

# Institutional Arrangements for Land Use and Transport Integration

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## INTRODUCTION

Is transport a means to an end or the end in itself? Many integrated transport studies, plans or strategies for cities identify transport as a player in the game of achieving sustainable and liveable cities. This article briefly explores the planning and institutional issues in how governments can achieve this desired outcome. The previous experience of the author in Western Australia forms the basis for much of the discussion.

## DESIRED OUTCOMES

Many city local authorities in the United Kingdom seek to be recognised "premier European" cities. For example the Bristol Local Transport Plan includes a vision statement for the city that describes Bristol as an emerging "premier European city" with a reputation as a "major location for business and also a place where people wish to live and visit" (Bristol City Council, 2000). The Greater Manchester Local Transport Plan includes an overall vision to "establish Greater Manchester as a creative and distinctive European regional capital". The vision statements recognise the key role of transport in achieving these overall visions.

The South East Queensland Regional Plan (SEQRP) also sets out a similar vision albeit in a different context, that is non-European. The SEQRP vision is "a future for SEQ which is sustainable, affordable, prosperous and liveable; where;

1. communities are safe, healthy, accessible and inclusive;
2. there are diverse employment opportunities, and quality infrastructure and services, including health and education;
3. urban and rural areas are mutually supportive and collaborative in creating wealth for the community;
4. development is sustainable, well-designed and the subtropical character of the region is recognised and reinforced;
5. ecological and culturally significant landscapes are valued, celebrated and protected; and
6. the community has access to a range of quality open space and recreational opportunities.

(Queensland Government, 2005, p9).

The SEQRP sets out the direction through desired regional outcomes for, amongst other things, urban form and integrated transport.

The Sydney Metropolitan Strategy Discussion Paper strives to achieve the right balance between managing the city's consumption of resources and balancing environmental, economic and social outcomes (NSW Department of Infrastructure, Planning and Natural Resources, 2004). The elements to achieve this include managing growth to limit urban sprawl, building liveable communities, strengthening employment centres and precincts and connecting centres with the transport network.

The Western Australian Planning Commission (1996) mirrors the Sydney Metropolitan Strategy, albeit state wide, through the desired land use planning outcome as an orderly planning process that achieves regional wealth, conserves and enhances the environment and builds dynamic and safe communities.

The Perth Metropolitan Transport Strategy (MTS) has a similar vision: "Perth will be a place of vitality and well-being. There will be a sharing of spaces for living, work and leisure activities, which can be reached easily and safely by all members of the community" (Western Australian Government, 1995, p9). To achieve the vision the MTS identifies how the transport system can help achieve this vision through the need for better coordination of the components of the transport system, greater land use and transport integration and improved efficiency of transport infrastructure and services.

The terms that are consistently used to describe how transport helps achieve these visions include integration, choice, economic development, regeneration, accessible, efficiency, safety and amenity. The critical term is integration and what does this mean ?

### **INTEGRATION**

The UK Department for Transport in its New Approach to Appraisal (NATA) identifies four areas of integration:

1. Integration with and between different types of transport modes.
2. Integration with the environment.
3. Integration with land-use planning.
4. Integration with policies for education, health and wealth creation.

(Department for Transport, 2002a).

These four areas of integration can be condensed into three:

1. Integration of modes – to make travel more sustainable.
2. Integration of transport and land use – to reduce the need for travel.
3. Integration with whole of government policies – environment, education, health, etc.

