

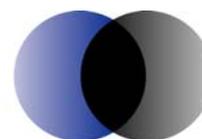
Final Report

Underpinning regional development with infrastructure

Best practice for infrastructure planning and
allocation of infrastructure funds

Prepared for the Regional Development Council

1 March 2007



ACIL Tasman

Economics Policy Strategy

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Executive summary

This report has been commissioned by the Regional Development Council. It is designed to be the basis of a submission by the Regional Development Council to the State Infrastructure Strategy (SIS). The report examines approaches to infrastructure provision and funding in Australia and other countries and makes recommendations on the adoption of a “best practice model” for infrastructure planning and the allocation of public infrastructure funding. It also examines approaches to private sector participation in the provision of infrastructure.

The Regional Development Council believes that there is a need to implement a process that can transparently assess and prioritise infrastructure needs of all kinds across all levels of government throughout Western Australia.

There is no one best practice model internationally or in other States that simply can be adapted for Western Australia or the nation. Rather, several other jurisdictions contain elements of best practice. Best practice for Western Australia therefore will involve adapting aspects of the best and most suitable practices from different jurisdictions.

In the last four years, the WA Government has introduced tools to assist the delivery of a more consistent, structured approach to infrastructure planning. However, while the Strategic Asset Management Framework and Capital Prioritisation methodologies represent major improvements, they do not yet constitute a state-wide, whole-of-government approach (with ground-up regional input) to infrastructure assessment, prioritisation and planning.

The proposed State Infrastructure Strategy (SIS) as described in the Green Paper is a substantial advance.

The addition of several other elements of identified best practice to the proposed SIS will take the WA approach close to best practice. This will help deliver infrastructure at the right place in the right time in regional Western Australia.

Recommendations

A best practice model for infrastructure decision-making and funding in Western Australia would not involve discarding current practices but instead would add to them. ACIL Tasman recommends enhancements along the following lines.

Strategic goals for Western Australia

The State Government needs to set out clear goals for the State's economic and social development that, along with their rationale, are well understood in the community. These goals would communicate the direction of State development, highlight the role played by the State's regions and identify the critical role of infrastructure in underpinning development. The Government's *Better Planning: Better Futures, A Framework for the Strategic Management of the Western Australian Public Sector* provides a good basis for this.

Projections for growth and development

The State Government, in consultation with stakeholders, needs to prepare a strategic assessment that identifies how the State will grow in the next five, 10 and 20 years, including changes in the mix of economic activity by sector and by region. This assessment should be revised periodically in advance of the review of the State Infrastructure strategy. It will provide a strong basis for infrastructure planning.

Common approach to all infrastructure

A common approach to consideration of all classes of infrastructure across all locations is required to ensure that planning and delivery of infrastructure occurs efficiently and equitably (although individual decisions emerging from the common approach will vary according to circumstances). While the State Infrastructure Strategy will address infrastructure above threshold values, there is a need for a similar, regionally-based approach to infrastructure that falls below threshold values.

Consistent policies and approaches to infrastructure management and planning are required at all levels of government. The State government should seek to ensure a consistent approach by local government.

The Commonwealth government needs to implement a national infrastructure policy that aligns with state approaches.

Top down and bottom up planning

The infrastructure needs identification and prioritisation process should provide both top-down and bottom-up assessments. Within this approach, a process is required that works *across* portfolios rather than solely within portfolios and/or agencies to overcome "silo" planning.

The Regional Development Commissions can assist with the top-down approach by contributing to the 5, 10 and 20 year strategic assessment, helping identify likely areas and types of growth in their region.

Importantly, the Regional Development Commissions also have a key role to play in bottom-up, region-wide infrastructure planning. Their legislation charges them with this role, which should be recognised and formalised within the State Infrastructure Strategy process. The Commissions should be empowered to coordinate regional needs assessment, prioritisation and planning (in consultation with private sector project investors and infrastructure providers) across agencies before those agencies provide proposals through the Strategic Asset Planning Process.

Infrastructure maintenance

A strategic, state-wide approach to long-term infrastructure maintenance and upgrading is required within the State Infrastructure Strategy. This should include:

- Consistent approaches to maintenance planning and budget allocation across all agencies;
- Provision of guidelines to local government to develop consistency and build capacity at that level;
- Integration of maintenance and upgrading into the overall infrastructure planning approach.

Thresholds

The threshold “gap” in the State Infrastructure Strategy between the proposed \$5 million regional project value and the lesser cost of some important regional projects needs to be closed. One approach could be to allow aggregation of multiple smaller projects within a region or of similar projects (e.g. schools) across several regions for the purpose of planning under the strategy.

Private sector involvement

Flexible approaches to private sector involvement are needed to make regions viable investment destinations. This includes mixed-use facilities, bundling of projects (as in NSW and SA) and possible adoption of a new UK variant of the PPP model that suits smaller projects. There is also the case for considering extending the private sector role into areas now catered for by the public sector, in order to tap into efficiency incentives and new sources of funding.(with monopoly concerns addressed by low barriers to entry or by regulation).

Legacy issues

There needs to be a priority on addressing legacy issues arising from past infrastructure under-investment in remote communities to overcome deficiencies and help to address economic and social disadvantage.



Decision-making under uncertainty

Decision-making on infrastructure is often undertaken in the face of uncertainty, particularly around the timing and scale of major projects, and patterns of population growth. It is recommended that "real options" economic tools be used to reduce "downside" risks, improve decisions on project timing and size, reduce bias against long-term projects and enhance decision-making under uncertainty.

Funding models

While government funds for infrastructure are always limited, the use of infrastructure planning tools in the SIS and as proposed here will provide a sound basis for infrastructure prioritisation, planning and funding.

1 Introduction and project overview

1.1 Purpose of this report

Basis of submission to SIS

This report has been commissioned by the Regional Development Council and prepared by ACIL Tasman. It is designed to be the basis of a submission by the Regional Development Council to the State Infrastructure Strategy (SIS).

The SIS, which is under development, aims to identify economic and social infrastructure needs to 2027, determine priorities and outline a delivery plan. The Regional Development Council has a key stake in the Strategy, as many of the infrastructure issues facing the State are regional in nature.

Recommendations on best practice model

This report examines approaches to infrastructure provision and funding in Australia and other countries and makes recommendations on the adoption of a “best practice model” for infrastructure planning and the allocation of public infrastructure funding. It also examines approaches to private sector participation in the provision of infrastructure.

The aim of the Regional Development Council for this project is to make recommendations for an approach that ensures that regional infrastructure is “in the right place at the right time”.

1.2 The Regional Development Council and infrastructure

Peak regional development adviser

The Regional Development Council is the State Government’s peak advisory body on regional development issues. The Council promotes development in regional Western Australia, develops policy proposals on development issues affecting the regions and facilitates liaison and coordination between local, State and Commonwealth bodies with respect to regional issues.

Priorities 2005

The Western Australian Regional Development Council – Priorities 2005 outlines the priority areas the Council has identified and the key outcomes for regional Western Australia the Council has set itself to realise over the next few years.

Infrastructure a key priority

The Priorities Statement identified funding of infrastructure provision as a key priority. It said:

Regional infrastructure constraints are significant impediments to regional trade and investment. The Council believes that the lack of infrastructure is threatening the future growth in all of the State’s regions, and seeks to minimise these constraints and encourage a positive climate for attracting investment in regional areas.

It is apparent that the current methods and sources of infrastructure funding are not sufficiently providing for infrastructure to be ‘in the right place at the right time’.

Regional Priority Plans

Nine *Regional Priority Plans*, which inter alia identified regional priorities for infrastructure and services, were submitted by the Regional Development Commissions in 2005 to assist Cabinet in determining budget allocations.

The generally consistent process used by Regional Development Commissions for developing these plans for each region provides elements of a model for an integrated process for state-wide infrastructure planning.

Earlier submission to SIS process

The Council made an earlier submission prior to the release of the Green Paper. Key points put forward in this submission were:

- The strategic importance of infrastructure (especially in regional areas) does not necessarily relate to cost, so the general \$20 million threshold for inclusion of infrastructure in the SIS is likely to be too high (the Council has since noted the proposed \$5 million threshold for regional infrastructure).
- The inclusion of only material projects has the potential to present a distorted view of infrastructure needs – especially in regional areas where the development of social infrastructure must accompany economic infrastructure. A holistic view of infrastructure is required.
- It was suggested that the SIS have a regional component, informed by Regional Infrastructure Plans.
- The development of a clear policy framework for public and private investment in the development of regional strategic infrastructure is vital.
- There needs to be clarification on how the criteria for prioritising the funding and timing of projects will be developed and implemented. Similarly, there is a need for transparency in the process which involves the review of infrastructure priorities.

Recent improvements to infrastructure planning process

The Government of Western Australia has already made some improvements to the infrastructure planning process. The Strategic Asset Management Framework (SAMF) was recently introduced by the WA Government for use by all agencies. SAMF provides a consistent approach to asset management policies and practices across the public sector. The Capital Investment Prioritisation Resource Allocation Process (CIPRAP) model has been introduced by the Department of Treasury and Finance. CIPRAP provides a structured approach that seeks to ensure that social, economic, environmental and political factors are all taken into account in infrastructure planning and fund allocation.

A state-wide, whole-of-government approach is needed

These tools represent major steps in introducing a more consistent, structured approach to infrastructure planning. They have some limitations, however,

principally because they do not yet constitute a state-wide, whole-of-government approach to infrastructure assessment, prioritisation and planning.

The Council believes that there is a need to implement a process that can transparently identify, assess and prioritise infrastructure needs of all kinds in all areas of Western Australia. These may range from major industrial infrastructure such as a port to community infrastructure such as health facilities and schools. The process needs to operate on a whole-of-government basis, with both bottom-up and top-down coordination across agencies. Infrastructure planning processes should involve local government and ideally Commonwealth Government processes should be consistent with State processes.

1.3 Terms of reference and methodology

The terms of reference set by the Regional Development Council for this study and report are reproduced at

The methodology followed by ACIL Tasman for this project has comprised the following:

- Identification and review of best practice in other jurisdictions in Australia and in other countries.
- Identification of similarities and differences with the situation in Western Australia and nationally.
- Assessment of Western Australia's current methods, including the Government's prioritisation and allocation models, against identified best practice.
- Review of the approaches proposed in the Green Paper prepared for the proposed State Infrastructure Strategy.
- Identification of the elements of a best practice model.

The sending of signals to the private sector about infrastructure investment opportunities, including in support of major projects, is particularly important.

On this point, ACIL Tasman believes that there are some instances of market failure in relation to private sector involvement, but there is also evidence of multiple "policy failure". This report therefore addresses both issues in relation to private sector investment.

1.4 Infrastructure and regional development

As the Regional Development Council and the SIS Green paper point out, Western Australia's regions are the engine room of the WA economy. For example, more than 90 per cent of the value of mining production (including

Addressing both market failure and policy shortcomings

The engine room of the WA economy



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oil and gas) is generated in less populated regions. All of the State's agricultural output is from regions. Even the more populated regions – Peel and South West – contribute a lot to mining and agriculture output as well as containing large populations.

A quarter of WA's population

While Western Australia's population is quite centralised, its regions still contain a quarter of the State's population, or some 545,000 people.

Infrastructure in regional areas is therefore important to support ongoing economic development and to provide the regional population with the services necessary to attract and hold the people who are required to service development.

2 Western Australia's regions

This chapter provide a summary profile of the nine regions of Western Australia.

**27 per cent of Western
Australians live in the regions**

About 73 per cent of Western Australia's population lives in Perth while 27 per cent live in regional Western Australia (see Table 1).

Australian Bureau of Statistics (ABS) population estimates summarised in Table 1 show that the South West contains the highest proportion of the State's regional population (7%), followed by Peel (4.6%) and the Wheatbelt (3.5%). The northern regions: Gascoyne, Pilbara and Kimberley have the lowest populations, together representing just over 4 per cent of the State's total population.

Table 1 **Distribution of Western Australia's population (2005)**

	Population (2005)	% of State Total
Gascoyne	9,854	0.5%
Goldfields-Esperance	53,661	2.7%
Great Southern	53,738	2.7%
Kimberley	35,748	1.8%
Mid West	50,071	2.5%
Peel	91,853	4.6%
Pilbara	39,282	2.0%
South West	140,846	7.0%
Wheatbelt	70,132	3.5%
Regional Western Australia	545,185	27.1%
Perth	1,464,928	72.9%
Western Australia	2,010,113	100.0%

Data source: Australian Bureau of Statistics: Estimated Resident Population

ABS predicts that Western Australia's population could reach 2.58 million by 2021 with close to 650,000 people living in regional WA, expanding potentially to 3.6 million by 2051¹, with more than 820,000 people in the regions. This growth has significant implications for the future provision and management of regional infrastructure.

Figure 1 shows projected annual population growth rates of Western Australia's Planning Regions². These population projections are generally in

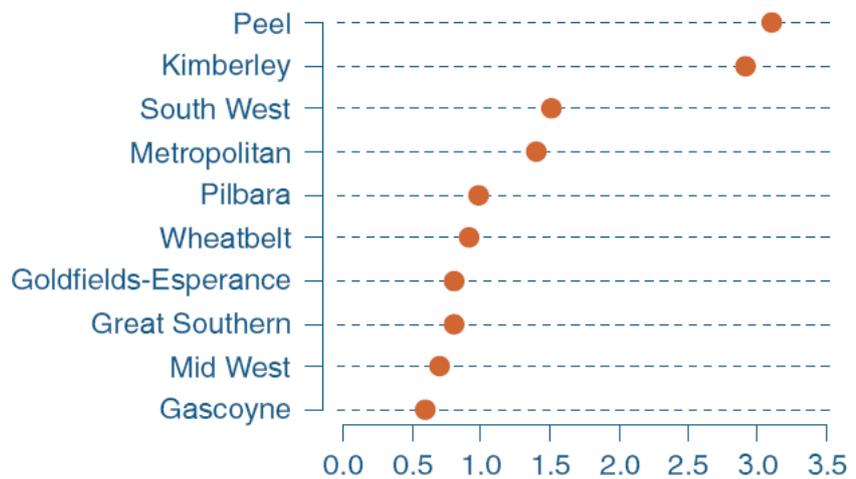
¹ Population Projections, Australia 2002 to 2101, Australian Bureau of Statistics Catalogue No. (3222.0)

² Western Australia Tomorrow: Population projections for planning regions 2004 to 2031, Western Australian Planning Commission

High growth in some regions

line with the numbers published by ABS. These projections suggest that within regional WA, population growth in the Kimberley and Peel regions is expected to continue to outstrip other areas, including the Perth metropolitan area. Population growth in the South West is also expected to remain high.

Figure 1 **Average annual growth rate of projected population by planning regions (2004 to 2021)**



Note: Planning regions are the same as regional development regions with the exception that Serpentine-Jarrahdale is included in Peel Planning Region.

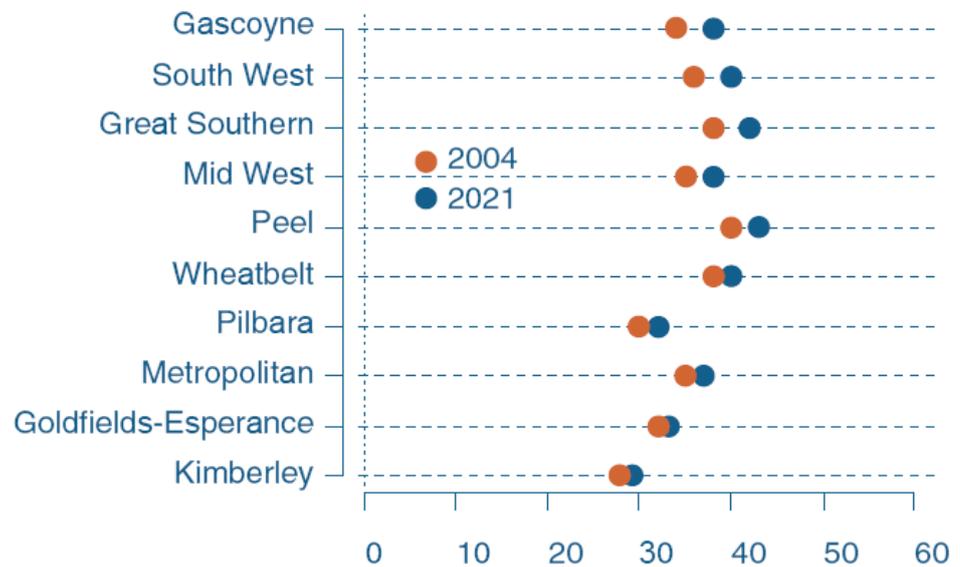
Source: Western Australia Tomorrow: Population projections for planning regions 2004 to 2031

Population age increasing

Population projections also Western Australia's also show that the average age of the population will increase. This needs to be factored into infrastructure planning. For example, ageing populations increase pressure on the health and aged care system, including the provision of residential care facilities and transport infrastructure.

