# Guidelines
for preparation of
**integrated transport plans**

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Western
Australian
Planning
Commission

140 William Street
Perth, Western Australia

## Acknowledgements:

The *Guidelines for Preparation of Integrated Transport Plans* for local government are produced by the Department of Planning on behalf of the Western Australian Planning Commission.

The development of the Guidelines was initiated and undertaken by the Department of Planning with the assistance of Sinclair Knight Merz (SKM) and CATALYST Consultants and in consultation with representatives from the Department of Transport and the Western Australian Local Government Association.

The Department's project team is grateful for the assistance of the many individuals and local government representatives in the preparation of the draft Guidelines, through the provision of information and professional perspective. The feedback received was very useful in framing the final document, particularly the independent review of the draft Guidelines undertaken by Mr Brett Hughes from Curtin – Monash Accident Research Centre (Curtin University).

Note that:

- These guidelines will not have a statutory weight under current legislation; and
- The Department of Transport is responsible for developing and implementing regional and metropolitan integrated transport plans to address future transport needs for the State as set out in the *Transport Coordination Act 1996 (WA)*.

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## Guidelines
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## Chairman's Foreword

The Western Australian Planning Commission initiated the preparation of guidelines to assist local government with the process and context of developing integrated transport plans.

I am pleased to present the *Guidelines for Preparation of Integrated Transport Plans*, which has been prepared by the Department of Planning with professional input from private transport consultants, the Department of Transport and local governments in the Perth metropolitan area.

The purpose of this document is to assist local governments to produce effective integrated transport plans, enabling high quality transport decisions that improve accessibility, amenity, safety and functionality in communities and centres; and to facilitate more sustainable transport outcomes.

Both State and local governments play key roles in transport planning and maintenance of transport infrastructure. I encourage key decision-makers within local and State government authorities to embrace these guidelines, and strive to adopt integrated transport plans that are consistent and aligned with national and State objectives for economic, efficient and sustainable transport planning and services delivery.

**Gary Prattley**
Chairman
Western Australian Planning Commission

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## Director General's Foreword

There has been ongoing interest from Western Australian local government authorities seeking guidance in the preparation of integrated transport plans and strategies for their communities.

This document, *Guidelines for Preparation of Integrated Transport Plans*, draws together a wealth of local and global information on integrated transport planning. It places this information in a Western Australian context so as to provide a practical guide for local governments to develop and implement locally appropriate integrated transport plans.

I am pleased that the Department has been able to partner with the Western Australian Planning Commission and many others to provide this support to local governments. The importance of this work has been underlined by the numerous individuals and organisations that have donated time and expertise towards producing these Guidelines.

It is hoped that the Guidelines will become a valuable resource and help local governments progress their integrated transport plans in a consistent and practical manner.

**Eric Lumsden**
Director General
Department of Planning

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# INTRODUCTION

Transport directly affects many aspects of national, State and local government policy and service provision. Along with economic and cultural priorities, transport has an important role in the dynamics of urban settlements and functions with efficient transport being vital to the operation of most economic and social services.

State and local government each have a key role in transport planning, maintaining transport infrastructure and delivering transport services in the Perth metropolitan region and other areas.

The success of local government in providing an efficient transport system is important for the prosperity of local economies and ensuring a quality of life for generations to come.

An integrated approach to transport planning is a positive way to influence the planning and provision of transport systems towards more sustainable patterns. Integrated transport planning takes into account key transport issues such as transport system interdependencies, interactions between transport and land use, transport safety, traffic congestion, parking, travel demand management and accessibility.

Empowering local governments to develop and implement integrated transport plans will enable an effective approach to local transport planning and transport infrastructure, maintenance and service delivery (where local government is a core player).

Collectively, the integrated transport plans will help identify and prioritise transport infrastructure and service improvements and meet community and government objectives.

These Guidelines form a good resource for use by local governments and are also available to download at the Department of Planning and Department of Transport websites: http://www.planning.wa.gov.au  and http://www.transport.wa.gov.au.

These Guidelines are designed to help local governments plan a sustainable transport future for their communities

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## What is an integrated transport plan?

An integrated transport plan is a tool for the comprehensive analysis of existing and future transport system requirements within an area defined by a single local government or grouping of several jurisdictions that have significant transport and access issues in common.

It provides an overall framework for a holistic planning approach to resolving emerging transport issues at regional, sub-regional and local levels.

The integrated transport plan is part of a larger process to build meaningful partnerships between all levels of government in the delivery of an integrated transport system.  Local governments can use their respective integrated transport plans to support funding requests to local, State and federal sources for transport infrastructure improvements.

In preparing an integrated transport plan, each jurisdiction should apply the prescribed principles and processes to reflect their specific needs, priorities and community aspirations for the provision of a sustainable transport system.

## How to use these guidelines

These guidelines are designed to assist local governments to develop their own integrated transport plans. They do not have a statutory weight under Western Australian Government transport and planning legislation.

The guidelines are presented in seven parts under three main headings: Background and Context (Part 1 and Part 2); Guidance (Part 3, Part 4 and Part 5); and Overview of Practice (Part 6 and Part 7).  Each part can be used independently, so there is some overlap of content in them.

Together, the seven parts describe the role of transport and its broad context; outline the strategic policy framework, general principles and processes for developing integrated transport plans; and provide links to supporting resources and publications.

A template for the preparation of an Integrated Transport Plan (Figure 31) has been developed to accompany the Guidelines and to provide a clear overview of the main steps, which the user can cross reference with the discussion, rationale and planning tools in the body of the Guidelines.

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## BACKGROUND & CONTEXT

### Part 1 – Integrated transport planning

places transport and integrated transport planning into the appropriate economic, social, environmental and political context. It acknowledges that transport is something undertaken for reasons of purpose such as to access employment, goods and services, education, recreation and the other things that are part of our everyday lives. This section helps to understand the role of transport and who is responsible for planning and provision of transport systems.

### Part 2 – Sustainable transport system and integrated transport planning

provides an introduction to sustainable urban transport planning and integration; describes the nature of integrated transport plans for local government including brief consideration of the main challenges and trends in delivering sustainable transport systems.

## GUIDANCE

### Part 3 – Principles and process for integrated transport plans

outlines the general principles and process stages for preparation of integrated transport plans that may be applied at regional, sub-regional and local level.

### Part 4 – Developing, implementing and reviewing integrated transport plans

defines the stages, preparation, implementation and review of the integrated transport plan and methods that should be applied to ensure consistency in the context of the whole integrated transport planning process – from development through to implementation.

### Part 5 – Consultation and partnership

focuses on the importance for collaborative planning, engaging consultation and developing partnership across all levels of government, major stakeholders, and the community through the life of the integrated transport plan.

## OVERVIEW OF PRACTICE

### Part 6 – Case studies integrated transport plans

provides case studies of local government integrated transport plans in the Perth metropolitan area and presents some common defining characteristics and approaches for their preparation and implementation.

### Part 7 – Template for integrated transport plans

assists in the development of integrated transport plans.

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## Aim of the guidelines

These guidelines aim to raise awareness among local governments of the importance of preparing integrated transport plans to:

- achieve State and Commonwealth government initiatives and targets to facilitate sustainable transport systems; and
- contribute to accomplish wider socio-economic objectives of the community.

Specifically, the guidelines will assist local governments to:

- identify integrated transport solutions to maximise general accessibility for activities and business in their jurisdictions, and support economic vitality of the local community;
- establish programs to manage transport demands to improve the liveability of the local area and minimise overall transport infrastructure costs to users and the community;
- educate local government officers involved with transport planning and infrastructure management (planners, engineers, Travelsmart officers) and the wider community about the need to establish more sustainable travel habits and initiatives for travel behaviour change;
- prepare a systematic plan and guide the integrated transport planning process to identify and address important issues and challenges that influence, directly or indirectly, safe and efficient operations of the transport system within the area's local and in regional contexts;
- develop and implement sustainable transport plans for areas in their jurisdiction, in partnership with adjoining jurisdictions;
- provide information of completed integrated transport plans and encourage the sharing of knowledge and experience in understanding drivers and deliverables for the integrated transport plans;
- understand the limitations of the integrated transport planning process and potential risks and need for resources to deliver improved transport services;
- identify local and regional priorities measures and action plans for transport infrastructure and service improvements;

- highlight the importance of partnership and a cooperative approach between local and State government agencies such as Department of Planning, Department of Transport, Main Roads WA, Public Transport Authority, Department of State Development, Department of Health and others for the successful delivery and implementation of relevant integrated transport programs and initiatives; and
- emphasise the importance for collaborative planning, engaging consultation and cooperation across all levels of government, the stakeholders and the community through the whole life of the integrated transport plan.

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# BACKGROUND & CONTEXT

# Part 1 –
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## 1.0 Summary – Part 1

Integrated transport planning aims to ensure that there is a suitable, safe and interconnected transport infrastructure for different transport modes such as private car, freight, public transport, walking and cycling, which results in improving the community's accessibility to jobs, services, recreation and other daily activities.

Transport and mobility are fundamental to the creation of a high standard of living. The transport system is a main component of a city's infrastructure. Transport influences and is influenced by the patterns of urban growth and development. Transport provides opportunities for the movement of people and goods, and connections between locations of living, work and activities.

In the short-term, location of activities, jobs, services and where people live are largely fixed, and mobility is the main key to accessibility. Overall, as the price of oil continues to rise, accessibility through mobility will continue to be threatened by increasing transport energy costs. It is, however, important that people and businesses are actually aware of alternative options for



transport like walking, cycling and public transport. In the long-term, people and businesses move around and change locations.

With good land use and transport planning and appropriate incentives, these changes can greatly improve accessibility and reduce travel costs and time. Land use patterns and urban form are major factors affecting mobility and accessibility. Urban planning directions encourage compact and mixed-use land developments, active travel options and use of public transport to reduce dependence on private motor vehicle.

While Australian cities perform relatively well in terms of quality of life and other social issues, they are confronted by significant challenges including population growth and demographic change, transport congestion, living affordability, infrastructure development, productivity growth, climate change and ecological sustainability[1].

The Council of Australian Governments (COAG) agreed that all State governments will have plans in place to manage planning across functions, including land-use and transport planning, economic and infrastructure development, environmental assessment and urban development, and across government agencies. It is likely that future federal infrastructure funding decisions will be linked to these plans.

Responsibilities for planning, delivering and managing transport infrastructure and systems are spread across all three levels of government within Australia.

Commonwealth and state governments have an important role to play in the development and management of all transport systems, and in establishing the policy framework and directions in which the local governments undertake their transport planning and transport services delivery and management functions.

The *Commonwealth Department of Infrastructure and Transport* [2] contributes to the wellbeing of all Australians by assisting the government to promote, evaluate, plan and invest in infrastructure and by fostering an efficient, sustainable, competitive, safe and secure transport system. The *Infrastructure Australia Act 2008* led to the

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[1]  Infrastructure Australia, Major Cities Unit - *State of Australian Cities 2010* report  www.infrastructure.gov.au/infrastructure/mcu/soac.aspx

[2]  www.infrastructure.gov.au/department/about/about.aspx

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establishment of *Infrastructure Australia*[3], a federal body providing infrastructure advice on a wide range of issues, including transport.

There are other government agencies at national level including the *Police, the National Transport Commission*[4], *Department of Transport 's Office of Rail Safety*[5], *Department of Infrastructure and Transport Road Safety*[6] and many more, which cover the full range of broad activities in transport such as regulations, pricing, construction, maintenance, operations, enforcement and behaviour change. These can generally be applied to the provision of transport infrastructure, vehicles, drivers and land use across different States and territories of Australia.

The following Western Australian State Government agencies have a vested interest in integrated transport planning:

- Department of Transport
- Main Roads Western Australia
- Public Transport Authority
- Department of State Development
- Road Safety Council
- Department of Planning
- Western Australian Planning Commission.

In conjunction with State government, local government plays a key role in transport planning, maintaining of transport infrastructure and delivery of transport services in the Perth metropolitan region and other urban and regional areas.

Local government has the responsibility to act in the best interests of the community and seek outcomes consistent with broader community goals of wellbeing, equity of access to services, environmental protection and liveable communities. It is therefore in the best interests of both State and local government seeking federal funding for major transport projects to develop comprehensive integrated transport plans.

Local government policies and strategies relevant to integrated transport planning should be formulated in line with national and State strategic transport policy frameworks. The Policy Framework for Integrated Transport Plans (Figure 1) sets local government integrated transport directions in their wider state, regional, sub-regional and local cross–boundaries context. Integrated transport plans should support the overall objectives within the framework of sustainable transport principles that are applied at national, state, regional and local levels.

National-level policy directions relating to integrated transport planning include:

- the *National Charter for Integrated Land Use and Transport Planning;*
- the *Australian Transport Council policy directions;*
- the *Infrastructure Australia policy directions;*
- the *National Guidelines for Transport System Management in Australia;*
- the *National Road Safety Strategy 2011–2020;*
- the *Australian Local Government Association policy directions;*
- the *Australian National Cycling Strategy 2011-2016;*
- *Our Cities, Our Future - A National Urban Policy for a productive, sustainable and livable future 2011;*
- the *Disability Discrimination Act 1992;* and
- other strategies and policies.

State-level policy framework relevant to integrated transport planning is complemented by and implemented by State and local government through various strategies and policies, strategic plans and initiatives.

State-level strategies and policies relevant to integrated transport planning include:

- *Metropolitan Transport Strategy 1995-2029 (Department of Transport,1995);*
- S*tate Planning Strategy (Western Australian Planning Commission,1997* – currently under review);
- *State Sustainability Strategy (State government, 2003);*

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[3] Infrastructure Australia  www.infrastructureaustralia.gov.au/

[4] www.ntc.gov.au/

[5] www.infrastructure.gov.au/rail/safety/index.aspx

[6] www.infrastructure.gov.au/roads/safety/index.aspx

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- *Directions 2031 and beyond (Western Australian Planning Commission, 2010);*
- *State Planning Framework Policy (Western Australian Planning Commission, 2006);*
- *State Planning Policy 4.2 Activity Centres for Perth and Peel (Western Australian Planning Commission, 2010);*
- *Central Metropolitan Perth Sub–regional strategy (Western Australian Planning Commission, 2010);*
- *Public Transport for Perth in 2031 - Mapping out the future for Perth's Public Transport (Department of Transport, Draft for Consultation, 2011);*
- *Towards Zero is Western Australia's road safety strategy for 2008-2020 (Road Safety Council, 2009);* and
- *WA Disability Services Act 1993.*

Local government local planning schemes, along with local planning strategies, consider the physical aspects of transport and access of land use and developments, but do not specifically define how local, sub-regional and regional transport will function in the area. An integrated transport planning approach offers local government a way to assess the real impacts of transport provisions and to better understand the transport needs of the community.

Various local governments in Perth metropolitan area have developed their integrated transport plans or strategies to correspond with their local planning strategies. A local planning strategy is required to guide a local planning scheme as a means of contributing to and meeting the goals of a local government strategic plan.

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## 1.1 Transport in context

Transport is critically important to the social, cultural and economic success of every Australian community – from city centres to remote communities.

The traditional link between economic success, transport and mobility[7] has shifted in the last decade due to: recognition of the adverse environmental effects of motorised transport; the social exclusion of those without private cars[8]; and the rising cost and scarcity of conventional transport fuels. Sustainable, developed societies will require greater emphasis on achieving economic growth with less travel and more efficient means of transport[9].

The planning and provision of a sustainable transport system servicing the needs of the community should be consistent with government commitments (national, State, and local level) and other relevant statute strategies and policies in the area of transport, land use, and environment. At the same time it is necessary to review and update high-level transport strategies to reflect new directions and changing circumstances to improving transport. The issue of change is important in planning cities to become resilient cities of tomorrow.

*"Thus resilient cities will have strong social capital, which will strengthen their ability to respond to the challenge of rethinking how their city is powered, where and how their resources originate, and how they travel. …. Change is not primarily about technology, but about how cities function at a basic cultural level. The necessary technologies will be adopted if we are able to create strong communities of hope that will take on these issues with confidence and strong political commitment."*[10]

The emphasis on transport needs to be on reducing transport cost and motorised travel while maintaining to assist in the development of sustainable communities.

## 1.2 Accessibility & mobility

In general, people and business aim to reduce their travel time and cost to achieve what they want to do in their daily activities. Therefore, as well as simply providing a link between destinations, transport infrastructure provisions should support good social, economic and environmental outcomes for the community.

Better ways need to be found to access locations of employment, services and activities as people seek to minimise long distances travel. While access to transport and opportunities is more important than mobility, both accessibility and mobility are necessary considerations in overall transport planning. The Department of Transport's Perth Metropolitan Transport Strategy[11] states:

- *"Accessibility can be achieved through mobility, proximity or the use of electronic communications;*
- *Good mobility can contribute…by enabling a person to move from one place to another or to have goods or services delivered;*
- *Proximity is a measure of how close desired goods or services are. Good [ie close] proximity can contribute…by enabling people to gain the benefits of nearby facilities;*
- *Electronic communications, including telephones, faxes and computer links, contribute…by enabling people to make direct contact with the providers of goods and services without actually moving".*

[7] Transport investment, transport intensity and economic growth. Standing Advisory Committee for Trunk Road Assessment: London, England www.dft.gov.uk/pgr/economics/sactra/transportinvestmenttransport3151.html

[8] Running on Empty: Transport, social exclusion and environmental justice. Karen Lucas (Ed). The Policy Press, University of Bristol: Bristol, England.

[9] A Discussion on Decoupling Economic Growth from the Emissions of Carbon Dioxide. Waikato Regional Council: Hamilton, New Zealand. www.ew.govt.nz/publications/Technical-Reports/A-Discussion-on-Decoupling-Economic-Growth-from-the-Emissions-of-Carbon-Dioxide

[10] Resilient Cities: Responding to Peak Oil and Climate Change. Peter Newman, Timothy Beatley and Heather Boyer, Island Press, 2009

[11] Metropolitan Transport Strategy, 1995–2029. Department of Transport: Perth, Western Australia   www.transport.wa.gov.au/tsmart_mts.pdf

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BACKGROUND & CONTEXT - PART 1

**Accessibility versus mobility-based transport planning (Litman, 2003)[12]**

"*Accessibility* (or just access) refers to people's ability to reach desired goods, services, activities and destinations (together called *opportunities*). For example, a step ladder provides access to a high shelf, a store provides access to goods, and a library or computer provides access to information. Access is the ultimate goal of most transportation, excepting the small portion of travel in which movement is an end in itself, (e.g. cruising, historic train rides, jogging, etc.).

Many factors can affect accessibility, including *mobility* (physical movement), road and path *connectivity*, *land use patterns* (the location of activities), and *mobility substitutes* (telecommunications and delivery services). The affordability, information availability, and even the social acceptability of transport options can also affect overall accessibility.

Conventional planning often evaluates transport system performance based primarily on mobility (using indicators such as traffic speed and vehicle operating costs), ignoring other accessibility factors and improvement options. For example, with mobility-based planning, the only practical solution to traffic congestion is to expand roadway capacity. Accessibility-based planning allows other solutions to be considered, including improvements to alternative modes, more accessible land use patterns, and improvement to mobility substitutes. Accessibility-based transport planning tends to support sustainability by expanding the scope of analysis and supporting more resource-efficient solutions. As a result, as much as possible, sustainable transportation indicators should reflect accessibility-based planning."

In the short-term, the location of activities and where people live are largely fixed and mobility is the main key to accessibility. However, it is important that people (and businesses) are actively aware of local activities and transport opportunities such as walking, cycling and public transport. In the longer term, people and business move around.

With good planning and appropriate incentives, these changes can improve accessibility, with reduced travel costs and time. Since the Perth Metropolitan Transport Strategy (Department of Transport, 1995) was developed, mobility-based transport planning has been impacted by higher transport costs because of rising fuel prices.

## 1.3 Who is responsible for transport?

### 1.3.1 Commonwealth Government and transport

The Commonwealth Government is taking a renewed interest in city transport. The Commonwealth Department of Infrastructure and Transport[13] contributes to the wellbeing of all Australians by assisting the Government to promote, evaluate, plan and invest in infrastructure and by fostering an efficient, sustainable, competitive, safe and secure transport system.

There are other factors in the system at national level including the Police, the National Transport Commission[14], Department of Transport's Office of Rail Safety[15], Department of Infrastructure and Transport Road Safety[16], and many more, which cover the full range of

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[12] Online TDM Encyclopedia-Sustainable Transportation, Canada
www.vtpi.org/tdm/tdm67.htm

[13] Commonwealth Department of Infrastructure and Transport
www.infrastructure.gov.au/department/about/about.aspx

[14] National Transport Commission   www.ntc.gov.au/

[15] Department of Transport 's Office of Rail Safety
www.infrastructure.gov.au/rail/safety/index.aspx

[16] Department of Infrastructure and Transport Road Safety
www.infrastructure.gov.au/roads/safety/index.aspx

broad activities in transport such as regulations, pricing, construction, maintenance, operations, enforcement and behaviour change. These can generally be applied to the provision of transport infrastructure, vehicles, drivers and land use across different States of Australia.

The *Infrastructure Australia Act 2008* led to the establishment of Infrastructure Australia, a federal body providing infrastructure advice on a wide range of issues[17].

Infrastructure Australia advises governments, investors and owners on:

- nationally significant infrastructure priorities;
- policy and regulatory reforms to improve the efficient utilisation of national infrastructure networks;
- options to address impediments to the development and provision of efficient national infrastructure;
- needs of users; and
- possible financing mechanisms.

Infrastructure Australia is a potential funding source for transport projects, including public transport. Infrastructure Australia will only recommend funding for projects that are well planned and fully integrated.

In December 2009, the Council of Australian Governments (COAG) agreed to a set of criteria for future strategic planning of Australia's capital cities. The first of these criteria is that capital city planning systems be integrated across:

- functions – such as land-use and transport planning, economic and infrastructure development, environmental assessment and urban development; and
- government agencies.

COAG agreed that all State governments are to have in place plans that meet the criteria, and noted that the federal government would link future infrastructure funding decisions to achieving these criteria.

[17] Infrastructure Australia   www.infrastructureaustralia.gov.au

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### 1.3.2 State government and transport

The following Western Australian State Government agencies have a vested interest in integrated transport planning:

#### (a) Department of Transport

The Department of Transport[18] administers the *Transport Coordination Act 1966* (WA). The Act provides for the coordination, planning and advancement of all transport forms in the State.

The Department of Transport is responsible for integrated transport planning, planning for major transport (rail and road) proposals, public transport infrastructure, State ports, and major transport corridor planning. Its key focus is on operational transport functions, strategic transport planning and policy across the range of public and commercial state transport systems.

Agencies under the transport portfolio in Western Australia are Main Roads WA, the Public Transport Authority and eight port authorities. These agencies are covered by individual legislation and are responsible for modal planning, operating the transport network and delivering transport-related projects.

Transport portfolio agencies adopt an integrated approach to transport policy development and implementation in State transport planning; decision-making; identifying transport priorities and securing investment to support the State's transport needs; and major integrated transport planning, proposals and projects. They are generally involved in the delivery of state-funded projects.

#### (b) Main Roads Western Australia

Main Roads WA[19] is responsible for the planning, infrastructure delivery and maintenance of Western Australia's highways and main roads, which represent almost one third of the State's total assets.

Main Roads handles about 12 per cent of the State's 150,000 km road network, covering an area of 2.5 million square kilometres. This represents around 60 per cent of the State's road traffic.

Main Roads' vision is to create a safe and efficient road network to support a vibrant community, help ensure economic vitality, and promote environmental values. Its strategic framework ensures it effectively develops, maintains and operates one of the largest road networks in the world, and supports the State's present and future road use[20].

Main Roads manages strategic freight routes in the Perth metropolitan area and all AusLink (national) and State roads. Local governments are responsible for other roads.

#### (c) Public Transport Authority

The Public Transport Authority[21] was established in 2003, combining Transperth, School Bus Services, local regional bus services and State Government railways. It is responsible for providing public transport, with the vision to increase its use through customer-focused, safe and economical transport services. It operates four major service systems across Western Australia:

1. Transperth – an integrated bus, train and ferry service that employs contractors for train operations, three bus companies, a ferry service, and cleaning and maintenance;

2. TransWA – a regional rail service comprising the Australind, Prospector, MerredinLink and AvonLink as well as a regional coach fleet that services 275 locations;

3. Regional Town Services – a regional bus service contractor; and

4. School Bus Services – a contractor that manages more than 800 school bus contracts.

The Public Transport Authority's Network and Infrastructure division manages and maintains the metropolitan railway infrastructure and protects the long-term viability of the state's freight rail corridor and infrastructure. The division is responsible for:

• signal and crossing maintenance;

• reinstalling track sleepers and ballasting;

• upgrading and improving accessibility of station facilities;

• planning and constructing rail network expansion; and

• property management.

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[18] Department of Transport   www.transport.wa.gov.au

[19] Main Roads Western Australia   www.mainroads.wa.gov.au

[20] Main Roads WA Strategic Plan 2k12   www.mainroads.wa.gov.au/AboutMainRoads/AboutUs/Pages/StrategicPlan.aspx

[21] Public Transport Authority   www.pta.wa.gov.au/

### (d) Office of Road Safety

Road safety in Western Australia is managed in a well-defined administrative framework through the Road Safety Council, which is supported by the Office of Road Safety[22].

The Road Safety Council comprises members from government agencies and representatives from the Insurance Commission of Western Australia, local government and the Royal Automobile Club, which represents road users. The council provides leadership and coordinates key areas of road safety policy, research, program evaluation and community education.

The Office of Road Safety is responsible for research and policy that helps develop road safety strategies. It also manages road safety education campaigns, partnership programs and community consultation. The office acts as the main government agency for road safety and works closely with Road Safety Council members.

### (e) Department of State Development

On behalf of the Western Australian Government, the Department of State Development coordinates and prioritises all infrastructure proposals submitted to Infrastructure Australia for federal funding. The Department of Transport assists the Department of State Development with this task in relation to major transport infrastructure proposals to ensure state and local government transport proposals align with the government's high-level policy framework and transport infrastructure priorities[23].

The Department of State Development also works to attract strategic investment to Western Australia, assist the development of export markets, and enable the development of strategic industrial land and infrastructure, including transport infrastructure.

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[22] Office of Road Safety   www.ors.wa.gov.au

[23] Department of State Development
www.dsd.wa.gov.au/4868_8291.aspx

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### (f) Department of Planning

The Department of Planning[24] administers the *Planning and Development Act 2005* (WA)[25]. The Act is the primary statute covering land-use planning and sustainable use and development of land in Western Australia, and infrastructure coordination.
The Department is responsible for:

- urban and regional land;
- major housing development (including land supply proposals) in metropolitan and regional areas;
- strategic integrated land use;
- transport and infrastructure project planning;
- State and/or regional public works;
- planning control areas (metropolitan and regional); and
- improvement plans.

### (g) Western Australian Planning Commission

The Western Australian Planning Commission[26] is responsible for:

- developing region schemes and state planning policies;
- determining subdivision applications;
- determining development applications where required by the relevant region scheme; and
- coordinating and promoting sustainable land use, transport planning and land development across Western Australia.

The Commission exercises many of its functions through a number of committees. The following Committees comprise important stakeholders with interests in integrated transport planning initiatives, and give considerations to transport planning and infrastructure strategic proposals and programs in the State:

### Infrastructure Coordinating Committee

The committee advises the Western Australian Planning Commission on planning for the provision of physical and community infrastructure throughout the State. It has the powers to coordinate the metropolitan development program, the country land development program, and the provision of infrastructure for land development.

### Sustainable Transport Committee

The committee advises the Western Australian Planning Commission on transport planning throughout the State. It has decision-making powers in relation to transport matters in the Perth metropolitan region and on strategic issues across the State.

The Western Australian Planning Commission's *State Planning Policy Framework*[27] establishes a planning process hierarchy for the state. According to *Directions 2031 and Beyond (2010)*[28] – the State`s highest level spatial framework and strategic plan for the Perth metropolitan area, people should be able to easily meet their education, employment, recreation, service and consumer needs within a reasonable distance of their home.

The framework provides for different lifestyle choices, vibrant nodes for economic and social activity and a more sustainable urban transport network. The framework also encourages a long-term approach to the provision of infrastructure in an economically sustainable way.