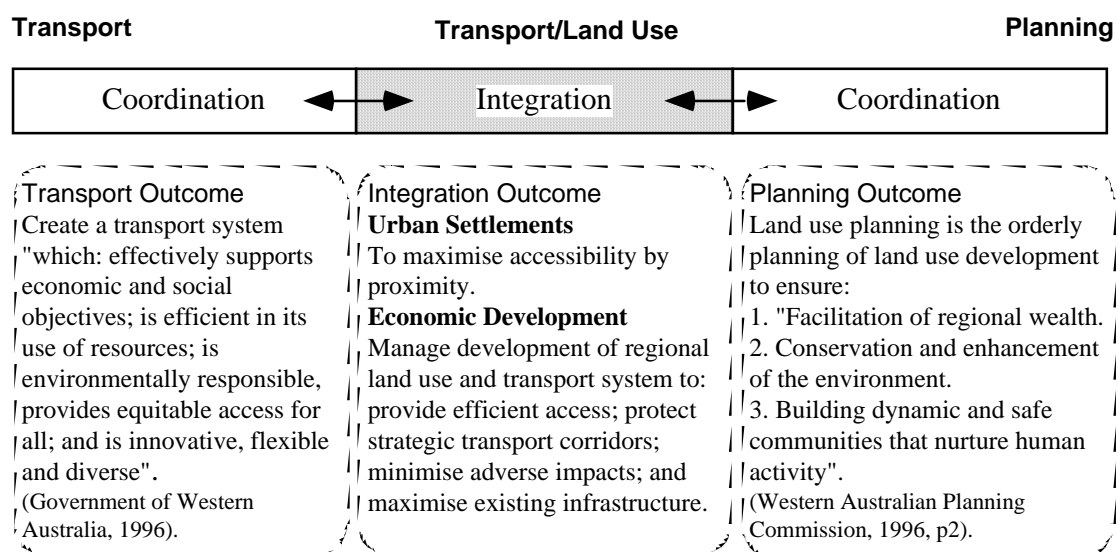
The key to integration is the integration of land use and transport that, if achieved effectively, achieves integration of transport modes and whole of government policies. The remainder of this paper focuses primarily on the integration of land use and transport with the integration of transport modes and whole of government policies embedded in the discussions.

The term coordination is often interchanged with integration. Integration requires trade offs between individual elements to achieve a better outcome for the whole while coordination does not require trade offs.

## LAND USE TRANSPORT INTEGRATION

Greiving and Kemper (1999) link land use and transport planning together by defining the desired outcome for land use planning as “reducing the need for travel” and for transport planning “making the remaining traffic (travel) sustainable” (p2). Greiving and Kemper, however, only view the land use planning desired outcome from a transport perspective. Based on this view, reducing the need for travel, or “accessibility by proximity”, is the desired outcome for land use and transport integration rather than just land use. The previous Government of Western Australia’s (1996) desired outcome for transport matches Greiving and Kemper’s transport desired outcome; that is to make transport sustainable, equitable and safe.

The suggested integration outcome for land use and transport, separate from land use and transport outcomes on their own, is presented in Figure 1.



**Figure 1: Land use and transport integration desired outcomes.**

## GOVERNMENT FUNDING

The Western Australian State Treasury applies two policy decision making frameworks to the assessment of project funding from line agencies. The two frameworks are output based management (OBM) and Strategic Asset Management (SAM).

Output based management (OBM) is defined as “an activity based (output) information approach that will assist agencies and government to resource the outputs (i.e. the goods and services) required to achieve the outcomes (e.g. result, impact or need satisfaction) desired for the community” (Treasury, 1996, p 2). OBM enhances, at the agency and government levels, the allocation and management of resources (capital and recurrent) to purchase/produce specified outputs on a products/services basis.

OBM was introduced to State Government agencies by Treasury in July 1996. It forms the approach for funding from the consolidated revenue fund and agencies seeking funds must focus on:

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1. “Identification and specification of outcomes;
2. Identification, specification, measurement and pricing (full costing) of outputs;
3. Linkage between outcomes desired and outputs to be produced, including linkages across agency boundaries, and;
4. Purchase of only those outputs necessary to achieve government’s desired outcomes, from the most cost-efficient and effective public or private sector producers in a contestable (competitive) environment”.

(Treasury, 1996, p 2).

The application of OBM in part compliments the integration concept through the adoption of a whole of transport coordinated funding process in the purchase of assets to achieve the desired outcomes prescribed in the transport policies and strategies. The concept of integration reinforced by identifying the range of Government transport assets:

1. Natural environment - land and its associated ecosystem (eg remanent vegetation on road reserves in the wheatbelt).
2. Built environment - infrastructure (eg railway lines), fixed plant (eg loading facilities) and mobile plant (eg locomotives and rolling stock).
3. Heritage - natural (eg aboriginal sites) and built (eg buildings).
4. Intangible - intellectual property, human resources and goodwill.

The built environment is the asset group that is given the most consideration due to funding being spent on the acquisition of these assets. The other assets are more likely to be managed and protected. Nevertheless, they can be as important as built infrastructure and must be considered as part of transport asset management.

Strategic asset management (SAM) is defined as “*the comprehensive management of asset demand, procurement, use, maintenance, operation, rehabilitation, disposal and replacement to maximise the return on investment at the required standard of service.*” (Treasury, 1994, p4).