Figure 2 shows that the populations of the South West, Great Southern and Gascoyne regions are projected to age fastest while at the other end of the spectrum, the slowest are the Kimberley and Goldfields-Esperance regions.

Figure 2 Median age of populations (2004 and 2021)



Note: Planning regions are the same as regional development regions with the exception that Serpentine-Jarrahdale is included in Peel Planning Region.

Data source: Western Australia Tomorrow: Population projections for planning regions 2004 to 2031

Western Australia’s Indigenous population currently stands at just over 66,000 or 3.5 per cent of the total population. Two thirds of the State’s Indigenous residents reside in regional Western Australia (66 per cent). The Kimberley region has the highest concentration of Indigenous residents at 47 per cent.

High Indigenous population in some regions

Table 2 shows the population and population density of Indigenous people in each region. The relatively high concentrations of (young) Indigenous people in the Kimberley, Gascoyne and Pilbara regions are important indicators for infrastructure planning and provision, especially for community infrastructure like housing, education and training, and health. Given past under-investment in such infrastructure in remote towns, these population trends point to a priority for infrastructure investment to help address adverse social outcomes.

Table 2 **Indigenous population (2001)**

	Total Indigenous persons	Number of Indigenous people per 1,000 total population
Gascoyne	1,731	168
Goldfields-Esperance	5,712	104
Great Southern	1,950	36
Kimberley	15,439	473
Mid West	5,213	103
Peel	1,327	17
Pilbara	6,515	165
South West	2,787	22
Wheatbelt	3,309	46
Regional Western Australia	43,983	85
Perth	21,948	16
Western Australia	65,931	35

Data source: Australian Bureau of Statistics - Experimental Estimates of Indigenous Australians, 2001

2.1 Economic contribution of regions

Nearly one-third of Gross State Product

Gross Regional Product (GRP) provides a measure of the level of economic activity occurring within a region. GRP includes all aspects of economic activity, including activity in primary industries such as mining and agriculture as well as secondary industries like manufacturing and the tertiary sector. The regions generate nearly one-third of Gross State Product.

Gross Regional Product per capita on average is higher in regional WA than in Perth. GRP per capita needs to be interpreted carefully, as it can be an indicator of capital intensive industry (principally mining) and a relatively small population, rather than being an indicator of the welfare of regional residents.

Table 3 **Gross Regional Product by region (2004/05)**

	Gross Regional Product (\$million)	% of State total	GRP per capita	Major primary contributor
Gascoyne	\$538	0.5%	\$54,042	Fishing, mining, agriculture, transport
Goldfields-Esperance	\$5,383	5.3%	\$99,161	Mining, construction, property
Great Southern	\$2,172	2.2%	\$40,471	Agriculture, forestry, fishing, manufacturing, finance and insurance
Kimberley	\$1,442	1.4%	\$41,213	Mining, health and community services, transport
Mid West	\$2,902	2.9%	\$58,370	Mining, agric, forestry and fishing, construction
Peel	\$3,540	3.5%	\$40,325	Mining, manufacturing, construction
Pilbara	\$4,808	4.8%	\$122,313	Mining, construction and transport
South West	\$6,765	6.7%	\$49,539	Mining, manufacturing, construction
Wheatbelt	\$3,734	3.7%	\$52,796	Agriculture, forestry and fishing, mining, transport
Regional WA	\$31,285	31.0%	\$58,258	
Perth	\$69,615	69.0%	\$48,170	
Western Australia	\$100,900	100.0%	\$50,903	

Data source: Department of Local Government and Regional Development

The strong contribution of mining and agriculture to the State's economy highlights the importance of infrastructure to support these industries, notably transport and inter-modal infrastructure.

2.2 Nine regions, diverse characteristics

Regions in Western Australia are not homogenous in character. They have very different economic and demographic profiles from each other. There are also great differences in the characteristics of different areas within each region. Within the nine regions, the profiles of sub-regions can be characterised as follows.

Regional high growth

These comprise areas containing major industry and towns like Karratha, Port Hedland etc, which are currently enjoying robust economic growth, and other areas experiencing inward population movement (e.g. "sea change" migrants to Broome)

Key issues in long term/strategic infrastructure planning for these areas include the sustainability of economic growth; long term population

projections; the age structure of their populations; the current stock of infrastructure assets and how these are being utilised; and community infrastructure required to attract and retain residents.

Regional low growth

Areas that are characterised by relatively low economic growth and declining populations such as the marginal Wheatbelt would fit into this category.

Issues related to maintaining infrastructure assets in these circumstances include assets with excess capacity and “stranded” assets. The case of insufficient infrastructure part-causing low growth is also relevant.

Regional metro

The growth centres of Mandurah, Busselton and Bunbury are part of this group. Common characteristics include metropolitan-type development, and high population growth driven by factors like industrial growth, housing costs and retirement.

While the emergence of growth centres beyond Perth is a reflection of Western Australia’s expanding population and economic maturity, coping with infrastructure demands associated with these developments requires special attention to planning and asset allocation.

Metro fringe high growth

There are areas within regions on Perth’s fringe that are experiencing high growth, in part due to migration to areas with lower cost housing and in part due to lifestyle considerations, such as a desire for an acreage within commuting distance from Perth.

These areas typically have dispersed housing patterns and are based on small rural villages with limited facilities. They therefore provide some distinct challenges, not least being how to provide infrastructure and services cost-effectively.

2.3 Challenges for infrastructure delivery

The diversity within and between regions provides challenges to delivery of infrastructure across the vast geography that constitutes regional Western Australia. Paradoxically, however, the diversity within and between regions does not point to a need for different approaches to infrastructure planning. Rather, such diversity requires a *consistent* approach to infrastructure across all regions and all classes of infrastructure.

Diversity requires a
consistent approach



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Out of this consistent approach, however, different infrastructure needs will emerge for different areas, dictated largely by their characteristics.

The key point is that infrastructure planning for all regions, including Perth, should be undertaken within a common decision-making framework but the outcomes will differ substantially.

3 Western Australia's approach to infrastructure

This chapter outlines historical and current approaches to infrastructure planning and discusses the approaches proposed in the State Infrastructure Strategy Green Paper.

3.1 Historical approach

Agency-based infrastructure planning

Historically, State Government agencies undertook infrastructure needs identification, prioritisation and planning with little reference to each other. For example, planning of transport, subdivisions, energy supply, telecommunications, schools and health facilities was done by the agencies responsible with little if any communication or coordination between them. This was despite some strong links between drivers of infrastructure needs and even interaction between infrastructure types.

No consistent assessment mechanism

As well, there was no structured mechanism for assessing infrastructure priorities across infrastructure types. There were also different approaches used in each agency to infrastructure planning. The data on which planning was based were even different in some cases.

Approaches to prioritisation and provision of regional infrastructure were similarly inconsistent.

Recent policy approaches and government initiatives have sought to change the approach to infrastructure planning and provision, including in regional areas. These approaches are discussed in the following sections.

3.2 Regional Development Commissions

Commissions' role includes infrastructure planning

Western Australia's Regional Development Commissions were established in 1993 under the Regional Development Commissions Act. The objects and functions of a commission (see Box) include:

- Identifying infrastructure services to promote economic and social development within the region;
- Identifying the infrastructure needs of the region, and encourage the provision of that infrastructure in the region; and
- Cooperating with State and the Commonwealth agencies and local governments.

– but little formal involvement

In practice, however, the Regional Development Commissions have been little involved in state infrastructure needs identification, prioritisation, or

coordination. As discussed in section 3.1, State Government agencies have tended to act independently in assessing needs for regional infrastructure. Sometimes, Regional Development Commissions are consulted; often they are not.

Future formal involvement of Regional Development Commissions in infrastructure planning is entirely consistent with the aims of their legislation. The non-inclusion of Commissions in the current and proposed processes would appear to fetter them in the exercise of their legislated responsibilities and to fall short of the intentions of the 1993 legislators for Commissions to be actively involved in infrastructure planning.

Commissions need to be closely involved in SIS

The SIS therefore needs to include Commissions within its processes, beyond roles simply as other stakeholders.

3.3 Regional infrastructure priorities

As mentioned in Chapter 1, the Regional Development Council in 2005 issued its position paper *The Western Australian Regional Development Council – Priorities 2005*. Priorities included funding of infrastructure provision to underpin economic and social development.

The priorities paper was backed up by nine *Regional Priority Plans* that identified regional priorities, including for infrastructure. These plans were submitted by the Regional Development Commissions to the Government in late 2005.

Consistent process

The commissions followed generally consistent processes for developing these plans. The process included consultation with stakeholders, linking to key State policies such as the State Regional Policy Statement and State Sustainability Strategy and prioritisation of needs.

Elements of a state-wide model

As noted in section 1.2, the processes for development of the Regional Priority Plans include elements of what should be included in the processes under the State Infrastructure Strategy.



Box 1 **Objects and functions of a Regional Development Commission**

(1) The objects of a commission are to –

- (a) maximize job creation and improve career opportunities in the region;
- (b) develop and broaden the economic base of the region;
- (c) identify infrastructure services to promote economic and social development within the region;
- (d) provide information and advice to promote business development within the region;
- (e) seek to ensure that the general standard of government services and access to those services in the region is comparable to that which applies in the metropolitan area; and
- (f) generally take steps to encourage, promote, facilitate and monitor the economic development in the region.

(2) For the purposes of achieving those objects a commission is to

- (a) promote the region;
- (b) facilitate coordination between relevant statutory bodies and State government agencies;
- (c) cooperate with representatives of industry and commerce, employer and employee organizations, education and training institutions and other sections of the community within the region;
- (d) identify the opportunities for investment in the region and encourage that investment;
- (e) identify the infrastructure needs of the region, and encourage the provision of that infrastructure in the region; and
- (f) cooperate with –
 - (i) departments of the Public Service of the State and the Commonwealth, and other agencies, instrumentalities and statutory bodies of the State and the Commonwealth; and
 - (ii) local governments,

in order to promote equitable delivery of services within the region.

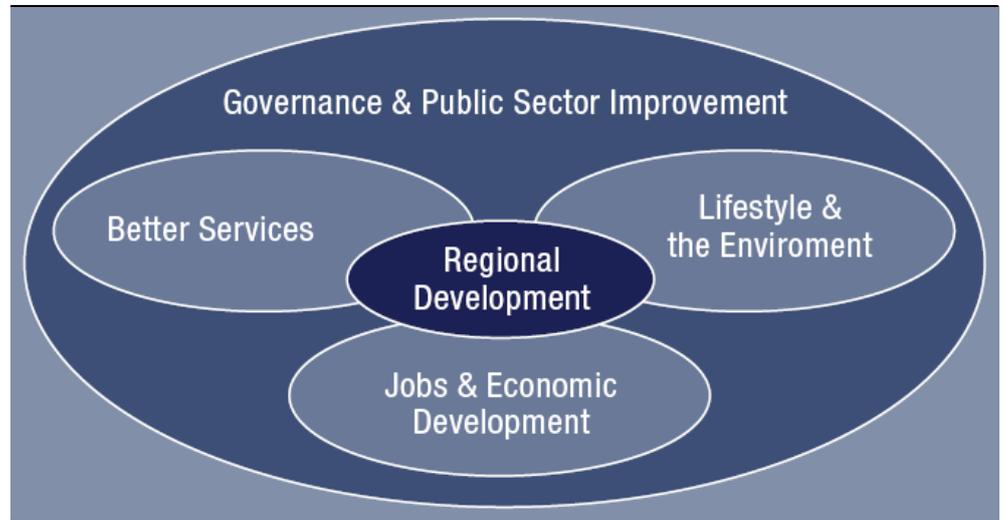
Source: Section 23, Regional Development Commissions Act 1993, as amended

3.4 Government policy

Infrastructure and regional development now have high priority in State Government policy. The policy paper *Regional Western Australia - A Better Place To Live* of 2003 sets out a framework for regional development and emphasises the role of infrastructure.

Better Planning; Better Futures, A Framework for the Strategic Management of the Western Australian Public Sector was issued in September 2006 as a revision of an 2003 policy. It sets out a vision for the public sector and outlines five interrelated goals as illustrated in Figure 1.

Figure 3 **Goals for the public sector**



Source: Better Planning: Better Futures, A Framework for the Strategic Management of the Western Australian Public Sector

Relevant strategic outcomes under these goals include:

Goal 2: Economic Development

- Strategic Outcome 2.3: A level and mix of infrastructure that promotes economic growth. Planning processes and government investment decisions to facilitate the coordinated, timely provision of appropriate infrastructure that meets the current and future needs of the State.

Goal 4: Regional Development

- Strategic Outcome 4.1: Regional communities that are educated, healthy, safe and supportive. Western Australian regional communities will be healthy, safe and enjoyable places to live and work, offering access to high quality education opportunities for their residents and a high standard of services. Quality of life in the regions will be enhanced by building community capacity and cohesiveness.
- Strategic Outcome 4.2: Regional economies are diversified. Regions will have robust, diversified economies based on sustainable development, appropriate provision of infrastructure, increased private investment, and skills development.
- Strategic Outcome 4.4: Government decision making that takes account of regional issues. Western Australian regional communities will have access to decision makers in Government and regional development will be enhanced by partnerships between levels of Government.



Sound basis for state development

Expand to a more public framework?

Better Planning: Better Futures provides both a vision and a sound framework on which to base planning for regional development and infrastructure. Indeed, it provides the policy basis for state development generally. ACIL Tasman suggests that its purpose could be expanded to provide a more prominent, public framework.

3.5 Recent government infrastructure innovations

Recent innovations in Western Australia’s approach to infrastructure planning and allocation include the introduction of a new Strategic Asset Management Framework (2005) and Capital Investment Resource Allocation Process (2004) and the approaches proposed in the State Infrastructure Strategy Green Paper (2006). The SAMF and CIPRAP together provide a consistent and structured approach to infrastructure planning. They fall short of providing a state-wide, whole-of-government approach to infrastructure assessment, prioritisation and planning, however. In particular, they do not include a ground-up approach to prioritisation across classes of infrastructure. The Green Paper goes further, but still does not propose a coordinated, ground-up process.

3.5.1 The Strategic Asset Management Framework

Strengthen and improve asset management policies and practices

– across the State public sector

Western Australia’s new Strategic Asset Management (SAM) Framework is the result of a collaborative effort between the Department of Treasury and Finance (DTF) and the Department of Housing and Works to strengthen and improve asset management policies and practices across the State public sector. The new framework extends the Strategic Asset Management Policy (1998) and incorporates recommendations from the PricewaterhouseCoopers (2002) report on governance and management of Western Australia’s public sector assets.

11 policies and guidelines

The SAM Framework includes 11 policies and guidelines designed to:

- Introduce processes to manage public sector assets through their life cycle, including:
 - Asset planning
 - Capital investment
 - Maintenance
 - Asset disposal.
- Provide guidance for agencies to assist them in:
 - Preparing business cases for capital investment proposals
 - Evaluating projects including concept development, performance evaluation in respect of agency services and effectiveness as well as financial evaluation

- Project Definition Plan Guidelines for Building Projects
- Cost Management Guidelines for Building Projects
- Value Management Guidelines
- Lease Analysis Guidelines.
- Promote linkages between the agencies' management of their asset portfolios through asset planning and corporate planning processes.