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[24] Department of Planning   www.planning.wa.gov.au/652.asp
[25] Planning and Development Act 2005 (WA).
www.planning.wa.gov.au/651.asp
[26] Western Australian Planning Commission.
www.planning.wa.gov.au/651.asp

[27] State Planning Policy Framework
www.planning.wa.gov.au/publications/1160.asp
[28] Directions 2031 and beyond (WAPC, 2010)
www.planning.wa.gov.au/publications/826.asp

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The statutory mechanism to assist strategic planning is provided by region schemes[29] prepared by the Commission. Region schemes coordinate major infrastructure (including transport infrastructure) and sets aside areas for regional open space and other community purposes. A region scheme usually covers more than one local government area. The content of the scheme may vary for each region, but they generally set out broad land-use zones or policy areas and identify land required for regional purposes.

### 1.3.3 Local government and transport

Local government plays a key role in transport planning and has an extensive role in road transport including road construction and maintenance, but a more limited role in other transport modes and services in the Perth metropolitan region and other urban areas.

Given that a substantial part of the transport system is outside the government's control, local government cooperation with other agencies and private sector is necessary in achieving good transport outcomes. The contribution of local governments to the efficiency of the region's transport system promotes a prosperous local economy and maintains quality of life for current and future generations.

The transport infrastructure roles and responsibilities of local government are generally for the planning, design and construction and maintenance of local roads, bridges, footpaths, drainage, parking facilities and street parking[30]. Local roads are under local government jurisdiction which includes responsibility for the final road design, construction, maintenance and funding of local road improvements including road safety.

Main Roads WA is responsible for markings and signage (including speed limit signs); authorising the provision of traffic signals; and the maintenance of traffic signals on all local roads.

Other Regional Roads (as defined in the WA Planning Commission's Metropolitan Region Scheme)[31] serve important regional through traffic functions, and are the responsibility of local governments.

Planning for Other Regional Roads is undertaken by the WA Planning Commission together with the responsible local government, but local governments are responsible for the final design, construction and management of these roads.

If there is a community need for road improvement, local governments undertake road network analyses and consult with relevant agencies, stakeholders and residents before deciding on a course of action.

[29] WAPC region schemes   www.planning.wa.gov.au/639.asp

[30] Western Australian Local Government Association
www.walga.asn.au/about_lg

[31] WAPC Metropolitan Region Scheme
www.planning.wa.gov.au/1222.asp

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Potential local government funding sources for road and safety improvements are: taxation and council rates paid by residents and businesses; State and federal grants; Black Spot programs; and the Roads to Recovery federal program. This funding is generally inadequate, therefore, an integrated transport plan can be a key source to help in delivering external funding for local government transport infrastructure projects.

Local government's involvement in integrated transport planning extends beyond local transport needs. Local government has to act in the best interests of the community and seek transport outcomes consistent with community goals such as:

- enabling social connectivity through better surveillance and safety;
- equal access to facilities for all people;
- supporting local amenities; and
- building facilities to encourage cycling and walking; and reducing greenhouse gas emissions.

Successful integrated transport planning can only be achieved if all levels of government work together to achieve a common goal. In the Perth CBD for example, the Western Australian Government and the City of Perth supported an employment and residential growth strategy and collaborated on initiatives to reduce car parking and increase public transport and travel options to and within the city.

The Perth Parking Policy, as part of the *Perth Parking Management Act 1999*[32], is a current plan to:

- preserve Perth's air quality;
- reduce traffic congestion;
- improve pedestrian safety;
- create short-term shopper parking; and
- create a healthy city economically and environmentally.

The result has seen a significant change in the way people travel to the city. In the mid-1990s, 50 per cent of city workers drove to work, and 35 per cent used public transport. These figures were reversed in 2010, with 50 per cent of work trips made by public transport and only 35 per cent by car.

Traffic volumes along Barrack and William Streets are half of what they were 15 years ago. Reduced city traffic volumes have enabled bus priority measures to be introduced. Further initiatives are planned to further reduce vehicular traffic. The City of Perth is continuing its plan to widen footpaths and plant trees – to improve the city's profile and encouraging investment and growth.

Responding to challenges and community expectations for sustainable transport requires strategies to integrate land use and transport options to reduce daily travel time to activities and opportunities. This requires moving the trend of private car use towards other means of travel including public transport and active travel. Accordingly, community benefits such as less traffic congestion and improved health and fitness through more walking, cycling and public transport can be significant.

Many local governments have recognised the need to develop strategic transport plans in partnership with State government agencies and other stakeholders. They understand that expenditure for transport infrastructure construction and maintenance can be reduced if integrated transport plans for all transport modes and their facilities within the local government area are developed.

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[32] Perth Parking Policy   www.transport.wa.gov.au/aboutus/20228.asp

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## 1.4 Policy framework for integrated transport plans

**Figure 1 – Strategic Policy Framework for integrated transport strategies and plans**



**Strategic Policy Framework**
**Sustainable Transport System**

- Supporting good economic, social and environmental outcomes for current and future generations
- Closing the gap between resources consumed and resources renewed or replaced
- Achieving affordable transport and access for individuals, business and the community

Long – Medium term Strategic Goals

- Economic, environmental and social sustainability
- Support quality of life for community
- Reduce greenhouse gases, environmental pollution and noise
- Keep congestion within acceptable level
- Robustness to fuel price and scarcity

Long term Strategic Goals

Medium term Strategic Goals

Short – Medium term LG Strategic Goals

**Integrated Transport Plans**

- Integrate all forms of transport in a coordinated system
- Integrate transport with land use, economic and social development, education and health planning
- Partnership – community, all levels government, stakeholders
- Integrate planning and implementation (including funding)
- Transparency and cooperative decisions

NATIONAL  STATE  REGIONAL  SUB-REGIONAL  LOCAL

Integrated Transport Planning Principles

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Responsibilities for planning and managing transport infrastructure and systems are shared across all three tiers of government. Federal and State governments have important roles to play in developing and managing transport systems and establishing policy frameworks for local governments. Local government policies and strategies for transport planning should therefore have regard to Federal and State strategic transport policy frameworks.

The policy framework for integrated transport plans should set local government transport strategies and plans within state, regional, sub-regional and local cross-boundaries. Integrated transport plans should support overall objectives within the framework of sustainable transport principles at national, State, regional and local levels (see Figure 1).

The Australian Local Government Association has developed a five-point *Local Government Roads and Transport Strategy 2006-2016* that focuses on collaboration with the federal government, especially on funding needs. The strategy aims to forge partnerships between Federal and local governments to deliver efficient, effective and equitable transport services.

### 1.4.1   National level policy context

#### (a) Australian Transport Council

The Australian Transport Council[33] is a forum for Federal, State, Territory and New Zealand ministers to consult and provide advice to governments on the coordination and integration of all surface transport and road policy issues at a national level. The vision and objectives of the council are shown in Table 1.



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[33] Australian Transport Council   www.atcouncil.gov.au

Note: On 17 September 2011, COAG withdrew the remit of the Australian Transport Council and replace it with the Standing Council on Transport and Infrastructure (SCOTI - www.scoti.gov.au/)

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**Table 1 – Vision and objectives for national integrated transport system**

| | | |
|---|---|---|
| **Vision**<br>Australia requires a safe, secure, efficient, reliable and integrated national transport system that supports and enhances our nation's economic development and social and environmental wellbeing | | |

| | | |
|---|---|---|
| **Objectives** | **Economic** | To promote the efficient movement of people and goods in order to support sustainable economic development and prosperity. |
| | **Safety** | To provide a safe transport system that meets Australia's mobility, social and economic objectives with maximum safety for its users. |
| | **Social** | To promote social inclusion by connecting remote and disadvantaged communities and increasing accessibility to the transport network for all Australians. |
| | **Environmental** | To protect our environment and improve health by building and investing transport systems that minimise emissions and consumption of resources and energy. |
| | **Integration** | To promote effective and efficient integration and linkage of Australia's transport system with urban and regional planning at every level of government and with international transport systems. |
| | **Transparency** | Transparency in funding and charging to provide equitable access to the transport system, through clearly identified means where full cost recovery is not applied. |

Source: Australian Transport Council (2006)

### (b) National Charter of Integrated Land Use and Transport Planning[34]

In 2003, national, State and Territory Ministers for Transport and Ministers for Planning endorsed a Charter for Integrated Land Use and Transport Planning. The Charter commits to an agreed set of practices and cooperation to achieve better outcomes for land use and transport planning at national level.

The Charter aims for greater integration of land use and transport planning across agencies, jurisdictions and government levels to facilitate effective and sustainable urban and regional development across Australia, through:

- reducing the need to travel;

- reducing the length of journeys;

- making it safer and easier for people to access services;

- reducing the impact of transport on communities;

- improving freight access to key terminals and freight flows;

- providing efficient distribution of goods and services to business and community;

- providing a choice of travel modes; and

- ensuring flexibility to meet the demands of a changing economy and market environments.

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[34] National Charter of Integrated Land Use and Transport Planning. Australian Transport Council: Canberra, Australia.   www.atcouncil.gov.au/documents/files/National_Charter_ATC_MAY_03.pdf

The Charter states that land use and transport planning must withstand changes in technology, social conditions, values, resource constraints and other key factors. It states the following nine aims on integrated planning and outcome areas of integrated land use and transport planning:

1. integrated and inclusive processes;

2. linked investment decisions;

3. increasing accessibility by widening choices in transport modes and reducing vehicle travel demand and impacts;

4. making better use of existing and future infrastructure and urban land;

5. protecting and enhancing transport corridors;

6. creating places and living areas where transport and land use management support the achievement of quality life outcomes;

7. increasing opportunities for access in both the present and longer term;

8. a safer and healthier community; and

9. recognising the unique needs of regional and remote communities.

Responsibility for implementing the Charter's main objectives rests with each State, Territory and the Federal Government. Local governments play a central role in land use and transport planning for areas within each State and Territory.

### (c) National Guidelines for Transport System Management in Australia[35]

In 2006, the Australian Transport Council released the *National Guidelines for Transport System Management in Australia* (Figure 2), which aims to provide a consistent framework and processes, methods and tools to assist and guide transport planning and decision-making across Australia. This provides a useful guide to transport planning issues and methods, but its primary focus is on motorised transport.

The *National Guidelines for Transport System Management in Australia* propose a concise planning methodology setting out many principles of integrated transport planning. The focus is on achieving transport objectives – this was seen as a community response for transport which would serve and support needs.

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[35] *National Guidelines for Transport System Management in Australia,* Australian Transport Council: Canberra, Australia. Five volumes: 1 Introduction to the Guidelines and Framework; 2 Strategic Transport Planning and Development; 3 Appraisal of Initiatives; 4 Urban Transport; 5 Background Material. www.atcouncil.gov.au/documents/files/National_Guidelines_Volume_2.pdf

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**Figure 2 – National Guidelines for Transport System Management – Objectives and the Framework**
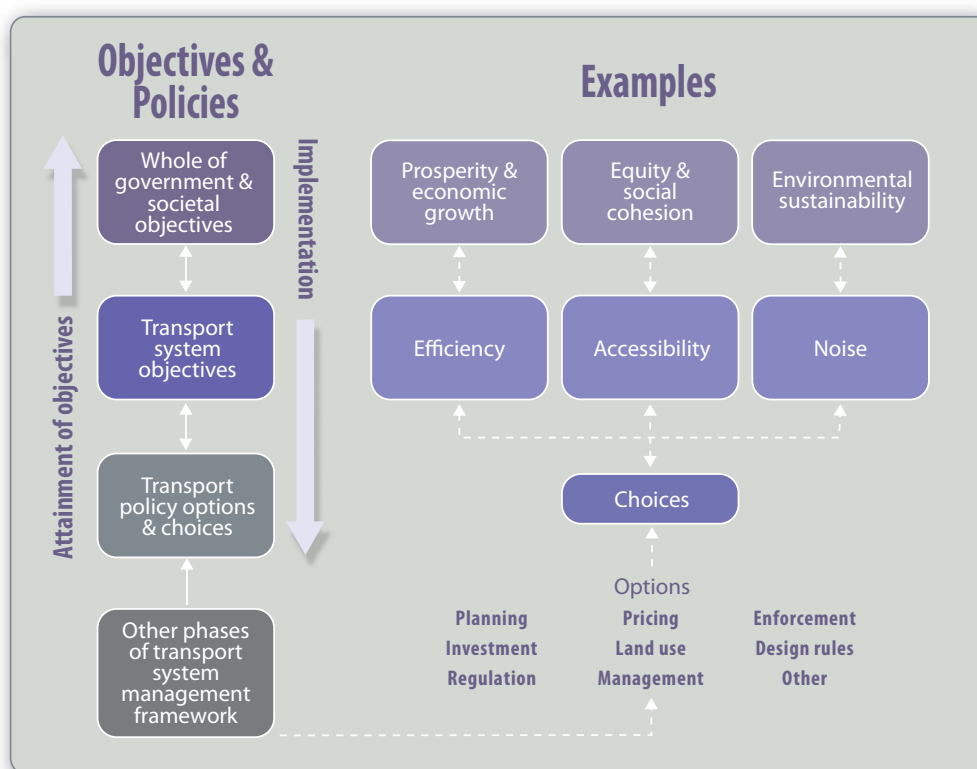


Source: *National Guidelines for Transport System Management in Australia*, Australian Transport Council (2006).

## (d) Infrastructure Australia

Infrastructure Australia is a federal statutory body established to develop a blueprint for the nation's future infrastructure needs. It also aims to implement strategies involving the States, Territories, local government and the private sector. It has significant influence on Federal Government infrastructure funding including the multi-billion dollar Building Australia Fund.

The Major Cities Unit is an important part of Infrastructure Australia. It was established to advise the Australian Government and Infrastructure Australia on policy, planning and infrastructure issues that impact cities and suburbs. The Unit aims to coordinate national, State and Territory governments, the private sector and community to help secure the nation's economic, social and environmental wellbeing through our cities. The Unit's vision for Australian cities is that they are:

- productive and globally competitive – with integrated land use, transport and infrastructure planning driving more efficient investment and outcomes;

- liveable – improving the quality of life, health and wellbeing of people who live in, work, or visit cities; and

- sustainable – environmentally, socially and economically.

To support this vision, the Unit undertakes work in:

- Governance and policy – Integrated governance structures and best practice strategic planning to support coordinated development of Australia's cities and set a geographic context for policy, planning and investment decisions, including infrastructure. Work is across portfolios to link cities with other relevant national priorities such as climate change, housing, health and innovation.

- Engagement and consultation – National, State, Territory and local governments have roles to play in meeting the key challenges and opportunities to improve the productivity, liveability and sustainability of Australia's cities. This can only be achieved by working in partnership with communities and the private sector.

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- Research, benchmarking and best practice –
  A strong information base is required to better
  understand growth and change in Australian cities,
  identify issues and priorities for action, and inform
  best paths for public and private investment. It is
  a benchmark for city performance, and monitors
  progress towards goals.

The vision and supporting work areas are consistent with
integrated transport planning.

The Major Cities Unit releases anually *State of Australian
Cities* reports[36], which provide useful comparative
information to identify opportunities to improve planning
and delivery of transport infrastructure and services.

### (e) National Road Safety Strategy
### 2011–2020 (ATC, 2011)[37]

This *National Road Safety Strategy 2011–2020* aims
to elevate Australia's road safety ambitions through the
coming decade and beyond. It is firmly based on Safe
System principles and is framed by the guiding vision
that no person should be killed or seriously injured
on Australia's roads. As a step towards this long-term
vision, the strategy presents a 10-year plan to reduce the
annual numbers of both deaths and serious injuries on
Australian roads by at least 30 per cent.

The strategy sets out our 10-year directions for a safer
road transport system, with governments committing
to a number of first steps, and identifying a range of
additional steps for further consideration. It focuses on
the main areas where there is evidence that sustained,
coordinated effort can lead to large gains. It also focuses
on measures which may not see results for some time
but which will lead to long-term improvement.

In 2014 there will be the first of two reviews of the
strategy, including assessment of the progress we are
making in delivering the strategy's initiatives.

This National Road Safety Strategy represents a
commitment of Federal, State and Territory governments
to an agreed set of national road safety goals,
objectives and action priorities. It will be supported by a
comprehensive performance monitoring and reporting
regime.

Road safety is a key public policy issue and should be
addressed in integrated transport plans on a broader
basis.

### (f) Australian National Cycling Strategy
### 2011–2016 (Austroads, 2011)[38]

The strategy's aim is to double the number of people
cycling in Australia by 2016. This is an ambitious target
to set, but it is important to aim high when setting goals.
The stated aim of the strategy is achievable with the
cooperative approach that the NCS 2011-16 has set with
its six key priorities and objectives: cycling promotion,
infrastructure and facilities, integrated planning, safety,
monitoring and evaluation, and guidance and best
practice. These key priorities have generic actions
that can be applied within states, territories and local
governments in accordance with community aspirations,
priorities and available resources.

### (g) Our Cities, Our Future – A National Urban
### Policy for a productive, sustainable and
### liveable future (Australian Government,
### 2011)[39]

State, Territory and local governments are key players
in shaping and managing our cities. These levels of
government provide most of the facilities and services
that maintain community wellbeing such as health,
education, law and order. They invest in infrastructure,
such as roads and railways, as well as investing in
or regulating other utilities like power and water.
Together, these levels of government have the primary
responsibility for planning for urban growth and change
and have the responsibility for statutory land use
planning development approvals. The National Urban
Policy will, in the broadest sense, seek to guide public
and private investment to achieve optimal socio-
economic and environmental outcomes in our cities.

[36] State of Australian Cities, 2010. Major Cities Unit, Infrastructure Australia:
Canberra, ACT.
www.infrastructure.gov.au/infrastructure/mcu/

[37] National Road Safety Strategy 2011-2020 (ATC, 2011)
www.atcouncil.gov.au/documents/files/NRSS_2011_2020_20May11.pdf

[38] Australian National Cycling Strategy 2011-2016 (Austroads, 2011)
www.onlinepublications.austroads.com.au/items/AP-C85-10

[39] National Urban Policy for a productive, sustainable and liveable future
(Australian Government, 2011)
www.infrastructure.gov.au/infrastructure/mcu/files/Our_Cities_National_
Urban_Policy_Paper_2011.pdf

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### (h) National Disability Strategy 2010–2020 and Disability Discrimination Act 1992

Integrated transport planning must provide suitable access for people with disability who have difficulty using conventional transport.

The *National Disability Strategy 2010 -2010*[40] creates a policy framework to engage with people with disability. The goal is to enable them to realise their aspirations, maximise their independence and participate in their communities. One of the principle policy directions is providing "a public, private and community transport system that is accessible for the whole community".

The ability to move around the community underpins all aspects of life for people with disability and is essential to achieving all the policy outcomes outlined in this strategy – from learning and skills, to employment and to the enjoyment of rights. In order to move freely around the community, people with disability need access to private as well as public transport. This can be achieved through modified motor vehicles and accessible parking. However, people with disability are often still unable to make use of footpaths, cycle paths and local roads as many of these have not been designed to be fully accessible. A continuous accessible path of travel for people with disability needs to connect public transport nodes with local services and accessible housing.

Relevant legislations for people with disabilities using transport services is the *Disability Discrimination Act, 1992*[41].

### 1.4.2 State level policy context

### (a) State Sustainability Strategy

Western Australia developed the world's first government Sustainability Strategy, *Hope for the Future*[42], in 2003. This strategy focuses on the need to integrate economic, environmental and social issues in development, assessment and implementation of policies and plans.

The State Sustainability Strategy's integrated land use and balanced transport approach reflects the principles and objectives of the *National Charter of Integrated Land Use and Transport Planning*, 2003. It states that integrating land use and balanced transport is most important for creating sustainable communities.

The State Sustainability Strategy is consistent with the integrated transport and land use planning policy objectives of:

- the *Metropolitan Transport Strategy* (Department of Transport, 1995); and
- the *State Planning Strategy* (WAPC, 1997);

### (b) Metropolitan Transport Strategy[43]

The *Metropolitan Transport Strategy 1995-2029* provides directions for achieving a balanced, efficient and effective transport system for the Perth metropolitan region to 2030. It requires cooperation of all levels of government, the community and business.

The strategy established six key principles to achieve its vision: *safety, efficiency, effectiveness, environmental responsibility, social responsibility and robustness*.

The strategy defines numerical targets related to the outlined principles. Targets relate to social and economic outcomes and reducing private car use. Targets should ideally meet the desired changes to 2029 (Figure 3).

The strategy also recognises the complex, interactive relationship between urban land use and transport. It proposes that communities benefit when people can independently access their needs by walking and

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[40] www.coag.gov.au/coag_meeting_outcomes/2011-02-13/docs/national_ disability_strategy_2010-2020.pdf

[41] www.austlii.edu.au/au/legis/cth/consol_act/dda1992264

[42] Hope for the future: The Western Australian State Sustainability Strategy. Government of Western Australia: Perth, WA. www.dec.wa.gov.au/content/view/3523/2066/

[43] Metropolitan Transport Strategy, 1995-2029. Department of Transport: Perth, Western Australia.  www.transport.wa.gov.au/tsmart_mts.pdf

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**Figure 3 – Targets of the Metropolitan Transport Strategy 1995-2029**



| | **1991 Use**<br>**Current Pattern**<br>(trips/day<br>% of total trips) | **2029 Use**<br>**Current Pattern**<br>(trips/day<br>% of total trips) | **2029 Use**<br>**MTS Target**<br>(trips/day<br>% of total trips) |
|---|---|---|---|

Total personal trips 4,092,000 — Car driver 63%, Car passenger 13%, Walk only 10%, Cycle 5.7%, Public transport 6.4%, Other (taxi, motorcyle etc) 2%

Total personal trips 6,707,000 — Car driver 70.5%, Car passenger 9%, Walk only 5.8%, Cycle 8%, Public transport 4.8%, Other (taxi, motorcyle etc) 1.8%

Total personal trips 6,457,000 — Car driver 46%, Car passenger 11.5%, Walk only 12.5%, Cycle 11.5%, Public transport 12.5%, Other (taxi, motorcyle etc) 2%

Total personal trips 4,092,000 / Commercial trips 493,000

Total personal trips 6,707,000 / Commercial trips 818,000

Total personal trips 6,457,000 / Commercial trips 818,000

Source: *Metropolitan Transport Strategy, 1995-2029.* Department of Transport Perth, Western Australia (1995).

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cycling, as well as by using cars and public transport. This requires mixed land use, with amenities such as housing, schools, sports centres, shops and other nearby services.

The principles of the *Metropolitan Transport Strategy* also apply to regional urban centres with more emphasis placed on local transport access like walking and cycling.

The strategy is subject to review by the Department of Transport in accordance with the *Directions 2031 and beyond (2010)* strategic plan for Perth and Peel.

The Department of Transport is developing a Moving People Network Plan with its focus being on moving people rather than vehicles. Together with the proposed Perth and Peel Freight and Intermodal Network Plan the Moving People Network Plan is going to replace the *Metropolitan Transport Strategy* 1995-2029 as the strategic transport planning and policy document for metropolitan Perth and Peel region.

### (c) State Planning Strategy[44]

The *State Planning Strategy (WAPC, 1997)* provides broad strategic directions and outlines a set of planning principles, objectives and priorities for strategic land use and future development in Western Australia.

Since 1997, the State has undergone significant economic and population growth, resulting in unprecedented pressure for new development. As such, the State Planning Strategy is currently under review and revision by the Department of Planning to reflect current driving forces, which will affect strategic priorities for future land use and infrastructure in the State. The State Planning Strategy remains the only strategic planning document of its kind in Australia that is required by legislation (Planning and Development Act 2005).

### (d) Directions 2031 and beyond

*Directions 2031 and beyond* (2010)[45] is the highest level spatial framework and strategic plan for the metropolitan Perth and Peel regions, guiding population, housing and employment growth to 2031 and beyond.

*Directions 2031* takes into account the *State Planning Strategy* and the WA Planning Commission's *State Planning Policy Framework*, and establishes a planning process hierarchy. Key policies required to implement *Directions 2031* include the *State Planning Policy 4.2 Activity Centres for Perth and Peel*, and the *Central and Outer Perth Metropolitan and Peel Sub-regional Strategies.* The *Directions 2031 and beyond* policy framework is shown on Figure 4.

*Directions 2031 and beyond* identifies three structural elements of an integrated city:

1. activity centres network – a network and hierarchy of centres that provide more equitable distribution of jobs, services and amenity throughout the city;

2. movement network – an integrated system of public and private transport networks designed to support and reinforce the activity centre network, and reduce time, cost and impact of travel; and

3. green network – a network of parks, reserves and conservation areas that support biodiversity, preserve natural amenity and protect valuable natural resources.



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44  State Planning Strategy. Western Australian Planning Commission
     www.planning.wa.gov.au/publications/1185.asp

45  www.planning.wa.gov.au/publications/826.asp

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**Figure 4 – Directions 2031 and beyond policy framework**



State

**State Planning Strategy**

The State Planning Strategy provides the broad strategic direction for Western Australia

**Statement of Planning Policy**

Includes the State Planning Framework (SPP No.1) and key sectoral policies (SPP No.2 - SPP No.6) which further articulate the broad themes set out in the State Planning Strategy

Regional

**Directions 2031**

The highest level metropolitan spatial framework and strategic plan Directions 2031 guides planning policy to accommodate and manage population growth within Perth and Peel to 2031 and beyond

**Metropolitan and Peel Region Schemes**

Sub-regional

**Metropolitan Sub-regional Strategies**

Sub-regional strategies for the Perth metropolitan and Peel regions provide guidance at sub-regional level for delivering the objectives of Directions 2031 and how to achieve the housing and employment targets

**Sub-regional Structure Plans**

Sub-regional structure plans are informed by the sub regional strategies and provide comprehensive planning guidance on a sub-regional level for the short, medium and long term

**Urban Development Program**

The Urban Development Program is a continous program detailing new residential land and infrastructure requirements and will serve as an evaluation tool to measure the delivery of the objectives of Directions 2031and the sub-regional strategies

Local

**Local Planning Strategies**

**Local Planning Schemes**

**Local Structure Plans, Precinct Plans and Activity Centre Plans**

Source: *Directions 2031 and beyond,* Western Australian Planning Commission, 2010.

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**Figure 5 – Directions 2031 and beyond objective and strategies for an accessible city**

| Theme | Objective | Strategies |
|---|---|---|
| **Accessible** | All people should be able to easily meet their education, employment, recreation, service and consumer needs within a reasonable distance of their home. | Connect communities with jobs and services. |
| | | Improve the efficiency and effectiveness of public transport. |
| | | Encourage a shift to more sustainable transport modes. |
| | | Maximise the efficiency of road infrastructure. |
| | | Manage and reduce congestion. |
| | | Protect freight networks and the movement economy. |
| | | Consider parking in the overall transport picture. |
| | | Plan and develop urban corridors to accommodate medium-rise higher density housing development. |
| | | Plan and develop transit-oriented developments to accommodate a mixed use and medium-rise higher density housing development. |

Source: *Directions 2031 and beyond.* Western Australian Planning Commission (2010)

Directions 2031 proposes that a city should be:

- Liveable
- Prosperous
- Accessible
- Sustainable
- Responsible.

The main objective for an accessible city (Figure 5) is *"All people should be able to easily meet their education, employment, recreation, service and consumer needs within a reasonable distance of their home"*.

These concepts also apply to sub-regional and local areas, and to urban centres outside the metropolitan region – with greater emphasis placed on local access and non-motorised modes of transport.

**(e) Policies and guidelines (Western Australian Planning Commission[46])**

The Western Australian Planning Commission publishes policies and guidelines on the Planning WA[47] website, to assist local governments with the roles and responsibilities. Some of them, which relate to transport planning, are noted below.

- *State Planning Policy 4.2 Activity Centres for Perth and Peel*[48] – a State policy for planning and development of activity centres throughout Perth and Peel regions.

  The policy aims for employment, goods and services to be accessed efficiently and equitably by the community and by all transport modes. It states that activity centres should be located and planned to reduce transport energy demands and private vehicle kilometres per capita.

  Activity centres should have levels of activity, accessibility and diversity sufficient to attract people and sustain public transport, and a range of other services and economic activities. Activity centres should offer a high standard of amenity and urban design, and be planned on public transport principles.

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[46] www.planning.wa.gov.au/618.asp

[47] www.planning.wa.gov.au/

[48] www.planning.wa.gov.au/publications/1178.asp

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- *State Planning Policy 3 – Urban Growth and Settlement*[49]

  This policy sets out the principles and considerations which apply to planning for urban growth and settlements in Western Australia.

  The main objectives of this policy are to promote a sustainable and well-planned pattern of settlement across the state, with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.

  It aims to promote the development of a sustainable and liveable neighbourhood form which reduces energy, water and travel demand while ensuring safe and convenient access to employment and services by all modes. It also provides choice and affordability of housing and creates an identifiable sense of place for each community. Another objective of the policy is to coordinate new development with the efficient, economic and timely provision of infrastructure and services.