The SAM initiative was implemented by the Government in its objective to achieve a more rational and well researched approach to the provision and use of assets and services. It was developed following the findings of the *Commission to Review Public Sector Finances* and given high priority as a public sector initiative by Cabinet in 1993. In the transport context, SAM seeks to optimise investment returns to achieve the outcomes desired by the community, as prescribed in the transport policies.

There are a number of techniques reflected in SAM that are available to assist in managing transport assets. They are:

1. Demand management - influencing demand for particular services (ie decrease demand, increase demand, time of demand) so there is an optima match between demand and supply. Demand for transport is influenced by land use patterns, provision or non-provision of services and the decision making processes of users, both individuals and companies.
2. Heritage management - protection and preservation of assets that have significant cultural and environmental value to the community.

3. Life cycle costing - costing of the asset over its life as part of delivering the service, for the purpose of forward estimates and comparison with alternatives.
4. Risk management - minimising the risk of adverse consequences from or on the use of the asset.
5. Value management - providing the benefits of the service at the least long term cost.

These Treasury concepts help provide the policy setting for integration to be applied. However, Treasuries often respond to funding requests and do not initiate or undertake the integration functions. There is a need for effective integration processes and arrangements if the city visions are to be achieved. The next sections examine this challenge.

## **INTEGRATION PROCESS**

There are four processes that can be used to achieve integration. They are:

1. policy making,
2. integrated planning,
3. funding allocation, and
4. research and monitoring.

### **Policy Making**

The policy making role provides the overall strategic direction and settings in which plans are developed. The policy role also provides the interaction framework for the various functional elements within the transport portfolio agencies and co-ordinates policies that sit outside land use and transport integration. Examples of policy issues are policies for transport modes, transport pricing, housing, energy, employment and greenhouse, as per the UK integration concept. The integration of these policy issues is a key challenge of policy making in the context of the planning and infrastructure portfolio.

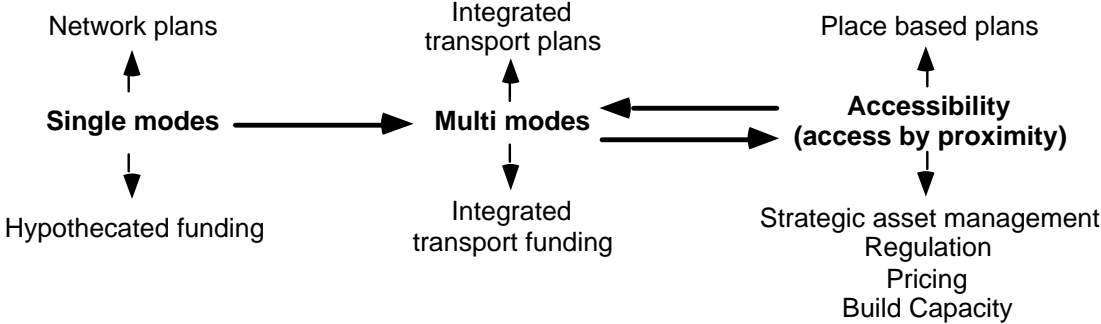
An example of a policy making issue that pervades much of the portfolio is the concept of sustainability. Sustainability is a term used widely in different contexts and understandings of what it means and how to achieve it varies accordingly, such as land use plans, capital works programmes and pricing policies. The Sydney Metro Strategy discussion paper includes a number of these.

### **Integrated planning**

Integrated planning is the process for integrating the resources and powers within a geographical setting, ranging from regional, sub-regional, local and site specific areas. The product of integrated planning often includes a two dimensional plan with actions and timelines. The integrated planning process can also involve community consultation and option testing to arrive at a desired outcome. Integrated planning also has the ability to create negotiated arrangements with key players involved in the geographical area of concern.

Defining a clear line of demarcation between policy making and integrated planning is difficult. Policy making differs from integrated planning in that it doesn't necessarily have the attributes of a plan; that is a specific geographical setting or a time line with components or milestones. As previously identified, policy making can set the strategic directions and setting that integrated planning strives to achieve. At the end of the day, a clear demarcation between policy making and integrated planning may not be important.

Transport planning needs to move from the traditional single mode planning to multi-mode planning and accessibility planning if the desired outcomes in the visions as outlined at the beginning of the paper are to be achieved. This progression is shown in Figure 2.