Agency corporate planning is the starting point

Agency corporate planning is the starting point in asset planning and management because it helps to identify the capital resources required to deliver the levels of services necessary to achieve an agency's desired outcomes. Agencies' performance against agency-level outcomes is assessed using key effectiveness and efficiency indicators to identify and secure the resources required to deliver agreed services through Outcome Based Management. Asset Planning therefore becomes part of the corporate planning process.

Figure 4 outlines Western Australia's Asset Planning Process. In this framework, the Strategic Asset Plan is the means by which an agency aligns its asset portfolio to State Government desired outcomes. It balances the service delivery potential, and cost, of existing assets against the cost of additional resources required to achieve agency service objectives. It also considers non-asset solutions.

The primary requirements for an agency to develop a Strategic Asset Plan are:

- To demonstrate a need to acquire physical assets from the business planning process, after consideration of alternative solutions that do not require assets, such as changes to service delivery;
- To identify the agency's ideal asset mix;
- To review the agency's existing assets, in terms optimising existing capacity, asset performance and the condition of existing assets;
- To undertake a gap analysis between the ideal and the existing asset mix; and
- To summarise the conclusions in a Strategic Asset Plan.

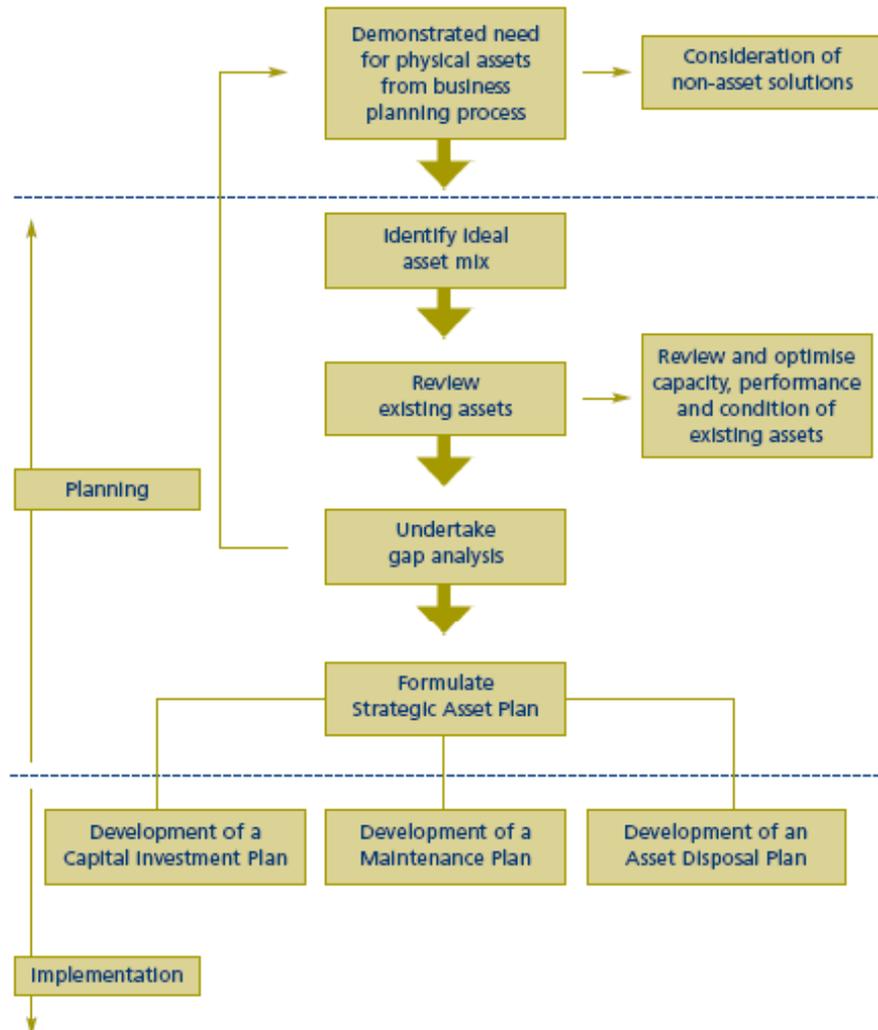
The resulting plan then outlines the capital investment, maintenance and asset disposal implications for the agency over the short- to medium-term.

Planning largely internal to agencies

This planning is largely undertaken internally by the agency, although key decisions to invest or dispose of significant assets must be endorsed by the Government's Expenditure Review Committee. Consideration should be given to seeking community input to the asset planning process, where community support for strategic asset management decisions is critical to ensuring cost-effective implementation.

This process has been progressively introduced, with agencies required to implement both Project Definition Plans and Strategic Asset Plans from 2006.

Figure 4 **Western Australia: Asset Planning Process**



Data source: Strategic Asset Management Framework: Department of Treasury and Finance Western Australia

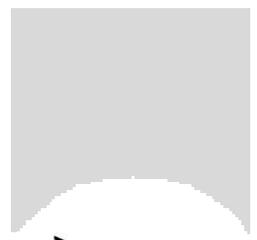
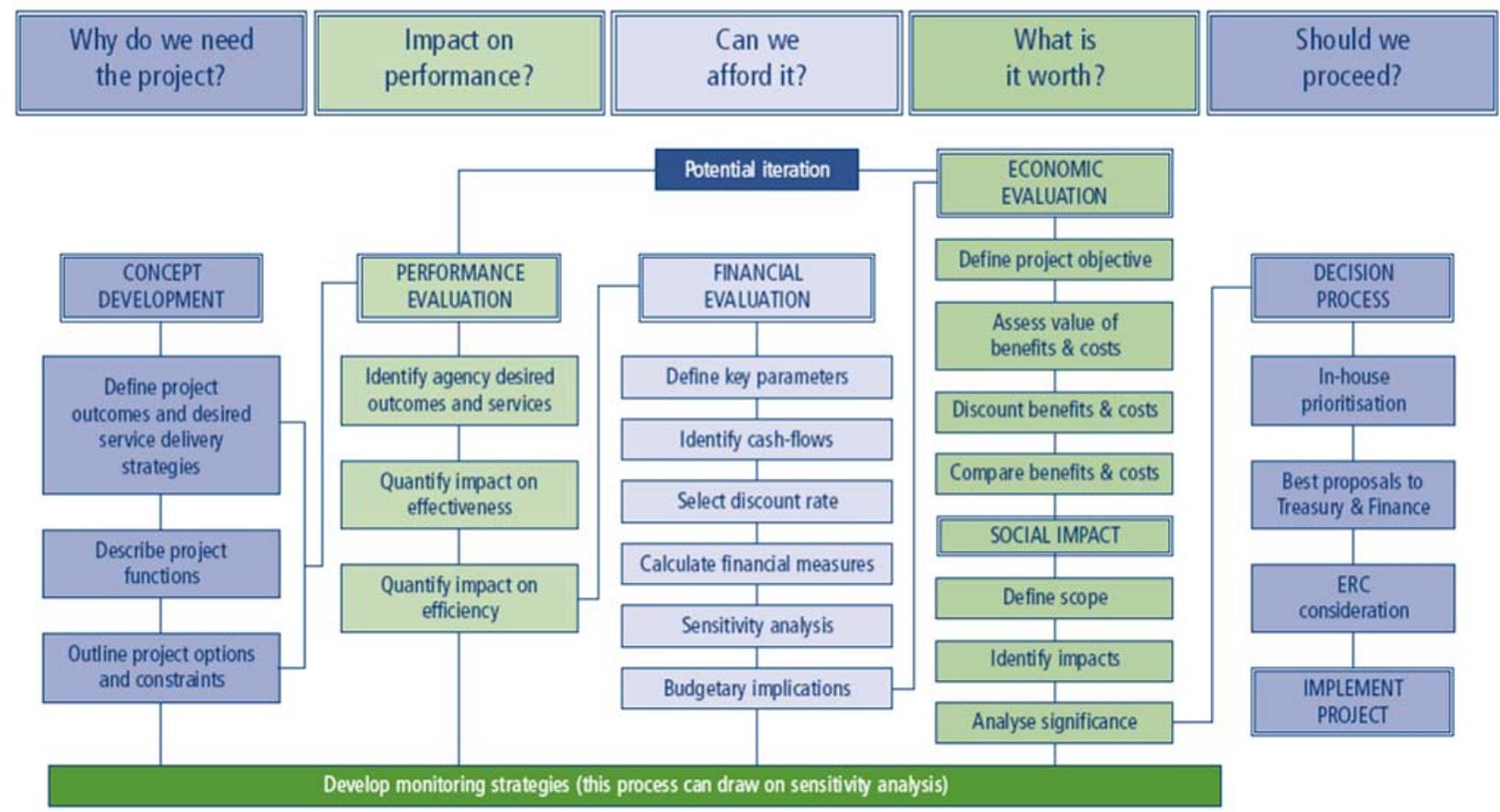


Figure 5 Western Australia: steps for project evaluation



Source: Department of Treasury and Finance, Government of Western Australia: Project Evaluation Guidelines August 2005.

It is notable that preparation of Maintenance Plans has been emphasised to encourage each agency to assess its maintenance requirements in an orderly manner within the overall process.

The steps involved in project justification and evaluation shown in Figure 5 suggest a process of consistent and rigorous analysis. It is very similar to the process undertaken in other parts of Australia and as recommended as best practice in Canada and the UK.

Once a decision to proceed with a project has been made, DTF applies its own capital investment prioritisation methodology to the project (see section 3.5.2).

3.5.2 Capital Investment Resource Allocation Process

Once a decision has been made to by an agency to submit a capital investment proposal to DTF for consideration for funding, DTF reviews the proposal and applies its own Capital Investment Prioritisation Resource Allocation Process (CIPRAP) methodology.

Budgetary context

The prioritisation model applied by DTF is intended to support decisions on allocation of infrastructure funding within a budgetary context. It has been used over the last three budgets and was established to provide a more transparent process for asset management and capital investment in the public sector. At this stage DTF envisages using the same Capital Investment Prioritisation methodology to prioritise capital works proposals over the 20-year period of the State Infrastructure Strategy.

Social, economic, environmental and political factors

As with most other prioritisation models, the methodology is largely qualitative and is aimed at ensuring that social, economic, environmental and political factors are all taken into account in infrastructure planning and fund allocation.

Assessment criteria

Main assessment criteria relate to:

- The perceived importance of the program or project;
- Demonstrated benefits that are expected to flow from the program or project; and
- The likely achievability of the program or project.

A set of guidelines assists in determining the different levels of importance, benefits, and achievability for individual projects.

Each program or project is rated qualitatively against criteria using 'high', 'medium' and 'low' measures. To ensure consistency across all ratings, a set of rules has been developed to help define a 'high', 'medium' or 'low' rating. Projects that receive equal ratings overall are ranked according to their importance, benefits and then achievability.

The rules take into account features such as:

- Critical nature of the project
- Immediacy
- Certainty
- Strategic objectives
- Strength of links to government objectives
- Sustainable capacity/capability
- Financial return
- Significance of the achievement
- Value for money.

The ‘importance’ aspect indicates the perceived urgency of the program or project; the consequences of not doing anything (economic, environmental and political implications); statutory requirements; and public expectations.

Expected benefits are rated based on project contribution to the achievement of government outcomes. This covers the complexity of a project, its implied risks and potential for cost/scope creep. All projects are rated as consistently as possible across the whole-of-government portfolio, and then ranked.

Acknowledged as good practice

This type of prioritisation process exists in most developed economies and is acknowledged as good practice. Its qualitative weighting and ranking lends it to a fair degree of subjectivity. Nevertheless, the use of such a systematic approach provides much more rigor and less subjectivity than a less structured process.

3.6 Regional Infrastructure Funding Program

The Regional Infrastructure Funding Program (RIFP) provides grants from \$100,000 to \$5,000,000 for capital infrastructure projects that will assist in attracting investment and increasing jobs in regional areas or improving the access of regional communities to services.

Wide range of eligible applicants

Eligible applicants include local government, State government agencies, volunteer organisations, business groups, educational institutions, Aboriginal Corporations, philanthropic foundations and community organisations. Local governments are encouraged to apply as joint partners where it is feasible to share facilities or derive joint benefits from a project.

State Government agencies must demonstrate why they are unable to access funds through their own budgets, or by Cabinet Submission.

This is a program that users describe as useful and workable. The large gap between the upper limit of the RIFP and the \$5 million regional threshold for

the SIS (see below) needs to be addressed in order to provide comprehensive coverage of all types of regional infrastructure.

3.7 The State Infrastructure Strategy

In October 2005, the Premier released the terms of reference and timeline for development of a State Infrastructure Strategy.

Green Paper

After receiving numerous public submissions and consulting its Reference Group, the Government released a Green Paper, *Framework for the State Infrastructure Strategy*, and invited comment. Submissions are requested by 15 December.

SIS objectives

The objectives of the State Infrastructure Strategy are to:

- Engage the wider community and other tiers of government to identify existing and emerging infrastructure pressures throughout Western Australia over the next 10 to 20 years;
- Bring together and articulate the infrastructure requirements and priorities of the State's public and private sectors over this period, enabling the private sector to identify investment opportunities;
- Outline a plan for delivery, in the process creating a greater level of certainty about the priorities and timing of major infrastructure development that will allow better-informed decisions in both the public and private sectors;
- Provide an infrastructure agenda that will facilitate engagement of the Commonwealth and Local governments to meet their share of responsibility for infrastructure provision; and
- Ensure proposals for future investment are affordable and based on an appropriate mix of investment of skills from both the public and private sectors.

The Green Paper says:

The strategic goals set for the State by the Government will help guide the identification of infrastructure opportunities, which will also be driven by economic, demographic, social, environmental, technological and land use planning factors. It is expected that agency and private sector infrastructure development proposals will reflect other Government strategies, ensuring that the Strategy is also consistent with them.

Goals include regional infrastructure considerations

Significantly for the interests of the Regional Development Council, these goals include:

- Ensuring, as far as possible, that the price of infrastructure services in Western Australia's regions has a neutral impact on the location decisions of residents and businesses in these areas;

Underpinning regional development with infrastructure

- Providing confidence to individuals that regional centres have the appropriate social infrastructure to meet their needs and those of their families; and
- Planning urban and regional development in a way that facilitates the logical and economical provision of infrastructure, while also promoting the efficient use of existing infrastructure.

Thresholds for SIS inclusion

Projects proposed to be included in the Strategy are:

- Those costing more than \$20 million; \$5 million threshold for regional projects;
- Others where there is a significant economic, social welfare or environmental impact.

20 year planning horizon

The Green Paper proposes a process for identifying and prioritising infrastructure “opportunities”. This will involve agencies extending their 10 year Capital Investment Plans under the current SAM framework to 20 years. The Strategy would also include information on infrastructure projects proposed by Commonwealth and local government and the private sector.

Public sector infrastructure projects would be prioritised using the Capital Investment prioritisation methodology currently used by DTF.

State Government role in infrastructure

The Green Paper sets out the roles of both the State Government and the private sector in providing infrastructure. The Government’s role is:

- To meet demand while maintaining an AAA rating;
- To consult with stakeholders to gauge needs and follow equitable, consistent and transparent processes;
- To ensure sufficient public benefits to cover costs;
- Where possible to provide infrastructure on a common user basis;
- To ensure timely and efficient approvals processes are followed; and
- To follow regulatory regimes that are consistent with other jurisdictions.

Private sector role

The private sector’s role in providing infrastructure will grow through a range of procurement arrangements, particularly those built around partnerships with government. Government should only enter into such arrangements where they demonstrate value for money and allocate risks within the State’s strategic risk management objectives.

The Green Paper proposes both:

- The provision of comprehensive and timely information *by* the private sector to help facilitate scoping of infrastructure projects and timely approvals; and
- The provision of information to the parts of the private sector that are involved in provision of infrastructure to create a well-informed

marketplace and enhance both private sector participation and competition in infrastructure provision.

