger) services;

- transfer as much freight as possible from road onto rail or sea, where feasible to do so; and

- reduce (or minimise) road freight in the metropolitan area by increasing the amount of freight carried by rail into the Fremantle Port from its present level of 6 per cent.

The policy seeks to shift freight, where feasible, from road onto rail because:

- rail freight transport is more fuel efficient than road freight and produces less greenhouse gas emissions per tonne of freight hauled;

- moving large freight loads by rail (or sea) helps make roads safer and reduces road building and maintenance costs; and

- rail reduces the impacts of heavy truck traffic on communities located along the roads used.

There are a number of guiding documents and principles which are to be taken into account when determining infrastructure needs and priorities for the state. These include:

State Sustainability Strategy

It is anticipated that the Government decisions regarding transport infrastructure will increasingly encompass principles of sustainability, as evidenced by the State Sustainability Strategy and the incorporation of triple-bottom line assessment into many decision-making processes.

The State Sustainability Strategy sets out the Western Australian Government's approach to ensuring a more sustainable future for the State. Released in September 2003 as major policy statement, the Strategy contains a suite of actions to be implemented across all State government agencies over a period of ten years, and beyond. The State Sustainability Strategy is guided by six goals:

- ensure the way we govern is driving the transition to a sustainable future;
- play our part in solving the global challenges of sustainability;
- value and protect our environment and ensure the sustainable management and use of natural resources;
- plan and provide settlements that reduce the ecological footprint and enhance our quality of life;
- support communities to fully participate in achieving a sustainable future; and
- assist business to benefit from and contribute to sustainability.

Better Planning: Better Services

The theme of sustainability into the future is also part of the Government's 2003 Strategy: *Better Planning: Better Services,* which is a statement of the Government's intentions to improve the quality of life of all Western Australians. The needs of Western Australians living in the regions are identified as a major priority.

State Planning Strategy

The State Planning Strategy was developed in 1997 by the Western Australian Planning Commission. It sets out a comprehensive strategy to guide the development of the State, providing the broad context for land use planning in Western Australia up until the State's bicentenary in 2029.

Metro Freight Network Strategy

The Metro Freight Network Strategy is a range of projects and initiatives to improve the movement of freight in the metropolitan area, with emphasis on freight to and from Fremantle Port and reducing impacts on the community. The Strategy implements the major priorities established during the two Freight Network Review meetings held in 2001/02, where community, industry and Government representatives together identified major issues and possible solutions.

AusLink

AusLink is a major Australian Government initiative designed to guide planning, decision-making and funding for national transport infrastructure. Established in 2004, AusLink is the mechanism for directing Australian Government funding to transport infrastructure regarded as important to national and regional economic growth, development and connectivity.

Through the AusLink process, a new 'National Land Transport Network' has been defined that replaces the old National Highways System. The new network includes:

- the former national highway routes;
- some new routes that connect the capital cities to major regional centres;
- defined national railway routes;
- defined road and railway access routes to major capital city export ports; and
- defined urban routes, or corridors, which connect the national, inter-regional and port access routes, within the capital cities.

Meeting Demand, including Strategies to Address Current and Future Challenges and Constraints

General

Integrating transport planning to provide for an efficient and effective transport system that achieves overall optimum supply chain performance and cost is an objective that can be achieved by:

- better coordination of land use and transport planning so that the infrastructure provided is efficient and cost effective, and contributes to Western Australia's competitiveness;
- a comprehensive analysis of emerging freight infrastructure needs;
- ensuring that where connectivity requires improvements to National Highways or railways, the Commonwealth is approached and given reasons for the funding request;
- ensuring that local government is appropriately consulted so that the freight linkages needed between local networks and the State and national freight network are identified, including the resolution of funding strategies;
- providing for appropriate legislation stipulating that where residential areas encroach, for example, on a freight route or port, the residents have no recourse to legal action; and
- minimising the environmental and safety impacts of heavy freight movement on the environment and the community through appropriate corridor planning and, in particular, through the use of deviations around regional centres (where warranted).