**Figure 2: Progression from single mode network planning to accessibility planning.**

Single mode planning comprises specific mode network plans (eg roads and public transport) and, in some cases, funding hypothecated to that mode through the agencies responsible for that mode. More often than not, each mode specific agency applies on an annual basis for capital and recurrent funding for the expansion, enhancement and maintenance/operation of their specific network. The traditional Government funding processes follow this model with each transport agency individually negotiating for capital and recurrent funding. Based on Westerman’s (1998) assessment, this is unlikely to foster integration.

The multi-mode approach is undertaken through integrated transport plans that are driven from the transport perspective and usually focus on integration of modes. In this case, land use is often taken as a given in the assessment of integrated transport plans (Department for Transport 2002). As a consequence, network planning often matches existing land use patterns and the local transport plan mixes the provision of different modes, non-built solutions and transport regulation and pricing to achieve the desired outcome of sustainable travel.

The accessibility approach is tackled through place based plans that bring together land use and transport planning interventions. The focus is on the geographical aspects of the specific site, spatial land use patterns (eg mixed use), the form of the physical environment (eg interface between roads and adjacent land uses), and economic and social drivers (eg retail shopping and employment). The economic and social drivers are similar to Greiving and Kemper’s (1999) informal policy lever. Place based planning approach is, to varying degrees, captured in the concepts of transit orientated development, new urbanism and the US Smart Growth movement.

The common element in both integrated transport planning and place based planning is that it is undertaken within a spatial setting where the location of transport modes and land uses affect the operation of each mode and land use. The objective is to maximise the benefits from the interactions of the different land uses and transport modes rather than just maximising the performance of the transport network in the single mode approach. The focus on the transport network is still important but it needs to be matched with the broader objectives of mode and land use integration such that network decisions in this context may be different. Effective place based planning approach is able to achieve the depth of

information and breath of understanding about how transport interactions work in a regional or local level that Faber Maunsell (2002) argue is required for effective integration.

The integrated transport plan and place based plan approaches are a more complex task in binding more stakeholders and levers into achieving broader objectives than the traditional single mode network planning approach. Plan creation is the process of testing options, obtaining stakeholder support and contributions, and integrating some or all of the levers within a geographical setting. If done effectively, integrated transport plans and place based plans are able to better deliver the desired outcomes for the portfolio. Single mode network planning will still remain relevant but not as the only approach.

The UK Department for Environment, Transport and the Regions (2000) developed a useful framework that compares the impact of the traditional single mode approach and the integrated transport approach on funding, research and policy making. The author has developed the framework further, contained in Table 3, to include the accessibility or place based planning approach.

**Table 3: Comparison between planning approaches.**

Single Mode Plans	Integrated Transport Plans	Place Based Plans
Single transport agency.	Multiple transport agencies.	Multiple transport and land use agencies.
Capital bids determined annually with longer term network plans.	5 year plans with greater certainty of future funding as well as agreed commitments from other players, including the private sector.	
Just a ‘bidding document’ for government funds.	The plan is partly a bidding document, but also a strategic planning document.	
Programme of capital investment.	Consideration of capital and recurrent, as well as other revenue sources and contributions.	
Resources tightly ring-fenced to particular areas of expenditure (eg modes).	Greater local discretion over allocation of resources within the context of the regional or local plans (eg across modes).	
Historically constrained to hard infrastructure.	Integrates modes and transport pricing and voluntary behaviour change interventions.	Integrates modes, urban design, land use patterns and economic drivers (e.g. retailing and employment).
Limited input from operators and local partners.	Inclusive approach, involving public and greater business participation. Also solves local problems in a more holistic way.	
Network objectives and network performance standards.	Greater emphasis on targets, performance indicators and monitoring in areas not previously covered (eg performance indicators linked to outcomes – increase in local employment).	
Historic emphasis on road and occasional urban railway schemes.	Emphasise integrated transport solutions to encourage walking, cycling and public transport.	Emphasises urban design, settlement patterns and integrated transport solutions to encourage walking, cycling and public transport.

## FUNDING ALLOCATION

In striving to improve transport and land use coordination in Western Australia, Hicks et al (2001) recommended that the service agencies within the planning and infrastructure portfolio ‘should not have direct access to allocations from the Consolidated Fund, but should receive any ‘on-budget’ funding through the central agency, the Department for Planning and Infrastructure’ (p166).

Funding of transport projects in the UK and US is often done within the context of local or integrated transport plans. Integration occurs within these plans, however there is need for a different funding model if planning is to progress from multi-mode to accessibility planning (Boston Region Metropolitan Planning Organisation 2002, Department of Transportation 2000, Department of the Environment, Transport and the Regions 2000, Department for Transport 2002a). In both countries, there is a link between the planning process and the decision making process to fund the elements within the plans.