Other considerations

Other important considerations in the Green Paper include

- Recognition the need to overcome historical under-investment in infrastructure in remote Indigenous communities to provide equitable levels of service and to underpin economic and social development;
- The need to identify and set aside enough suitable land for industry and infrastructure (land is in fact the most fundamental infrastructure);
- Commonwealth, State and local governments should work together;
 - The Commonwealth's processes for allocating infrastructure funding are not transparent and can result in inequitable outcomes; and
- Demand management and regulation should be considered before supply-side solutions are examined.

4 International best practice approaches to infrastructure

ACIL Tasman has not found any one country or state with a complete approach that could be described as world's best practice. This is to be expected: infrastructure policy is a developing field and each jurisdiction has its unique circumstances. Best practice for Western Australia therefore consists of adopting aspects of best practice from different jurisdictions. ACIL Tasman has developed such an approach, which is described in section 8.

Comprehensive and systematic approaches

This chapter examines best practice approaches in other countries that are relevant to Western Australia and to regional infrastructure policy. A common feature of all leading countries is that they take a comprehensive and systematic approach.

Assessments of public infrastructure delivery and management have tended to focus on various ways and means of increasing the supply of infrastructure. More recently however, international best practice has progressively incorporated a range of strategies aimed at:

- More effective management of existing infrastructure assets;
- Maximising capacities of existing infrastructure;
- Demand management strategies to reduce both stress on existing systems and the need for new infrastructure assets; and
- Deciding on infrastructure investments under uncertainty.

The first three of these approaches are particularly relevant to large, densely populated areas that have mature infrastructure that is expensive to replace or extend. In many cases, infrastructure upkeep historically has been neglected and recent problems have emerged with the ability of the infrastructure to cope with the demands being placed on it.

A Canadian perspective on recent trends in the management of infrastructure assets is outlined in Box 2.

Box 2 **Infrastructure assets: recent trends in management**

- Strategic Capital Asset Management
 - What do we own?
 - What would it cost to rebuild?
 - At what stage in the life-cycle are the assets?
 - Maintenance, rehabilitation or replacement?
 - When do we need to spend
 - How much do we need to spend
- Maximising existing capacities
 - Multi-user facilities
 - Regional infrastructure provision
 - Blended financing
 - Joint public-public development
- Demand management strategies
- Innovative infrastructure finance
- Pooled purchasing and resource sharing
- Small scale private infrastructure

Source: Canada West Foundation: New Tools for New Times: A Sourcebook for the Financing, Funding and Delivery of Urban Infrastructure (September 2006)

4.1 Strategic management of existing infrastructure

Drivers of new approaches

Throughout the developed world, good practice in infrastructure planning, in allocating infrastructure funding and ensuring provision of appropriate infrastructure assets starts with strategic long term planning and management of existing assets. In economies across North America and Europe, and especially Canada and the UK, public sector management and delivery of infrastructure assets has come under scrutiny as a result of, amongst other things:

- Ageing infrastructure systems that have problems with reliability and require greater maintenance;
- Inadequate management of existing infrastructure leading to run-down of service levels and reliability;
- Rising expectations of the community and industry for levels of service;
- Competing budget priorities that redirect expenditure from infrastructure;
- Patterns of population growth and urban sprawl and the growth of metro-adjacent areas; and
- Changing attitudes toward public sector debt, leading to a tightening of capital expenditure.

Articulate a comprehensive vision

Consequently, governments in these countries increasingly recognise that strategic planning and asset management helps to articulate a comprehensive vision of what is needed to care for and enhance the performance of existing infrastructure assets, thus reducing the need for new assets.

Effective asset management is vital

Western Australia's rapid growth in its economy and population, and the development of its far-flung regions require much new infrastructure. Nevertheless, effective asset management is a vital part of best practice. Western Australia and its regions have much existing infrastructure where better management can extend asset life, delay the need for renewal and improve reliability. Particular examples are electricity supply systems, water and sewerage infrastructure, roads and railways. For example, timely resealing of roads can extend their life and delay the need to rebuild them.

Common framework used throughout government

Typically, effective asset management is achieved by including it in a common framework for infrastructure planning and management across government. In some cases (e.g. in Canada) a common framework is used both within each level of government and between levels of government. Such common asset management systems can reduce any disconnect between government agencies and different levels of government, which might work against sustainable asset planning, decision-making and management.

Six steps for good practice

Literature on infrastructure asset management identifies six basic steps for good practice³:

- Developing a comprehensive inventory of infrastructure assets
- Determining the replacement value of infrastructure assets
- Assessing the condition and age of existing infrastructure
- Identifying the type of spending required
- Creating a time line for expenditure
- Assessing the future costs involved in servicing existing infrastructure assets.

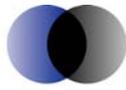
To these, ACIL Tasman would add:

- Assessing the benefits and costs of accepting a reduction in the level of service from existing assets, in circumstances where demand has declined.

This is discussed in section 4.5.

While the above may appear obvious, in practice they are not always implemented comprehensively.

³ Vanier D.J. 2000. Advanced Asset Management: Tools and Techniques (<http://irc.nrc-cnrc.gc.ca/pubs/fulltext/nrcc44299.pdf>)



4.2 Maximise capacities of existing and new infrastructure

Variety of public and private uses

Strategies to maximise existing infrastructure capacity seek to get more out of assets wherever possible and practical, and avoid or delay major new investment. In North America and Europe, existing facilities are considered for a wider variety of public and private uses. Furthermore, facilities that experience regular demand peaks and troughs can be made available for alternative uses.

This is particularly relevant to regional areas where lower demand may not support a single-use facility, or may be the reason given for delaying investment.

Use by adjoining areas and regions

These strategies are also used in planning new infrastructure. Coordinating infrastructure investments that meet the needs of multiple types of users and/or adjoining areas and regions can be accomplished through collaborative planning, shared construction and shared usage of facilities.

Inter-agency sharing

Increasingly, agencies from different parts of government are also joining together to finance (jointly or through blended arrangements) projects that serve both parties. This is occurring in North America and Europe through the formation of public-public partnerships and public-public joint ventures, which tend to suit multi-uses better than traditional public sector procurement (e.g. a school swimming pool that becomes a commercial swimming pool out of school hours).

There are some examples of these approaches in Western Australia, but traditional agency silos have tended to militate against them.

4.3 Infrastructure demand management strategies

Traditional approaches to infrastructure management embody a tendency to “predict and provide” service provision. Consequently, in the past, forecasts of increasing demand have been routinely met by supply-oriented options such as the construction of new power stations, roads and water reservoirs.

Manage the level and timing of demand

In contrast, Demand Side Management (DSM) approaches attempt to avoid expensive supply investment by managing the level and timing of demand placed on infrastructure assets through, for example, the implementation of efficiency measures or the reshaping of utilisation patterns through peak period pricing and/or load shedding arrangements.

New regulatory frameworks, commercial practices and environmental concerns are stimulating the spread of DSM. DSM initiatives create a new context

within which infrastructure providers and users form a shared interest in tailoring supply and demand.

Examples already in place in parts of Australia are:

- Interruptible electricity supply contracts under which large commercial users reduce their use at times when overall demand peaks, in exchange for lower average prices. In this way generating and transmission capacity, which must be large enough to deal with peaks plus a safety reserve, can be lower than otherwise;
- Peak and off-peak public transport fares, thus encouraging some peak traffic to move to shoulder or off-peak periods, in turn delaying the need for additional road or rail infrastructure; and
- Charging for domestic water on the basis of metered use rather than on the basis of property value, and via stepped tariffs, thus discouraging wasteful use of water and hence delaying the need for additional water infrastructure.

Expected future types of DSM include:

- Smart electricity meters that vary the price every half hour according to network demand (e.g. the price will go up on hot summer days when air conditioners are in maximum use, thus encouraging greater use of insulation, environmentally-friendly designs etc);
- Substantially higher water prices that encourage reduced use of piped water (e.g. greater use of greywater, installation of domestic water tanks); and
- Congestion charging for road use as already practised in Singapore and London.

The Green Paper discusses use of DSM in infrastructure planning in Western Australia.

WA practices DSM in water and energy

The issue for much of Western Australia's regional infrastructure, however, is not excess demand but rather inadequate demand, making infrastructure assets expensive relative to their utilisation, hence the interest in multiple uses where possible. Exceptions are in high growth areas and in demand for water, where DSM can be an effective management tool. Industry-based DSM for electricity and gas also has been used in recent years to manage critical system peaks.

4.4 Infrastructure investment under uncertainty

Development in the regions particularly uncertain

Many infrastructure investment decisions are made in situations of significant uncertainty about how the future will unfold. This is especially so in a state undergoing such rapid growth and transformation as Western Australia. The



timing and pattern of development in the State's regions is subject to particular uncertainties.

History shows the danger of simply projecting past trends for long periods, yet infrastructure nearly always has a long life – e.g. 30+ years between major road, school and hospital rebuilds; 60+ years for replacement of railway lines except on heavily used mineral lines; and long and indefinite life for bridges and other civil engineering structures.

Under-utilisation

The result worldwide has been that some infrastructure investments have turned out to be under-used white elephants, e.g. empty industrial estates outside secondary towns, the abandoned (for passengers) international airport at Mirabel near Montréal, schools that close because of inadequate enrolment, and in Western Australia, the Windimurra gas pipeline.

Bottlenecks through lagged investment

By the same token, some infrastructure investments have lagged sufficiently behind demand to cause serious bottlenecks that limit economic growth, such as the coal export facility at Dalrymple Bay, Queensland. Locally, there is growing congestion of access routes to several Western Australian ports that is being addressed or will need to be.

Traditional approaches to uncertainty are inadequate

The traditional response to uncertainty has been to undertake cost benefit net present value calculations using a higher discount rate (similar to an interest rate) than normal, and to undertake sensitivity analyses. Neither of these is a satisfactory approach. A higher discount rate builds in a bias against investments that have long construction periods and long payback periods, typical of most infrastructure. Sensitivity analyses are essentially arbitrary and of only limited help to decision makers.

New economic evaluation techniques have been developed to address decision-making under uncertainty. Their category is generally known as *real options analysis*, which borrows from techniques used in the financial markets to manage uncertainty.

Real options analysis to reduce downside risk

Real options analysis treats investment as both creating and destroying decision-making options which, if well managed, can reduce the “downside risk” when investing under uncertainty. Some examples are:

- The developer of a new industrial estate may not be sure how quickly the lots will be taken up, and so may not be sure whether to install a small sewage treatment plant (with the risk of having to add a second plant later) or one twice the size (the larger one costing more than a small one, but not twice as much). The real options framework allows these alternatives to be evaluated and a rational choice made given the probabilities of the estate's success.



- A research project can be broken into stages, each of them generating information about the subsequent stage that was not available at the beginning. For example first stage could involve definitional work and a literature search, the second a computer simulation, the third a small-scale pilot project, and the fourth the full project. Each stage buys the option to proceed to the next stage as originally envisaged, to modify it, or to delay or cancel. The downside risk is thus limited to the cost of stages so far undertaken rather than the cost of the complete (and possibly failed) project
- Sydney, as in other parts of Australia, is facing severe urban water shortage problems. The traditional approach was to estimate the likely shortfall and install appropriate infrastructure such as desalination plants and effluent treatment plants with third (grey water) pipes. The real options approach instead saw it as an insurance problem, as discussed later in this report.

Real options applicable to
WA infrastructure

The real options approach is, in ACIL Tasman's view, the most significant recent development in improved infrastructure investment decision-making tools. It does not feature in the current Western Australian arrangements. Possible applications in regional WA are:

- Where new developments, or their timing, are uncertain, take an insurance approach to the associated infrastructure needs by preparing for infrastructure installation (planning, land zoning, environmental and other approvals) but not (yet) undertaking it – so that installation can be rapid when/if the demand eventuates.
- Routinely implementing cost benefit analyses with real options analysis whenever there is uncertainty.
- Using Regional Development Commissions to bring parties together (e.g. public sector agencies, private developers and project investors) to identify the best joint response (e.g. multi-use facilities) in areas where new or expanded projects are expected.

4.5 Stranded assets

More capacity than needed
Outlived usefulness

As with other types of investment and despite careful planning, some infrastructure will prove to have more capacity than is needed, or will outlive its usefulness. Economics provides some guidance for best policies in these circumstances.

- If infrastructure is genuinely redundant, as in a ghost town where, for example, a mineral resource is entirely depleted and there are no other prospects, the best, and normally adopted, policy is to abandon it (notwithstanding the distress to particular individuals). The cost of building the infrastructure is “sunk” (not recoverable) and nothing is gained by maintaining it.



- Where the infrastructure exceeds the current need for it, but there is still some demand, a minimum maintenance policy is appropriate. In this way the infrastructure service can be provided for a long period at low cost before the point comes when more substantial expenditure has to be considered. An example is a branch grain line that can be kept going with slowly deteriorating quality (speed restrictions) for many years with minimum maintenance to drains, sleepers etc before the point comes when a bridge needs to be replaced – which, depending on the cost benefit calculation, may mean closure is preferable. This affect overall industry productivity, however, and this needs to be taken into account in cost benefit assessment. With changing circumstances, a new demand may emerge to justify some rehabilitation – e.g. Victorian gold towns which had been “dead” for a century but are now becoming retirement centres.
- Technological change may make particular infrastructure redundant. An example is regional hospitals which, in the days of simpler medical techniques (e.g. the general surgeon) and poor transport, had a genuine hospital role. Now with much greater medical specialisation and much better transport, hospital care is best provided at larger hospitals. The best roles for the hospital are a GPs’ clinic, geriatric ward, and an emergency room to stabilise victims of accidents, heart attacks etc sufficiently for an ambulance or helicopter trip to a base hospital. Attempts to maintain the hospital infrastructure in its original role would impose unnecessary expense and health-care risks.

Current and future use should dictate decisions

– the past is no longer relevant

In all these cases it would be unwise to maintain the infrastructure beyond a level justified by current and future use. The past is no longer relevant. A contrary case could occur where economic development had been held up by inadequate infrastructure and so catch-up spending would be justified (again, by current and expected future use). However this is no different in practice from any other case where infrastructure is proving inadequate – past events may explain why this is so but are not relevant to the investment decision, which is always about the future.

4.6 Innovative infrastructure finance

Traditional financing approaches may lead to high demand

There is also a growing body of literature⁴ that suggests that traditional approaches to financing infrastructure may have fuelled unnecessarily high demand for infrastructure assets by acting as a financial incentive to expand the capital stock.

For example, from an economic perspective, user fees and user pay taxation, such as road tolls, fuel taxes, and selective sales taxes on vehicles, are a superior

⁴ For example, Canada West Foundation: New Tools for New Times: A Sourcebook for the Financing, Funding and Delivery of Urban Infrastructure (September 2006)

method of funding transportation infrastructure because they collect revenue from the users of the infrastructure rather than all taxpayers. Because the users of the infrastructure pay the tolls and the taxes, this helps control the demand for infrastructure.

Financing approaches can keep demand in check

Therefore, innovative infrastructure financing is not only about ensuring sufficient revenue to increase the supply of infrastructure. It is also about keeping the demand for infrastructure in check.

4.7 Overview of international case studies

Useful benchmark for Western Australia

Understanding practices and systems for allocating and managing infrastructure assets in other countries, particularly those with similar economic profiles and government structures, provides a useful benchmark for Western Australia. The same applies to practice elsewhere in Australia, covered in the next chapter.

ACIL Tasman's familiarity with international experience is based partly on our work in various countries, partly on our consultants' experienced prior to joining the company, and partly on the international literature.

WA's distinct economic structure

Not all international experience is useful in this context because Western Australia has a particular economic structure (huge area, low and concentrated population, major minerals and energy developments, rapid changes currently underway) that is not found in many places elsewhere.

The most relevant international experience is a country with a similar structure and economy: Canada. There are also particular aspects of UK and French infrastructure experience that are relevant. Other countries examined have basic infrastructure proposal vetting and approval processes that are broadly similar to those already in place in Western Australia but do not appear to offer further innovation.

The World Bank has extensive experience and literature on infrastructure investment but much of it relates to the particular challenges of developing countries. For example, many developing countries have inadequate legal and governance institutions; some have corruption; many depend heavily on expatriate technical skills; and some are regarded as having high levels of sovereign risk. There is little here that is relevant to Western Australia, save for the need to manage investment risk.