- *State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning*[50]

  This is a policy to integrate sustainable land use with transport. It aims to:

  1. protect people from unreasonable levels of transport noise by establishing a standardised set of criteria in assessment of proposals;

  2. protect major transport corridors and freight operations from incompatible urban encroachment;

  3. encourage best-practice design and construction standards for new development proposals, and new or redeveloped transport infrastructure proposals;

  4. facilitate the development and operation of an efficient freight network; and

  5. facilitate strategic co-location of freight-handling facilities.

- *Liveable Neighbourhoods*[51]

  An operational policy for design and approval of urban development.

  It applies to structure planning and subdivision for greenfield sites and the redevelopment of large brownfield and urban infill sites. Design layout of a subdivision determines the urban form which, in turn, sets urban character and design. It can allow or inhibit:

  • social interaction — for example by allowing more car use, or alternatively encouraging walking, cycling and public transport;

  • access to facilities for users of the urban environment; and

  • opportunities for local business and employment.

- *Development Control Policy 1.5 Bicycle Planning*

  A policy to improve cycling safety and convenience[52].

- *Development Control Policy 1.6: Planning to Support Transit Use and Transit Oriented Development*

  A policy to plan and develop outcomes to support and sustain public transport use[53].

- *Transport Assessment Guidelines for Developments*[54]

  These guidelines assist in assessing the transport implications of land use development proposals. Transport planners within local government are encouraged to use these guidelines. Proponents of land use developments and their planning/transport consultants are also encouraged to trial the guidelines to assist them in determining the transport infrastructure required to support their development proposals and the potential transport impacts on the surrounding transport network.

All State planning strategies and policies integrate with each level of the policy framework (Figure 4) for land use development and urban growth management and planning.

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[49] www.planning.wa.gov.au/publications/1171.asp

[50] www.planning.wa.gov.au/publications/1182.asp

[51] www.planning.wa.gov.au/650.asp

[52] www.planning.wa.gov.au/publications/797.asp

[53] www.planning.wa.gov.au/publications/798.asp

[54] www.planning.wa.gov.au/publications/1197.asp

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### (f) Proposed State and metropolitan transport plans

The Department of Transport (WA) is currently developing an integrated multi-mode transport network plan for the Perth and Peel regions. The *Moving People Network Plan* will look holistically at Perth's transport network and advise government on critical transport network improvements: to enable people to travel in a way that meets economic and social needs of a growing community; and to be environmentally and financially sustainable.

The proposed *Moving People Network Plan* will be prepared by the Department of Transport in partnership with other State Government agencies with vast interests in integrated transport planning for Western Australia. The Department of Transport is also developing *Perth and Peel Regions Freight and Intermodal Plan* and *Regional Freight Plan*. These high level principal transport documents will address the State's transport needs for the medium and long term.

The recently released draft *Western Australian Bicycle Network Plan 2012-2021* would guide the development and implementation of cycling infrastructure in Perth and Peel metropolitan region over the next decade.

### (g) Draft Public Transport Plan for Perth in 2031

The Department of Transport released in July 2011 the draft *Public Transport Plan for Perth in 2031*[55]. This plan identifies the public transport network to support the growing population and the links to and between strategic centres as identified in the *Directions 2031 and beyond* strategic plan for Perth and Peel.

The plan is consistent with *Directions 2031 and beyond* and associated Western Australian Planning Commission's sub-regional growth management strategies. It takes into account anticipated growth of the Perth metropolitan region to 2031 and the resulting increased demand for public transport services.

Public transport, particularly transit will play a vital role in addressing congestion and accessibility issues as Perth grows to an expected population of 2.2 million by 2031.

This plan identifies the main public transport infrastructure needs and required links between major activity centres such as universities and Perth Airport. Key initiatives include the introduction of light rail, the development of rapid transit corridors, expansion of the rail network and more buses and trains to service future demand.

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[55] www.transport.wa.gov.au/aboutus/23281.asp

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### (h) Proposed congestion management strategy

Addressing urban congestion is a priority under the National Transport Policy. Department of Transport is currently developing a congestion management strategy as part of the *Moving People Network Plan*.

This work will define a higher level strategic framework for Western Australia, including defining acceptable levels of congestion. It will bring together various State government strategic initiatives to resolve urban congestion, including public transport strategy; land-use planning; parking and taxation pricing and travel demand management; nonmotorised travel options; road design operations; and capacity and planning for freight and logistics.

### (i) Walk WA: A Walking Strategy for Western Australia 2007–2020

*Walk WA: A Walking Strategy for Western Australia 2007–2020* is an inclusive government and community strategy developed by the Physical Activity Taskforce with input from key stakeholders in State and local government and various non-government agencies[56].

The Taskforce brings together the expertise of a number of State Government departments, local government entities, leading academics and community representatives to:

- provide strategic direction and input into government policy;
- support physical activity programs in schools, workplaces and the community;
- conduct research into physical activity participation rates and behaviours; and
- support the planning of transport and urban environments that make physical activity easier, safer and more fun.

The Department of Transport undertakes various projects, initiatives and programs to promote walking in WA. Walking is an easy, low cost method of increasing health and physical activity levels, and it also provides a huge range of benefits for the community, the environment, and the transport system[57].

### (j) Towards Zero, the Road Safety Council's recommended road safety strategy for 2008–2020

In March 2009, the State Government endorsed *Towards Zero, the Road Safety Council's recommended road safety strategy for 2008–2020*[58]. The Towards Zero road safety strategy will ensure that road safety policies in Western Australia continue to evolve within a strategic framework.

Towards Zero aims to improve road safety through four cornerstones:

- Safe Road Use – Improving road user behaviour.
- Safe Roads and Roadsides – Improving road infrastructure improvements.
- Safe Speeds – Ensuring speed limits and travel speeds are appropriate for the safety of the road infrastructure.
- Safe Vehicles – Improving the safety of the vehicles on the road.

### (k) Proposed metropolitan parking strategy for metropolitan activity centres

The WA Planning Commission has asked the Department of Planning to prepare a draft State Planning Policy to guide development of access and parking strategy for major centres in the metropolitan area. The proposed State Planning Policy will be based on and further articulate Sections 5.3 and 5.4 of *SPP4.2 Activity Centres for Perth and Peel* as well as support the broad objectives of Directions 2031. The policy will address issues such as parking management and regulatory structures; prioritised access; pricing; linkages between parkng and public transport; good urban design and amenity outcomes for parking infrastructure; and contain guidelines for local government good parking practice.

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56 www.beactive.wa.gov.au/

57 www.transport.wa.gov.au/walking/1542.asp

58 www.ors.wa.gov.au/Towards-Zero.aspx

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### (l)  Universal access in Perth

Local government in Western Australia is covered by the *Disability Discrimination Act 1992 and the Disability Services Act 1993*[59]. The latter includes development and implementation of Disability Access and Inclusion Plans for all areas of local government, including transport and planning.

The *Accessible Public Transport Standards*[60] require minimum accessibility standards to be met by public transport providers, transport infrastructure and premises. They address issues such as access paths, negotiating areas, ramps and boarding devices, allocated spaces, handrails, doorways, controls, symbols and signs, payment of fares and provision of information.

These standards cover the direct provision of public transport services and infrastructure, including bus stops. The *Action Plan for Accessible Public Transport for People with Disabilities in Perth*[61] covers the pedestrian environment in providing public transport access. This is largely the responsibility of local government.

Central to the standards and the action plan, and to disability access generally, is the 'continuous accessible path' concept. This ensures a single impediment does not prevent wider use. This is useful in access planning in any transport mode and is included in the term 'universal access"[62].

### 1.4.3  Local level policy context

Local governments are responsible for land use and transport planning, and economic and social development of their communities at local and regional levels. The integrated transport planning approach must recognise the connection between transport and land use, and economic and community wellbeing.

State-level planning is complemented by and implemented through local government local planning schemes and strategies and associated planning and development policies at both State and local levels (Figure 6).



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[59]  *Disability Service Act 1993*   www.slp.wa.gov.au/legislation/statutes.nsf/main_mrtitle_267_homepage.html

[60]  *Commonwealth Disability Standards for Accessible Public Transport 2002* www.comlaw.gov.au/comlaw/legislation/legislativeinstrumentcompilation1.nsf/0/96EE5ABB923C881ECA256FFE001827AC/$file/DisabilityWD02.pdf

[61]  Action Plan for Accessible Public Transport for People with Disabilities in Perth. Department of Transport: Perth, WA

[62]  '*Universal access*' broadly refers to the ability of all people to have equal opportunity and access to a service or product from which they can benefit, regardless of social class, ethnicity, ancestry or physical disability.

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**Figure 6 – Local Planning Manual: A guide to the preparation of local planning strategies and local planning schemes in Western Australia**[63]
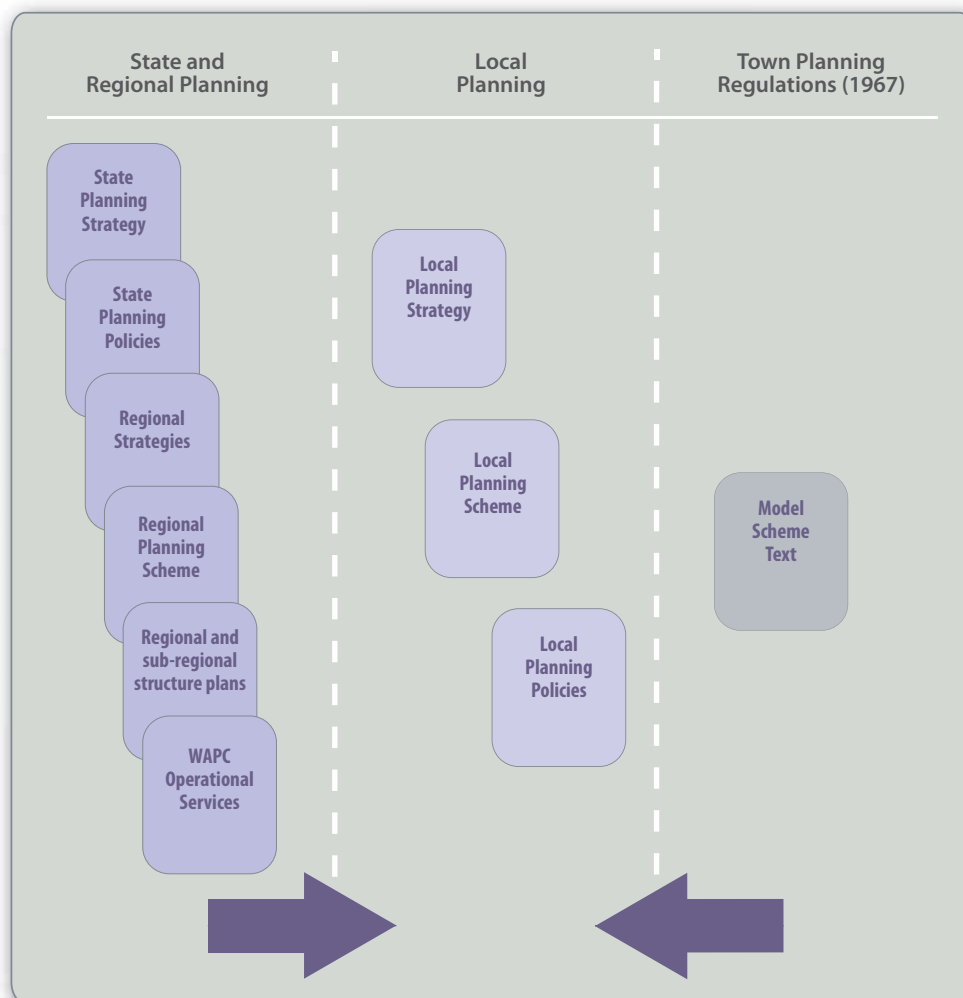


Source: *Local Planning Manual: A guide to the preparation of local planning strategies and local planning schemes in Western Australia,* Western Australian Planning Commission (2010).

Local governments are directly involved in structure, precinct and activity centre planning. Local planning schemes consider these three strategic components and set out the way land is to be used and developed, classify areas for land use, and include provisions to coordinate infrastructure and development in a locality.

Local planning schemes are the principal statutory tool for implementing planning strategies and achieving local government aims and objectives for developing local areas. While local planning schemes mainly control land use development and coordinate infrastructure, they must be seen in the broader contexts of strategic framework, environment, social and economic goals and objectives.

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[63] Local Planning Manual: A guide to the preparation of local planning strategies and local planning schemes in Western Australia. WAPC (2010) www.planning.wa.gov.au/publications/819.asp

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Local government integrated transport plans are not statutory requirements under the current planning legislation (*Planning and Development Act 2005*). They could feed into a local planning strategy, which is required to guide a local planning scheme and contribute to meeting goals as per a local government strategic plan.

Local planning schemes and strategies consider physical aspects of transport and access as secondary to land use and development. They do not specifically define how local, sub-regional and regional transport will interact and function in an area. Amending a local planning scheme is a lengthy process, and subject to a wide range of influences, constraints and pressures. While changes to a scheme may be recommended by an integrated transport plan, the integrated transport plan itself must be able to operate without such changes.

Local government's most obvious role in activity centres is land use planning through local structure plans[64], planning policies and design guidelines. Activity centres should be accessible to and from surrounding areas and must be places where people desire to go and remain: a concept known as 'placemaking'. There is often conflict between vehicle access and maintaining aesthetic appearance – an issue that needs to be addressed in integrated transport planning.

Activity centres may need to attract customers outside the vicinity if services in the area are to be viable. They may also need to draw on a potential workforce outside the immediate area. Businesses might also need to bring in goods and services from other areas.

Attractive, efficient and convenient public transport access will reduce private car dependency and lead to a more efficient use of land within a centre to benefit businesses and the community. Strategic transport policy increasingly aims to demote private car use as the primary means of transport. Higher priority should be given to drivers who commute to and within a centre, as this will benefit business and other activities in it. Relevant policies and guidelines on activity centres and their movement and access networks are:

- Western Australian Planning Commission *State Planning Policy 4.2 – Activity Centres for Perth and Peel* (Section 3, Movement), 2010;

- Institute of Public Works Engineering Australia Queensland *Complete Streets: Guidelines for Urban Street Design, 2010*; and

- Austroads *Guide to Traffic Management (Part 7 – Traffic Management in Activity Centres)*, 2009.



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[64] Western Australian Planning Commission Draft Structure Plans Guidelines. 2011   www.planning.wa.gov.au/5942.asp

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**Figure 7 – Four components of successful 'placemaking'**



Source: *Project for Public Spaces – Placemaking for Communities organisation.*

The most successful activity centres adopt a more integrated approach, utilising four components of 'placemaking'[65] (Figure 7):

1. Uses and activities – partly the result of planning and development, but equally the result of social and business activity;

2. Comfort and image – physical and aesthetic attributes of a place, and perceptions of amenity and personal security;

3. Access and linkages – ability to move safely and conveniently within a place (including legibility of necessary signs) without undue intrusion by motor vehicle traffic. Applies especially to pedestrians. Internal access must be integrated with access from the surrounding area; and

4. Sociability – intangible aspects of a place resulting from people and activities, and which encourages more people and activities.

_____

[65] What is place making   www.pps.org/what_is_placemaking

These components will depend on interface between development, activities and people. For example, narrow streets may be pedestrian-friendly but uninviting. Such areas have the potential to be improved[66] but are often left alone.

Planning principles and set out by Danish architect Jan Gehl[67], can be adapted for use in activity centre 'placemaking' design.

People are more likely to frequent places where they feel safe. Perceptions of personal safety and security are related to the number of people in an area at a certain time, visible activities taking place, and aesthetic design[68]. Safety and security considerations also support community health, such as:

- a safe transport system

- aesthetics

- connectivity

- equitable environments

- mixed density

- mixed land use

- parks and open spaces

- safety and surveillance

- social inclusion

- infrastructure support.

*Healthy spaces & places: A national guide to designing places for healthy living*[69] supports and complements planning and design initiatives throughout Australia. It is a single source of easy-to-find, practical information from experts in health, planning, urban design, community safety and transport planning.

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[66] Small Street Activation Discussion Paper. East Perth Redevelopment Authority and Subiaco Redevelopment Authority: Perth, WA. 2003.

[67] Perth 2009: Public Spaces and Public Life. Gehl Architects for City of Perth and WA Planning Commission: Perth, WA.
www.planning.wa.gov.au/publications/1141.asp

[68] Designing Out Crime: Planning Guidelines. Office of Crime Prevention and Western Australian Planning Commission: Perth, WA.
www.planning.wa.gov.au/publications/789.asp

[69] Healthy Spaces & Places: A national guide to designing places for healthy living. Planning Institute of Australia (with the Heart Foundation and the Australian Local Government Association): Kingston, ACT.
www.healthyplaces.org.au

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# BACKGROUND & CONTEXT

# Part 2 – Sustainable transport system and integrated transport planning

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## 2.0 Summary – Part 2

Sustainable transport has been defined as transportation that meets the mobility needs of today; does not endanger public health or ecosystems; and meets the need for access consistent with sustainable use of resources used and resources replaced, without compromising the ability of future generations to meet their needs.

Both sustainability and integrated transport planning are as much about identifying and achieving a desired future as they are about defining that future. Sustainability is about the long-term, for which a key issue is achieving robustness in the face of uncertainty – in other words, ensuring, as far as possible, that unforeseen events do not undermine the long-term well-being of our communities.

Integrated transport planning is a specific application of the sustainability principles already espoused and supported by many local governments in Western Australia. Many local governments are already supporting sustainability through membership of local governments for Sustainability and the related Cities for Climate Protection.

Integrated transport planning offers local governments a way to assess the real impact of transport provisions on the community; better understand which agencies are responsible for the services; and engage with wider community issues. The integrated transport planning process can influence decisions to improve local outcomes in line with broader community goals and to maximise the benefits beyond transport requirements, including social, economic, environmental and health benefits.

Effective integration can be achieved through working collaboratively across three levels:

1. *Horizontal integration* – creating a total package of strategies across areas of government in which transport will both influence and be influenced by other areas. This must include integration within transport (eg. between modes) as well as between transport and other activities.

2. *Vertical integration* – allowing local circumstances and local knowledge to influence high-level policies and plans as well as higher-order planning directing the local.

3. *3-D integration* – requires that policy and planning consider, and are not developed in isolation from, the feasibility and means of implementation. It also requires, however, that opportunities are identified and developed for effective implementation of new ways of doing things that are not allowed for, for example, in current transport funding arrangements.

An integrated transport plan should create an appropriate balance between economic, social and environmental outcomes; and between the local and regional functions of transport.

Integrated transport plans are tools for comprehensive analysis of the existing and future transport system requirements within an area, defined by a single local government or grouping of several local governments where they have significant transport and access issues in common. Integrated transport plans (supported and endorsed by councils) provide an overall framework for a holistic planning approach to resolving emerging transport issues at regional, sub-regional and local levels.

A wide spectrum of factors will influence the development of integrated transport plans. Specific challenges to achieving sustainable transport in urban areas include:

- population and employment growth
- social inclusion
- transport safety and security
- air quality and other quality of life issues
- climate change emissions
- transport energy – higher prices and scarcity.

## 2.1 What is integration for transport planning?

The concept of integrated transport planning has emerged as a framework to more closely define the broader term of transport planning. According to the Integrated Transport Planning Framework for Queensland, integrated transport planning is defined as:

*…" a process to identify current and future access needs – for people, places, goods and services – and inform decision makers on ways to manage the transport system and land-use to best address these needs. It aims to do this in a way that sustains economic growth, conserves the environment and supports the quality of life of current and future generations* "

Integration takes place across disciplines and across levels of government and responsibility. Integration is most commonly seen in terms of:

- *Horizontal integration* – the synergy between distinct parts of a larger system – usually in respect to land-use planning and transport.

- *Vertical integration* – the synergy and consistency between various levels of government and private organisations, so there is mutual support or, at least, they do not work against one and other (Figure 8).

A third type of integration, without which the first two are ineffective, works across the whole process of planning and delivering outcomes for the community. This 3-D integration covers the spectrum from high-level policy through planning and design to implementation, and often involves complex aspects of both horizontal and vertical integration.

Integration is essential to the establishment of spatial and conceptual boundaries for an integrated transport plan. The boundaries should be broad enough to contain the most substantial issues that are to be addressed, but not so broad that recommendations cannot be specific and unable to implement. Where issues extend beyond those boundaries, linkages must be established with appropriate external stakeholders.

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**Figure 8 – Horizontal and vertical integration for integrated transport planning**[1]
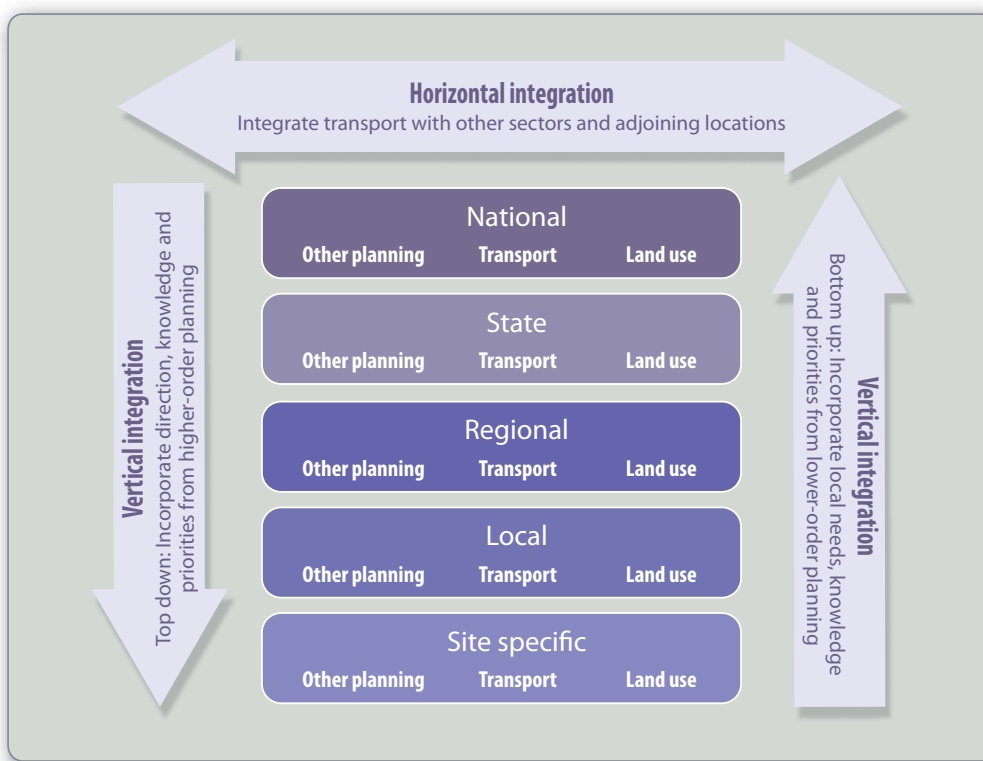


Source: *Integrated Transport Planning Framework for Queensland,* Queensland Government.

It is important to recognise the intermodal integration within the transport system, which is just as important as the vertical and horizontal integration described above.

The whole-of-system approach of multimodal planning involves a range of planning tools such as integrated transport planning, land use planning, urban planning, travel demand management and other mechanisms. It heralds a major shift in the focus within transport planning towards more sustainable and strategic transport planning whilst at the same time aiming to minimise costs to the community[2].

## 2.2 Sustainable urban transport systems and integrated transport planning

Sustainable transport has been defined as transportation that meets the mobility needs of today; does not endanger public health or ecosystems; and meets the need for access consistent with sustainable use of resources used and resources replaced, without compromising the ability of future generations to meet their needs.

A sustainable transport system is one which:

• Firstly, allows the basic access and development needs of individuals, companies and societies to be met safely and in a manner consistent with human and ecosystem health, and promotes equality within and between successive generations;

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[1] Integrated Transport Planning Framework for Queensland, Queensland Government , Australia, 2003   http://tmr.qld.gov.au/~/media/7807c3a4-7cc2-4090-85ad-7d6de62e284f/pdf_itpf_setting_the_scene.pdf

[2] *Guide to Road Transport Planning* (Austroads, 2009).

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**Table 2 – Our Cities Ourselves: 10 Principles for Transport in Urban Life**

| | |
|---|---|
| **Walk the walk** | Create great pedestrian environments |
| **Powered by people** | Create a great environment for bicycles and other non-motorized vehicles |
| **Get on the bus** | Provide great, cost-effective public transport |
| **Cruise control** | Provide access for clean passenger vehicles at safe speeds and in significantly reduced numbers |
| **Deliver the goods** | Service the city in the cleanest and safest manner |
| **Mix it up** | Mix people and activities, buildings and spaces |
| **Fill it in** | Build dense, people and transit oriented urban districts that are desirable |
| **Get real** | Preserve and enhance the local, natural, cultural, social and historical assets |
| **Connect the blocks** | Make walking trips more direct, interesting and productive with small-size, permeable buildings and blocks |
| **Make it last** | Build for the long term. Sustainable cities bridge generations. They are memorable, malleable, built from quality materials, and well maintained |

Source: Gehl Architects - Urban Quality Consultants, Copenhagen, Denmark.

- Secondly, is affordable, operates fairly and efficiently, offers a choice of transport mode, and supports a competitive economy, as well as balanced regional development;
- And finally, limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of development of renewable substitutes, while minimizing the impact on the use of land and the generation of noise[3].

Sustainable urban transport planning must address all three areas – society, economy and the environment.

In practical terms sustainable transport is often used to refer to the lower impact and active transport modes of walking, cycling and public transport. Encouraging and funding transport infrastructure provision at local government level is equally important for all transport modes as the aim is to provide a transport system that caters for all transport needs of the community and business services in the local area.

An integrated transport plan should facilitate appropriate balance between economic, social and environmental outcomes and between the local and regional functions of transport. Many urban communities will need to accommodate both regional and local travel, but is vital that regional movement, especially where it involves heavy traffic flows or heavy commercial vehicles, does not excessively damage communities through which it passes.

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[3] *Centre for Sustainable Transport, Canada.*
http://cst.uwinnipeg.ca/documents/Definition_Vision_E.pdf

Note: This definition has also been adopted by the Australian Local Government Association www.alga.asn.au/policy/transport/sustran

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## Table 3 - Principles overview – Our Cities Ourselves[4]

| | | |
|---|---|---|
| **1** | **Walk** | Great cities start with great pedestrian environments. Walking is the most universal form of transport. |
| **2** | **Cycle** | Bicycles allow for the convenience of door-to-door travel, but use less space and fewer resources. They are the healthier and more sustainable alternative to cars and taxis for short trips. |
| **3** | **Connect** | The more connected the blocks, the shorter the distance between destinations, making walking and biking more appealing. |
| **4** | **Transit** | Mass transit can move millions of people quickly and comfortably using a fraction of the fuel and street space required by automobiles. |
| **5** | **Mix** | Sustainable transit needs to connect people to attractive places that encourage them to stay. Making a street "great" includes having a diversity of places and activities along it. |
| **6** | **Densify** | High density communities shorten trip distances, save travel time, and preserve millions of square kilometres of arable land. They use resources more efficiently, reducing the carbon footprints of its residents. |
| **7** | **Compact** | New city centres placed far from existing cities are inconvenient and rarely thrive. City planners must locate compact new sub-centres within or adjacent to existing cities. |
| **8** | **Shift** | By managing private car use and expanding car sharing, cities can minimize traffic and congestion problems while creating space for pedestrians, mass and non motorized transit. |

Source: Our Cities Ourselves organisation, Institute of Transportation and Development Policy, New York, US (2011).