Road

An objective of the road network is to provide for the safe and efficient movement of road freight in regional and metropolitan areas. This can be achieved through:

- ensuring that heavy vehicles use appropriate roads;
- ensuring that rural roads have appropriate bridges, configuration, roughness, width and geometry supportive of the freight task use of those roads;
- minimising the total number of heavy vehicle movements by encouraging improved use of spare capacity. At the same time, however, there must be strict monitoring and discouragement of overloading of vehicles; and
- recognising that freight should not be moved off road per se; but that it should only be moved where it can be demonstrated that unit costs would be reduced and/or the efficiency and effectiveness of the transport network would be improved and/or it is in the community's interest to do so.

Achieving the sharing of the road network to facilitate safe and efficient movement of heavy freight is another desirable objective. This can be addressed through:

- defining priorities for the use of the road network and, in particular, those areas where bottlenecks may become apparent;
- building and managing the road network consistent with defined user priorities, including cost sharing arrangements;
- assessing whether, in certain instances, a regional centre is better served by the creation of a bypass;
- reviewing the provision of overtaking lanes and further improving signage on rural roads; and
- encouraging the take-up of Intelligent Transport Systems.

Rail

To enable rail transport to optimise its contribution to the State's freight transport task, the strategies detailed below will allow rail to appropriately bid for and to attract new freight business. Importantly, they should assist rail to maintain its current market share of the freight hauled to the ports and along the East-West line.

- Recognise that at times the costs of providing a spur line to the network and from a port and/or loading/unloading facilities will render rail unviable compared to a road option, when assessed purely in private financial terms, and therefore there may be a need for the Government to support investment in a rail network that improves the movement of freight, and in particular encourage inter-modal use.

- Provide appropriate policy advice so that the benefits of the State's rail access regime continue to flow through to reduced real unit costs for freight and further efficiency improvements in the overall freight transport task.

- Monitor and continue to assess the feasibility of extending coverage of the State's rail access regime to the Pilbara railways.

- Foster a competitive environment in rail freight transport by, among other actions, providing for appropriate land for terminal development and expansion of the network.

- Ensure that the Commonwealth Government, via the Australian Rail Track Corporation, continues to maintain and improve its portion of the interstate line (Kalgoorlie to Adelaide).

- Encouraging partnerships between freight forwarders, rail operators and Government in infrastructure projects that would not otherwise be considered; and

- Improving the utility of the rail network overall, to encourage freight haulers to undertake the freight task by rail where appropriate.

Public Transport

Notwithstanding the fact that Perth reportedly has more private cars, more road and more car parking spaces in the city centre per head of population than any other Australian capital city, patronage on public transport has grown significantly during the last six years.

Government efforts are directed towards increasing the 6 per cent of trips within the Perth metropolitan area that taken on public transport to 9 per cent by 2013. However, if public transport is to make a significant contribution to the long-term health of our communities, usage needs to be increased to at least 12 per cent in the medium term (5-7 years), with a longer-term target of 20 per cent market share.

Public transport can potentially provide long term environmental benefits such as the minimisation of energy use and reduced vulnerability to future fuel price increases. By keeping private vehicles off the road, public transport contributes to a reduction in green house emissions and improved air quality.

There has been an increased focus on integration and connectivity of the various modes of public transport in Perth not only in terms of the bus, train and ferry services network, but also in relation to cycling and pedestrian activity.

Fuel costs are a significant element of public transport; the Australian lifestyle and the design of our cities create a high degree of travel demand and dependence. Australian cities have matured during the time of "the car age", and so much of the travel solution has relied on cars. As fuel prices climb, and car operation becomes less affordable, the community will expect public transport to fill this travel requirement. The price of fuel has already risen by roughly 30 per cent since the middle of 2005.[10]

This trend is expected to continue as a result of diminishing sources of fossil fuels and the geo-political climate in most oil-rich parts of the world, placing additional cost pressures on public transport provision.

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[10] Department of Consumer Affairs and employment Protection website: http://www.fuelwatch.wa.gov.au/prices/dsp_hist_avg.cfm. viewed 21 September 2006.