4.8 Canada

Many similarities to Australia

Canada is an excellent comparator for Australia given its parliamentary and federal system of government, and significant parallels including its economic



profile, population and population density, and relatively isolated locations of many of its resources projects. The main difference is federal and state/provincial responsibilities under the respective constitutions and by precedent. In Australia, States have a clearly defined role in infrastructure, with the Commonwealth having a lesser and less well defined role. Nevertheless, there is much about the Canadian approach that could be adapted to the Australian and State situation.

Infrastructure Canada leads federal participation

The Canadian Federation is made up of 10 provinces and three territories. Core public infrastructure is primarily the responsibility of the provincial governments. The need for a common national approach to infrastructure led the Canadian Government to create a dedicated agency – Infrastructure Canada – in 2002 to manage and lead federal participation in providing infrastructure that meets Canada’s national social, economic and environmental objectives.

Works with other levels of government and private sector

To this end, Infrastructure Canada works with municipal, provincial and territory project proponents and the private sector to identify regional and local development priorities, and to finance specific infrastructure projects.

This is very different from Australia’s often uncoordinated approach, where different levels of government working together is not the norm. Exceptions include AusLink (Federal-State) and Federal-municipal and State-municipal funding programs for roads and other infrastructure. Cooperation in water management and infrastructure is being implemented through the National Water Initiative.

4.8.1 Leadership and direction

Clear definition of the strategic national goals

A feature of the Canadian approach to infrastructure is clear definition of the strategic goals for the nation, provinces and regions. Overall goals are enhancing Canada’s productivity, increasing its competitiveness and enriching the quality of life in its communities. To help achieve these, the Government has the following vision for infrastructure:

High-quality, modern public infrastructure that allows goods and people to move freely and efficiently is essential to our long-term prosperity... Infrastructure matters. Its financing, construction and maintenance are important areas where government can—and must—play a leadership role. As a nation whose exports are so critical to our economic growth and prosperity, the infrastructure that provides gateways to foreign markets is especially important to Canada.

Infrastructure priorities

Infrastructure Canada’s priorities are clearly articulated. Its first priority is “green” municipal infrastructure. For example, projects related to water and wastewater systems and capital expenditures to retrofit or improve the energy efficiency of buildings and facilities owned by local governments.

Secondary priorities of the programme include cultural and recreational facilities, infrastructure supporting tourism, rural and remote telecommunications, high-speed Internet access, local transportation systems, and affordable housing.

4.8.2 Bottom-up and top-down approaches

Cooperation with provinces and municipalities

Infrastructure Canada was designed to utilise bottom-up as well as a top-down approaches. Accordingly, cooperation with both provinces and municipalities plays an important role in its programs. The majority of projects are selected from proposals submitted by municipalities as a means of ensuring that the most pressing local infrastructure needs are addressed.

Regional infrastructure proposals

Federal and provincial governments can also propose projects, up to a maximum of 20 per cent of the Infrastructure Canada Fund, to ensure that regional projects, involving more than one municipality, are not overlooked.

Infrastructure Canada programs are implemented through a management committee, which has equal representation from the federal and provincial/territory governments. The management committee accepts and processes project applications submitted by municipal governments in each jurisdiction.

4.8.3 Canada's integrated approach to infrastructure provision

Four programs

Four major programs comprise Canada's integrated approach to infrastructure provision:

- Canada Strategic Infrastructure Fund (CSIF)
 - A fund expressly for projects of major federal and regional significance in areas that is vital to sustaining economic growth and enhancing the quality of life of Canadians.
- Infrastructure Canada Program
 - Co-management and co-funding with provinces and territories;
 - The aim of the program is to enhance infrastructure in Canada's urban and rural communities, and to improve quality of life through investments that protect the environment and support long-term community and economic growth.
- Municipal Rural Infrastructure Fund (MRIF)
 - MRIF supports smaller scale municipal infrastructure projects that improve the quality of life, sustainable development and economic opportunities of smaller communities;
 - This programme includes a component addressing the infrastructure needs of First Nation (native people's) communities;
 - Provinces and territories co-manage the fund.

- Border Infrastructure Fund
 - This fund is dedicated to improving the efficiency of the busiest Canada-US border crossing points.

Canada Strategic Infrastructure Fund

CSIF projects are typically selected in consultation with each province or territory (and in some cases local government), to ensure that they reflect the priority needs of the region and the country and are large-scale strategic infrastructure initiatives that improve quality of life and further sustainable growth.

The program invests in five categories of infrastructure that fit with Canada's social and economic objectives:

- Highway and railway infrastructure
- Local transportation infrastructure
- Tourism or urban development infrastructure
- Water or sewage infrastructure
- Broadband

Each funded project has three proponents:

1. As the funding agent, Infrastructure Canada negotiates agreements with funding partners and project proponents.
2. One of the partners is usually an implementing department or agency which has project-specific knowledge related to each project. Infrastructure Canada's relationship with each implementing department varies with the capacity and responsibilities, which are negotiated for each strategic infrastructure project.
3. Funding partners may be a provincial, territorial or local government, First Nations community, private partner or a combination of these parties.

Infrastructure Canada works with provincial and territorial governments whereby all parties contribute to decision-making and project funding, and co-chair Agreement Management Committees. In some jurisdictions, local governments also participate fully through representatives on Agreement Management Committees or through consultative committees that provide advice on project selection.

In addition, Infrastructure Canada works extensively with other federal departments and agencies as the implementing departments on program delivery.

Infrastructure Canada also works with various stakeholders outside of governments. The private sector is a key stakeholder, as one of the aims of

Projects reflect needs of regions and the nation

Funding partners

All parties contribute to decision-making and project funding

CSIF is to trigger private sector activity in building infrastructure and promoting economic activity.

The CSIF establishes a framework that seeks to ensure that maximum public benefits are realised from infrastructure investments. Where possible, projects are complemented by supportive policies such as asset life-cycle management.

By providing a federal focal point for infrastructure activity, the Canadian Government has created a framework to develop innovative tools, approaches, research and collaborations in support of infrastructure issues.

Canada's approach to infrastructure decision-making and management is both holistic and horizontal embracing federal, provincial and municipal government ambitions.

Infrastructure Canada Program

In its role of “enhancing infrastructure in Canada’s urban and rural communities”, the ICP is a local infrastructure program.

The ICP's first priority is “green” municipal infrastructure. Priority projects target water and wastewater systems, water management, solid waste management and recycling. Other program priorities include local transportation, roads and bridges, telecommunications and tourist, cultural and recreational facilities. A parallel with regional Western Australia is the issue of affordable housing, particularly in remote regions. Affordable accommodation and reasonable levels of community amenity are necessary to attract and retain people to regions with high growth, such as mining regions in both countries.

Infrastructure Canada’s Shared Information Management System for Infrastructure (SIMSI), is an integral part of the department’s management process. SIMSI is an on-line information tool which facilitates the management of shared cost projects between the different levels of government under the Infrastructure Canada Program.

The system enables provinces, territories and municipalities to apply on-line for project funding. It also allows them to monitor a project’s status and access benefits and payment information throughout the life of a project.

Municipal Rural Infrastructure Fund

Under the MRIF, each province and territory and First Nations communities receives a base allocation of \$15 million, with the remaining funds allocated on a per capita basis.

The MRIF seeks to redress regional infrastructure disabilities by providing least 80 percent of funding under the MRIF to municipalities with a population of

Local infrastructure focus

Redress regional infrastructure disabilities

less than 250,000. The remaining funds are available to municipalities with a population of over 250,000.

4.8.4 National Guide to Sustainable Municipal Infrastructure

Guide more informed operating practices and investment decision-making

Infrastructure Canada has also been working with the Federation of Canadian Municipalities and the National Research Council to produce a *National Guide to Sustainable Municipal Infrastructure (InfraGuide)*⁵. The aim of this effort is to facilitate more informed operating practices and strategic investment decision-making for infrastructure projects at every level of government.

Managing municipal infrastructure has taken on increasing importance in Canada over the last 40 years. Municipal infrastructure accounts for a significant proportion of Canada's total public capital stock. Approximately half of the country's public capital stock is under the control of local government compared to about one third for provincial and territorial governments and slightly less than one fifth for the federal government.

Municipal infrastructure planning and definition methods include:

- Strategic planning: developing an integrated vision and strategy;
- Asset management systems;
- Consultation to build public support and acceptance; and
- Prioritisation models with weighting and ranking systems, which link capital with operations and maintenance budgets in planning business case approaches.

4.8.5 Prioritisation methodologies

Planned projects should be prioritised

Several types of infrastructure prioritisation methodologies are outlined in Canadian best practice literature. Planned projects should be prioritised as a matter of course using a combination of technical and qualitative information, and judgment. The most commonly cited methodologies applied in Canada are:

- Weighting and ranking methods.
 - These provide more of a qualitative assessment and, although it can take place within the overall framework of an asset management system, weighting and ranking usually involves many other factors that can be termed multi-criteria considerations.
 - Qualitative criteria can include social, economic and environmental goals, since the criteria are often linked to corporate strategic objectives. Some municipalities choose to formalize the method used to conduct this prioritisation.

⁵ See <http://www.infraguide.ca>

- Linking capital costs with operational and management budget in planning.
 - This is an analytical process that takes place in the project planning phase. Full costs are identified as part of the project proposal, for replacement and for new infrastructure. This allows the asset manager to plan more accurately for future operating and capital budget allocations, and avoid chronic O&M budget shortfalls.
 - This method includes accounting for depreciation, reliability and maintenance schedules, and results in optimising asset performance and life cycle considerations. This method can apply to all capital infrastructure decisions.
- Preparing a business case
 - Business case methodologies are also applied to infrastructure prioritisation and budgetary planning exercises. The business case for a project or budget proposal typically includes:
 - … proposal background and strategic context
 - … current and required level of service
 - … options to achieve the requirements (including the do nothing option)
 - … financial analysis and assumptions
 - … risk assessment
 - … analysis of non-financial factors (e.g. technology changes)
 - … implementation plan (e.g. schedules, projections, feasibility)
 - … recommended option.
 - A business case approach is traditionally a private sector or corporate common sense approach to planning, which is being adopted into many levels of government, including federal, provincial and municipal investment planning.

4.8.6 Risk management

Every public organisation which owns operates, or acts as an approving authority for infrastructure assets will be exposed to some degree of risk at some time during the life time of that asset. Consequently, it follows that the collective assessment of risks and management actions taken to control these are an essential part of any overall asset management programme.

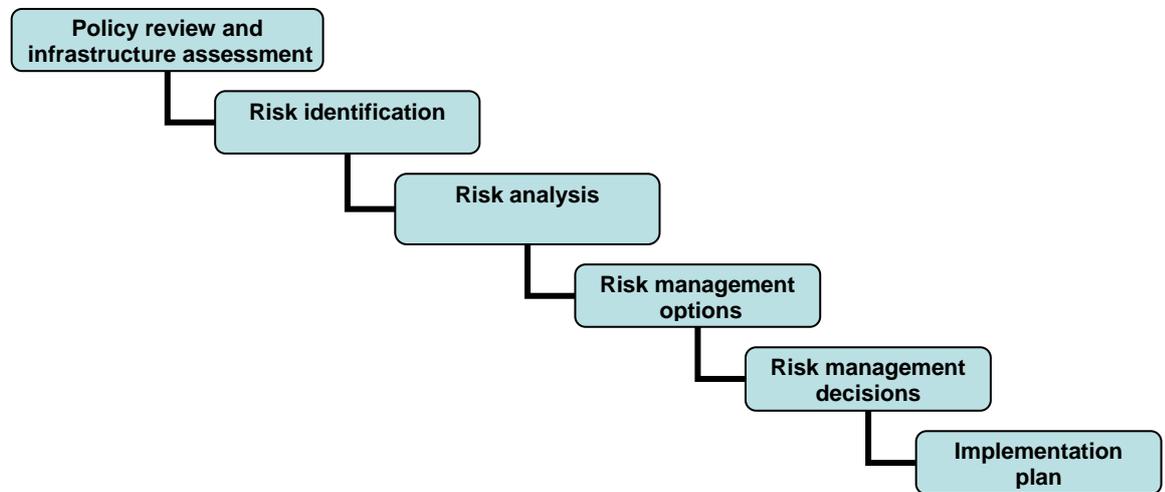
Since unforeseen risk often results in unplanned expense and diversion of resources, best practice recommends that every effort is made to identify, quantify, analyse, and manage, to the extent possible.

Principles of risk management may be applied at every level of government for the purpose of:

- Identifying organisational objectives
- Determining a strategic/business plan
- Identifying and evaluating risks
- Avoiding or eliminating risks where practical
- Developing risk mitigation strategies.

The Canadian risk management process is outlined in Figure 6.

Figure 6 **The risk management process**



Source: National Guide to Sustainable Municipal Infrastructure: Decision Making and Investment Planning – Managing Risk (July 2006)

Risk management begins with the review of policies and standards relating to infrastructure, and an assessment of the current physical condition and performance of that infrastructure.

Appropriate management of risk will depend on the source of the risk. These might include:

- Naturally occurring events (e.g. fire, flood, earthquakes)
- Failure of an external party (e.g. power failure)
- Ageing assets and physical deterioration
- Operational risks (e.g. risks from design standards, operating and maintenance).

During the risk analysis stage, identified risks are assessed in terms of their predictability and probability, and their impact on a particular class or individual infrastructure asset.

When risks have been identified and quantified in some way, options to manage the risks should be considered and evaluated. There are five basic options:

- Avoid
- Mitigate
- Retain
- Transfer
- Share risks.

Risk avoidance

Risk avoidance involves opting to avoid the risk, or not proceed with a specific task, activity or project associated with a particular risk. The cost of this option to the organisation is not receiving the intended benefit of a proposed infrastructure project.

Risk mitigation

Risk mitigation consists of a series of proactive steps that reduce potential losses by reducing the probability and/or the severity of a hazard if it occurs. Examples include: improved regular proactive asset maintenance, better asset inspection, engaging only the most qualified contractors to build or rehabilitate an asset.

Risk retention

Risks may be retained when it is neither possible nor cost-effective to avoid, abate, or transfer the risk. For instance, if an evaluation of the economic loss exposure determines that the risk can be safely absorbed then it makes sense to retain the risk.

Risk transfer

Risk transfer is usually done through conventional insurance as a risk transfer mechanism, or through the use of contract indemnification provisions.

Risk sharing

Sharing the risk burden with third parties is usually based on a business decision when the cost of a project is too large and/or organisations/parties need to spread the economic risks and benefits with other parties.

4.8.7 Lessons for Western Australia

The Canadian approach carries a number of important lessons for the approach to infrastructure in Western Australia and the nation:

Strategic goals

- Defining strategic goals: government leadership in defining strategic goals for development is essential to underpin an effective infrastructure strategy.

Integrated approach

- Integrated approach: the Canadian approach involves all classes of infrastructure (including housing) across all levels of government and is

marked by both strategic top-down leadership and bottom-up guidance on regional priorities.

Comprehensive & consistent policies

- **Comprehensive and consistent policies:** The policy approach to both maintaining and providing infrastructure is generally consistent between levels of government, with detailed guidance provided to local government on best practice in management.

Address legacy and disadvantage

- **Addressing legacy and disadvantage:** Recognise and address legacy issues arising from past approaches and account for the need to address disadvantage in some communities and sectors.

While the federal systems and income sharing arrangements between governments are very different between Canada and Australia, the differences in cooperation and coordination between levels of government in each country are striking. Leadership at the federal level provides both a framework and a philosophy that are missing in Australia.

4.9 United Kingdom

New approach to coordination

While there is no equivalent UK central government focal point for infrastructure planning and funding like Infrastructure Canada, HM Treasury, and the newly formed Department for Communities and Local Government (DCLG: responsible for policy on local government in England) coordinate and issue guidelines, policies and procedures on capital asset planning and management, comprehensive performance indicators and best value practices.

Local government finance

The DCLG Local Government Finance Directorate is responsible for maintaining and developing a framework for local government finance which meets Treasury macroeconomic and fiscal policy requirements, and supports local engagement, and the delivery of shared government objectives. It is also responsible for advising Ministers on all aspects of local government finance, policy and legislation.