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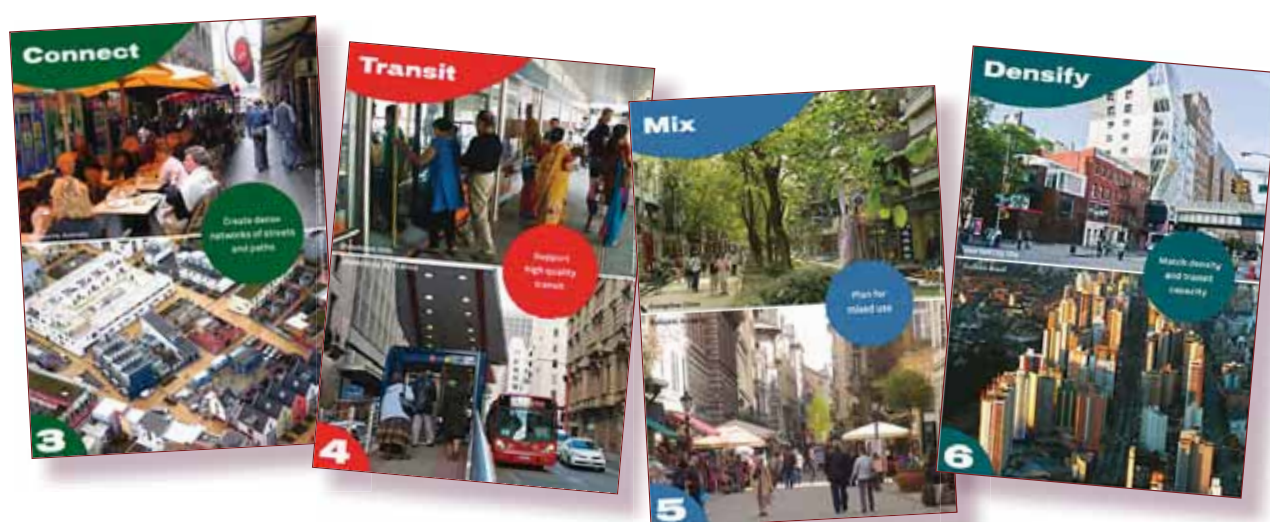
[4] Our Cities Ourselves
www.ourcitiesourselves.org/images/OCO8Principles-s.pdf

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Danish architect and urban designer, Jan Gehl, in *Our Cities Ourselves – 10 principles for transport in urban life* has enunciated 10 principles of sustainable transport (see Table 2).

The Institute of Transportation and Development Policy (US) has developed similar eight urban design principles to create sustainable cities (see Table 3).

All of these principles have important parts to play in integrated transport planning for sustainable communities as well as delivering transport and places for people.

Integrated transport planning aims to ensure that there is a suitable and interconnected transport infrastructure for all different transport modes such as private car, freight, public transport, walking, cycling, which will result in improving the community's accessibility to jobs, services, recreation and other daily

activities. Transport priorities should be based on desired outcomes to support good economic, social, and environmental outcomes for current and future generations.

The future wellbeing of our community depends on affordable, sustainable and safe access to jobs, goods and services, education, recreation and the other things that are part of our everyday lives. Transport is an essential part of this, but is not the whole picture. Transport and land use interact to provide accessibility, but only if people and businesses are aware of the activities and transport opportunities available to them.

## 2.3  Major challenges to sustainable transport in urban areas

### 2.3.1  Population and employment growth

Population and employment growth will put extra pressure on roads and public transport. The population of Perth is expected to grow to 2.2 million by 2031 – as many as the number currently residing in the whole of Western Australia. The forecast increase in personal travel (to *7.7 million trips per day by 2031*)[5] in the Perth metropolitan region will place increased pressure on the region's transport system.

Expansion of an urban area to accommodate population growth will increase the amount of travel people need to undertake and increase the likelihood of their choosing, or having no alternative, to travel by car.

Increasing population in existing urban areas (through higher densities or redevelopment of land no longer required for other purposes) will increase the density of movement within the existing transport system, potentially increasing traffic congestion unless measures are put in place to reduce the need to travel long distances.

Separation of where people live from where they work or can access other activities will increase the amount of travel they need to undertake in the course of everyday life. The greater this separation, the further they will have to travel and the less likely it is that they will be able to walk or cycle to their destinations.

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5   *Directions 2031 Draft Spatial Framework for Perth and Peel, WAPC, June 2009, Page 25.*

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### 2.3.2 Social exclusion

Accessibility is central to the ability of people to be part of the community. More specifically, poor accessibility (to employment, services, education and other opportunities) is a critical contributory factor for social exclusion. Problems with transport and the location of services contribute to social exclusion by preventing people from participating in work or learning, or accessing healthcare, food shopping and other key activities[6].

Figure 9 outlines some measures that can enhance accessibility. It is important to continually identify opportunities to improve access to and within the area.

Measures to enhance accessibility should consider the needs of all members of the community, including children, the elderly and people with disabilities.

Accessibility for all includes, but goes well beyond, the requirements for transport and public places to be accessible for people with disabilities and includes the substantial number of people who do not have a driver's licence (for whatever reason) and those who do not have access to a car (Figure 10).

In turn, actual and perceived accessibility are key elements in achieving a high level of social inclusion. The Australian Government's substantial interest in social inclusion approach is about all sectors of the community – government, business and the not-for-profit sector, communities and individuals – working together[7].

**Figure 9 – Measures that can improve accessibility[6]**



Source: *Making the Connections: Final Report on Transport and Social Exclusion.* Social Exclusion Unit: London, England (2003).

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[6] *Making the Connections: Final Report on Transport and Social Exclusion.* Social Exclusion Unit: London, England, 2003 www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_policy/---invest/documents/publication/wcms_asist_8210.pdf

[7] Social Inclusion, Australian Government website www.socialinclusion.gov.au

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**Figure 10 – Perceptions are important in achieving outcomes**
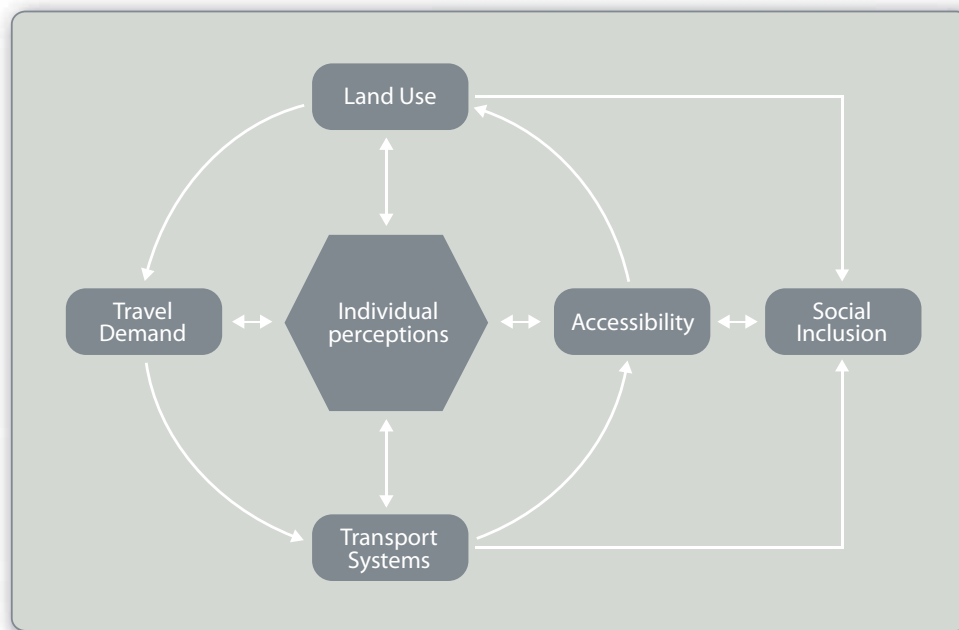


Source: Presentation to *Forum on Good Governance in Transport, Land Use Planning and Transport Infrastructure.*
Ker, I (2008); GAMUT Australian Centre for the Governance and Management of Urban Transport, Curtin
University: Perth, WA.

### 2.3.3  Transport safety and security

From a traffic safety perspective, public transport is safer than car use. The same cannot, however, be said of walking and cycling as things currently are, and this is a major deterrent to many people walking or cycling more than they currently do.

Similarly, public transport sometimes has a poor image in terms of personal security, especially for travel in the early morning or late evening. And walking is sometimes regarded as personally risky, if the physical environment contains places where unseen hazards (including people) can lurk.

The solutions to these problems lie in improving conditions for all transport users and in increasing the use of public transport, walking and cycling.

*National Road Safety Strategy 2011–2020*[8] is based on four cornerstone areas of intervention. Strategic intent in each of the cornerstone areas are:

- **Safe Roads** – Roads and roadsides designed and maintained to reduce the risk of crashes occurring and to lessen the severity of injury if a crash does occur. Safe roads prevent unintended use through design and encourage safe behaviour by users.

- **Safe Speeds** – Speed limits complementing the road environment to manage crash impact forces to within human tolerance; and all road users complying with the speed limits.

- **Safe Vehicles** – Vehicles which not only lessen the likelihood of a crash and protect occupants, but also simplify the driving task and protect vulnerable users. Increasingly this will involve vehicles that communicate with roads and other vehicles, while automating protective systems when crash risk is elevated.

- **Safe People** – Encourage safe, consistent and compliant behaviour through well-informed and educated road users. Licensing, education, road rules, enforcement and sanctions are all part of the Safe System.

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[8]  National Road Safety Strategy 2011–2020, Australian Transport Council, 2011  www.infrastructure.gov.au/roads/safety/national_road_safety_ strategy/index.aspx

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**BACKGROUND & CONTEXT - PART 2**

**Designing Out Crime**
Planning Guidelines
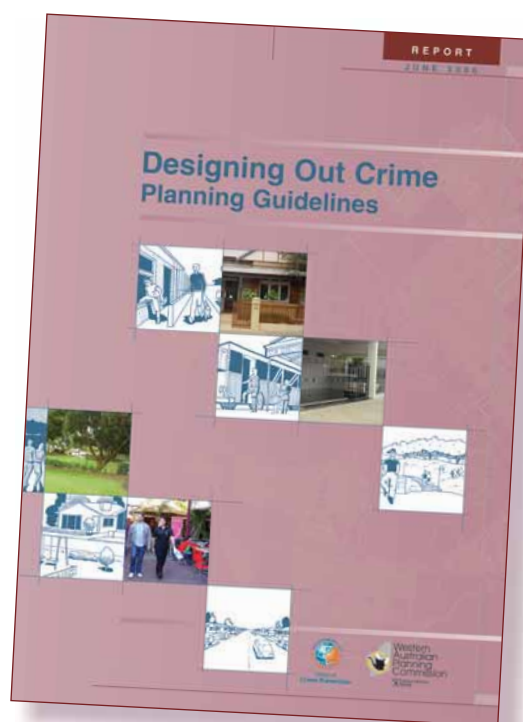
Increased visibility of people in the street also leads to lower traffic speeds and enhances pedestrian safety as well as creating more interesting places where people want to be[9].

Planning and design or urban environments are central to the creation of places and transport systems where people feel safe and secure. The principles of crime prevention through environmental design are equally applicable to the built environment and to transport systems. These principles and guidelines have been extensively documented (including examples of good and bad practice) by the Western Australian Planning Commission and the Office of Crime Prevention in *Designing Out Crime Planning Guidelines*[10].

### 2.3.4  Air quality and other quality of life issues

Cities everywhere have to grapple with problems of air quality. It is no longer coal-burning or (in most places) industrial emissions that are the problem but rather the exhaust emissions from motorised traffic. Although substantial improvements have been made through cleaner fuels (e.g. unleaded petrol, LPG), more efficient engine technology and catalytic converters, the increasing concentration of motor vehicles in many parts of our cities means there can still be major problems of air quality.

In Perth, the high level of exhaust emissions is compounded by the large amounts of sunlight and, in summer, the consistent wind patterns, which provide ideal conditions for the creation of photochemical smog[11]. Photochemical smog is invisible but has substantial health and amenity effects in the community. Air pollution can harm human health by direct inhalation

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[9]  *Mental Speed Bumps: The smarter way to tame traffic.* David Engwicht (2005). Envirobook: Annandale, NSW.

[10]  *Designing Out Crime: Planning Guidelines.* WA Planning Commission and the Office of Crime Prevention: Perth, WA.   www.planning.wa.gov.au/dop_pub_pdf/DOCguidelines.pdf

[11]  *The Perth Photochemical Smog Study.* Western Power Corporation and Department of Environmental Protection (1996): Perth, WA. http://portal.environment.wa.gov.au/pls/portal/url/item/FCC4C5820AE3FB51E03010AC6E051A0D

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and by other routes of exposure. Many air pollutants affect the respiratory and cardiovascular systems and air pollution levels in Australian cities sometimes cause acute health effects, including asthma, and may contribute to chronic disease (pulmonary fibrosis and emphysema).

With the population of Perth expected to increase by 40 per cent by 2031, continuing with 'business as usual' in transport would result in a very substantial increase in motor vehicle exhaust emissions. Longer journeys, any reduction in car occupancy and increased congestion will offset more efficient engines and cleaner fuels. Reducing car traffic by increasing walking, cycling and public transport has a double benefit in terms of air pollution. It reduces:

- the volume of exhaust gases produced by motorised transport, to the benefit of those in the surrounding areas; and
- the exposure of those former car drivers, who were previously exposed to high concentrations of exhaust gases that build up in cars on the road[12].

Increasing car occupancy (for example, through car-pooling) may make a contribution to these outcomes, but the extent to which this is so depends on whether the additional car occupants were previously car drivers.

### 2.3.5  Climate change emissions

Continued greenhouse gases  emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century.

Globally, transport accounts for 13 per cent of the manmade emissions of greenhouse gases. In Australia, transport accounts for nearly 15 per cent, with residential transport (mainly car driving) representing more than half of that contribution[13].

With the predictive substantial increase of Perth's population in the future even more efficient engines and cleaner fuels (most of which still produce greenhouse gas emissions to some extent) are unlikely to prevent an increase in greenhouse gas emissions from transport unless we start to become cleverer in the ways in which we travel, with less emphasis on the private motor vehicle.

Any form of carbon pricing or emissions trading scheme would increase the cost of transport fuel and modify the demand for motorised mobility. Emission trading schemes are already operating in the European Union and in New Zealand.

The Intergovernmental Panel on Climate Change[14] has identified a range of more specific policies, measures and instruments as effective in addressing growth of emissions from transport.  They include:

- mandatory fuel economy; biofuel blending and $CO_2$ standards for road transport;
- taxes on vehicle purchase, registration, use and motor fuels; road and parking pricing;
- influence mobility needs through land-use regulations and infrastructure planning; and
- investment in attractive public transport facilities and non-motorised forms of transport.

Those factors are important elements of the integrated transport planning approach.

[12]  *In-Car Air Pollution: The Hidden Threat to Automobile Drivers.* Report No 4, An Assessment of the air quality inside automobile passenger compartments. International Centre for Technology Assessment (2000): Washington DC, USA. www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

[13]  *National Greenhouse Gas Inventory - Kyoto Protocol Accounting Framework, 2008.* Department of Climate Change and Energy Efficiency: Canberra, ACT.   www.ageis.greenhouse.gov.au/ANZSIC.aspx

[14]  *Climate Change 2007: Synthesis Report – Summary for Policymakers.* Intergovernmental Panel on Climate Change: Geneva, Switzerland. www.ipcc.ch/publications_and_data/publications_ipcc_fourth_ assessment_report_synthesis_report.htm

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## 2.3.6 Transport energy – higher prices and scarcity

The world is at the beginning of the end of the age of oil, according to a growing body of analysts. It stands at the precipice of 'peak oil' – the point at which oil producing countries can no longer keep up with growing demand, where production climaxes and then plunges into irrevocable decline[15].

It is widely known that it has become more expensive to fill-up a car fuel tank over the past decade (Figure 11)[16]. The price of fuel has increased because of the continuing increase of demand for oil and gas and the inability of the industry to increase supply commensurately. Increasing price is a reflection of increasing scarcity and an increased likelihood of disruption to supplies.

**Figure 11 – Actual (top) and real (bottom) petrol prices, Perth: 2001–2010**
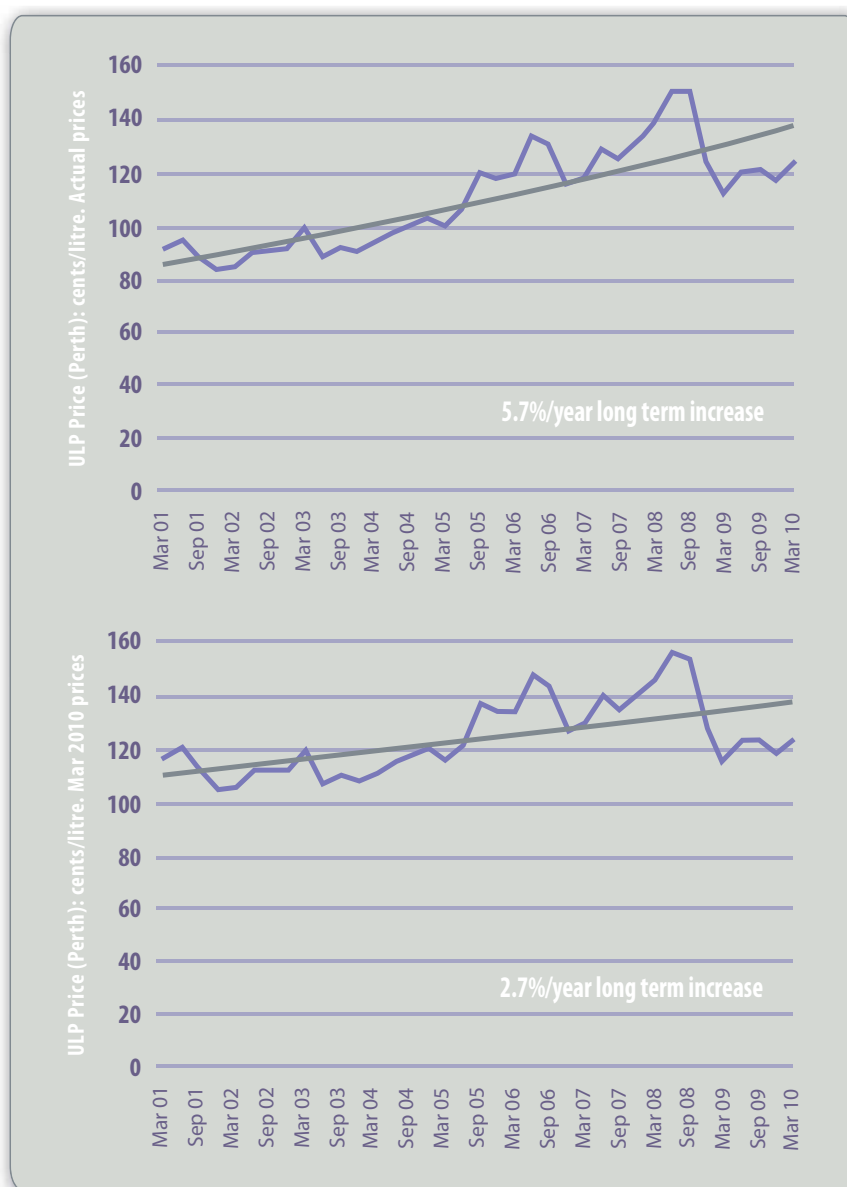


Source: *Actual petrol prices: Fuelwatch WA.*

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[15] ABC Four Corners, 10 July 2006
www.abc.net.au/4corners/content/2006/s1680717.htm

[16] Real prices are actual prices deflated by Consumer Price Index (Australian Bureau of Statistics, publication 6401.0) (www.fuelwatch.wa.gov.au/fuelwatch/pages/public/historicalPriceSearch.jspx).

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If they continue, these trends in petrol prices would see the pump price of petrol in Perth triple to over $4/litre by 2030 and the real price increase to around $2.40/litre.

Over the decade to 2010, Australians were partly protected from increases in crude oil prices (as the growth in demand continued to outstrip supply) by the rising value of the Australian dollar relative to the US dollar (from A$1 = US$0.50 in March 2001 to A$1 = US$1.08 in April 2011). We can not predict future values for the Australian dollar but we should be aware of the potential increases in petrol prices that could result from a possible significant drop in the value of currency.

There will, of course, be improvements in vehicle engine technology and the introduction of alternative fuels for cars, but these will take time to introduce and even more time to become predominant in the vehicle fleet. The early adopters, in any case, will be those who can most afford to buy the new technology; meanwhile, the higher price of fuel will hurt most those who can least afford it. Planning for alternatives to the private car as we currently know it should have regard for the regressive distributional impacts of higher fuel prices.

As growth in demand continues to outstrip supply, there is also an increased risk of scarcity. Australia is becoming increasingly reliant on imported oil (for both vehicle fuel and for bitumen for roads). Oil exporting countries will naturally want to insulate their own economies and people from higher fuel prices and will restrict exports accordingly. This will likely create the potential for long-term or temporary scarcity of oil for transport and other purposes. Communities that are geared to make the greatest possible use of alternatives to the private car will be best placed to maintain the well-being of their people and businesses when such scarcity arises.

Alternative and cleaner energy for motor vehicles and more efficient propulsion systems will be beneficial for energy and related issues (climate change and air pollution), but may even exacerbate other social, economic and amenity issues (eg. congestion) associated with them.

## 2.4 The role of local government in sustainability and integrated transport planning

Both sustainability and integrated transport planning are as much about identifying and achieving a desired future as they are about defining that future. Sustainability is about the long-term, for which a key issue is achieving robustness in the face of uncertainty – in other words, ensuring, as far as possible, that unforeseen events do not undermine the long-term well-being of our communities.

The WA *State Sustainability Strategy*[17] identified a range of roles and responsibilities for government, business and the community in moving towards sustainability (Table 4). Government roles and responsibility apply as much to local government as to the state and national levels and are reflected in the principles and processes for integrated transport planning set out in these guidelines.

Many local governments are already supporting sustainability through membership of local government for Sustainability[18] and the related Cities for Climate Protection[19]. Integrated transport planning is a specific application of the sustainability principles already espoused and supported by many local governments in Western Australia.

An integrated plan for sustainable urban development comprises a system of interlinked actions which seeks to bring about a lasting improvement in the economic, physical, social and environmental conditions of a city or an area within the city. The key to the process is 'integration', meaning that all policies, projects and proposals are considered in relation to one another. In this regard, the synergies between the elements of the plan should be such that the impact of the plan as a whole adds up to more than would the sum of the individual parts if implemented in isolation.

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[17] *The Western Australian State Sustainability Strategy.* Government of Western Australia: Perth, WA. www.dec.wa.gov.au/content/view/3523/2066

[18] Local Governments for Sustainability, worldwide organisation www.iclei.org

[19] Cities for Climate Protection, Australia www.iclei.org/index.php?id=11322

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**Table 4 – Roles and responsibilities for sustainability**

| Sector | Roles and Responsibilities |
|---|---|
| Government | 1. Demonstrate leadership through decision-making and good governance |
| | 2. Develop policy frameworks |
| | 3. Develop plans with the community and business |
| | 4. Provide for (independent) performance evaluation and public reporting |
| | 5. Provide incentives for sustainable practice |
| | 6. Forge partnerships; take and respond to initiatives |
| | 7. Promote examples of sustainability in practice |
| | 8 Undertake institutional reform, including appropriate revisions to legislation and regulatory practices following full community debate |
| | 9. Support capacity building within and outside government |
| | 10. Implement procurement policies in support of sustainability |
| | 11. Embrace and pursue triple bottom line public reporting (noting that this in itself is not necessarily a measure of sustainability) |
| Business | 12. Pursue the objectives of sustainable industry practice |
| | 13. Peak industry groups to pursue a leadership role in their business sector |
| | 14. Consider socially responsible investment |
| | 15. Implement green offsets for sustainable development |
| | 16. Commit to sustainability as a proper part of doing business |
| | 17. Set out how to relate industries to their place and their communities of interest |
| Community | 18. Recognise and act on the need for behavioural change by all members of society as the key to long-term success. Sustainability ultimately is about the aggregated influence and outcomes from millions of everyday decisions by everyday people in everyday lives |
| | 19. Pursue opportunities to play a role in community leadership to achieve sustainability |
| | 20. Contribute to and respond to good practice guidance |
| | 21. Consider 'ethical investments' |
| | 22. Look for opportunities in volunteer, sustainability-based community activities |
| | 23. Provide ethical perspectives on sustainability |
| | 24. Participate in building up community in a place and in relation to a place |

Source: *Hope for the Future: The Western Australian State Sustainability Strategy, 2003;*
Department of Environment and Conservation, WA.

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# Part 3 – Principles and process for integrated transport plans

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## 3.0 Summary – Part 3

An integrated transport plan extends beyond a plan for transport, or even a plan for transport and land use – to encompass its implementation and review in response to changing circumstances.

*Directions 2031 and beyond* sets out the strategic spatial framework for managing urban growth and guiding investment in transport infrastructure and services over the next 20 years in the Perth and Peel regions. Fundamental principles include:

- we must work with the city we have;
- we must make more efficient use of land and infrastructure; and
- we must prioritise land that is already zoned.

Integrated transport plans usually address the six key transport principles of the Department of Transport's *Metropolitan Transport Strategy 1995-2029*, which are:

- Safety
- Efficiency
- Effectiveness
- Environmental responsibility
- Social Responsibility
- Robustness.

An overarching principle is that the integrated transport planning process needs to be inclusive if it is to lead to plans that are easily implemented and will deliver the outcomes needed for a sustainable urban community. Inclusiveness may take different forms for strategic and local planning, to ensure the effective planning and implementation of integrated transport plans.

Understanding and supporting the community's values and aspirations is an essential starting point for preparation of an integrated transport plan. Setting a vision for the plan starts with understanding the needs, aspirations and expectations of the community, while developing it is a key to the effective involvement of the residential and business communities through to implementation.

In a diverse community there will be a range of key drivers which are important to be acknowledged in order to increase the potential of gaining widespread support from stakeholders and the community throughout the integrated planning process. Key drivers defining an integrated transport plan are: generic and local; collective or individual; economic, environmental or social; and personal or communal.

Some key questions to consider when setting out to develop an integrated transport plan should include:

- Why is the project being undertaken?
- What are the aims, objectives, and budget available for the project?
- Who is involved in the project?
- What are the key timelines for the project?
- What is the scale and scope of the project?
- How will the project be carried out – methodology, resources, reporting etc?

Developing objectives for the integrated transport plan with the community and stakeholders is important for the plan's success. The objectives should reflect the vision for the transport system in the area but most importantly, should have the support of the community, including elected local government representatives. They should be both measurable and achievable within up to five to ten years. The principal objectives of a plan should be that people and businesses are able to make appropriate choices about transport and access, now and into the future.

Once the vision and objectives of an integrated transport plan are developed, the next steps are to:

- **set strategic targets** – these should align to the plan's key objectives to provide a benchmark to measure actual achievement. As with objectives, the strategic targets should be measurable and achievable for up to five to ten years;
- **identify issues and needs** – this stage of the plan's process requires the documentation and analysis of issues raised through community and stakeholder consultation, and suggested transport solutions to meet broader community needs. A key element of community involvement is often the release of an 'Issues and Options' paper to describe why action is needed (issues), alternate ways of addressing issues (options), and clear indication of the consequences of the options;

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- i**dentify challenges and opportunities** – some objectives and targets will be more difficult to achieve and will depend on the extent of the gap between the likely and desired future, the options available to overcome the gap and any barriers to the effective implementation of strategies and actions that bridge the gap;

- **achieve desired outcomes for strategies, actions and targets** – the component strategies of integrated transport planning will depend on the specific situation. Each outcome will involve multiple actions that must be relevant to the strategies and the stated objectives; and

- **implement and review** – any planning exercise cannot anticipate all circumstances that may arise, but the flexibility to adapt to changing circumstances should be part of the planning process. Ongoing review against original objectives is simply prudent planning and not an indicator of failure should changes need to occur.

## 3.1  Integrated transport plans for local government

An integrated transport plan can influence a local government's decisions to improve local transport outcomes in line with broader community goals; and maximise their benefits beyond transport requirements, particularly in the social, economic, environmental and health realms. It offers local government a way to assess the real impact of transport provisions on the community in order to better understand the agencies responsible for services and to engage with wider community issues.

Integrated transport plans are useful tools for the comprehensive analysis of existing and future transport system requirements within an area – usually defined by a single local government or groups of several local governments with common transport and access issues[1]. The plans (supported and endorsed by councils) provide a framework for holistic planning to resolve transport issues at regional, sub-regional and local levels and are also the means by which a transport vision becomes reality.



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[1] For example, the *Integrated Transport Strategy for Perth's Eastern Region* (2007) was initiated by and developed for the Eastern Metropolitan Regional Council of six Local governments in partnership with the then Department for Planning and Infrastructure.

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Local governments can use integrated transport plans to support funding requests to local, State or Federal bodies for improvements in transport infrastructure. Integrated transport plans build strong partnerships across levels of government, which aid delivery of integrated regional transport systems.

## 3.2 Successful development of an integrated transport plan

The successful development of an integrated transport plan involves collaboration with government, stakeholders and the community. The planning process is more likely to be flawed without political backing and a genuine desire to engage with the community and value their input.