Ports

Each Western Australian port authority services a different market with specific needs. The Government does not prescribe particular strategies for the statutory port authorities to implement and follow. However, it expects port authority management to engage and consult with existing and potential port customers, local councils, regional development commissions and State and Federal departments, in undertaking its primary objective of facilitating trade. The results of this interaction are incorporated into the port authorities' plans. Proposed strategies for current and future challenges and constraints are detailed, considered and approved by Government. Port authority boards and management have successfully delivered in this regard, contributing to the economic prosperity of Western Australians.

The key objective is to improve and safeguard the present and future operation of the State's ports so that they can continue to respond efficiently and effectively to the existing and future demands of trade. The Government therefore endeavours to:

- identify and, where feasible, address the physical infrastructure requirements needed to maximise the efficiency and effectiveness of each of the State's ports, thus allowing each port to meet industry's future demands;
- recognise that because regional ports are largely involved in the handling of bulk commodities, the potential for the introduction and translocation of marine pests through water ballast and hull fouling by vessels calling at regional ports is an issue that needs to be addressed;
- provide for appropriate road and rail links to the ports;
- plan so that land reserves are provided for and can be accessed by a port when required. The need to protect these land reserves (and nearby land) from incompatible land use is fundamental and an issue that must be addressed for the ports;
- encourage the establishment of private facilities within existing and where necessary new Government ports, if this is considered feasible; and
- facilitate coexistence of the ports and the community. This takes into consideration the European experience where ports are integrated into the community (eg through having shopping areas in the ports). Issues concerning security need to be addressed when assessing and developing options for facilitating coexistence.

APPENDIX D - TELECOMMUNICATIONS

The Government of Western Australia has been implementing the strategies and initiatives contained in the ***WA – A Connected Community:*** State Communications Policy[11].

The objectives of the policy are:

- Availability: Strive for all Western Australians to have access to affordable, functional, reliable and secure communications infrastructure and services.
- Equity: Continue to improve equity of access of Western Australians to communications services regardless of factors such as location, income or disability.
- Skills and Awareness: Increase awareness of the benefits to be gained from the use of advanced telecommunications and provide the skills to enable Western Australians to do so.
- Applications: Increase the use of communications technology to deliver government services more effectively to individuals, businesses and the community.
- Government Infrastructure: Use Government infrastructure and planning powers for the provision of improved communications services, where feasible.

The State has been strongly advocating the needs of Western Australians with the Commonwealth to ensure telecommunications regulatory issues and the $1.1 billion *Connect Australia* infrastructure fund considers Western Australia's unique position as a diverse populated State driving the national economy. The State is actively involved in inter-jurisdictional working groups who drive national policy on telecommunications infrastructure and competition.

[11] www.doir.wa.gov.au/scp

The State has identified that back-haul data transmission infrastructure is a major impediment to competition in regional Western Australia. In light of this an open access optic fibre cable is being laid in conjunction with the new Perth to Mandurah railway line. The State has also used its procurement policy in awarding a Mobiles GSM contract that will see Optus build 94 additional base stations in Western Australia over three years. These additional base stations are strategically located across the State to enable competition and bring mobile services to new areas. The State is currently managing and coordinating the implementation of major strategic telecommunication projects across the State including the remote Ngaanyatjarra Lands Telecommunications Project and the Kimberley Broadband Solutions Project.

StateWide Broadband Network Strategy

The State Government released its Statewide Broadband Network Strategy in November 2006.

The Western Australian Government is seeking strategic solutions that will meet the State's broadband needs well into the future. The Government's strategic solution seeks a high-speed competitively priced Internet Protocol (IP) enabled network that supports the widespread delivery of voice, data, video, mobile and other emerging services between all Western Australian Government physical locations across the State. By seeking a private sector solution for improved broadband services to benefit Government, business and community sectors will equally benefit from the additional infrastructure and competitive services provision, across regional and metropolitan Western Australia.

The strategy is built upon the notion that the private sector will provide the solution for delivering a competitively priced and accessible StateWide Broadband Network. It is anticipated that a uniform pricing structure at the wholesale level would exist for users of broadband throughout Western Australia.