The Local Government Act 2003 introduced “the Prudential System” of local government finance. This is a transparent framework based on modern accounting concepts, which encourages investment in the capital assets that local governments require to improve services. It allows local authorities to raise finance for capital expenditure – without central Government approval in cases where they can afford to service the debt without extra Government support.

Nationally (including Scotland and Wales), local governments are required to prepare asset management plans with capital strategies that are based on an organisation’s overall corporate and service objectives



A clear methodology for prioritising capital projects that are being considered for inclusion in the capital programme and the active use of performance measures and benchmarking for capital deployment and the monitoring of capital programmes and capital projects are essential elements of UK best practice process. Like Canada, risk management is being more widely adopted as well.

4.9.1 The UK Private Finance Initiative

World leading PPP approach

The UK's *Private Finance Initiative* (PFI) investment program remains at the cutting edge of international best practice. A principal driver in the UK has been historical under-investment in infrastructure and a consequent need to catch-up (where justified by expected demand) within the constraints of government financial resources. While this problem is not as acute in Western Australia, there are some important lessons for the use of PPPs and PPP-like arrangements for involving the private sector.

The UK Government expects PFI to continue to play a small but important role in delivering modern public services where private sector participation represents value for money. Extensive research carried out by the Treasury shows that PFI projects are meeting public service requirements in operation. Nonetheless, there have been criticisms and the Government intends to further strengthen PFI by introducing measures to:

- Improve the operational performance and flexibility of PFI projects;
- Reinforce the assessment of value for money in PFI projects; and
- Bolster public sector PFI procurement professionalism.

There are now over 750 completed PFI/PPP deals in the UK of which over 500 are operational. Partnerships UK's recent work to support individual PPPs and promote good practice includes operational reviews to help individual projects or Departments ensure they are getting the best out of their PPP arrangement, termination options, and pro-active benchmarking. Partnerships UK works in conjunction with the National Audit Office and HM Treasury to review current operational PPPs and look at how best to improve operational performance.

Alternative models

In addition, the government is examining approaches that incorporate elements of PFI approaches but are suited to other purposes. The evidence shows that it is appropriate to use PFI for certain types of complex investment projects only. Two alternative models being developed are:

- Strategic Partnerships: where smaller investments in PFI and non-PFI projects are planned and managed by an organisation which is a joint venture between public and private sector, and has a long term, strategic relationship with the procurer(s). This can be used for programs where

there is a long term investment plan that needs to be rolled out consistently across different regions or sectors, but, through its long term nature, cannot be fully specified and priced at the beginning (education and health infrastructure and services are two examples).

- A project delivery organisation model: where the public sector authority procures a “project delivery organisation” to manage the delivery of a project through procurement, construction and into operation. The organisation becomes the deliverer of the service to the public sector on completion of the procurement phase.

As the UK has longer and more extensive experience with PPPs than other countries including Australia, it will continue to provide best practice lessons. The Strategic Partnerships variant now being developed is likely to be relevant to regional Western Australia because it suits smaller projects, so experience with it will be worth monitoring.

4.9.2 Lessons for Western Australia

Range of processes can be tailored

Developing best practice in PPPs encompasses a range of processes to involve the private sector. These processes allow tailoring and scaling of processes to suit particular needs. For regional infrastructure, for example, private involvement can be facilitated by bundling infrastructure and service investment across locations and regions and implementing strategic partnerships between government agencies and companies. This is further discussed in Chapter 6.

4.10 France

Concession approach

A long established aspect of French infrastructure management that has more recently found its way to other countries is that of the *concession*, applied especially in the toll roads and water distribution sectors. It can be thought of as a very long-term “build-owned-operate-transfer” (BOOT) scheme, and is relevant (as with much infrastructure) to situations where there is a “natural monopoly” (cheaper to have one provider than two or more).

A concession involves the government conceding its assumed monopoly right to run a piece of infrastructure to a private developer/operator for a defined period, typically 30 years for toll roads and up to 100 for urban water supply. The government sets the broad framework (e.g. tolls not to go up more than CPI, water to meet certain quality standards), effectively regulating through its concession contract.

The concession is a model that has stood the test of time. It puts infrastructure management in specialised hands, relieving the government of tasks it cannot always perform well, and opens up new sources of finance.



- The water concession is now found in many countries (including developing countries) though seems to be ruled out in Australia because of an unjustified view that water, being “special”, should remain entirely under public sector management.
- The toll road concession is now found in many countries (Europe, Latin America, NSW and Victoria). ACIL Tasman has worked on Indonesian toll road concessions, which provide a network that the government did not have the financial or managerial capacity to produce.

4.10.1 Lessons for Western Australia

A variation of the concession model is for government to contract with a wholesale supplier for a defined period for a good or service. In Western Australia, this could apply shortly to bulk water supply, with private operators contracting to supply the Water Corporation. This is already occurring with electricity generation, with private suppliers contracting to the government-owned retailer.

4.11 New Zealand

New Zealand's process for deciding on public sector infrastructure investment is broadly similar to those of Western Australia (essentially project evaluation and filtering, with no formal whole-of-government portfolio approach). However, there are differences at the sector level:

- In water policy, it appears that the government is moving somewhat away from normal economic evaluation and priority setting towards decisions based on other criteria. The recently announced water policy, which addresses multiple objectives such as water quality, special Maori water rights, and rural allocation process where there is more demand than supply, emphasises the role of central government direction. In ACIL Tasman's view, the policies for scarce water allocation are not best practice.
- In the transport sector, greater importance is arguably placed on economic evaluation than in Australia. A major cost analysis project, covering both road and rail infrastructure, has just been completed for the government and will underpin debate about road and rail access prices. The road sector has its own dedicated fund, which the Productivity Commission examined (favourably) in its recent report on road and rail charging.

New Zealand is also showing interest in agglomeration theory, in the context of considering what government policies could be implemented to ensure that Auckland becomes competitive international commercial centre. One of the challenges is overcoming that city's multiple infrastructure deficiencies (water, waste water, electricity transmission, roads, railways) within the resources available.

Wholesale supply of
electricity and water

Similar to WA



4.12 Multi-lateral organisations' guidelines

Multi-lateral organisations such as The World Bank and the Asian Development Bank (ADB) have extensive experience and have published best practice literature on infrastructure investment. However, most of this material relates to the particular challenges encountered in providing infrastructure in developing countries (e.g. inadequate legal and governance situations, political/sovereign risk, corruption, lack of technical skills and support).

There is also a body of material which is largely sector specific focusing on how best to deal with issues encountered in the provision, for example, power, road networks and potable water.

5 Australia: other jurisdictions

This chapter reviews experience elsewhere in Australia. ACIL Tasman considers that the most interesting and relevant case for Western Australia is South Australia.

5.1 Queensland

State Infrastructure Plan

Queensland has a comprehensive State Infrastructure Plan, yet has been experiencing substantial catch-up problems. The Plan, released in November 2001, was developed to provide strategic guidance for five years of economic infrastructure planning by all areas of government and the private sector. The Plan aims to provide a framework for planning and providing infrastructure, and to ensure that Queensland has high quality, globally competitive infrastructure to support business and industry. Annual Implementation Plans record progress and set out projects and programs for the coming year.

The State Infrastructure Plan seeks to:

- Bring an economic development focus to all infrastructure, within a sustainable development framework;
- Provide an integrated view of both hard and soft infrastructure;
- Provide coverage of infrastructure provision by all levels of government and the private sector; and
- Develop a long-term focus.

According to the Queensland Department of State Development and Innovation (SDI), the State Infrastructure Plan was developed after analysis and consideration of the policy and institutional issues associated with the delivery of each infrastructure class and the identification of key State-wide strategies to improve efficiency.

Regions were also analysed to identify potential economic development opportunities and the critical infrastructure necessary to allow the region to fully realise its development potential.

Infrastructure as a catalyst for economic development

The plan was developed on the premise that strategically planned infrastructure can be a catalyst for economic development. It provides directions for developing the critical or catalytic infrastructure required to maximise the growth potential of the State and its regions.



Economic development focus to all infrastructure planning

5.1.1 Strategic, whole-of-government approach

The Queensland infrastructure plan seeks to bring an economic development focus to all infrastructure planning by:

- Establishing strategic economic development objectives for all public and private sector infrastructure planning;
- Co-ordinating and integrating infrastructure provision to support economic development;
- Establishing economic infrastructure priorities for the State Budget;
- Providing a mechanism for identifying private sector investment opportunities in infrastructure provision; and
- Providing greater confidence for businesses to expand and invest in new developments.

Hard and soft infrastructure

The plan provides a framework for identifying and addressing the emerging infrastructure needs of Queensland businesses and addresses the development of soft infrastructure including telecommunications, skills and education, and innovation and technology infrastructure throughout the State.

Limited use of partnerships to date

5.1.2 Private sector partnerships

The plan provides for partnerships with the private sector as a way of achieving improved and lower-cost method of providing and delivering public sector works, services and infrastructure projects. It suggests that significant private sector involvement in the provision of public infrastructure should be encouraged in infrastructure projects where it can be shown that the State will achieve better value for money through a relationship contract with the private sector for project delivery and/or service, compared with the option of delivering the project and/or service entirely at the public sector's cost and risk. However, in practice only limited use has been made of these partnerships.

Annual Implementation Plans

5.1.3 Implementation of the plan

A CEOs' Committee, comprising the Directors-General of the infrastructure and economic development departments, manages implementation of the State Infrastructure Plan. Annual Implementation Plans detail specific infrastructure initiatives (public, private and partnership arrangements) that have been committed in each financial year.

Implementation plans also incorporate an indicative forward program of possible infrastructure projects that may support the State's development, but which require further research and development.



Still, infrastructure shortfalls

Despite the well developed processes, Queensland has faced severe and embarrassing infrastructure shortfalls in the last few years. They have occurred mainly in southeast Queensland but also in other locations, notably the Dalrymple Bay coal port.

The southeast Queensland problems are the result of infrastructure not keeping up with a population and construction boom. They show the advantage of analysing expected developments, including differences between one region and another, along South Australian lines. They also reflect the Queensland Government's extreme caution (compared with other Australian states) over public private partnerships, and a reluctance to employ pricing instruments to help manage demand.

The Dalrymple Bay problem – that of a coal port proving inadequate for increasing exports to China – was difficult to predict in advance. The port had spare capacity and then exports suddenly boomed because of China's growth. On the information available earlier, it would have been difficult to make a case for investing in increased port capacity. When the shortfall became evident, the catch-up task was aggravated by regulatory problems. This was an example of the problem of infrastructure decision-making under uncertainty, as discussed above the real options approach. A solution in this case, not requiring the wisdom of hindsight, would have been to prepare so that possible expansion could take place quickly, as discussed in the NSW water case below.

5.1.4 Lessons for Western Australia

Common approach to all infrastructure

The integrated approach in Queensland recognises the primary importance of all classes of infrastructure in supporting economic development and hence uses a common approach to assess both hard and soft infrastructure needs.

Lack of prediction and responsiveness

The comprehensive approach in Queensland should deliver timely infrastructure. As indicated above, on-ground performance has fallen short of the government's objective, however. With hindsight, the processes developed in 2001 did not identify quickly enough the infrastructure demands caused by rapid growth in parts of the State, especially southeast Queensland. The South Australian model (section 5.3) may prove to be superior on this score.

It might also be expected that this approach would give Queensland a competitive advantage in dealing with the Australian Government for infrastructure funding. Discussions with Queensland officials, however, reveal that Queensland has very similar issues to Western Australia with the ad hoc Commonwealth approach.

5.2 Victoria

Project evaluation and priority setting, but...

- no whole of government approach
- split responsibility
- political drivers

Victoria's infrastructure decision-making processes are broadly similar to those of Western Australia. There are extensive project evaluation and priority setting arrangements, and Victoria has been to the forefront in adapting the UK Private Finance Initiative approach to Australian conditions (known here as public private partnerships, PPPs). However:

- There is no formal whole of government or a future planning related approach equivalent to that being implemented in South Australia (see section 5.3);
- Responsibility is split between the Department of Infrastructure (for most infrastructure) and other departments (for water, hospitals and schools);
- Some infrastructure decisions have been driven by political considerations rather than infrastructure decision-making disciplines, notably the \$1 billion regional fast train project whose economics were criticised in an ACIL report and subsequently in an Auditor General's report. The project will confer benefits to some Victorian regions but they are outweighed by the costs. The ACIL report pointed out that larger regional benefits could have been obtained by spending a smaller amount of money extending gas pipelines, three-phase electricity distribution and regional broadband.

Good examples of PPPs

On a more positive note, Victoria has successfully implemented some PPPs, notably the large CityLink motorway that was beyond the government's financial capability at the time and that introduced innovative tolling technology. In particular CityLink was a successful exercise in risk transfer (from the government) and risk management: when it turned out that one of the tunnels was leaking and needed expensive repairs, the full cost was met by the private parties and their insurers with none falling on the government.

An early PPP success involved a courthouse (the PPP provided accommodation services to the Department of Justice which in turn provided justice services to the population). Less successful cases were a prison whose operating contractor proved incompetent, a regional hospital whose owner could not earn enough to cover costs, and a major city railway station that proved unexpectedly expensive to build while trains were still running – but again the risks fell largely on the private parties. The lessons appear to have been taken on board by both the public and private sectors, and a refined version of the PPP model continues to be used.

5.2.1 Victorian Regional Infrastructure Development Fund

Similar to WA program

The Victorian Regional Infrastructure Development Fund (RIDF) is very similar to the WA Regional Infrastructure Funding Program. The RIDF aims

to improve the competitive capacity of regional Victoria and to enhance its economic development. RIDF funding is allocated to capital works that:

- Support industry development
- Improve critical transport linkages
- Develop and improve tourism infrastructure
- Establish links to opportunities in education and IT.

Since an integral part of the assessment process involves close co-ordination of State Government departments and agencies, the Victorian Government works in partnership with regional communities and other levels of government to attract investment.

Projects have to be of a capital nature, meet specified criteria and add to the socio-economic asset base of a region, municipality or local area.

Applications are considered from a range of regional organisations, including government agencies.

5.3 South Australia

Top-down and bottom-up approach to infrastructure

The new South Australian model utilises a mix of top-down (strategic) and bottom-up (regional) planning, plus increased coordination with the private sector. The background is that SA has been growing less quickly than Australia as a whole and the State Government would like to change that trend. It realises that the pattern of the Australian economy is changing with some sectors and regions growing faster than others.

South Australia's Strategic Plan establishes the broad long-term priorities for the State and provides the foundation for the Strategic Infrastructure Plan and infrastructure planning processes.

The Government wants to concentrate on where infrastructure needs are greatest, and to adopt a more rigorous whole-of-government and whole-of-state approach in identifying these needs⁶. A move away from the annual bidding process by individual agencies is a key goal. The Government wishes to develop a culture of managing across portfolios rather than within portfolios. The emphasis is on meeting needs prioritised in a whole of government process and on adopting the most appropriate funding method for each project.

The delivery of a project may move from a government agency across a range of alternative delivery arrangements including various forms of public/private partnership.

⁶ Strategic Infrastructure at Plan, Government of South Australia 2005

Five step strategy

As Figure 7 illustrates, the model is based on a five step strategy in delivering infrastructure.

- Strategic analysis of infrastructure needs, focusing on five and 10 year timeframes. This is a feature proposed in the Green Paper (with some modification) for Western Australia. The strategic analysis incorporates a large number (79) of government targets such as range of jobs, business climate, economic growth, investments, population, productivity, exports, credit rating, quality of life, health, crime safety, energy consumption and biodiversity.
- Defining the required services (consequent on the strategic analysis), asset management, and if appropriate, scoping a project to help provide services.
- Substantiating and assessing the project with a business case including financing and procurement options.
- Determining the funding method including any government resource allocation.
- Delivering the project.