An integrated transport plan requires consideration of all transport modes and how they interconnect. A focus on only one local transport issue without regard for other elements of the transport system and the adjoining land uses does not constitute an integrated transport plan. Careful planning is critical to the integrated transport plan's overall success and the community and stakeholders should be engaged at the outset.

The key steps in the planning process are:

1. define the project;
2. outline a vision for the integrated transport plan;
3. identify key drivers;
4. develop specific objectives and strategic targets;
5. document and analyse issues and needs;
6. review challenges and opportunities that present in the plan;
7. devise strategies to achieve outcomes;
8. assign actions and targets to achieve the objectives; and
9. assess and monitor the efficacy of the plan when it is implemented.

All kind of resources required to develop the plan need to be identified and made available at each step in the process to ensure it is followed appropriately and that the full value from each step is delivered on time.

Timing is critical to the success of an integrated transport plan with the implementation of any part of the plan occurring without disruption from other issues.

Figure 12 illustrates the components of integrated transport planning approach and how they inter-relate. Sections 3.3 and 3.4 provide more detailed information and guidance on the principles and processes involved.

## 3.3 Principles

The Department of Transport's *Metropolitan Transport Strategy (1995–2029* [2] *)* sets out six main principles for planning and delivering transport systems. Integrated transport plans must address these key strategic principles for sustainability:

- **safety –** the transport system should be safe for all users;
- **efficiency –** the transport system should be provided, operated and used efficiently;
- **effectiveness –** the transport system overall should provide effective access and movement for all persons and business for employment, health, education, commercial, service, social, leisure and freight purposes;
- **environmental responsibility –** the transport system should be provided and used in an environmentally responsible manner;
- **social responsibility –** the transport system should provide equitable travel and transport opportunities for residents and businesses, with social benefits and costs being shared by all beneficiaries; and
- **robustness –** the transport system must provide service in the face of ongoing and largely predictable during the coming 35 years and must be able to respond to and take advantage of unpredictable economic, social, technological and other changes.

Transport targets in the *Perth Metropolitan Transport Strategy* also apply to other urban situations, namely:

- reduced car use;
- reduced journey lengths; and
- increased use of public transport, walking and cycling.

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[2]  *Metropolitan Transport Strategy, 1995-2029. Department of Transport, WA.* www.transport.wa.gov.au/tsmart_mts.pdf

**Figure 12 – Principles and process for integrated transport plans**

Other strategies for an accessible city have also been identified to:

- connect communities with jobs and services;
- improve the efficiency and efficacy of public transport;
- encourage a shift to more sustainable transport modes;
- maximise the efficiency of road infrastructure;
- manage and reduce congestion;
- protect freight networks and the movement economy;
- consider parking needs overall;
- plan and develop urban corridors to accommodate medium rise, higher density housing development; and
- plan and develop transit-oriented developments to accommodate mixed use and higher- density housing development.

It is also important that planning itself be inclusive to deliver the outcomes necessary for a sustainable urban community whether in Perth or in non-metropolitan urban areas. Inclusivity may take different forms for strategic and local planning, but the principle is undeniable for effective planning and implementation.

A fundamental aspect of transport planning is that the demand for transport is a derived demand – we don't move goods and services around for the sake of it – rather we do so to make them easily accessible to users. The aim is therefore, to minimise the distance of travel and cost of transport required to access goods and services.

Such a simple-sounding approach cannot, however, be applied to the components of the transport system, only to its totality. For a range of economic, environmental and social reasons, it is desirable to reduce the extent of reliance on driving a car to achieve access and to increase use of more sustainable alternatives – walking, cycling, public transport and car passenger.

A second key standpoint is that integrated transport planning incorporates both complementarities and conflicts between components of the transport system and does so from the user's (or potential user's) perspective.

*Directions 2031 and beyond – Spatial Framework for Perth and Peel*[3] sets out the strategic framework for managing urban growth and guiding investment in transport infrastructure and services for the next 20 years. The preferred model is a connected, compact city. The framework is based on the fundamental principles of:

- working with the city we have;
- making more efficient use of land and infrastructure; and
- prioritising land that is already zoned.

The key to this is that most of the city of the future already exists. We can add or subtract activity and movement opportunities, but are unlikely to be in the position of creating whole new movement networks; and we can influence the way individuals and businesses perceive and use activity and movement networks, but we cannot totally reinvent those networks.

An important concept in the *Directions 2031 and beyond* strategic plan is the 'movement network', which is based on creating an efficient transport network to move people and goods around the city.

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[3]  *Directions 2031 and Beyond* (WAPC, 2010)
www.planning.wa.gov.au/publications/826.asp

## 3.4 Process

Process is a series of actions meant to accomplish some result and directed towards a specific aim.

### 3.4.1 Defining the project

It is necessary to first set out the context, objectives and expectations for the project[4]. Project briefs for integrated transport plans should address the following six groups of questions.

*1. Why is the project being undertaken? What is the background of the problem or situation that has prompted the organization to go ahead with the project?*

This provides the project 'overview', which should outline the transport problem and the economic, social and environmental situations influencing the project. It should also include hypothetical issues such as assumptions and risks. Some risks can be managed but others are potential that the project must respond to if the outcomes are to be robust.

*2. What is required for the project? What are the aims, objectives, and budget available for the project?*

This defines the project 'scope' where the project's aims, objectives and budget are outlined. It should provide the community and business outcomes required, but avoid being specific about outputs (particularly if they relate to the transport system) as this may pre-empt findings in the planning process. It should also define areas outside the project scope as the project manager, the project team and any consultants need to know what is not specifically required of them. Defining exclusions add certainty to what is necessary for the project work.

*3 Who is involved in the project? What portion will consultants undertake? What will in-house staff be responsible for? What in-house staff resources are available? Will the project require day-to-day supervision? Will a steering committee need to be appointed?*

This defines roles and responsibilities for all project staff within the commissioning organisation and specifies reporting and consultative structures, even if the required technical work is to be undertaken entirely by external consultants.

At this stage key stakeholders can be named along with details about how they will be identified (this can as simply as 'by agreement with the project manager') and the desired level of their involvement with the project.

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[4] This information is from
http://articles.techrepublic.com.com/5100-10878_11-1055972.html

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4. **When does the project start and finish? What are the dates of each phase of the project?**

This describes a detailed work plan for the project including the dates for each phase of the project and a detailed work plan. The work plan should not be too prescriptive as project staff may need to vary project dates. In practice, most integrated transport planning projects include the following stages:

- background and research;
- consultation and stakeholder involvement;
- technical analysis; and
- consolidation into a report or other deliverables.

5. **Where is the project carried out? What is the scale and scope of the project? Where are the key geographic locations involved?**

The scale and scope of the project are important aspects for the assessment of the level of resourcing required, the appropriate methodology(ies) and the level of community and stakeholder consultation.

The spatial and conceptual boundaries should be broad enough to contain the most substantial issues that are to be addressed, but not so broad that proposals for addressing the issues cannot be specific and implementable. Scope for the project should be flexible enough to allow both broad and specific issues that need to be addressed.

6. **How will the project be implemented? What methodology is required to collect and analyse the information? What is the time frame for its completion? What performance indicators will help to monitor and evaluate the project? What is the level of confidentiality for the project and its final report? Who will manage the project and its reporting requirements? Who will prepare the presentation of the final report, and what format and level of detail is required? Who will retain ownership and copyright of the final report and working papers?**

Provide the methodology required to collect and analyse the information, such as:

- timeframe for completion;
- performance indicators to monitor and evaluate the project;

- level of confidentiality for the project and final report;
- project management and reporting;
- who prepares the final report;
- format and detail required for the final report; and
- who holds ownership and copyright of the final report and working papers.

While item six may overlap with the previous five, it is important to align it with the content and achievement of project objectives.

It is also worthwhile to note that over-defined methodology can inhibit innovation; and that integrated transport planning can often produce outcomes that may not be envisaged at the start of the project.

Finally, it is important to define the deliverables for the integrated transport plan which should align with its scope, resourcing and timing.

### 3.4.2  Vision

A strategic vision needs to be concrete if it is to guide integrated transport planning.

The vision for an integrated transport plan should be community-based. Seeking benefits for the community rather than simply planning a more efficient transport system is a key aspect of integrated transport planning.

Understanding and supporting community values and aspirations is a key starting point, which, if continued during development of an integrated transport plan, will also support implementation. This should also be the basis of other planning programs and enable integration across multiple local government's activities and areas of responsibility.

Understanding the community requires effort – particularly as it is essential to ensure all sections of the community are heard. The community vision should be comprehensive and inclusive, with a good example of this being in the one developed for the Town of Vincent ('*Vincent Vision 2024*'[5]).

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5  *Vincent Vision 2024: A vision for the Town of Vincent 2004-2024.* Town of Vincent and the WA Planning Commission: Perth, WA. www.vincentvision2024.com.au/home.html

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Community surveys have consistently shown people's desire for walking, cycling and public transport, with less use of the car.

Awareness of community needs, aspirations and expectations is not an intrinsic part of integrated transport planning – but it helps to steer transport planning towards what people and businesses want it to achieve.

Establishing a common vision can be achieved by:

- using the existing vision for the area, or by developing a new one;
- identifying and agreeing on the vision with residents, businesses and local government; and
- developing a strong partnership and commitment with all parties involved in preparing and implementing the integrated transport plan.

The vision for an integrated transport plan should state its objectives concisely in line with the needs, aspirations and expectations of the community. It is important that the vision is developed both by and for the community.

**Examples of visions for integrated transport plans**

- *To achieve a sustainable transport system that balances social, economic and environmental values.*
- *To provide safe access and mobility for residents, workers and visitors; and effective movements of goods and services.*
- *To encourage individuals to walk, cycle and use public transport more often through the provision of a wide range of safe and convenient transport options.*
- *To transform streets into infrastructure resources that can serve a variety of uses (such as meeting places and spaces for adjacent land use).*
- *To provide a safe transport system that supports a diverse neighbourhood where residents desire to live, work and play.*
- *The transport system will be well-maintained to protect investment in the city's transport infrastructure.*

### 3.4.3  Key drivers

Transport planners and providers of transport infrastructure facilitate access for business and the community. They do not determine how individuals and organisations access goods or services, but provide access opportunity that people choose to use or not to use. Ideal transport planning is inclusive, technically sound, professional, and adheres closely to community aspirations and expectations. If planning is not inclusive, or has ignored community wishes, the resulting transport system will not be as effective or efficient.

Key drivers defining an integrated transport plan are:

- generic and local
- collective or individual
- economic, environmental or social
- personal or communal.

In any diverse community there will be key factors driving an integrated transport plan. Failure to recognise the factors can reduce the potential for stakeholder and community support throughout the planning process.

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Key drivers can include:

- increasing cost of using transport for individuals, households and businesses;
- time pressures on the community;
- the effect of traffic and congestion on amenity, business viability, property values and personal time;
- energy costs and availability, in the face of Peak Oil[6] crises;
- local environmental concerns, such as air quality or traffic noise;
- global environmental concerns, primarily climate change;
- an ageing population; and
- viability of local businesses.

### 3.4.4 Objectives and strategic targets

The principal objectives of an integrated transport plan should be that people and businesses are able to make appropriate choices about transport and access, now and into the future. This includes creating the conditions where they are able to make such choices in the future even if their present choices are in some ways in conflict with the requirements for sustainability and robustness.

Objectives for a transport plan can be driven by:
- travel patterns (such as travel behaviour change using different transport modes);
- travel time;
- the amount of exercise users get through travel;
- the cost of travel; or
- the extent to which users can access their needs locally.

**Community aspirations and objectives**

It is preferable to develop objectives for the integrated transport plan with the community and stakeholders. These objectives should reflect the vision for the transport system in the area – but most importantly, they should have community support, including that of the local government's elected representatives.

These objectives should provide guidance and monitor planning and implementation of the integrated transport plan.

The Metropolitan Transport Strategy 1995-2029 distils its key principles to the following corresponding objectives shown in Table 5.

A balanced integrated transport strategy or plan at any level requires a holistic[7] transport planning approach to:

- set the local transport system in its wider regional, sub-regional and common boundary contexts;
- deliver a safe transport system;
- integrate transport and land use planning;
- deliver an accessibility policy/plan for travel choices of all users of the transport system;
- recommend solutions for managing congestion within acceptable levels;
- set relevant targets to:
  - reduce greenhouse gases, environmental pollution and noise
  - minimise the negative effects of climate change
  - prepare the community for future changes, both foreseen and unforeseen;
- contribute for the economic growth and wellbeing of the community;
- contribute to air quality and other quality of life issues; and
- improve transport infrastructure by providing economical transport solutions and minimising cost to the users.

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[6] **Peak Oil** is the point in time when the maximum rate of global oil extraction is reached, after which the rate of production enters terminal decline. This concept is based on the observed production rates of individual oil wells, and the combined production rate of a field of related oil wells. Most observers agree that peak oil will be before 2020, with some arguing that it has already been reached.

[7] The term **holistic** is used in the sense of emphasising the importance of the whole and the interdependence of its parts.

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**Table 5 – Metropolitan Transport Strategy 1995-2029 principles and objectives**

| Principles | Objectives |
|---|---|
| Safety | - reduce the incidence and severity of traffic injuries and fatalities. |
| Efficiency | - limit the cost of the transport system, including traffic (and public transport) congestion;<br>- build and maintain the transport system within the financial means of the State's present generation;<br>- limit non-renewable energy use in transport;<br>- enable residents, visitors and businesses to make informed decisions about the costs and benefits of access and transport options;<br>- provide footpaths, cycle paths, roads and public transport services at the lowest economic, social and environmental cost; and<br>- promote efficient use of the region's transport system. |
| Effectiveness | - provide high levels of accessibility to personal and commercial activities;<br>- ensure a choice of access and transport options is available to residents, visitors and businesses;<br>- all components of the transport system should be planned, developed, funded and marketed to promote balance;<br>- agencies and local governments responsible for individual components to report in a coordinated 'State of the Transport System' report; and<br>- promote walking and cycling. |
| Environmental responsibility | - maintain good air quality;<br>- limit contribution to enhanced global warming;<br>- maintain the region's surface and ground water supply sources; and<br>- maintain the region's flora and fauna. |
| Social responsibility | - reduce traffic noise; and<br>- ensure people with special transport needs can satisfy those needs. |
| Robustness | - promote a balanced transport system for Perth's sustainable future. |

Source: *Metropolitan Transport Strategy, 1995-2029.* Department of Transport, Western Australia, 1995.

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**Strategic targets**

Targets for the transport plan should align to its key objectives, to provide a benchmark to measure actual achievement. Objectives and targets for an integrated transport plan should be measurable and achievable for up to five to ten years.

Objectives and targets may be:

- specific 'outcome' targets for mode use , like less car driving, more walking, more use of bicycles and public transport; or

- more general 'future' targets in terms of the direction of change.

They should relate to key issues of concern in the integrated transport plan.



### 3.4.5 Issues and needs

The following steps should be taken before developing strategies and actions for an integrated transport plan to achieve the defined objectives:

1. describe and understand the current situation – how the transport system is used and the problems it poses ('*where we are*');

2. describe the likely future situation with a 'business as usual' approach and a 'desired' approach ('*where we were going*' and '*where we want to go*');

3. identify gaps between the current and likely future situations considering '*where we are now*', '*where we were going*' and '*where we want to go*'.

A spider graph of this gap analysis is depicted in Figure 13. The graph can also measure progress towards planning objectives and to monitor future implementation of actions with the advantage of presenting information in a form that stakeholders are already familiar with.

Having established the gaps between the current and likely future situations, on the one hand, and where the community wants to go, on the other, it is possible to identify where intervention is needed to change the status quo.

Issues and needs that can be identified through gap analysis include:

- shared transport priorities at local, sub-regional and regional levels;

- local transport priorities;

- scanning gaps in all transport networks (pedestrian, bicycle, public transport, road, rail, ferry, freight);

- problems and opportunities for transport;

- overall planning and transport strategies, policies and schemes (state, regional local strategies and plans);

- any proposed local initiatives and how they achieve plan objectives for sustainability and support regional and state transport priorities;

- population demographics;

- land use (commercial, industrial, residential);

- travel activities, urban form;

- travel behaviour and  patterns within the plan area and surrounds; and

- other relevant issues.

## Figure 13 – Illustrating 'gap analysis' by 'spider' graph
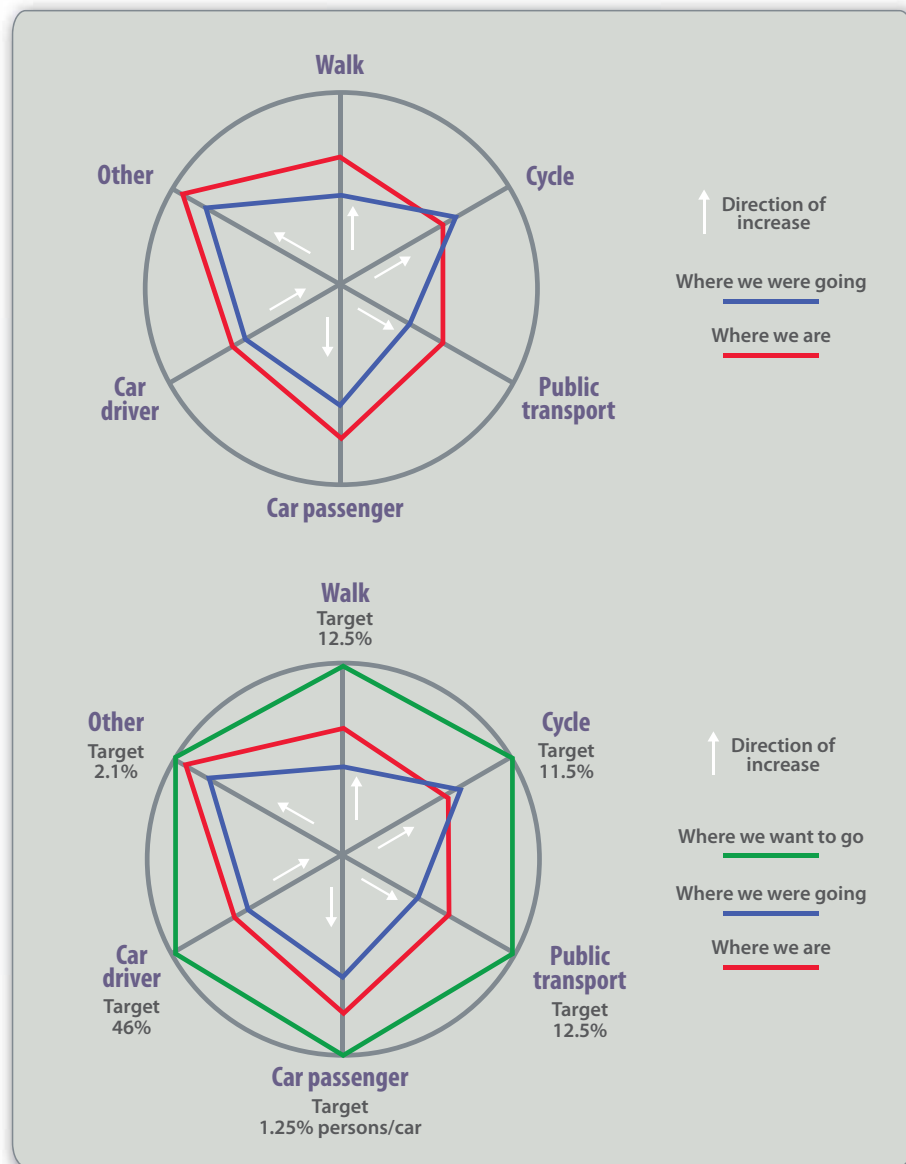


Source: 'CATALYST'/ 'Sinclair Knight Merz' Consultants.

This stage of the integrated transport planning process requires documentation and analysis of issues raised through community and stakeholder consultation, and suggesting of transport solutions to meet broader community needs. A key element of community involvement is often the release of an 'Issues and Options' paper to describe why action is needed (issues), alternate ways of addressing issues (options), and clear indication of the consequences of the options.

The 'business as usual' option must be included, addressed and applied, as the most important and difficult stage is often achieving broad support for a change from the way people are already doing things and are comfortable with. Often, the most crucial and difficult part is getting community support for any change to existing conditions.

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### 3.4.6  Challenges and opportunities

Some objectives and targets will be more difficult to achieve and will depend on:

- the extent of the gap between the likely and desired future;
- options available to overcome the gap; and
- barriers to effective implementation of strategies and actions that bridge the gap.

Barriers to overcoming gaps may be:

- inadequate information to support assessment of strategies and actions;
- different perceptions of key stakeholders, the community or governing body;
- insufficient powers for the organisation to act;
- process complexity and/or long timeframes;
- inadequate resources for funding; and
- lack of commitment by key stakeholders to acknowledge need for change.

The following considerations can be used to address these barriers.

1. *Information and perceptions –* a more inclusive approach will share information and modify individual perceptions and those of others.
2. *Powers and process –* are crucial to implementation, but may apply more to timeframes than feasibility. Identify and address implementation issues during planning rather than implementation stages. If powers and process constraints are critical, more stakeholders may need to be included.
3. *Resources –* are always an issue, but the key is to make more effective use of community and individual resources by:
   - making better use of existing transport infrastructure and services;
   - reducing transport congestion through better planning;
   - using existing funding and resources to give priority to more integrated transport outcomes, especially to reduce transport costs for local government, residential and business communities;

- using alternative resources, such as:
  - existing programs of other organisations, including federal and State Government agencies, with similar objectives and outcomes;
  - existing funding sources – make sure qualifying criteria is understood and include related projects within the funding scope. For example, road projects should include appropriate provision for public transport, cyclists and pedestrians, as well as cars and commercial vehicles;
  - emerging funding sources who are seeking to resource pilot or demonstration projects;
- using the political process to support priority funding allocations; and
- developing new funding methods, including partnerships with both public and private sectors, where there is benefit to both parties.

4. *Lack of commitment –* should be addressed by the transport planning process through inclusion and sharing of information.

### 3.4.7  Strategies

The nature of integrated transport planning is that component strategies will depend on the specific situation even though they will be based on common transport planning directions.

#### Strategies

Strategies for a sustainable transport system should be identified in a realistic and achievable timeframe to achieve defines objectives. Strategies should specifically address factors such as:

- land use, activities (places) and transport;
- travel demand management and behaviour change (informing and encouraging people of alternate transport options to car use);
- managing congestion through travel demand management and more efficient use of the existing transport infrastructure's capacity – for example, reallocating road space for more buses, bicycles or motorcycles;
- improving pedestrian amenities with better urban design and crime prevention through appropriate street and urban design;

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- improving cycling amenities, with better network connections, safe integration with road traffic, and destination facilities;

- improving public transport, with good access to stops and stations, integration of services, and extension of networks to access a range of destinations;

- improving parking facilities not only for cars and for other road users and needs;

- reducing air and noise pollution; and

- improving economic growth and community wellbeing.

### 3.4.8  Actions and targets

**Actions**

Each strategy will involve multiple actions that must be relevant to the strategies and to achieving the stated objectives.

Strategies and actions should:

1. be prioritised to guide action and implementation;

2. contain a costs and benefits analysis and directly involve stakeholders;

3. assess positive and negative impacts of strategies and actions (mapping is a good way to do this); and

4. not be unduly concerned about funding as this will be addressed during planning.

While funding should not constrain prioritisation, the cost of strategies, actions and projects are an important part of an integrated transport plan. The plan can identify funding sources, or include this factor in strategies and actions.

**Targets**

Targets in this instance refer to targets for progressive implementation of strategies and actions. Implementation targets should:

- be set for interim and final stages; and

- monitor implementation and be adjusted to reflect new timeframes or delays and other impacts on progress.

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### 3.4.9 Assessment, implementation and review

**Implementation of actions**

All actions included in the implementation program must be clear about individual responsibilities and delivery timelines. Specific roles and organisational positions should also be shown.

Responsibilities must define executive roles, partnerships and contributions to the project to assist the implementation process.

Implementation stages should be reviewed regularly and priorities adjusted to achieve proposed actions.

**Review**

Objectives established early in the process will provide a basis for review, and should be able to be used as a source of referral. There may be 'dislocation' between the stages in the process if terminologies are not fully understood (Figure 14).

- At the policy /strategy stage the term 'outcomes' (eg. ease of accessibility) is usually used.

- At the planning/action development stage the term 'outputs' (eg. trips) is usually used.

- At the final implementation/monitor stage the term 'system usage' (eg. travel/traffic volumes) is usually used.

Often the effects of the actions are not measured at all.

Transport systems are often seen as being particularly complex systems to adapt, with two factors making review of them difficult:

1. actual outcomes cannot be controlled or determined before implementation; and

2. new situations may emerge (as outcomes) which could not be identified during planning and from the initial understanding of the transport system.

A review of the integrated transport plan during the planning process and after implementation should ask four questions:

1. Are the objectives and mandate for the integrated transport plan still relevant – given social and/or economic changes?

2. What are the results/outcomes – intended or otherwise – of the integrated transport plan?

3. Has the integrated transport plan fulfilled expectations?

4. Can the results of the integrated transport plan be improved (eg. through a revised plan or deliverable)?

**Figure 14 – Example of dislocations of process review[8]**
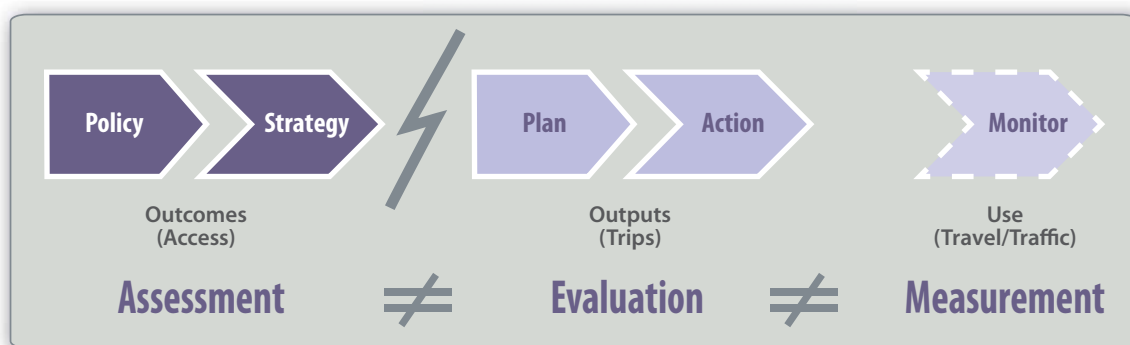


Source: 'CATALYST'/ 'Sinclair Knight Merz' Consultants.

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8  Ker, I (2002). 'Can Evaluation Be Too Prescriptive? Appraisal in the Age of the Triple Bottom Line'. *Australasian Evaluation Society International Conference.* Wollongong, NSW.
   www.aes.asn.au/conferences/2002/PAPERS/Ker.pdf

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Answers to these questions may require reassessment of initial strategies and actions.

This is effectively a continuous improvement cycle of:

- Plan,
- Evaluate,
- Implement and
- Review (Figure 15).

Any planning exercise cannot anticipate the full range of circumstances that will arise, but the flexibility to adapt to changing circumstances should be one goal of the planning process. Ongoing review against original objectives is simply prudent planning rather than an indicator of failure.