Whitelegg (2002) adds another dimension to the funding process. He argues that “at the core of best value thinking is “compare and challenge”” (p17). In this context, the task of acquiring, assessing and allocating funding should be based on comparing and challenging the mix of levers to achieve the desired outcomes.

The US and UK approaches incorporate elements of integration and Whitelegg’s compare and challenge thesis. The integrated assessment process, as developed in the UK (Department for Transport 2002a), is embedded in the integrated planning process. When completing the assessment process to obtain funding, proponents are required to compare options within the integrated planning process. This means the mix of mode funding is determined by the plan without funds hypothecated to a specific mode. However, it could be argued that the diversity of options being tested, such as non-built solutions, could be greater.

The prime mechanisms for the integration in the UK are local transport plans and the New Approach to Appraisal (NATA). Local transport plans are developed by local transport authorities to achieve a set of national and local objectives. The plans are multi-modal and have linkages to land use planning, albeit passive. NATA uses an Assessment Summary Table, using both quantitative and qualitative measures, to assess transport projects. NATA strives to “promote a stronger economy, to provide better protection for the environment; and to develop a more inclusive society” (Commission for Integrated Transport, 2003). NATA does however, based on the Commission for Integrated Transport (2003) review, “assume a constant disposition of land use between the reference case and the scheme”.

There is one fundamental difference between the US and UK approaches and the planning and infrastructure portfolio proposed by Hicks. The US and UK approaches involve a bidding process between the national/federal governments and regional/local government. The planning and infrastructure portfolio comprises agencies within the same level of government reporting to the same Minister. The implication of a bidding process in this situation may lead to inter-service agency competition and behaviour that doesn’t foster integration.

Application of integrated transport and place based planning within institutional arrangements based on traditional single modes, for example railways and roads, is likely to challenge network funding processes. This will occur through:

1. Integrated transport and place based planning generating different projects competing for scarce government funding,
2. Traditional service agency/Treasury bi-lateral arrangements having another layer of complexity with broader outcome based assessment tools included with traditional financial assessment tools built on specific mode network asset management.

The funding issues explored here have set several challenges in meeting Ker’s integration principles. Nevertheless, arguably the integration of the funding allocation into the integrated transport planning and place based planning processes, as evident in the US and UK approach, is fundamental.

**Research and Monitoring**

The aim of including the research and monitoring role with policy, planning and funding is to inform the policy and planning process and to ascertain if the policies and plans are achieving the desired outcomes they are aiming to achieve. The integrated transport planning approach applied in the UK involves ongoing annual performance reporting attached to central government funding provided to local transport plans (Department for Transport 2002b).

The issue of who is responsible for the actual data collection task may generate debate. Like the UK approach, the agencies implementing the various components of the plan undertake the data collection task, however the implementers are not the sole determinants of what data to collect and how to collect the date (Department for Transport 2002b).

**Integration Resources and Powers**

Integration as a concept is good but there is a need to have a range of resources and powers available to integrate. State and local governments have a range of resources, processes and powers that can be used in an integrated way to achieve the benefits from integration. Table 1 outlines the available resources and powers to state and local governments.

*Table 2: Resources and powers available to state and local government*

Lever	Explanation
1 <i>Authorisation and Regulation</i>	<ul style="list-style-type: none"> <li>• Statutory planning controls for land use planning (authorisation).</li> <li>• Transport regulation, usually through licences (regulation).</li> </ul>
2 <i>Pricing</i>	Achieved through regulation of prices, taxation and subsidies to service providers and users.
3 <i>Strategic Asset Management (SAM)</i>	Strategic management of public assets: <ul style="list-style-type: none"> <li>• Land - Government strategic land holdings.</li> <li>• Services - subsidised transport services (eg public transport).</li> <li>• Infrastructure - physical assets.</li> <li>• Intangible assets (travel behaviour) derived from demand management and non-built solutions, and intellectual assets.</li> </ul>
4 <i>Building Community Capacity</i>	The State Government skilling, empowering and resourcing stakeholders, the general community, industry and professionals to achieve the desired outcomes. This is achievable through education, advocacy, grants and partnerships.

Policies, integrated planning, funding and research/monitoring combined with the above resources and powers are critical however there is one element still required to achieve effective integration. This element is the institutional and governance arrangements, which is the topic for the next section.