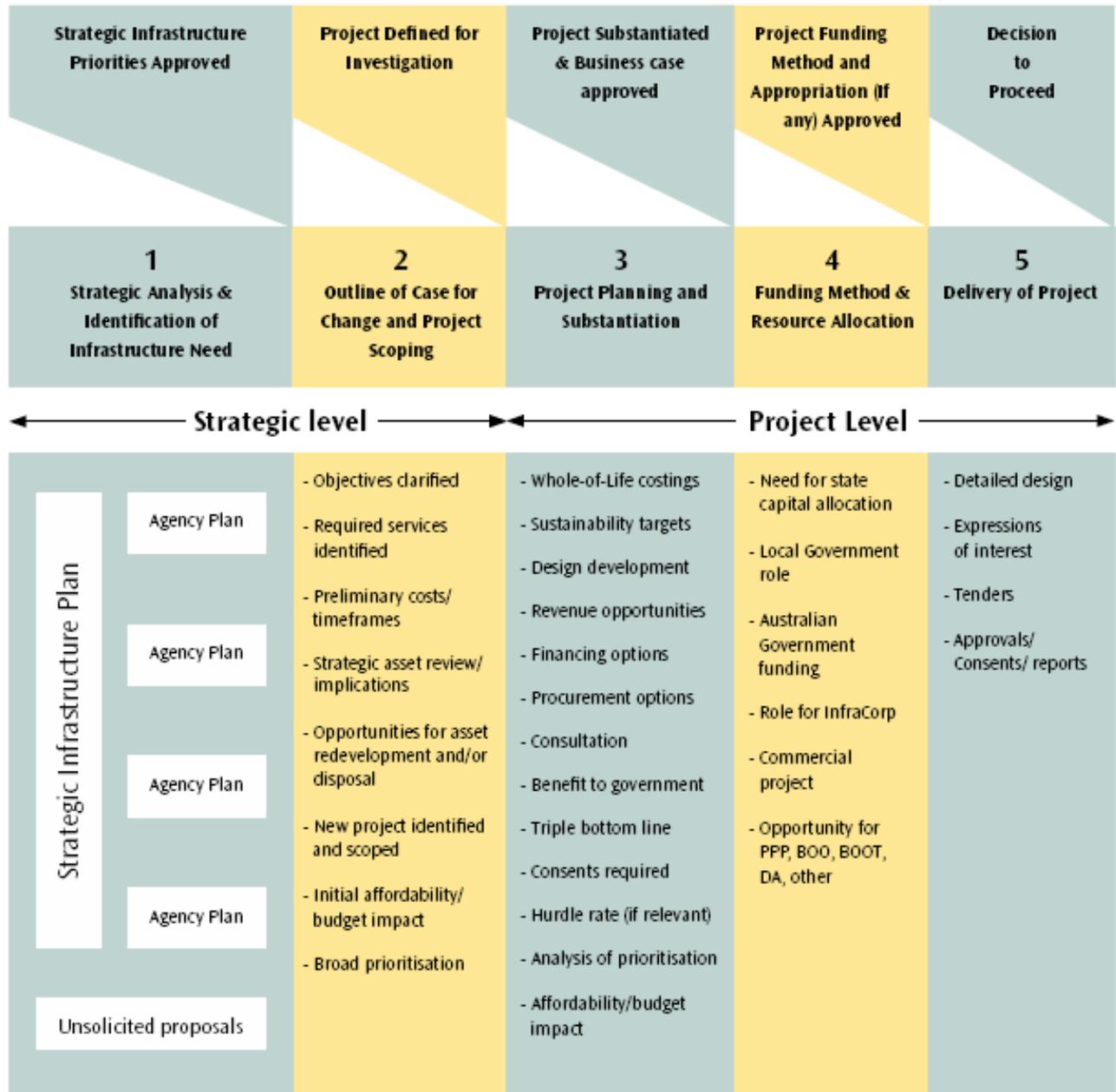
The analysis includes the allocation and management of risk, and triple bottom line considerations (i.e. economic, social and environmental).

The South Australian stresses that it remains open to considerations of unsolicited private suggestions and bids.

The Government notes that “there is a general overcapacity of built assets across government, but it is more often reflected an under-used and poorly maintained buildings and sites than vacant facilities”. Decisions on retention or replacement versus disposal of assets must be considered in the same whole of government context as decisions on new investments (and hence an improved infrastructure database is to be established). There is to be better use of shared facilities.

As the strategic approach was only announced last year, it is too early to say how well it is working. Success will depend on the quality of the strategic analysis and how well it is in practice integrated into decision-making.

Figure 7 South Australia: Infrastructure planning and proposed delivery framework



5.3.1 Lessons for Western Australia

Elements of best practice

As the WA Regional Development Council has identified, South Australia’s approach incorporates a number of features that have elements of best practice that could be applied in Western Australia. The SIS Green Paper proposes several of these features, notably the long term strategic analysis of



infrastructure needs over several timeframes (extended from 10 to 20 years in WA). The South Australian approach also involves a structured bottom-up approach to identifying needs.

Develop a cross-portfolio culture

A key feature is the objective of developing a culture to manage across portfolios rather than solely within portfolios. This is a key lesson for the future Western Australian infrastructure strategy. While the Regional Priority Planning process seeks to do this, it is not formally linked to ground-up infrastructure planning within agencies.

5.4 New South Wales

New South Wales has little to teach Western Australia on infrastructure decision-making and in one respect its performance appears to be worse – that of asset management (there have been suggestions, for example, that the urban rail network has been run down).

Application of real options approach

Recent New South Wales experience with policies for improving Sydney's water supply is an interesting application of the real options approach outlined above. Low rainfall and declining storage dam levels had led to announcements about a desalination plant and other infrastructure schemes, with widely differing efficiency in terms of expected water saving per dollar of investment.

However, real options analysis suggested that instead of a deterministic approach (low debt levels leading to investment decisions) it be seen as an insurance problem. Long-term rainfall records show that there have been two other long droughts in NSW's recorded history it is not known whether the current one will continue or (as in the past) end, so it is not known whether new water infrastructure investments will pay off. If there is no rain, the better projects will be worthwhile; however if there is rain the projects will be redundant - money spent saving water will simply mean more spill over the top of the dam. Given the uncertainty, the best policy is to prepare to be able to construct a desalination and/or water treatment plants quickly (obtain land, secure environmental and other approvals, etc) but hope never to build it.

5.5 Role of economic forecasting in the planning process

The South Australian approach involves medium and long-term economic forecasting that assumes better policies are in place and hence that the government's strategic targets (which are more optimistic than normally implied by forecasting) could be achieved.



Framework for better
infrastructure decision-
making

The forecasts are expected to assume some improvement in medium and long-term economic and demographic trends, and allow for the fact that some activity is increasing faster than others — notably the growth of particular minerals industries, parts of the service sector, electronics, and demographic movements to preferred locations.

If done well, this strategic “top down” analysis will provide a framework for better infrastructure decision-making. There will be a better chance that additional infrastructure be installed where it will be needed most in the future, and less chance of it being installed where there is less need.

The strategic analysis needs not to be too rigid, however. There may be a consensus or central view about likely growth areas and sectors, but it will be important to consider alternative scenarios – for example if some developments were slowed down by difficulties in domestic or export markets, or some expand more quickly than expected, as shown by Queensland’s problems. Past experience shows the weakness of rigid central planning, especially in economies exposed to international trade.

That said, an indicative strategic document that identifies the main relative changes considered likely within the economy and the differences between regions, will focus decision-making minds better than a simple bottom up agency-by-agency approach.

From a regional perspective, the strategic approach will help ensure that expected new developments, which in WA’s case will mainly be minerals developments in certain regions, have their infrastructure implications considered in good time rather than being crowded out by one-size fits-all or Perth-centric thinking.

6 Involving the private sector

6.1 Private and public sector roles

Private sector already a major provider of infrastructure

The private sector is a prominent provider of infrastructure in Western Australia, especially in regional areas. Mineral developments, which are nearly all in regional parts of the State, often finance the infrastructure that they use themselves, such as the Pilbara railway lines and the Worsley bauxite conveyors. There is a mixed pattern with common user infrastructure – the private sector provides telecommunications services, non-urban railway transport, some airports and gas supply ; with local roads, developers either provide them or contribute to user charges. Electricity is retailed by a corporatised entity that has some of the characteristics of private provision. There are numerous private sector wholesale electricity suppliers.

Public sector provides most social infrastructure

In Western Australia the public sector provides most social infrastructure such as most schools (including those for the families of mining personnel), the justice system and other infrastructure associated with public services. The health sector is mixed – most hospitals are public, but primary care (GPs etc) is essentially private.

This division of responsibility is relevant to regional Western Australia in that the initial infrastructure that is essential for new developments (transport, communications, electricity, gas) is provided by developers or other private (or corporatised) companies. This infrastructure tends to be provided wherever there is a demand for it, without the need for government intervention. However, the government has an important role in providing social infrastructure and, when necessary, expanding the capacity of common user infrastructure, notably roads and urban rail services. In some cases where projects are not commercially viable but are necessary for what are judged to be essential services, the government pays for subsidies or community service obligation payments to private providers.

6.2 Current Western Australian policies

Current policies on private sector involvement in are set out in the Green Paper.

Further growth in private sector role

The Green Paper notes the expanded role for private sector involvement in infrastructure provision in recent years. It foresees further growth in the private sector role including

- Build own and operate (BOO) schemes;

- Build own operate and transfer (BOOT) schemes;
- Public private partnerships – e.g. where the private sector provides infrastructure which in turn is used by a government entity to provide a public service, such as a privately provided and maintained courthouse;
- Property developers providing some of the economic and social infrastructure in new developments; and
- Design build and manage schemes for government assets.

Consistent with other
Australian jurisdictions

The extent of private sector involvement in Western Australia's infrastructure is broadly consistent with other Australian jurisdictions, except Victoria where the private sector role is more extensive, notably in electricity and urban rail transport. Victoria and NSW also have private provision of toll roads, unlike Western Australia.

In many countries overseas there is also private provision of water and waste water services, usually by one of the large French water companies.

There is a case for considering an extension of the private sector's role. Private sector infrastructure providers have a commercial incentive to respond to emerging regional demands without being caught up in government decision making and funding processes. For example, telecommunication services are routinely provided wherever there is a demand for them. Private provision elsewhere of electricity generation and distribution, urban rail services, and water and wastewater services has generally been successful. The main issue to address in considering a change is that of possible monopolies, which can be addressed by having several players in the sector (as with Victorian electricity, previously a single public sector entity) or by economic regulation.

6.3 Public private partnerships

Innovation and risk sharing

PPPs provide opportunities for private sector innovation and for the sharing of risk (i.e. the government sheds risk to the private sector when the latter is better placed to manage it). They also provide the opportunity to tap into superannuation and other large funding sources at a time when governments prefer to be fiscally prudent, although there is debate about how far this can go given that the government still faces residual risks.

Although a PPP policy has been introduced in Western Australia, and is generally similar to that of other jurisdictions⁷ and of the United Kingdom (where it first began, as the Private Finance Initiative) it has, according to the Green Paper, been constrained by insufficient scale of projects compared with

⁷ In particular it is broadly consistent with PPP policy in Victoria which has tended to be the pioneer in Australia, and is more positive than in Queensland where the government remains lukewarm about PPPs.

the costs of setting up the deals. This is obviously a particular problem in regional areas. The problem can be expected to ease because:

- With experience it will be possible to reduce the “transaction costs” associated with PPP deals, by learning from experience with earlier deals and by replicating parts of successful contracts. Over time a larger number of professionals with PPP experience will become available, providing competition for the early starters.
- The minimum project size can sometimes be achieved by bundling smaller projects, e.g. by building several regional police stations or schools under the one contract. This approach has been successfully applied in NSW (two batches of 9 schools each, each batch with a capital cost of approximately \$100m; two prisons) and South Australia (six police stations, multiple courthouses, each batch costing under \$100m). In these cases the state government was the principal party; bundling is much harder when the principals are local authorities.
- The minimum size can also sometimes be achieved by having multiple uses – for example, supermarket in our regional development area, part of which is walled off and used as a school (or as offices for government and community services) until the population has increased enough to justify a separate facility.

Provided the steps taken continue to cautiously draw on experience (positive and negative) elsewhere, ACIL Tasman’s view is that increasing private sector involvement provides a means of better addressing infrastructure needs in regional Western Australia.

7 Alternative funding mechanisms

Major innovation in financial products over the last twenty years means that there is now a vast array of funding models used to finance infrastructure assets. The models and mechanisms outlined below are amongst the most relevant for funding infrastructure assets in Western Australia.

7.1 Blended tri-level infrastructure funding model

Blended tri-level public sector funding can be an attractive mechanism for funding infrastructure assets especially in regions with high economic growth and rapidly expanding populations.

The main attraction of this sort of blended funding model (first proposed in the State of the Regions Report 2004-05⁸) is its capacity to reduce borrowing costs for local government, where councils may be experiencing a funding shortfall until revenue generation catches up with infrastructure demands.

The model distinguishes between two types of infrastructure (i.e. 'catch-up' and 'strategic').

- Strategic infrastructure refers to infrastructure that would strengthen a region's advantage over other regions.
- Catch-up infrastructure refers to:
 - Maintenance of infrastructure
 - Either improving infrastructure that is of lower quality or providing infrastructure that is not yet in place
 - Keeping up with technological advances.

The idea is that catch-up infrastructure is funded primarily by user charges, backed by national grants programmes, including financial assistance grants to councils. Strategic infrastructure, on the other hand, is the component which is funded by blended government loans.

The tri-level funding model proposed in the ALGA report combines Commonwealth, State and local government contributions for infrastructure investment projects. The advantages of a combined funding model include increased local independence in project selection and design, and lower interest rates due to participation by State and Commonwealth Government.

Under a blended funding scheme, the Commonwealth Government would pay its portion of the loan with a single grant upon project completion. The State

⁸ State of the Regions Report 2004-05: Australian Local Government Association.

Proposed in State of the Regions Report

Combines Commonwealth, State and local government contributions

pays its portion of the loan off more gradually while local Government (either individually or in a regional grouping) pays its portion of the loan over a longer-term period.

An example of this loan structure for a loan of \$10 million over a 30-year period for a strategic infrastructure project would be as follows:

- The Australian Government provides the smallest share of the loan but pays its portion via a single grant upon project completion;
- The State provides a larger contribution than the Australian Government but commences its repayments immediately, repaying its portion over a 17 year period; and
- The local government pays the largest contribution but does not commence repayments until project completion), and pays its portion over a 27-year period.

The objective of this sort of arrangement is to repay debt rapidly during the early stages of the project, tapering off as the local government assumes more repayment responsibility.

7.1.1 Application in regional WA

For this sort of funding mechanism to work in regional Western Australia (and elsewhere in Australia), the Australian Government would need to develop some sort of national infrastructure register to identify infrastructure needs and opportunities. A clear set of principles would then have to be established on which to base State and Commonwealth funding. These principles would, in turn, have to create a ranking for all proposed projects. Specific State and Commonwealth infrastructure funding pools would also have to be created.

Lower cost of funding

Parameters for local government debt would also have to be clearly defined as well as local governments' ability to manage debt for large-scale strategic infrastructure projects. The positive as far as regional WA is concerned is that this approach could considerably lower the cost of funding. It could also enable regions to undertake more timely infrastructure investment while their revenue streams catch up.

7.2 Infrastructure funds and future funds

Dedicated infrastructure funds

Dedicated infrastructure funds have become more widespread over the last decade as developed economies with ageing facilities address the need to modernise strategic infrastructure.

Canada's Strategic Infrastructure Fund is a good example of such a scheme, and how it might be administered and coordinated through a holistic administrative approach. If the Western Australian Government was willing to

hypothecate part of the State's royalty payments from mineral operations, this could be a possible contender.

Future funds

Alternatively, rather than fund dedicated solely to infrastructure, the Government could establish a Future Fund whose investment mandate could include the funding of strategic infrastructure under soft loan arrangement or provide funding out of interest and dividend income.

Indeed, the Australian Government has already set aside \$18 billion in the Future Fund to be invested in financial assets by the (Future Fund) Board of Guardians to help to meet the Government's unfunded superannuation liabilities.