**Figure 15 – Continuous improvement in terms of objectives**[9]
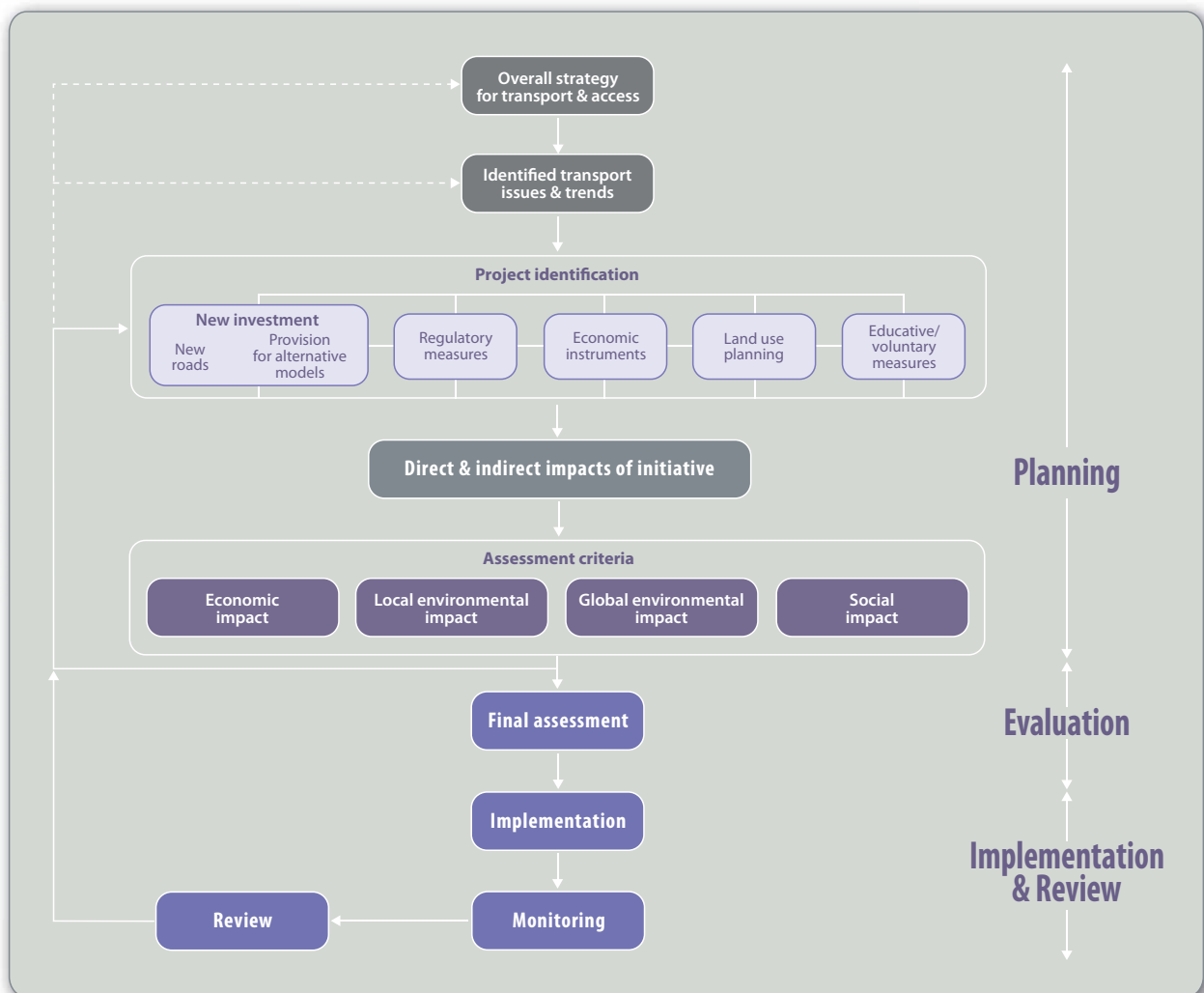


Source: Adapted from Allen Consulting (2000). Urban Transport and Climate Change: Developing an Integrated Investment Framework. National Taskforce, National Greenhouse Strategy Measure 5.3, Promoting Best Practice in Transport and Land Use Planning.

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[9] Adapted from Allen Consulting (2000). Urban Transport and Climate Change: Developing an Integrated Investment Framework. The Allen Consulting group for Transport WA, Australian Greenhouse Office, Transport Queensland and Victoria Department of Infrastructure: Perth, WA.

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# Part 4 –
# Developing, implementing and reviewing integrated transport plans

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# 4.0  Summary – Part 4

The starting point for any integrated transport plan should be an assessment of the existing situation against the economic and social functioning of the area; and the extent to which transport serves the needs of the business and residential communities.

Integrating land use planning and transport is a means of bringing the impact of transport to within the planning realm so that the aims of land use planning can encompass the aim of limiting the adverse effects of (primarily motorised) mobility, as well as other impacts of land use and activities.

Integration of different land uses in close proximity, by promoting higher-density with a mix of land uses, reduces the need to travel. Traffic volumes and choices of mode of travel are influenced by the location, density and mixture of land uses.

There is a common understanding among decision-makers, transport planners, urban place makers and transport engineers that transport infrastructure solutions alone will not deliver sustainable and effective transport outcomes.

Land use and transport infrastructure planning need to work together. Land use must be included as an integral part of the integrated transport plan. Shaping the patterns and scale of development through land use planning can help to facilitate an efficient land use-transport system.

Integration is not simply a matter of the supply of transport infrastructure and services, it is also about helping the community to be able to use transport in ways that make the most of the opportunities available to them.

The importance of connected transport networks is taken for granted in road planning at both the regional and local level, but can easily be overlooked for public transport, cycling and walking. Barriers and discontinuities are more of a deterrent to pedestrians, cyclists and public transport users than for car drivers, who can usually find a way around such impediments.

The planning, design, construction and maintenance of roads have to consider the needs of all road users to minimize conflicts or adverse impacts. Major urban roads and residential streets are the primary movement infrastructure for all land-based transport other than railways.

Traffic congestion is a major issue in urban areas and is prevalent in various major cities in Australia. It needs to be addressed in the integrated transport planning process. Road congestion gets worse and increases rapidly as the volume of traffic approaches the capacity of the road.

There are a number of measures and responses that can be used by road authorities to address this issue, including both supply-side (e.g. capacity enhancement) and demand-side (e.g. travel demand management) responses. The adverse impacts of congestion are on motor vehicle users; cyclists; pedestrians; nearby businesses whose customers are inconvenienced; and road safety.

Road trauma is one of the major public health problems facing the community. Transport safety is usually perceived in the context of road crashes, particularly those that result in fatality or serious injury. To help resolve this problem the Western Australian Local Government Association (WALGA) has developed statewide road safety programs, which actively engage and involve local government and the community in implementing specific initiatives of Towards Zero, the Western Australian Road Safety Strategy for 2008-2020.

Travel demand management tends to be imposed on the community through managing the supply, operation and pricing of transport services. Travel demand management is intervention so that more desirable transport, social, economic and/or environmental objectives can be achieved and adverse impacts of travel, including road congestion, can be reduced.

Travel behaviour change is usually a voluntary process driven by demonstrated benefits to individuals and households. A lot of transport behaviour is built up as the cumulative effect of experiences becomes habit. Many people have a misperception of various parts of the transport system, usually favouring the private car over public transport, cycling and walking – people consistently under-estimate the time and cost of driving a car and parking; and over-estimate the cost for public transport.

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Parking is usually perceived as a passive element of the transport system. However, there is a growing realisation that it is an essential contributor to how the transport system operates and the success of that system in meeting the needs and wishes of the community and business.

Local government can modify the parking requirements to reflect differential access opportunities. Since the current requirements are based on a suburban, maximum-demand situation, places that have reasonable access by public transport or have a higher than average population within cycling or walking distance, can be considered for reduced parking rates.

Often, new types of initiatives have no obvious existing funding source, but this should not prevent integrated transport planning from demonstrating the value of such initiatives to the community.

Evaluation and review is an essential component of the integrated transport plan's process, to ensure that stated plans effectively address their objectives and respond to changing circumstances. When done well, an integrated transport plan is likely to fundamentally change some of the ways in which travel and related activities are organised in an area.

Conventional assessment is most likely to be incremental and is best-placed to answer the question 'How do we improve what we have?', while an improved assessment will be more complete and strategic to answer the more important question of 'how do we provide what we need?'

Funding sources for transport infrastructure will vary from time to time and to some extent from place to place. It is recommended to seek advice from the Department of Transport or the WALGA during the integrated transport planning process, as the potential for funding may influence how the responsible local government will define the implementation of actions and projects.

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## 4.1 Developing an integrated transport plan

An integrated transport plan should begin with an assessment of the existing economic and social functions of the area and the extent to which current transport options serve the needs of the business and residential populations.

It is possible to use quantitative modelling for some aspects of the integrated transport plan's process to predict the likely transport future of an area based on current land use and transport strategies. These are, however, limited in dealing with changed paradigms as they have to rely on data from the recent past under current strategies.

A case study review of similar experiences with integrated transport plans developed by other jurisdictions can help clarify the affect of different approaches to transport planning on performance and requirements. This should have regard to the specific situation in the local government responsible for developing an integrated transport plan.

### 4.1.1 Integrated transport with social, economic and health planning

The economic and social development strategies held by many local governments, or at least the policies and practices that influence their economic and social development, can be useful in preparing an integrated transport plan. Some of the objectives and strategies of these might include[1]:

- *Progress economic development with adequate financial resources*
  - Promote the city as a place for investment
  - Develop and promote partnerships and alliances
  - Promote business development
  - Identify the needs and expectations of the community
  - Reduce reliance on rates revenue
  - Provide a positive triple bottom line return.

- *Enhance community development and wellbeing*
  - Celebrate cultural and social diversity
  - Provide a range of community programs
  - Continue to implement principles of universal access
  - Focus on community and customer needs
  - Enhance community safety programs.

Such strategies, policies and practices need to consider the local and regional access and movement opportunities for both business and residents[2].

At the local level, people who walk are far more likely to support local businesses and have an active interest in the local community. Fostering local employment opportunities will give local residents better access to jobs and also reduce the extent to which those with jobs need to travel to work by car. This benefits both the individual by reducing the time and cost of commuting and the community by reducing the volume of car traffic to which it is exposed.

At the regional level, there is often a lot of unused capacity in road and public transport systems, even during peak periods when the transport system is under greatest stress. Most peak period travel involves commuting to and from work, although in the morning travel to school is a substantial component. Peak flows are often one-directional, being for travel to work in the morning and from work in the afternoon.

Recent statistics show that in 2009, 40 per cent of Western Australian adults have not been sufficiently active to achieve health benefit, essentially the same as in 2006 (41 per cent) but lower than 2002 (44 per cent) and 1999 (46 per cent). This level of inactivity has serious implications for physical and mental health[3]. It is clear that increasing physical activity levels may best be achieved by encouraging more Western Australians to walk and cycle more as a form of exercise, transport or social activity. This can increase social interaction, enhance community wellbeing and assist in crime prevention in neighbourhoods as there are more `eyes on the street'.

[1] *Plan for the Future: Strategic Community Plan 2011-2021*. City of Vincent: Perth, WA.   www.vincent.wa.gov.au/files/2ca49823-9911-4db4-86a5-9ebe009bbd42/Strategic_Plan_2009-2014.pdf

[2] *Economic Development Strategy 2011-2016*. City of Vincent: Perth, WA. www.vincent.wa.gov.au/files/1b178ff2-9f4a-4c8e-a91f-9ebe009bc15c/Economic_Development_Strategy.pdf

[3] Physical Activity Taskforce - Be active WA. www.beactive.wa.gov.au/index.php?id=482

Health authorities say that as little as 30 minutes of moderate physical activity on most days can provide a health benefit. Those activities most likely to be continued throughout life are those that can be incorporated into everyday habits and lifestyle. Therefore, walking for transport as well as recreation offers significant potential for increased physical activity.

Leaving the car at home and walking and cycling for transport can help reduce the problems of pollution and traffic congestion. Every day, residents in metropolitan Perth make more than 250,000 private car trips that are less than one kilometre, and our dependence on the motor vehicle is increasing[4].

Local government can play a crucial role in increasing physical activity of the community by creating urban form and land use developments, and provide transport infrastructure facilities for active living to encourage walking and cycling for travel needs.

### 4.1.2 Integrated land use planning and transport

The distribution and types of land uses affect travel patterns. Transport is a demand driven by the need for people to get from one place where they do something to another place where they do something else. Integrating land use and transport planning is a means of bringing the impacts of transport to within the land use planning function so that the aims of land use planning can encompass the aim of limiting the adverse effects of (primarily motorised) mobility as well as other impacts of land use and activities (Figure 16).

Land use planning is often dealt with in terms of separation, with the aim of limiting adverse impacts of one activity on another. Metropolitan land use planning in Perth in the last 40 years has divorced activities (land uses) from the movement network. The road system is designed to move traffic rather than serve places. Separation adds its own adverse impacts through high levels of motorised travel. A dispersed pattern of low-density development relies almost exclusively on cars as the primary mode for transport.

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4  Walk WA: *A Walking Strategy for Western Australia, 2007*
   www.beactive.wa.gov.au/index.php?id=350

**Figure 16 – Urban transport system – land use interaction**[5]
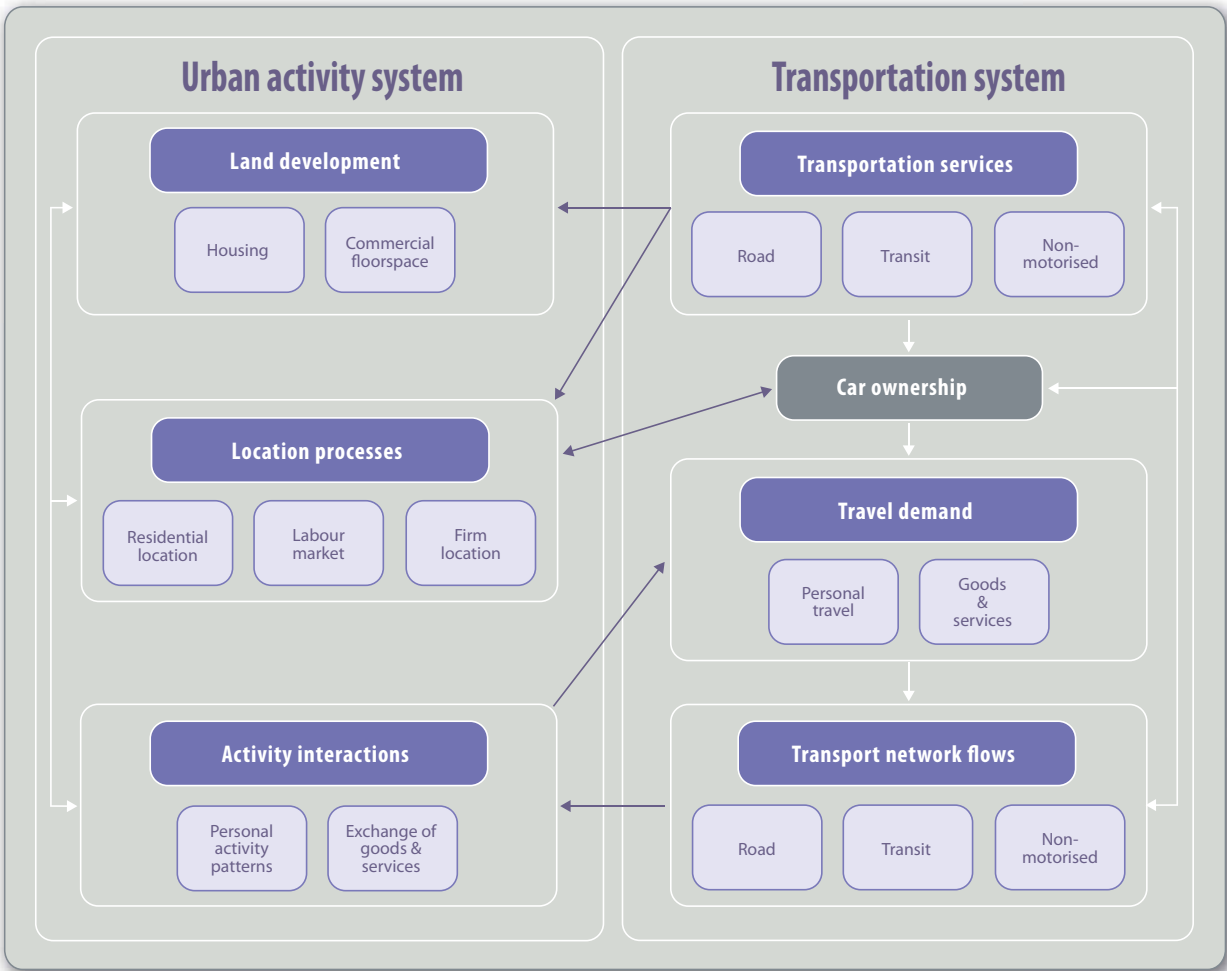


Source: *AUSTROADS Guide to Road Transport Planning (2009)*.

Land use planning in Perth has not been successful in achieving employment opportunities in some locations, especially outer parts of the metropolitan area. Jobs are widely distributed across the Perth working zone, but compared to population distribution they are heavily clustered in particular parts of the city. In 2006, the City of Perth accounted for 17 per cent of Perth's employment. Other important employment clusters include the industrial centres of Kewdale-Welshpool, Malaga, Osborne Park and Canning Vale.

Employment is concentrated in the inner and middle suburbs, while population is concentrated in the outer suburbs. In 2006, the Inner and Middle sub-regions together had 66 per cent of jobs, but just 44 per cent of employed residents. The Outer sub-region had 50 per cent of population, but only 30 per cent of jobs. A lack of jobs relative to population is most evident in the south-east and north-west Outer sub-regions[6].

5   *AUSTROADS Guide to Road Transport Planning, 2009-* www.onlinepublications.austroads.com.au/items/AGRTP-09

6   *Population growth, jobs growth and commuting flows in Perth* - Bureau of Infrastructure Transport and Regional Economics (BITRE), Canberra, ACT, 2010   www.bitre.gov.au/publications/75/Files/perth.pdf

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The result is large numbers of people commuting long distances in the same direction. The most visible manifestation of this is the typical congestion on the Mitchell Freeway co-existing with overcrowding on the northern suburbs railway running down the middle of the freeway.

Influencing the location of employment is not easy and it is important to reflect the commercial pressures on employers, which include having good access to workforce and customers/clients. Local governments can assist this by:

- reducing separation between employment and residential land uses where this can be achieved without adverse effects on residential amenity, which will help reduce travel distances to work and facilitate travel by bike and on foot;

- encouraging mixed use developments, especially in activity centres, which will increase the extent to which businesses have a local customer base;

- allowing higher residential densities in proximity to activity centres; which will improve both resident access to employment and business access to customers; and

- supporting business development in locations where contra-peak-flow access for employees is a real possibility.

Integration of different land uses in close proximity by promoting higher-density with a mix of land uses reduces the need to travel. Traffic volumes and choices of mode of travel are influenced by the location, density and mixture of land uses.

The efficient functioning and social/economic robustness of a region is dependent on the efficient functioning of local and district centres. *Directions 2031 and beyond* acknowledges that most of the 2031 Perth metropolitan area already exists and, at the local level, most of the future urban form and development is already in place. Where this is so, integrated land use and transport planning can influence the functioning of the area by:

- modifying the detail of activity type and location within the built urban form to allow different mixes of activities, such as multi-purpose trips;

- allowing mixing or co-location of commercial and residential uses where it can benefit both residential amenity (closeness to activities) and business viability (closeness to customers) as well as community amenity through more interesting and active places; and

- improving the permeability, connectivity and legibility of movement systems, especially for walking, cycling and public transport to give more options for access in ways that reduce the need for private motorised travel.

These approaches are equally applicable at all stages of integrated transport planning, but the strategies and actions will likely differ. It is important to remember that the efficient functioning of local and district centres is of fundamental importance to the social/economic robustness of a region.

There is no comparable requirement for a local (or regional) integrated transport plan that would action the access and mobility consequences of land and property development in ways that would maximise their contribution to the community. Ideally, land use planning and transport planning should occur hand in hand. In the case of greenfields development there is more flexibility in land use and transport patterns but it is even more important to get integration of the two from the start.

Apart from the fact that the development is new and will be difficult to change significantly for even longer than for existing developed areas, some forms of urban development have been shown to be detrimental to use of any mode of transport other than the private car. By encouraging the use of cars, even for short journeys, such development patterns are also detrimental to the viability of local businesses, adding to the need to travel longer distances to satisfy everyday needs.

A recent study of Perth's *Liveable Neighbourhoods*[7] has revealed some results on transport sustainability in already built urban developments incorporating liveable neighbourhood design principles. The research shows that despite residents of liveable neighbourhood suburbs driving less and taking more walking trips relative to residents of conventional neighbourhoods, there was little else to indicate that Liveable Neighbourhoods is achieving its sustainable transport goals.

There is no strong evidence that the liveable neighbourhood developments are improving regional transport sustainability. None of the liveable neighbourhood suburbs actually produces the density and mix of uses in their centres, hence there are no better land use and transit services. Transit was unfortunately very poor for all the liveable neighbourhood suburbs and transit trips to work took 50 minutes longer compared to car trips to work. The study made recommendations that the Liveable Neighbourhoods should be reviewed to include a requirement for delivering of transit-oriented developments, mixed-use and denser developments to actually deliver the land use and transit options that it suggests in theory.

Integrated land use transport and transport planning is achieved through measures that affect the urban structure, such as the:

- type and mix of land use and its spatial relationship to transport networks, particularly public transport;

- design and connectivity of transport networks particularly public transport, walking and cycling; and

- containment of employment and other activities (shopping, leisure) within an area encouraged through zoning.

Existing urban areas with conventional land use and transport network patterns require local government action to be transformed to more liveable neighbourhoods that offer more travel choices. Local governments could achieve this by changing local planning scheme zoning and residential codes to allow mixed-use and denser developments; requiring developments to facilitate provisions for walking cycling; planting street trees; and changing parking requirements for developments to encourage use of alternative transport modes.

*Directions 2031 and beyond* encourages to plan and develop transit-oriented developments to accommodate mixed-use and higher-density housing development that maximises the opportunities for land use and public transport integration. There are obvious benefits of the Western Australian Planning Commission's *Development Control Policy 1.6 - Planning to support transit use and transit-oriented development* that encourages the integration of land use and transit facilities[8].

Land use must be included as an essential part of the integrated transport plan. There is an understanding among decision-makers, transport planners, urban place-makers and transport engineers that land use and transport infrastructure planning need to work together as transport infrastructure solutions alone will not deliver sustainable and effective transport solutions.

### 4.1.3  Accessibility and amenity

Accessibility and amenity must be measured in relation to those things that are valued by people who live in the area rather than according to what the transport or land use planner thinks is important. It is especially important to look at the ease of access to those things that people want to have close to them, whether measured in distance[9] or time[10] (Figure 17).

In practice, accessibility depends upon individual perceptions of the safety, security and amenity of the access options available to them. There is no substitute for asking people about the things that cause negative perceptions, preferably in the context of the real world, through community audits or place checks[11].

[7]  Living on the Edge- Transport sustainability in Perth's Liveable neighbourhoods Ryan Falconer, Peter Newman, Billie Giles-Corti (PATREC, 2007)   www.patrec.org/old_patrec/conferences/PATRECForum_Oct2008/ presentations/16_Falconer,Ryan_full.pdf

[8]  *WAPC's Development control policy 1.6 Planning to support Transit Use and Transit Oriented Development* www.planning.wa.gov.au/dop_pub_pdf/DC_1.6_Jan06.pdf

[9]  *Cities for a Small Country.* Richard Rogers and Anne Power (2000). Faber & Faber: London, England.

[10]  *Network City: community planning strategy for Perth and Peel.* WA Planning Commission (2004): Perth, WA.

[11]  See, for example, *Leederville Placecheck*   (www.vincentvision2024. com.au/downloads/Leedervilleplacecheckcombined.pdf) part of Vincent Vision 2024. Town of Vincent: Perth, WA.

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**Figure 17 – Ease of access – References to distance and time**
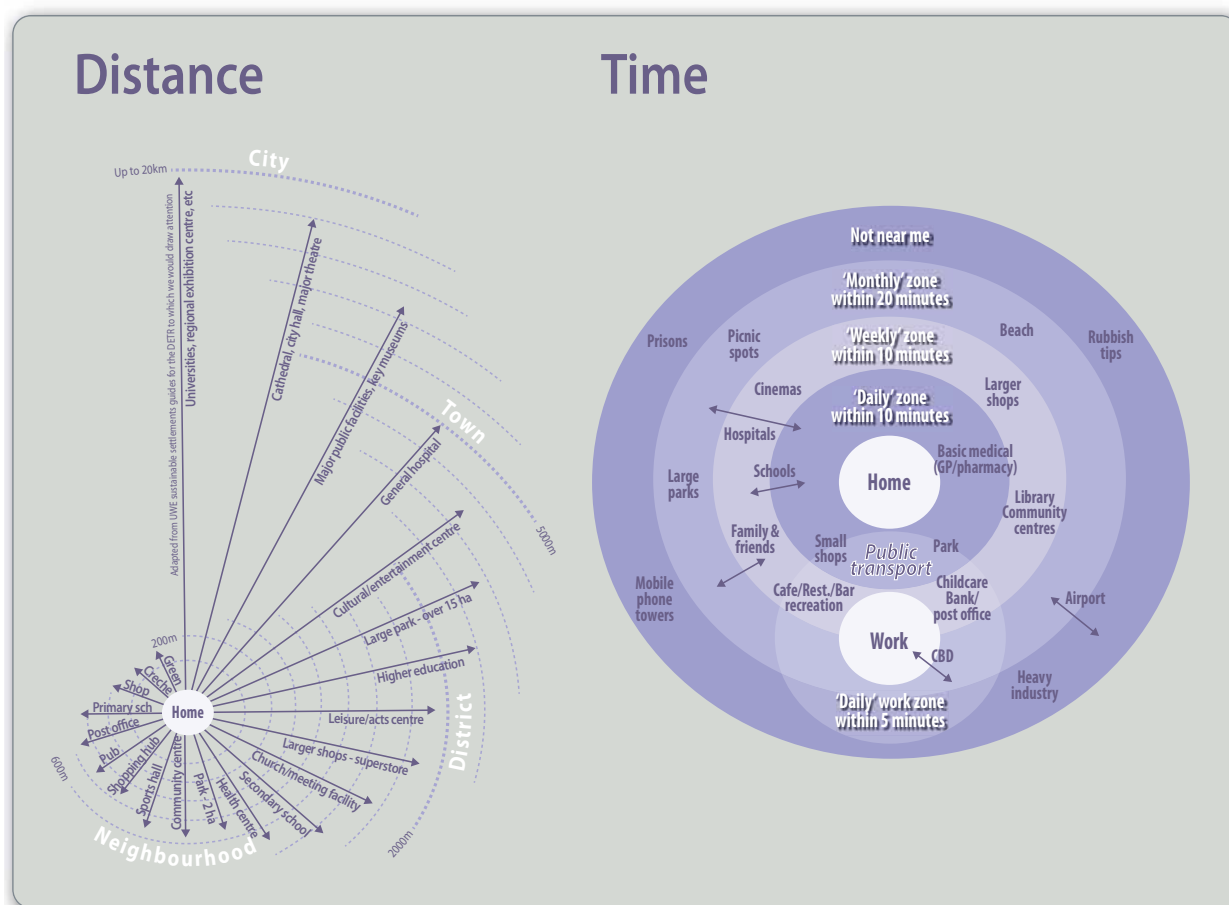


Source: *Cities for a Small Country.* Richard Rogers and Anne Power (2000). Faber & Faber: London, England.

Source: *Network City: Community planning strategy for Perth and Peel.* WAPC (2004): Perth, WA.

A placecheck is a system originating from the Urban Design Alliance[12], a UK based organisation, that helps groups of people and organisations find a way forward to improve their neighbourhood or town centre in a systematic way. A placecheck is a method of assessing the qualities of a place, showing what improvements are needed and focusing people on working together to achieve them.

Many of the things that people would like to have close to their homes lend themselves to walking as an access mode. The concepts of walkable catchments[13] and walkable neighbourhoods[14] have been promoted in *Liveable Neighbourhoods* for newly developing areas, but are equally applicable to existing developed areas. The main difference is that there is already an urban form and structure for existing developed areas, so the emphasis for improving walkability must lie more in modifying (engineering and design) than on planning.

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[12]  www.placecheck.info

[13]  A *walkable catchment* is usually defined as 'the actual area served within a 400-metre (5-minute) or 800 metre (10-minute) walking distance from a desired destination, which may be a town centre, activity centre or a transit stop.

[14]  A *walkable neighbourhood* means the area defined by 400 metre or 5-minute walk from an activity centre having an interconnected and safe walkable street network.