By facilitating the StateWide Broadband Network, the Western Australian Government will work closely with the private sector to ensure Western Australia receives a telecommunications network that will provide current and future generations of Western Australians with the broadband services required to participate fully in the modern economy.

The Commonwealth Government will be required to continue to play a pivotal funding role in the development of accessible, high speed and affordable broadband services in regional and remote areas of Western Australia. The combination of low population and industry densities and the (initial start up) thin markets, in these regional and remote areas, restricts the extent to which telecommunication service providers can improve the coverage and speed of broadband services at similar end prices paid by metropolitan users.

Moreover, social equity issues and the fact that more and more goods and services, public and private, are being provided online, requires that the Commonwealth Government continue to address this 'market failure' issue through providing upfront capital assistance for progressing the development of broadband services in these areas. The State will expect and anticipate that the Commonwealth Government will retain ongoing regulatory, legislative and funding responsibility for telecommunications in Australia.

APPENDIX E - AIRPORTS

The Department for Planning and Infrastructure (DPI) is the key Western Australian Government coordinating and advisory body on aviation related matters. DPI's aim is to develop and maintain safe, efficient, effective and reliable networks of international, domestic and regional air services that meet the business, tourism, social and economic needs of passengers and the community.

There are currently just over 100 regional airports in Western Australia, either owned and operated by local government authorities or other entities, such as mining companies.

Western Australia was the first State to provide funding for airport infrastructure in regional areas. Some other Australian States have since developed similar programs.

The Regional Airports Development Scheme (RADS) has played a significant role in helping develop airport infrastructure in regional Western Australia. RADS began in 1994/95 and with the completion of the 2005/06 allocation, will have injected more than $19 million into 184 individual grants to airports throughout the State. The State Government has committed $2 million to RADS funding in 2006/07.

Through RADS, the State works in partnership with airport owners providing assistance to develop regional airport infrastructure that meets access needs and contributes to regional economic growth.

New air services policy for Western Australia

Following the collapse of Ansett in September 2001, the Government moved to review all intrastate air services to ensure that regional centres and communities in Western Australia would continue to have sustainable and viable air services.

The DPI commissioned aviation industry consultants, Tourism Futures International and the Centre for Asia Pacific Aviation, to undertake an independent analysis of intrastate air services in Western Australia.

The review was comprehensive and put forward several recommendations.

Central to the recommendations is that the Government adopt a more active regulatory regime to support non-jet intrastate air routes.

Other recommendations include:

- the integration of mining charters and scheduled air services to support regional communities;
- the development of air tourism initiatives; and
- the establishment of an aviation industry observer to monitor the industry.

Air Services Regulation

Following the air services review, the Aviation Ministerial Council instructed the Strategic Aviation Committee to conduct a performance review of the non-jet intrastate air service.

In August 2005, Skywest Airlines and Skippers Aviation were announced as the preferred applicants for exclusive licences to operate on regulated non-jet regional airline networks in Western Australia.

The Government had called tenders for Western Australia's regulated routes following the Aviation Ministerial Council's acceptance of the recommendations of a performance review of non-jet intrastate air services. Undertaken in April 2004, the review indicated that Western Australia's air services and the general operating conditions had improved since 2001, but the market was not strong enough to support open competition, so a regulated environment should prevail.

Aviation Infrastructure

The State Government is keen on ensuring that appropriate airport development opportunities are maximised within and around airports. Appropriate development should be determined with proper consideration being given to local and regional planning and environmental policies and statutes. The State is keen on ensuring that operators of airports and the Federal Government work cooperatively with the State and Local Governments with a strong preference that non aviation development be subject to State laws and policies.

Perth airport development has much to gain from a cooperative working relationship between the State, the Federal Government and the airport operator. For instance, the amalgamation of the domestic and international terminals as well as appropriate airport development would lead to better planning and provision of road and public transport infrastructure. It would also be necessary for the operators and the Federal Government to assist with funding the infrastructure to ensure the use of the airport is fully utilised and best integrated into the region within which it exists.

In addition to the above, the Federal Government also needs to ensure that the General Aviation sector and supporting infrastructure is properly considered in future planning. General Aviation facilities and services provide essential linkages to regional communities, and these linkages need to be adequately maintained.