There are not yet any global examples of 'Future Fund' based models used solely for infrastructure development purposes. Specific government investment in 'low risk' infrastructure projects could offer a good long-term rate of return and acceptable security.

The Norwegian Government Pension Fund is a good example of a future fund model, which could be readily adapted to funding infrastructure projects. In this particular case, while all investment by the fund is directed overseas, a fixed proportion of 4 per cent of returns is directed towards the Federal budget, unspecified.

The Alaska Permanent Fund is another example of a future fund. Owned by the State of Alaska, the fund was established almost thirty years ago as the construction of the Alaska pipeline neared completion. Some 25 per cent of all mineral lease rentals, royalties, royalty sales proceeds, federal mineral revenue-sharing payments and bonuses received by the State of Alaska have to be placed into the fund, the principal of which may only be used for income-producing investments.

The fund is fully invested in the in domestic and international financial markets, diversified among a variety of asset classes. It generates income from these investments. The legislature may spend realised fund investment earnings. Realised earnings consist of stock dividends, bond interest, real estate rent and the income made or lost by the sale of any of these investment assets.

In Western Australia, budget surpluses and mining royalties could potentially seed a future fund in a similar way to Norway and Alaska, and a portion of the returns could be allocated specifically to infrastructure. The Green Paper canvasses the idea of an infrastructure development fund, financed by allocating a share of mining royalty receipts. The paper concludes that specific allocation from the existing Consolidated Fund is a better approach.

The Great Southern Development Commission (GSDC), in its submission to the Green Paper, suggested the application of this type of model to fund the infrastructure needs of government trading enterprises such as ports. The idea put forward by GSDC is that a portion of the dividends paid by government trading enterprises is pooled to seed a State Infrastructure Development Fund. This could be combined with mining and other royalties in much the same way the Norwegians have done.

7.2.1 Application in regional WA

The advantages of such funding mechanisms for regional WA are fairly obvious. At present, the Commonwealth has most of the access to the most efficient tax bases (i.e. household and business income and consumption expenditure). Furthermore, the Commonwealth benefits from royalties it receives from resources located offshore beyond the State boundary. As the State Government often contends, the Commonwealth receives the lion's share of fiscal benefits from Western Australia's resource projects the Commonwealth without the burden of contributing to the infrastructure that supports such developments. Other revenue streams (e.g. from on-shore royalties) are effectively eroded by redistribution to other States through horizontal fiscal equalisation.

Given that local councils need access to a revenue streams sufficient to keep pace with the demand for service delivery and infrastructure provision in their jurisdictions, a Western Australian future fund funded partly by resources royalties, superannuation investments or the like could help to bridge regional WA's obvious infrastructure funding gap.

However, convincing Commonwealth and State Government proponents that such a fund has merit could be challenging.

7.3 Pooled financing and revolving funds

“Pooled” financing arrangements allow municipalities and regional authorities to group infrastructure projects together and, as a result, to use government grants and/or future revenues as collateral to tap private capital.

Pooling risk across multiple projects reduces the overall potential for default and increases bond investors' assurance of repayment. By grouping relatively small individual infrastructure projects together, municipalities/regional authorities can more easily attract private capital and at less punitive interest rates, while at the same time reducing the risk to investors.

Borrowers also benefit from economies of scale related to marketing, origination and monitoring costs. This financing model is gaining attention as

Group infrastructure projects together

an effective way to substantially increase the amount of capital available, reduce the cost for borrowed funds and facilitate the development of local capital markets.

Revolving loan funds pool financial capital using federal and state or provincial funds, and local governments then borrow from the pool to debt-finance infrastructure. Revolving loan funds are a form of intergovernmental borrowing, and have been a long-standing source of debt-financing for state and local infrastructure in the US as well as the European Union (EU).

7.3.1 Application in regional WA

This type of funding provides subsidised interest rates and other credit enhancements such as reduced default risk, which can result in lower borrowing costs and/or longer borrowing maturities. For many areas of regional WA, this type of pooled funding makes sense especially where there are clear synergies between projects and regions.

However, as with all of the funding proposals and mechanism outlined in this chapter, local government balance sheets could be encumbered by increased debt levels and repayments.

7.4 Smart debt

“Smart debt” recognises borrowing as a valid form of infrastructure financing, and seeks to facilitate infrastructure investment by growing public and political tolerance for increased levels of tax supported debt.

Smart debt comprises five components:

- It recognises that not all capital projects are equally well-suited for tax supported debt financing. Under a smart debt policy, a list of priority infrastructure projects is developed, and presented as the candidates for which debt-financing will be pursued.
- Second, smart debt works out a consensus regarding a sustainable level of borrowing or some notion of optimal debt relative to future operating budgets and anticipated population and economic growth.
- Third, smart debt sets out policies regarding amortisation periods, which can range anywhere from 5 to 30 years. Longer amortisation allows more borrowing to occur without impacting the costs of debt servicing. Amortisation should be set to match the expected life of the asset.
- Fourth, a smart debt policy also addresses the use of serial or sinking fund debt, and other debt forms such as structured, retractable, and bullet-style debt. Each structure carries different advantages and disadvantages. With bullet debt, for example, only the interest on outstanding debt is paid for

Increased levels of tax supported debt

the first half of the term. During the second half, both principal and interest payments are made.

- Finally, smart debt recognises that borrowing only finances infrastructure, and that the debt itself must be funded. Consequently, a comprehensive repayment plan should be drawn up before debt is issued.

7.4.1 Application to regional WA

While resistance to the increased use of debt in Western Australia may make smart debt options politically sensitive, the notion of smart debt helps to work around potential opposition by instituting specific revenue repayment polices. The fact that it usually ties debt to specific projects and revenue streams might also make a little more palatable for regional infrastructure.

7.5 Developer contributions

There is an opportunity for private developers to take a larger role in the provision of community based infrastructure where the need for infrastructure has been generated by their development. Currently, developer contributions are typically used to provide infrastructure to new real estate developments. All Australian States have legislative frameworks that support developer contributions.

Table 4 **Developer contributions for infrastructure in other States**

State	Nature of contribution
New South Wales	Cash or kind contribution for a range of public purposes- fixed formula set by council or voluntary planning agreement. Supported by Section 94 of the Environmental Planning and Assessment Act 1979
Queensland	Contribution for infrastructure (including community facilities) by fixed formula (set by the State Government), agreement with the developer or condition of development approval Supported by Integrated Planning Act 1997
Victoria	Contributions through fixed formula or voluntary developer agreement (maximum for fixed formula set by the State Government) Supported by section 173 of the Planning and Environment Act 1987
Tasmania	Developer agreement
South Australia	Contributions for open space (up to 12%) and car parking
Western Australia	Contributions through conditions set by the Western Australian Planning Commission at the time of subdivision (does not include community infrastructure)



There is some potential for Western Australia to follow Victoria and New South Wales, which have recently amended legislation to enable specific charges over and above traditional developer contributions. These charges are to be levied in identified growth areas with the aim of helping to ease the burden that rapid growth places on the orderly provision of infrastructure.

7.6 Special levies

Special levies are a funding method used to cover needs that are difficult to fund through user pays, and for which there is a benefit in explicitly identifying them separately from other general tax levies.

Typically, special levies are accompanied by a special fund established by the municipality/regional authority to manage special levy revenues. In more sparsely populated areas of regional WA, new revenue raising may prove to be problematic if the population base for example is not sufficient to support such initiatives.

8 Conclusions and recommendations

Green Paper approach sound, but some limitations

The practices in place in Western Australia and now being proposed for the State Infrastructure Strategy together will be broadly consistent with good practice in most other Australian jurisdictions and overseas. The approach proposed in the Green Paper appears to be comprehensive and sound. It has some limitations, however.

Current practice falls short for regions

There are aspects of approaches in other jurisdictions that if modified for Western Australia's circumstances, would improve both process and outcomes. Best practice is a dynamic concept, however, and is moving ahead in several areas. Further improvements to the WA approach are needed. In particular, current practice falls short in planning for infrastructure in *regional* Western Australia:

– need to elucidate goals

- The goals for Western Australia's economic and social development – and the role of infrastructure – need to be elucidated more clearly and publicly by the State's leaders.

– need projections for growth and development

- There are no long-term or State-wide or region by region projections for growth and development that could guide infrastructure planning.

– whole-of-government strategic approach

- There is an inadequate whole-of-government strategic approach to anticipate the infrastructure needs of new developments and population growth. This includes an inadequate approach to ground-up region-wide assessments of infrastructure priorities. Currently, this is done on an agency by agency basis, reinforcing silos and compromising whole-of-region and whole-of-state prioritisation between infrastructure types.

– address threshold gap

- Project sizes, especially in the regions, often fall short of proposed \$5 million regional threshold in the State Infrastructure Strategy and it is not clear what mechanisms are proposed for assessing projects below this threshold.

– management under uncertainty

- There are few strategies to manage investment decision-making under uncertainty – typical of many infrastructure projects especially in regional areas (where uncertainties are more pronounced because the range of economic activity is narrower than in the metropolitan area).

– remedy remote social infrastructure deficiencies

- A strategic approach to remedying social infrastructure deficiencies in remote areas with high populations of indigenous people is absent, which will affect their ongoing well being.

– infrastructure maintenance

- A strategic and consistent approach to infrastructure maintenance needs to be emphasised to achieve a comprehensive approach.

– inter-government approach

- While the deficiencies of the current Commonwealth-State interface on infrastructure are constantly highlighted by Western Australia, the approaches proposed for the State Infrastructure Strategy do not provide for an integrated, cooperative approach between governments.

With the implementation of the recommendations in section 8.1, Western Australia's approach to infrastructure would be at or close to current best practice.

8.1 Recommendations

A best practice model for infrastructure decision-making and funding in Western Australia would not involve discarding current practices but instead would add to them. ACIL Tasman recommends enhancements along the following lines.

Strategic goals for Western Australia

The State Government needs to set out clear goals for the State's economic and social development that, along with their rationale, are well understood in the community. These goals would communicate the direction of State development, highlight the role played by the State's regions and identify the critical role of infrastructure in underpinning development. The Government's *Better Planning: Better Futures, A Framework for the Strategic Management of the Western Australian Public Sector* provides a good basis for this.

Projections for growth and development

The State Government, in consultation with stakeholders, needs to prepare a strategic assessment that identifies how the State will grow in the next five, 10 and 20 years, including changes in the mix of economic activity by sector and by region. This assessment should be revised periodically in advance of the review of the State Infrastructure strategy. It will provide a strong basis for infrastructure planning.

Common approach to all infrastructure

A common approach to consideration of all classes of infrastructure across all locations is required to ensure that planning and delivery of infrastructure occurs efficiently and equitably (although individual decisions emerging from the common approach will vary according to circumstances). While the State Infrastructure Strategy will address infrastructure above threshold values, there is a need for a similar, regionally-based approach to infrastructure that falls below threshold values.

Consistent policies and approaches to infrastructure management and planning are required at all levels of government. The State government should seek to ensure a consistent approach by local government.

The Commonwealth government needs to implement a national infrastructure policy that aligns with state approaches.

Top down and bottom up planning

The infrastructure needs identification and prioritisation process should provide both top-down and bottom-up assessments. Within this approach, a process is required that works *across* portfolios rather than solely within portfolios and/or agencies to overcome “silo” planning.

The Regional Development Commissions can assist with the top-down approach by contributing to the 5, 10 and 20 year strategic assessment, helping identify likely areas and types of growth in their region.

The Regional Development Commissions have a key role to play in bottom-up, region-wide infrastructure planning. Their legislation charges them with this role, which should be recognised and formalised within the State Infrastructure Strategy process. The Commissions should be empowered to coordinate regional needs assessment, prioritisation and planning (in consultation with private sector project investors and infrastructure providers) across agencies before those agencies provide proposals through the Strategic Asset Planning Process. There may be additional resources required by Commissions to undertaking these tasks well.

Infrastructure maintenance

A strategic, state-wide approach to long-term infrastructure maintenance and upgrading is required within the State Infrastructure Strategy. This should include:

- Consistent approaches to maintenance planning and budget allocation across all agencies;
- Provision of guidelines to local government to develop consistency and build capacity at that level; and
- Integration of maintenance and upgrading into the overall infrastructure planning approach.

Thresholds

The threshold “gap” in the State Infrastructure Strategy between the proposed \$5 million regional project value and the lesser cost of some important regional projects needs to be closed. One approach could be to allow aggregation of multiple smaller projects within a region or of similar projects (e.g. schools) across several regions for the purpose of planning under the strategy.

Private sector involvement

Flexible approaches to private sector involvement are needed to make regions viable investment destinations. This includes mixed-use facilities, bundling of projects (as in NSW and SA) and possible adoption of a new UK variant of the PPP model that suits smaller projects. There is also the case for considering extending the private sector role into areas now catered for by the public sector, in order to tap into efficiency incentives and new sources of funding. (with monopoly concerns addressed by low barriers to entry or by regulation).

Legacy issues

There needs to be a priority on addressing legacy issues arising from past infrastructure under-investment in remote communities to overcome deficiencies and help to address economic and social disadvantage.

Decision-making under uncertainty

Decision-making on infrastructure is often undertaken in the face of uncertainty, particularly around the timing and scale of major projects, and patterns of population growth. It is recommended that "real options" economic tools be used to reduce "downside" risks, improve decisions on project timing and size, reduce bias against long-term projects and enhance decision-making under uncertainty.

Funding models

While government funds for infrastructure are always limited, the use of infrastructure planning tools in the SIS and as proposed here will provide a sound basis for infrastructure prioritisation, planning and funding.

A Terms of Reference

The Request for Quotation issued by the Department of Local Government and Regional Development on behalf of the Regional Development Council specified the following scope of services.

Outcome

The Regional Development Council is seeking a Contractor to complete a report that provides a review and makes recommendations on the adoptions of ‘best practice’ models for the allocation of public infrastructure funding (the report), as detailed below. The recommendations must be relevant and appropriate for regional Western Australia and must contain recommendations to ‘value add’ to the decision making process and allocation methods for funding of infrastructure within the State. The model should have the potential to allocate WA’s infrastructure needs up to 2027 (ie 20 years into the future).

The report will be used by the Council to input into the Green Paper consultations to be undertaken by the State Infrastructure Strategy Reference Group (supported by the DTF) as part of the development of the State Infrastructure Strategy.

Description of Requirements

The successful Respondent must (but should not be limited to):

- review the research undertaken for the DTF to establish the current CIPRAP model;
- conduct a thorough analysis for best practice fund allocation in relation to public infrastructure, and other fund allocation models worldwide;
- assess suitability of those models to the regional Western Australian situation, using the current DTF model as the bench mark; and
- propose a recommendation for the appropriate ‘best practice’ model for the State of Western Australia to deliver regional infrastructure optimally up to the year 2027.

The recommended ‘best practice’ model(s) must include:

- add value, where appropriate, to the current methodology and criteria for determining the priority of public sector infrastructure needs within the State;
- address mechanisms to shift regional infrastructure projects from within a specific agency structure to a whole of government portfolio approach;

- include coordinating and allocating structures which involve the regions;
- have regard to the Government's Strategic Asset Management Framework; and
- address infrastructure investment risks in regional areas, and mechanisms used to ameliorate such risks for both private and public sector infrastructure funding providers, including joint funding/provision of infrastructure funding by private and public sectors.

Issues that the study should consider (but not limited to) include:

- Criteria to be used for assigning priority and for allocation of public sector funds to infrastructure projects. The selection criteria against which infrastructure proposals are considered would be designed to support the overall goals and objectives of the State and would facilitate unbiased and transparent prioritisation and funding of infrastructure projects in the State's public sector.
- Incorporation of needs based assessment funding into decision making process and allocation mechanisms for the State's infrastructure expenditures. Needs based assessments would allow smaller projects which may impact significantly on smaller regional communities to be equally weighted against larger more expensive projects. Needs-based funding requires a complex, micro-oriented methodology, and requires a consensus on how to define and measure need for a particular service.
- Better incorporation of Regional Development impacts and policy considerations into allocation of the State's infrastructure funding.

Form of Report

The report recommendations are to be a result of independent analysis and presented in a format that is accessible for all stakeholders.