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**Figure 18 – Example of walkable catchment Canning Bridge Precinct Vision –**
**Precinct Analysis 2009**[15]
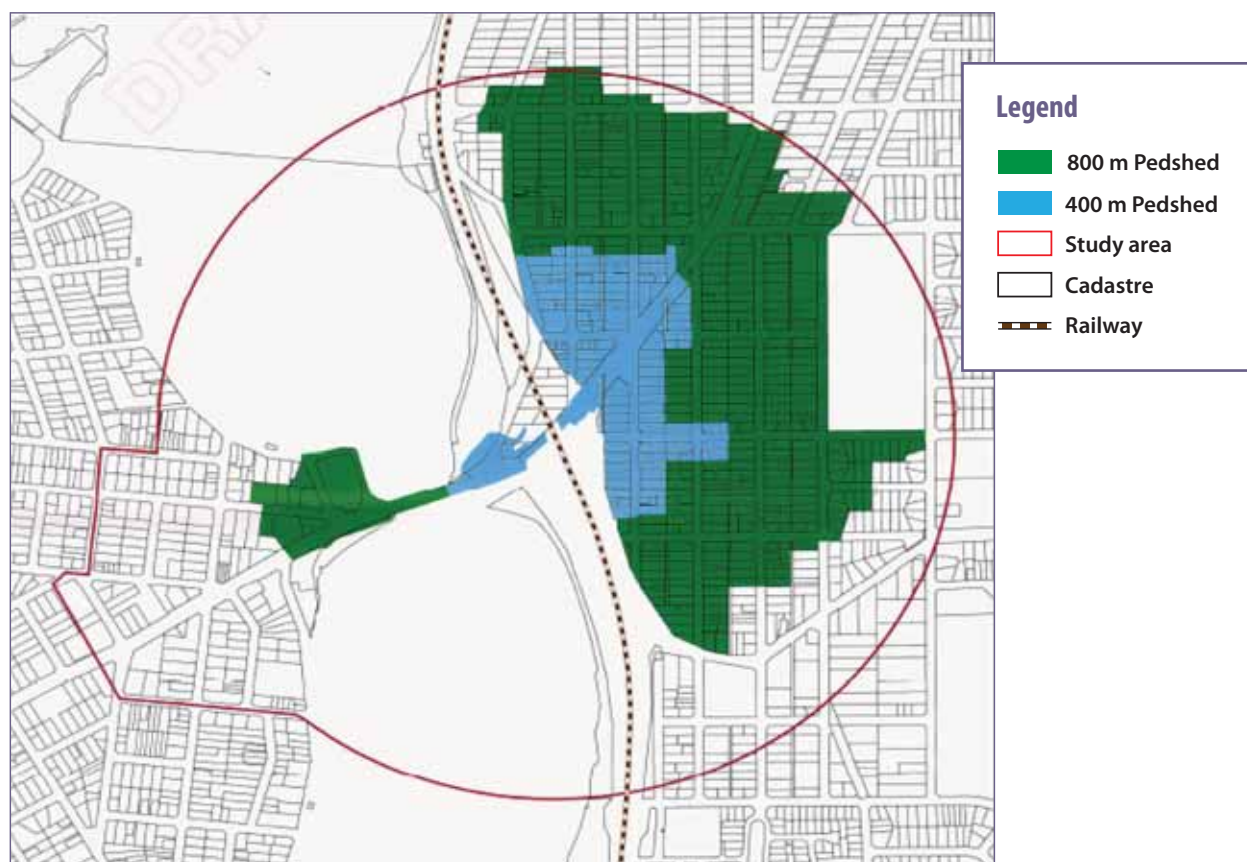


Source: *R*eport for Canning Bridge Precinct Analysis, October (2009).

Accessibility measured in this way must take into account the actual safe and convenient walking opportunities that are available. The extent of this accessibility can vary substantially depending upon the distribution of people and activities and the layout of the walking and other transport options, including the barrier effect of major transport infrastructure (Figure 18).

As well as looking at individual centres of activity in this way, it is important to look at the area as a whole to identify areas that have particularly low levels of accessibility.

Within a local area there will be a number of town centres and activity centres for which plotting the accessibility/walkability catchments for each of these will identify areas of low accessibility and, correspondingly, areas that might lie in the overlaps of two or more catchments.

As illustrated in Figure 19, it is important also to recognise that:

• catchments around linear main street centres are likely to be elongated along the main street axis; and

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15 Report for Canning Bridge Precinct – Precinct Analysis, Department for Planning, 2009   www.planning.wa.gov.au/dop_pub_pdf/Precinct_ Analysis_FINAL_030210.pdf

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**Figure 19 – Walkable catchments in the City of Vincent, Perth, WA**[16]





Source: Enhancing the cycling and walking environments to promote accessibility. *Sustainable Urban Transport Planning Workshops (various locations). ARRB Group (2006). Perth, WA.*

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[16] Source: ARRB Group (2006). `Enhancing the cycling and walking environments to promote accessibility'. *Sustainable Urban Transport Planning Workshops (various locations).* ARRB Perth, WA.

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- effective catchments are much smaller than the simple 400 m or 800 m radius and will have different shapes. For a traditional rectangular grid-pattern street layout, the effective catchment has a rhomboid shape rotated 45° to the road network, if there are no impediments to pedestrian movement.

The 400 m and 800 m walking distances have achieved a level of credibility as the result of their adoption in land use planning and urban design documents. The distance that people are prepared to walk, however, varies from person to person, from place to place and according to the purpose of the walk. For many people, especially for regular trips, walking distances of 1km or more are quite acceptable. For example, 400 m tends to be used as the acceptable walking distance to bus stops and 800 m to train stations, but research has shown that at some Perth train stations more than 70 per cent of walk-on passengers actually walk more than 1 km[17].

In Brisbane, more than 50 per cent of people who walk to public transport walk further than 400/800 metres and the mean walking distances are 0.6 km to a bus stop and 1 km to a train station (Table 6). More than one in seven walks further than 1.07 km to bus and 1.57 km to train. A similar pattern appears with other regular walking trips from home, with the mean around 1 km.

For a regional study, a different scale of accessibility needs to be considered – accessibility to employment opportunities and other activities through the transport system.

In some places, people may be able to walk or cycle to local activities or public transport may provide reasonable access to activities, including employment, goods and services. In others, however, these services and opportunities are not so readily available. Where there are concentrations of people without access to a car and public transport does not already provide reasonable access to jobs or to goods and services, there is a role for public transport to overcome the resulting transport disadvantage and social exclusion. Lack of transport to attend job interviews can be an impediment to taking the first step towards gaining employment as can a high cost, even among those who already have a job.

**Table 6 – How far will people walk**[18]

| Distance | Median (km) | Mean (km) | 85th %-ile (km) |
|---|---|---|---|
| **From Home:** | | | |
| **To shop** | 0.68 | 0.81 | 1.24 |
| **To primary school** | 0.79 | 0.92 | 1.34 |
| **To usual workplace** | 1.04 | 1.17 | 1.85 |
| **To public transport – bus stop** | 0.44 | 0.60 | 1.07 |
| **To public transport – train station** | 0.89 | 1.04 | 1.57 |
| **From public transport – bus stop** | 0.33 | 0.47 | 0.85 |
| **From public transport – train station** | 0.62 | 0.78 | 1.32 |

Source: Matthew Burke and A L Brown 'Distances people walk for transport'. Volume 16, No 3, September 2007. ARRB Road and Transport Research, Melbourne, Victoria.

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[17] Ian Ker and Simon Ginn (2003). 'Myths and realities in walkable catchments: The case of walking and transit'. Road and Transport Research, Volume 12 No 2, June 2003. ARRB Transport Research: Melbourne, Victoria.

[18] Matthew Burke and A L Brown (2007). 'Distances people walk for transport'. Road and Transport Research, Volume 16 No 3, September 2007.

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Census data can provide a clear picture of how feasible it is for people in a local area to use public transport or cycle to get to and from work. This analysis can be used for place of residence (Figure 20) or place of work (Figure 21).

**Figure 20 – Analysis of census data – Journey to work (public transport and cycling) for place of residence**

### Residence

#### Journey to Work

Public transport serves workers who live in a narrow band of the Eastern Metropolitan Region – mainly commuters to the Perth CBD.

Note: Average Perth public transport mode share for journey to work is 9.6%.
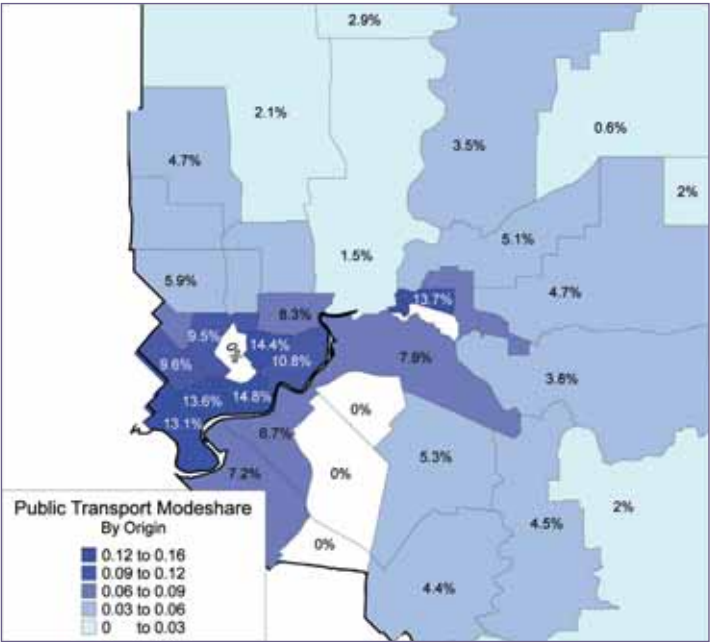


### Residence

#### Journey to Work Cycling

Cycling to work is a minor mode and is less used (0.8%) than for the Metropolitan Area as a whole (0.9%).

Belmont has the highest local government-wide cycle usage at 1.6%, but areas along the rail line are highest.
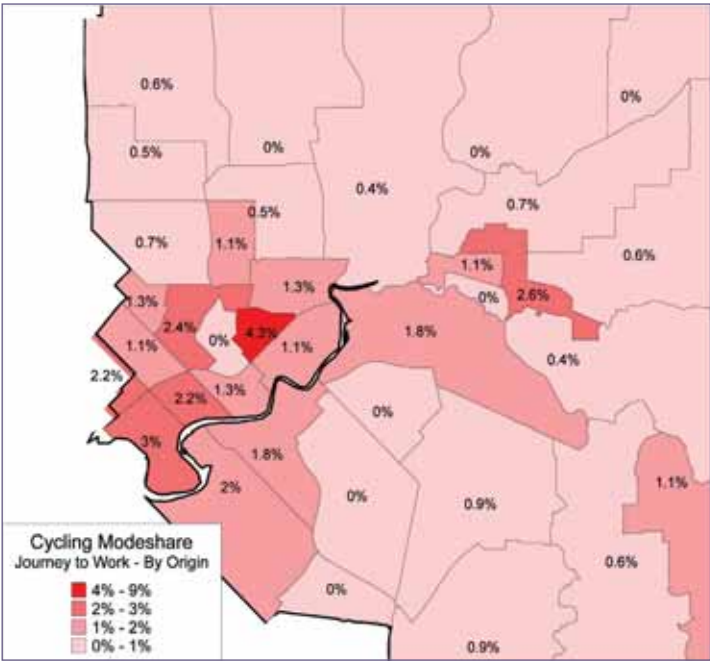


Source: *Integrated Transport Strategy for Perth's Eastern Region: Consolidated Report for Eastern Metropolitan Regional Council, A*RRB and Ian Ker (2007).

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**Figure 21 – Analysis of census data – Journey to work (public transport and cycling) for place of work**[19]

## Workplace

### Journey to Work

Public transport does not serve people working within the region well, even when they work in locations with a large number of employees.

Note: Average Perth public transport mode share for journey to work is 9%.
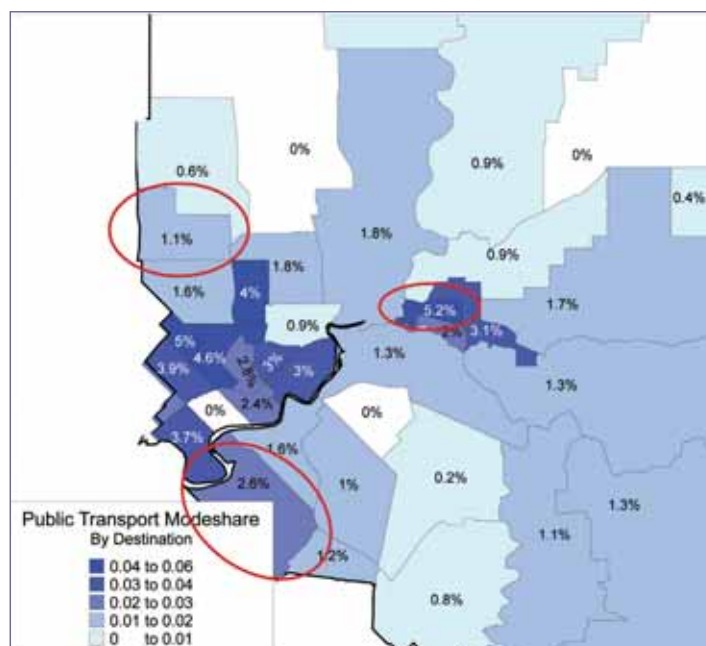


## Workplace

### Journey to Work

Cycling to work is fairly uniformly distributed.

Some concentration in areas immediately north of Guildford Road.

Low cycle usage in Malaga despite proximity of employee residence.
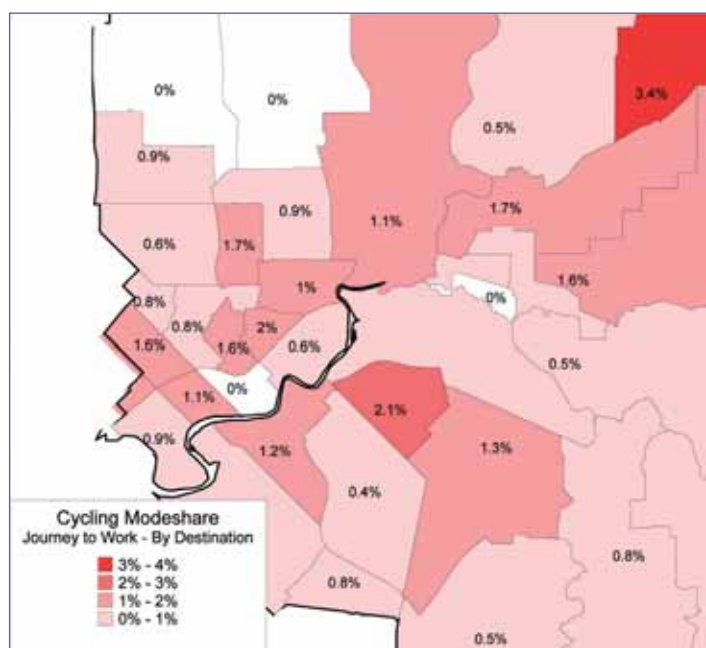


Source: *Integrated Transport Strategy for Perth's Eastern Region: Consolidated Report for Eastern Metropolitan Regional Council, A*RRB and Ian Ker (2007).

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[19] Eastern Metropolitan Region Integrated Transport Strategy
www.emrc.org.au/regional-integrated-transport-strategy.html

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There is a clear similarity of location between those who are most vulnerable to increases in petrol prices, largely because of their heavy dependence on driving a car for getting to and from work and the distribution of the transport-disadvantaged.

Census data have also been used to identify areas where a combination of transport disadvantage and the cost of housing (mortgage repayments) combine to make households highly vulnerable to increases in the price of oil or in interest rates. This can also be used to identify trends over time, including emerging hotspots (Figure 22).

**Figure 22 – Analysis of census data – Oil and mortgage vulnerability in Perth**[20]
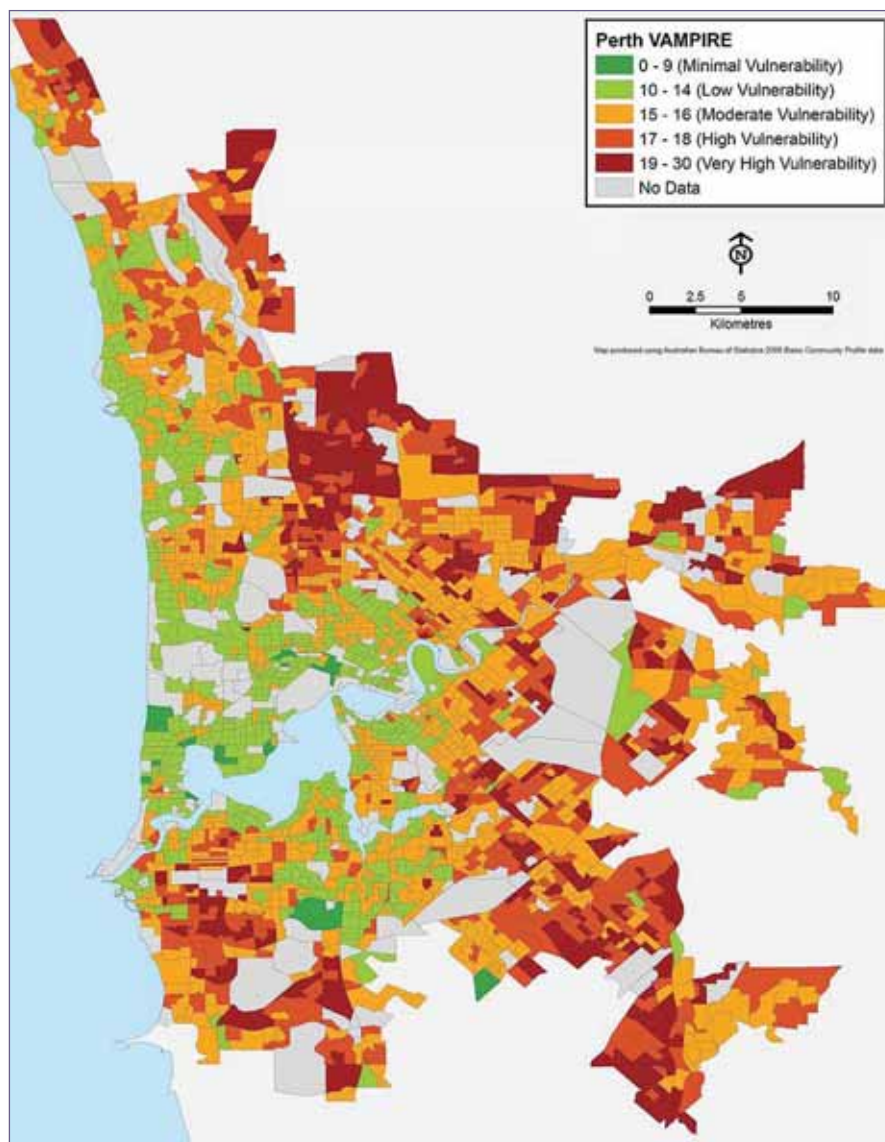


Source: Dodson, J. and Sipe, N. *Unsettling Suburbia: The New Landscape of Oil and Mortgage Vulnerability in Australian Cities - Urban Research Paper 17, Griffiths University, Queensland (2008)*.

Note: This map predates the opening of the Southern Suburbs Railway in Perth.

[20] Jago Dodson and Neil Sipe (2008). *Unsettling Suburbia: The New Landscape of Oil and Mortgage Vulnerability in Australian Cities.* Research Paper 17, Urban Research Program, Griffith University: Brisbane, Qld. www.griffith.edu.au/__data/assets/pdf_file/0003/88851/urp-rp17-dodson-sipe-2008.pdf

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### 4.1.4  Integrated transport system

**Multi-modal transport system and connected transport networks for users and services**

Multi-modal transport planning is a multi-faceted approach that considers all modes/options and needs for all users of the transport system.

Integrated transport planning is a tool used by the whole-of-system approach of multi-modal transport planning that also involves land-use planning, urban planning, travel demand management mechanisms (both regulatory and non-regulatory), intelligent transport systems; network solutions, access management and inter-modal facilities.

Integrated transport planning aims to ensure that there is a suitable and interconnected transport infrastructure for all transport modes such as private car, freight, public transport, walking and cycling. To keep people and goods moving around and through the region it is important that all transport modes (infrastructure and services) are connected and work together. This will result in improving the community's overall accessibility to jobs, services, recreation and other activities.

The importance of connected transport networks is taken for granted in road planning at both regional and local levels and can easily be overlooked for public transport, cycling and walking. Barriers and discontinuities are more of a deterrent to pedestrians, cyclists and public transport users than for car drivers, who can usually find a way around such impediments'[21,22] (Table 7).

- For pedestrians, barriers may include roads that are difficult to cross, lack of footpaths and a hostile walking environment.
- For cyclists, barriers may include hazardous intersections and high-traffic roads without provision for cyclists.
- For public transport users, barriers may include services that do not connect (routes or schedules) or do not serve the places to which they wish to travel.

- Connected transport networks means connections between the modes as well as for each individual mode.
- How good is walk access to bus stops and train stations? How can it be improved?
- How good are opportunities for cycle access to bus and train, including secure bicycle parking?
- How well do buses connect with each other and with trains in terms of schedules and physical access?

**Road network**

The road network is important for all road users – pedestrians, cyclists, public transport, private cars and freight/commercial vehicles. The planning, design, construction and maintenance of roads have to consider the needs of all road users to minimize conflicts or adverse impacts. Major urban roads and residential streets are the primary movement infrastructure for all land-based transport other than railways. Even light rail will often run 'in-street' rather than in a segregated right-of-way in order to provide direct and convenient access to activities.

In many places, shared facilities for road users rather than separate networks are the norm. Integration in shared networks should aim to ensure that all users experience a high level of service, safety and amenity.

In the absence of completely separate and segregated networks for each mode of transport, there are potential conflicts that must be addressed in dealing with the transport system in an integrated way. In addition to the general potential for conflicts in roads, especially the interaction between motorised modes and the more vulnerable non-motorised road users, there is a need to pay particular attention to potential conflicts between those travel modes that are to be encouraged, such as bicycles and buses[23]; and pedestrians and cyclists on paths[24].

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[21] *Cycling- Getting Australia Moving-Barriers, facilitators and interventions to get more Australians physically active through cycling (Australian Government, Department of Health and Ageing)* www.cyclingpromotion.com.au/images/stories/downloads/ CPFHlthRpr08V3prf1.pdf

[22] *Easy Steps – a toolkit for planning, designing and promoting safe walking.* Queensland Transport: Brisbane, Queensland. www.tmr.qld.gov.au/~/media/07e721cd-9197-4c04-bc69-4c2741024578/pdf_easy_steps_web_final.pdf;

[23] *Bus-Bike Interaction within the Road Network.* Report AP-R266/05 (2005). Austroads: Sydney, NSW. www.onlinepublications.austroads.com.au/items/AP-R266-05

[24] *Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths.* Report AP-R287/06 (2006). Austroads: Sydney, NSW. www.onlinepublications.austroads.com.au/items/AP-R287-06

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**Table 7 – Barriers for interconnected transport networks**

| Barriers to walking | |
|---|---|
| Lack of time | Laziness |
| Destination too far away to walk to | Footpath in poor condition |
| No footpath | The footpath does not go to the destination |
| Fear of being robbed or attacked | Fear of dogs |
| Poor weather (and lack of weather protection) | Insufficient opportunities to cross roads safely |
| Heavy or fast traffic | Poor lighting |
| Unattractive or noisy surrounds | Skateboarders and cyclists on the path |
| **Barriers to cycling** | |
| Lack of skills and confidence, especially where cyclists have to ride in mixed traffic | Policy and regulatory factors governing key influences on cycling, such as congestion, urban density and motor vehicle speed limits |
| Social and cultural factors such as low income | Safety concerns, even for those that cycle regularly |
| Environmental factors, including urban design and bicycle infrastructure. Lack of bicycle infrastructure in Australia presents a particularly strong barrier for women, who comprise only 20% of commuter cyclists | |
| **Barriers to public transport** | |
| Time taken to get to and from bus stops and train stations | Flexibility – what happens if I have to work back late |
| Frequency of service | Directness and convenience of routes |
| Personal security, especially for evening travel | Congestion on public transport itself |
| Reliability and predictability as a result of traffic congestion | |

Source: *Cycling- Getting Australia Moving- Barriers, facilitators and interventions to get more Australians physically active through cycling*, Australian Government, Department of Health and Ageing, 2008.

and

Easy Steps – *a toolkit for planning, designing and promoting safe walking*, Queensland Transport, Brisbane, Queensland, 2005.

Austroads[25] works with local government to improve Australia's roads and transport systems, recognising the value and importance of developing the local road component of the national road network. Local government is a member of Austroads through the Australian Local Government Association (ALGA)[26]. In addition, there is an agreement between Austroads, ALGA and Institute of Public Works Engineering Australia[27].

The agreement recognises that local roads comprise around 85 per cent of the Australian road network and are important for social and economic development within communities. The agreement seeks to improve communication between the three organisations and their constituents, and helps ensure the management of local roads and the resolution of strategic local road issues are facilitated with the benefit of knowledge, technology, best practice and research outputs from Austroads' activities.

In practice, especially in existing developed areas, many roads have to support multiple functions. For example, many older town centres and strip shopping centres have roads with high traffic volumes running through them and it is necessary to create an appropriate balance between traffic functions and activities taking place in the centre (and, of course, the people who are part of those activities – whether as suppliers, employees or customers). This is not a new problem, although the relative importance given to traffic and local activities is shifting towards the latter, and there are both good and bad examples of built form and management responses[28].

Road design practice in residential areas, activity centres and other low-speed environments should reflect the multiple uses, recognising that simple traffic-based criteria are not appropriate where conflicts arise between users. The Institute of Public Works Engineering Australia Queensland has produced a *Complete Street – Guidelines for Urban Street Design (2010)*, which is relevant only for streets with defined functions for 'access and place' rather than 'movement and connection'.

The main objective of the guidelines is to encourage design for streets, which supports active and interactive communities in urban environment.

Street networks should, in general, be connected or 'permeable'. Networks should encourage walking and cycling and make places easier to navigate through. They also lead to a more even spread of motor traffic throughout the area. Internal permeability is important but the area also needs to be properly connected with adjacent street networks. A development with poor links to the surrounding area creates an enclave that encourages movement to and from it by car rather than by other modes (*Manual for Streets, Department of Transport, UK 2007 page 41-42*)[29].

The Department of Planning has partnered with the WA Division of Institute of Public Works Engineering Australia (IPWEA) to produce *Local Government Guidelines for Subdivision Development, Edition 2.1*, 2011[30], which (Module N.3 Road Guidelines, Tables 3.1 and 3.2) promotes the *Liveable Neighbourhoods* road hierarchy. The IPWEA Local government Subdivision Guidelines recommend that where traffic Impact study is recommended to identify current and future road hierarchy of the subdivision developments, the developer and local government should be aware of the requirements and conditions within the WA Planning Commission's *Transport Assessment Guidelines for Developments*[31].

The Austroads *Guide to Traffic Management* (2009) has 13 Parts and provides comprehensive coverage of traffic management guidelines for practitioners involved in traffic engineering, road design, town planning and road safety. Austroads *Guide to Traffic Management – Part 4: Network Management (2009)* provides discussion on transport networks and their users; networks operation planning and functional road classification.

[25] Austroads website  www.austroads.com.au

[26] Australian Local Government Association
www.alga.asn.au

[27] Institute of Public Works Engineering Australia   www.ipwea.org.au

[28] Hans L Westerman (1998). *Cities for Tomorrow. Volume 1: Better Practice Guide.* [Out of Print: Not currently available] *Volume 2: Resource Document.* Reports AP57/98 and AP58/98. Austroads: Sydney, NSW. www.onlinepublications.austroads.com.au

[29] Note: *Manual for Streets 2 - Wider Application of the Principles,* a companion guide to Manual for Streets, was published by the UK Chartered Institution of Highways and Transportation (CIHT) on 29 September 2010   www.dft.gov.uk/pgr/sustainable/manforstreets/

[30] *Local Government Guidelines for Subdivision Development, Edition 2.1, 2011*  www.planning.wa.gov.au/publications/5833.asp

[31] Transport Assessment Guidelines for Developments - www.planning.wa.gov.au/publications/1197.asp

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## Functional road classification

The major benefits of having a functional road classification in metropolitan area are to:

- provide orderly grouping of streets and roads in a framework, which governs the planning and implementation of construction and maintenance projects;
- provide a sound basis for traffic route management, transport and land use;
- assist in the adoption of appropriate standards of construction of traffic routes and road traffic management;
- allow capacities of designated routes to be reviewed and appropriate action to be taken to ensure function and operation accord;
- assist with road infrastructure funding arrangements; and
- integrate better type/function of the road with the adjacent land use planning process.

Currently there are a few network classification systems applied to address roles and functions of the Perth metropolitan road network.

- **_Main Roads WA's Functional Road Hierarchy_** classifies roads in the Perth metropolitan area as one of the four main functional types: Primary distributors, District distributors, Local distributors and Access roads.

Main Roads WA is responsible for updating and publishing of Functional Road Hierarchy maps, which are subject to change from time to time.

This type of functional road hierarchy uses predominantly two main decisive factors for functional road classification: mobility functions and access functions. Defining the road hierarchy in this way describes how traffic should flow in a logical and efficient manner through the road network, as well as how it should operate and be administratively managed.