### Institutional Arrangements

The Irish Department of the Environment and Local Government has identified five critical success factors to achieve integration of land use and transport:

1. Public and political support for a “strategic body” that is accountable for integration, cost effectiveness and value for money in the delivery of its functions.
2. A strong legislative framework.
3. A clear Government mandate.
4. The ‘right’ people to do the job, and
5. The necessary financial and organisational resources and appropriate incentives to ensure delivery.

(Department of the Environment and Local Government, 2001).

The first critical success factor focuses on having the right institutional arrangements, a strategic body, within which the integration function should reside. Curtis and James goes the extra step by discussing what are the best organisational structures, corporate culture and work processes to achieve effective integration (Curtis and James, 2004).

### **CONCLUSION**

There has been a consistent approach in many cities to set aspirational visions for the future city local and regional authorities strive to achieve. To achieve these visions it is essential for these cities to embrace an integrated approach to their planning, including land use transport integration. To achieve this integration there is a need to have the right policies, integrated planning, funding and research/monitoring functions. These functions applied effectively need to recognise and appropriately use all of the resources and powers available to city authorities. To also achieve this there is a need to have the right institutional arrangements. If these cities with the aspirational visions are unable to have these elements integrated and working effectively, then visions will be elusive.

## REFERENCES

Boston Region Metropolitan Planning Organisation 2002 *Boston Region MPO 2000-2025 Transportation Plan* <http://www.ctps.org/bostonmpo/resources/plan/plan.htm>.

Bristol City Council 2000 *Bristol Local Transport Plan* [www.bristol-city.gov.uk](http://www.bristol-city.gov.uk)

Commission for Integrated Transport 2003 *10 Year Transport Plan: Second assessment report* <http://www.cfit.gov.uk/research/10year/second/ad.htm>

Curtis, C. and James, B. 2004 *Urban Policy and Research* Vol No pp

Department for Transport 2002(a) *Guidance on the Methodology for Multi-Modal Studies* Government of the United Kingdom, London available at [www.dft.gov.uk/itwp/mms/vol1/03.htm](http://www.dft.gov.uk/itwp/mms/vol1/03.htm).

Department for Transport 2002(b) *How to Monitor Indicators in Local Transport Plans and Annual Progress Reports – 2002 Update* Government of the United Kingdom, London available at [www.transtat.dft.gov.uk/ltplans/downloads/mltp02.doc](http://www.transtat.dft.gov.uk/ltplans/downloads/mltp02.doc).

Department of Transportation 2000 *Transportation Decision Making: Policy Architecture for the 21<sup>st</sup> Century* United States.

Department of the Environment and Local Government 2001 *New Institutional Arrangements for Land Use and Transport in the Greater Dublin Area* Government of Ireland, Dublin.

Department of the Environment, Transport and the Regions 2000 *Guidance on Full Local Transport Plans* London, available at [www.local-tranport.dft.gov.uk/fulltp/pdf/Itp1-3.pdf](http://www.local-tranport.dft.gov.uk/fulltp/pdf/Itp1-3.pdf)

Faber Maunsell 2002 *Response to Planning Green Paper; 10 Year Transport Plan Monitoring* (Commission for Integrated Transport; United Kingdom)

Government of Western Australia 1996 *State Transport Policy* Perth, Australia.

Greiving, S. and Kemper, R. 1999 *Integration of Transport and Land Use: State of the Art* University of Dortmund, Germany – European Commission Transland project.

Hicks, S., Langoulant, J., Shean, R., and Wauchope, M. 2001 *Government Structures for Better Results: The Report of the Taskforce Established to Review the Machinery of Western Australia's Government* Western Australian Government, Australia.

NSW Department of Infrastructure, Planning and Natural Resources 2004 *Metropolitan Strategy Discussion Paper – Sydney Greater Metropolitan Region* NSW Government

Queensland Government 2005 *South East Queensland Regional Plan 2005-2026* Queensland Government

Treasury, 1994, "Strategic Asset Management: An Overview", WA Government.

Treasury, 1996, "Output Based Management: An Overview", WA Government.

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Westerman, H.L. 1998 *Cities for Tomorrow: Integrating Land Use, Transport and the Environment* Austroads, Australia.

Western Australian Government 1995 *Metropolitan Transport Strategy* State Government of Western Australia

Western Australian Planning Commission 1996 *State Planning Strategy* Government of Western Australia, Australia.

Whitelegg, J. 2002 *Investing in Transport: An International Perspective on Methods, Priorities and Models* National Transport Secretariat, Australia unpublished report.