It focuses more on the traffic flow and its characteristics such as traffic volumes, traffic speed and travel distances; and intersection treatments and frontage land use access. It is oriented towards maintaining appropriate levels of the traffic functions of the road and access management techniques for the adjacent land uses to support the designated traffic functions established by the road hierarchy.

The Main Roads' Functional Road Hierarchy does not consider the type of interaction between the adjacent land uses and the place making role of the road space for the lower level roads. Using this road hierarchy for road network planning purposes has an approach focused on forecasting traffic/transport demands only and developing networks to accommodate this demand. The outcome is planning widely for mobility, not planning for general accessibility. The road system is designed mostly for moving traffic rather than servicing places and activities.

• *Liveable Neighbourhoods (Edition 2) Movement Network Road Hierarchy (Tables 3 and 4)*[32] classifies roads differently to Main Roads' Functional Road Hierarchy and takes into account integration with land use context, route/street characteristics and as well as function of the road.

Generally, the road categories of the Liveable Neighbourhoods Road Hierarchy align with the Main Roads Functional Road Hierarchy, except for the classification of Integrator arterial, which corresponds with District distributor (Main Roads); and Neighbourhood connectors, which corresponds with Local distributors (Main Roads).

The Liveable Neighbourhoods design concept provides an alternative approach to the design of movement networks, street design and intersection control to support communities of neighbourhoods. The street system is highly interconnected. Traffic is distributed more evenly through a flatter hierarchy of streets reducing pressure at major intersections. Within activity centres, integrator arterial routes are supported by parallel routes that serve local traffic and reduce pressure on arterial intersections.

## Revisions to the conventional Functional Road Hierarchy classification system

Currently, there are few worldwide revisions to the conventional functional road classification system, which aim to recognise the complexity of urban environments and the many functions served by urban roads in addition to the functions of land access and mobility addressed by the conventional hierarchy for roads. The palette of 'four` road types

in urban areas is inadequate to reflect roads of varying contexts, the variety of modes that use urban roads/streets, and areas with different character. The road designs that emerge from the conventional Functional Road Hierarchy are not sufficiently differentiated to respond to and strengthen different urban environments.

New urbanism is a movement in planning, design and development that is re-establishing compact, walkable and environmentally sustainable neighbourhoods, cities and towns. Smart growth is an approach to development and conservation that advocates, among other objectives, strengthening and directing development toward existing communities and fostering distinctive and attractive places. New urbanism practitioners and many innovative street designers argue that the present 'four' road types functional classification system is a fundamental obstacle to context sensitive design.

• *Context sensitive road design*
Context Sensitive Solutions Institute of Transportation Engineers (USA, 2006) report[33] was published as a proposed recommended practice of the Institute of Transportation Engineers. It provides guidelines in applying the principles of context sensitive solutions in transport planning and in design of road improvement projects in places where community objectives support walkable communities compact development, mixed land uses and support for pedestrians and cyclists, where it already exists or it is planned for the future.

Context sensitive solutions for road network planning seek a deeper understanding of context, particularly in urban places by considering the urban form as a factor that can influence community objectives such as a reduction in auto trips and preservation of open space. Context sensitive solutions analyse land use within a design and activity framework that is more complex than typical density measures. For example, similar land use developments located in different urban settings will have different trip generation characteristics and will make different contributions to the street context that in turn call for different responses by the road design.

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[32] *Liveable Neighbourhoods (Edition 2) WAPC, 2007*
www.planning.wa.gov.au/dop_pub_pdf/LN_Text_update_02.pdf

[33] Context Sensitive Solutions design -
www.ite.org/css/

The lack of a dimensional framework that pairs road design criteria (maximum number of lanes and design speed) with urban design (levels of activity, location of access, relation to street) in the functional class system is highly problematic with respect to creating a coherent network that serves the diverse economic, social, and environmental needs of metropolitan communities.

This multidimensional way of assessing the functions of urban roads makes attempt to address 'context' at a larger urban scale that highlights the importance of whole places (eg. local neighbourhoods, town centres and major activity centres) in a way that reflects the complex nature of the urban environment, rather than individual road segments.

This new approach for urban road design recognises the importance of the functional road classification, which defines the position and the mobility role of the road in the road network. This governs the selection of certain design controls and the type of the road. It also emphasises the importance of integrating the roads into their surroundings to support the activities of the adjacent land uses.

The solutions introduce the concept of context zones and road types and distinguish the different 'context' of suburban, general urban, urban centre and urban core zones. Context sensitive solutions incorporate principles in urban areas to support and promote the following characteristics of walkable communities:

- mixed land uses in close proximity;
- building entries fronting the street;
- pedestrian-scale building, landscape and road design;
- compact developments;
- highly connected circulation network; and
- public spaces that contribute to 'place making'.

The design process for context sensitive solutions differs from the conventional approach to road/street design, which leads to different outcomes. Conventional road design is mainly driven by traffic demand and level of service objectives. Context sensitive solutions principles applied to a road design process address critical factors and issues before establishing design criteria. Context sensitive solutions consider all community objectives resulting in a well thought-out and design tradeoffs,

which is the fundamental basis of the concept. This broader project focus makes the design compatible with its surroundings while addressing community concerns.

- **Link and Place**
  *The potential for any section of the road network to perform the role of an urban corridor requires detailed planning and policy development, recognising the variable and multi-functional characteristics of each road section. The planning challenge has been described as the "link-place" network concept. (Directions 2031 and beyond, p61)…*

Although road hierarchies acknowledge the different traffic functions performed by roads and streets, they do not specifically articulate the corresponding variations in their functions as places. Most roads and streets, with the exceptions of freeways and controlled-access highways (for which the movement function is paramount) are both movement conduits and destinations in their own right through the activities that front them.

Movement and destination have been characterised by the terms 'link' (movement, usually of motor vehicle traffic) and 'place' (destination – a place where people want to be).

*Link & Place – A Guide to Street Planning and Design*[34] provides a new way as illustrated in Figure 23 of addressing problems on urban streets that:

- is intuitive and understood and supported by stakeholders;
- gives due weight to both movement and non-movement functions of streets;
- enables comprehensive performance assessment; and
- results in site-sensitive designs – not uniform solutions along a transport corridor.

The link function relates to the significance of a street as a link in the overall road network. The urban place function describes the significance of a street as urban place relative to the overall urban system as it is used by people, including town centres, district centres, local centres, shopping streets and activity corridors.

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[34] Thinking Transport
www.thinkingtransport.org.au/library/2010/01/link-and-place-guide-street-planning-and-design

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**Figure 23 – 'Link and place' road network concept**



**Place status**

High ← → Low

**Link status**

High ↑

Low

Each cell represents a particular type of street with a specific combination of a Link and Place status level
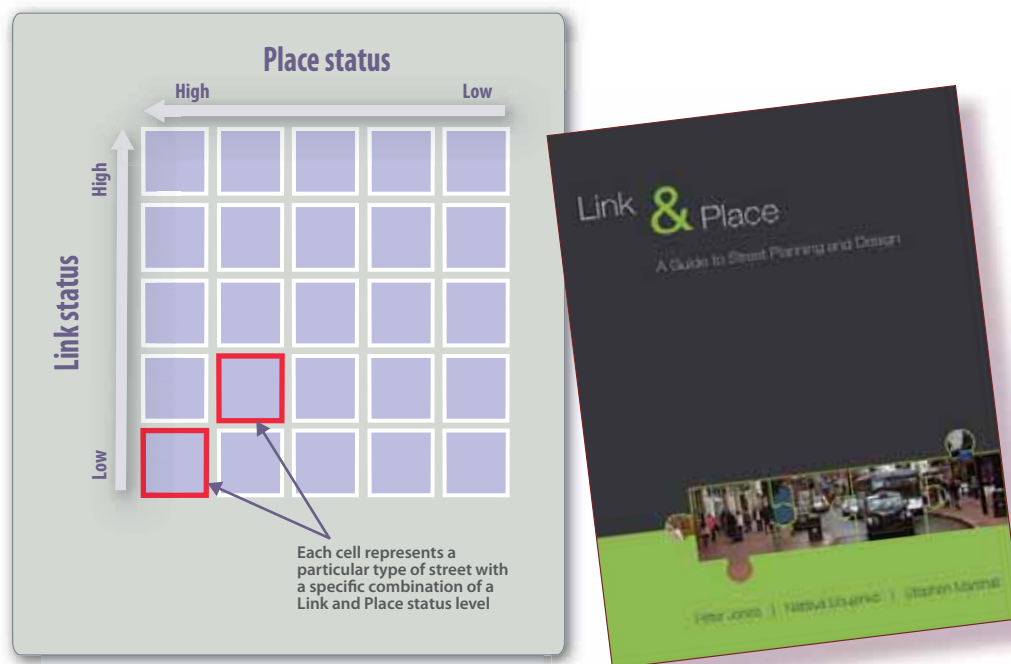
Source: *Link and place – A Guide to Street Planning and Design,* Peter Jones, Natalya Boujenko and Stephen Marshal, Centre for Transport Studies UCL, London (2007).

A road or street may have clear priority of link (eg. controlled access highway) or place (eg. pedestrian mall), but most have to serve both functions to some extent. In existing developed areas, arterial roads often run through activity centres; these are high on both the link and place status spectrums.

The link function is often physically constrained by existing development (the place function); and the value of the place is compromised by the scale of the link function, including traffic noise, traffic and pedestrian safety, severance and air pollution.

Integrated transport planning must identify and seek to reconcile conflicts between link and place. This is partly a technical role but most importantly it should be addressed through involving the community and other stakeholders in the development of feasible responses to resolving the conflicts. It is essential that this process is able to take account of the unique circumstances of and opportunities for each location, including:

Variation by time of day – there may no alternative to giving priority to the traffic function during the commuting peaks, but out-of-peak, opportunities may be available for emphasising 'place'. Consider, for example, variable speed limits, a trial of which is currently under way in Beaufort Street, Highgate and Mt Lawley.

Variation along a link – for example, to facilitate safe crossing by pedestrians and cyclists at important locations in terms of place.

Variation by time of year – for example, where school traffic is a substantial element of the link function.

If conflict between link and place cannot be satisfactorily managed or resolved, it may be necessary to consider downgrading either the link or the place status. Either of these requires careful consideration in the context of regional and sub-regional movement, on the one hand, and the impacts on the residential and business communities that would be affected.

## Pedestrian network

Reasons why walking facilities are important for providing interconnected transport networks and should be considered when developing local and regional integrated transport plans include:

- places that are conducive to walking and have less motor vehicle traffic create stronger communities. The number of local social contacts people have is inversely related to the volume of traffic on the street where they live;

- people who walk are more likely to demonstrate an active interest in the local community; and

- people who walk are more likely to support local businesses and other activities.

Walking programs, along with quality walking infrastructure, can help local governments meet targets for transport mode share, and can transform streets into attractive spaces.

Walking also matters to business, the community and to individuals, with positive impacts for all. There are health, social, environmental, tourism and economic benefits from more walking.

**Table 8 – Easy Steps – 10 steps to develop local area walking network plan[35]**

| Stage | Stage description | Current position | Desired position | By when? | By whom? |
|-------|-------------------|------------------|------------------|----------|----------|
| 0 | No local area network plan | | | | |
| 1 | Need for a plan identified | | | | |
| 2 | Process established for the development of the plan | | | | |
| 3 | Existing facilities identified  and mapped | | | | |
| 4 | Areas likely to be trip generators identified | | | | |
| 5 | User/walking groups identified and contacted for input | | | | |
| 6 | Plan developed based on existing and future needs of pedestrians | | | | |
| 7 | Plan distributed internally and externally for comment | | | | |
| 8 | Plan integrated into annual construction/capital works program | | | | |
| 9 | Plan available on GIS and in hard copy and available at council offices | | | | |
| 10 | Plan linked to walking strategy | | | | |

Source: *Easy Steps – a toolkit for planning, designing and promoting safe walking, Queensland Transport, Brisbane, Queensland, 2005.*

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[35] *Easy Steps – a toolkit for planning, designing and promoting safe walking.* Queensland Transport: Brisbane, Queensland. www.tmr.qld.gov.au/Travel-and-transport/Pedestrians-and-walking/Easy-Steps.aspx

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Ultimately, all access for people to places and activities is on foot. It makes good sense, therefore, to start by looking at how well a local community meets the needs of pedestrians.

These needs are both objective, to do with the quantity and quality of walking facilities, and subjective, relating to how aware people are of these facilities and how attractive they find them for walking. The Easy Steps tool kit (Table 8) identifies 10 steps to developing a local area walking network plan and sets out a simple process for doing so.

The quality of the walking network can be summed up in five questions, each concerning the letter 'C' [36]:

- Is the walking environment **connected**?
- Is the walking environment **comfortable**?
- Is the walking network **convenient**?
- Is the walking environment **convivial**?
- Is the walking environment **conspicuous**?

There are some simple objective technical questions that can focus your attention for assessing walking networks:

- Are pedestrian networks adequately signed, especially in areas with high levels of activities and multiple pathways?
- Does every street have a footpath on at least one side?
- If there is only a footpath on one side, are there safe and convenient crossing points for pedestrians, especially to provide access to activities?
- Are footpaths of an adequate standard to provide a continuous access path for all pedestrians to use?

Does street furniture (most of which is the responsibility of local government) unnecessarily intrude in to pedestrian space and impede movement, especially for those with vision or mobility impairments?

Do footpaths and walking routes provide an acceptable level of amenity, including noise levels, weather protection, personal security, visual attractiveness and seating (an often-overlooked part of walking).

There is more to walking however, than having adequate facilities. It is important to understand who walks and why (Table 9). We rarely collect data on walking or pedestrian movements, but it is useful simply to observe where people walk and, equally important, where they do not walk. This will demonstrate what encourages or discourages people when it comes to walking?

Pedestrian facilities should be designed to meet the needs of people with disabilities. They will then cater to all pedestrians, including parents with children in pushers/prams and people with wheeled shopping trolleys. People with disabilities and people without a driver's license make considerably fewer trips than people with a driver's license. They have correspondingly poorer levels of access to the range of activities and opportunities that most people take for granted. Their lack of access to driving a private car makes it all the more important that other transport modes, including the pedestrian environment, do not present obstacles.

Main Roads WA has developed *Guidelines for measuring level of service on pedestrian paths and shared paths*, including road crossings, in Western Australia.[37]

The Department of Transport has published a *Walkability audit tool kit* for use by officers of local government authorities, consultants and community groups to identify issues to improve pedestrian safety. A *Planning and Designing for Pedestrians: Guidelines (2011)* has also been developed by the Department of Transport in partnership with other agencies. The main objective of the pedestrian Guidelines is to increase the skills, knowledge and capacity amongst planning, engineering and other relevant professional staff throughout WA, in the planning, design, construction and maintenance of pedestrian facilities on the road network.[38]

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[36] *Encouraging Walking: advice to local authorities.* Department for Transport (2000): London, England.
http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/sustainable/walking/uragingwalkingadvicetolo5793.pdf

[37] www.mainroads.wa.gov.au/Documents/e80529_20060518140840511.u_1240822r_1n_D06%5E2347977.pdf

[38] Department of Transport/ Walking
www.transport.wa.gov.au/walking/24038.asp#24036

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**Table 9 – Who walks and why**

| Who walks | Why |
| --- | --- |
| Toddlers | To explore their world<br>Because they can |
| Children | Too young to drive<br>Parent and/or carer is not available<br>To socialise with friends<br>To explore the neighbourhood<br>To attend school<br>To visit shops<br>For an errand<br>Because they are with parents |
| Teenagers/ student | Too young to drive<br>Cannot afford a car<br>Family car not available<br>To exercise<br>To visit shops/video store<br>To attend high school<br>To travel to/from public transport<br>To socialise with friends<br>Because they are with parents |
| Young adults | Do not have a driver's licence<br>Cannot afford a car<br>Prefer to walk<br>Cheaper to walk<br>To travel to/from public transport<br>To exercise<br>To socialise with friends<br>To attend work<br>To visit shops<br>To go bushwalking<br>For romance<br>Because they are with family |
| Mature adults | Cannot afford a car<br>Prefer to walk<br>Cheaper to walk<br>For quality time with children/family/partner<br>To exercise<br>For relaxation and enjoyment<br>For quiet reflection<br>For recreation<br>For convenience (for short trips)<br>Do not have a driver's licence |
| Seniors | Do not have a driver's licence<br>To socialise with friends and relatives<br>To exercise<br>To provide diversity to the daily regime<br>For medical and general health<br>For recreation |

Source: *Easy Steps – a toolkit for planning, designing and promoting safe walking, Queensland Transport, Brisbane, Queensland, 2005.*

## Bicycle network

The development of a local bike plan is an integral component of a local government integrated transport plan.

A first step is to establish the existing bicycle network in the local area (Figure 24). Regional bike maps for Perth are available at www.transport.wa.gov.au/cycling/14679.asp.

These maps identify cycling facilities and routes and also grade them for ease of use. Bikewest can assist to identify the location of all designated cycling facilities in the area, which will help show up gaps in the network at www.transport.wa.gov.au/cycling.

The *Perth Bicycle Network Plan*[39] (Figure 25) details a comprehensive network of cycling routes for the Perth metropolitan region. These routes include:

- local bicycle routes;
- principal shared paths;
- recreational shared paths;

- use of highways and main roads; and
- use of Other Regional Roads, which are the responsibility of local governments.

The network also includes cycling-related infrastructure throughout metropolitan Perth. It comprises a mixture of on-road (bicycle lanes), off-road (shared paths) and end-of-trip facilities (bicycle parking).

Outside Perth, the same principles can be used to identify opportunities for cycle network development.

The *Perth Bicycle Network* needs to be supplemented by local bicycle network planning to provide a finer-grain of accessibility to local destinations and for local trips.

A key link between the local and the regional lies in the extent to which local cycle routes, providing access to local centres, schools and other activities, can be linked to establish longer-distance regional connections (Figure 26). Where this can be done, it is needed to think carefully about the facility design standards for such routes to be suitable for both local and regional cyclists.

### Figure 24 – Example of bicycle network in local area



**Bicycles**

**Belmont**

- Grid netwok with heavy reliance on local streets.

- Poor access to and through industrial area and Kewdale.

Source: *Integrated Transport Strategy for Perth's Eastern Region: Consolidated Report for Eastern Metropolitan Regional Council, ARRB and Ian Ker (2007).*

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[39] www.transport.wa.gov.au/activetransport/25720.asp#25675

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The quality of the local cycling network can be summed up in four main questions, each concerning the letter 'C':

- Is the cycling network **convenient**, accessible and safe?

- Is the cycling network **comprehensive**, providing access to most destinations for most cyclists?

- Is the cycling network **connected**?

- Does the cycling network have regional **coverage**?

Importantly, do the cycling facilities provide cyclists with protection or separation from motor vehicle traffic wherever possible?

**Figure 25 – Perth Bicycle Network Plan**



Source: *The Perth Bicycle Network Plan.* Department of Transport WA (1996): Perth, WA.

Note: During the completion of these Guidelines the Department of Transport launched a Draft Western Australia Bicycle Network (WABN) Plan 2012-2021, which incorporates a review of its predecessor, the 1996 Perth Bicycle Network Plan.

**Figure 26 – Local cycle routes with regional connectivity
to establish longer distance connections**
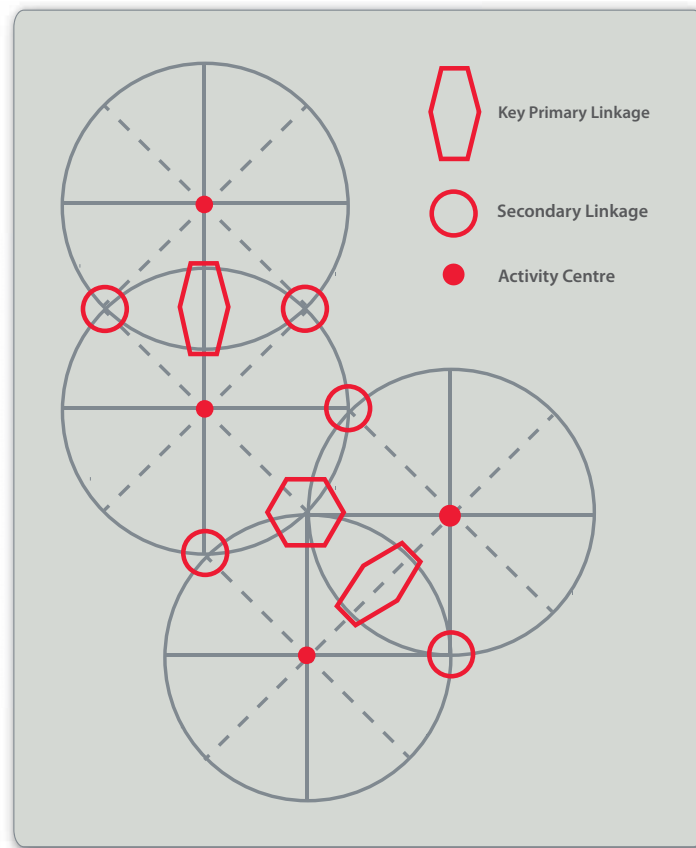


Source: *Integrated Transport Strategy for Perth's Eastern Region: Consolidated Report
for Eastern Metropolitan Regional Council,* ARRB and Ian Ker, 2007.

Main Roads WA has developed some easy-to-use guidelines for assessing the quality of the cycling environment (cyclist level of service) in either on-road or off-road (path) situations[40].

Local governments are vital partners in the development of the network. The Perth Bicycle Network (PBN) Local Government Grants Program is important to the successful partnership between state and local governments:
www.transport.wa.gov.au/cycling/19626.asp
www.transport.wa.gov.au/cycling/20936.asp

### Public transport network

Public transport in Perth consists of trains, buses and ferries, with taxis playing a supporting role. All of these are operated for the Public Transport Authority[41]. Beyond Perth, urban public transport is much more limited but buses still play an important role in several regional cities.

Barriers to public transport use mostly concern the provision of services, including:

• time taken to get to and from bus stops and train stations;

• directness and convenience of routes;

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[40] *Guidelines for Assessing Cycling Level of Service.* Main Roads WA (2006): Perth, WA.  www.mainroads.wa.gov.au/UsingRoads/PedestriansCyclists/ Pages/standards.aspx

[41] *Public Transport Authority -* www.pta.wa.gov.au/Home/tabid/36/Default.aspx

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- frequency of service;
- flexibility – what happens if I have to work back late;
- personal security, especially for evening travel;
- reliability and predictability as a result of traffic congestion; and
- congestion on public transport itself.

The Public Transport Authority website includes five guidelines to cover the planning, design, construction and maintenance of Public Transport Infrastructure in Western Australia[42].

Taxis are an indispensable part of the transport system, especially where and when buses or trains do not provide the level of service that people require.

From a local or regional transport planning perspective, the primary requirement is to ensure that there are sufficient convenient pick-up and drop-off points, especially where there are concentrations of activities (such as hotels, restaurants, taverns, night clubs and the like) for which the busiest times are evenings and weekends and where patrons should be discouraged from driving as many will be drinking alcohol.

Public transport in Perth has traditionally concentrated on the movement of commuters to and from the Perth CBD. This is most obvious with the train system, including the many bus services that provide access to train stations for surrounding areas, but is true also of large parts of the true bus system in areas that are not directly served by the train system (Figure 27).

**Figure 27 – How well public transport serves centres in a region**
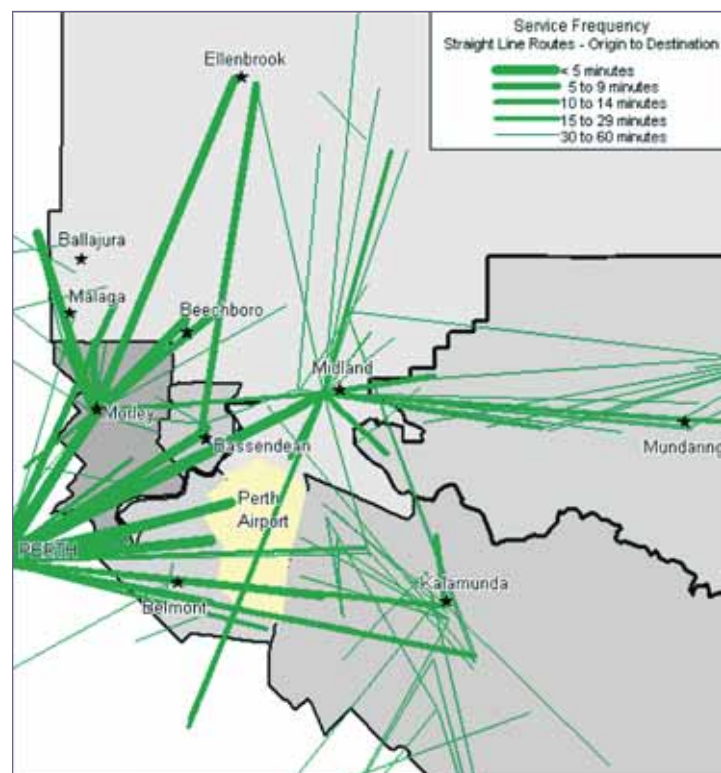


Source: *Integrated Transport Strategy for Perth's Eastern Region: Consolidated Report for Eastern Metropolitan Regional Council,* ARRB and Ian Ker, 2007.

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[42] *Design and planning guidelines for public transport infrastructure -* www.pta.wa.gov.au/PublicationsandPolicies/DesignandPlanningGuidelines/tabid/109/Default.aspx

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The Perth public transport system is an integrated system with a single ticketing system and coordinated timetables and service planning. This makes it easy for people to interchange between services in order to make journeys that cannot be done with a single bus or train journey.

In turn, this creates two opportunities for local governments:

- Places where people interchange between services are community development and business opportunities. Where routes are suitable, this can assist even relatively small centres, and may be particularly useful for community facilities that have mainly seniors, children or others who are unable to drive as clients.

- Centres of community or business activity can provide opportunities for enhancing public transport services in the surrounding area.

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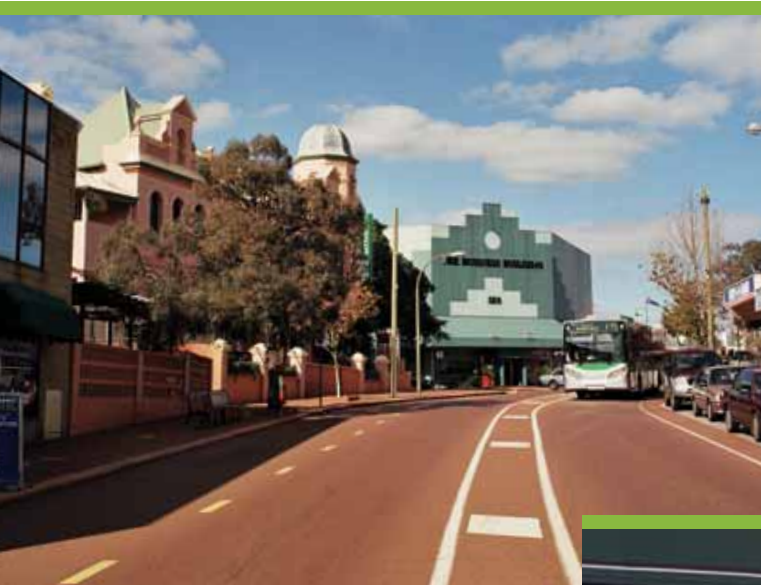
Public transport using large buses (and trains) must go where there are the greatest concentrations of users. This means that shorter-distance journeys are often not well-catered for. Where there is regional public transport and/or a number of centres, alternative models of provision, using small buses or even taxis should be considered. Brisbane City Council provides this type of service in eight areas of Brisbane that are not well-served by conventional public transport services[43].

This model can meet the objectives of integrating community transport with public transport services and in particular with accessible transport services. By transporting people to train stations and bus stops, destinations can be serviced outside the study area. It also acknowledges that not all destinations can be serviced by public transport and that not all people can use public transport for various reasons. Providing shorter journeys to public transport locations rather than to the final destination may keep the operational costs to a minimum and allow a greater number of trips to be available to service the community.

There are restrictions on the charging of fares in Western Australia, where most public transport services are operated under government contract, so other sources of funding for such services will need to found. For public transport to centres of activity, it may be possible to institute something the lines of a *Business Improvement District*, with revenues devoted to both promoting and improving a centre and enhancing access to it.

The technology for public transport ranges from taxis and minibuses to articulated buses, on the road system, to rail-based systems (that operate most efficiently in their own right-of-way but, in the case of light rail, can operate in the road system, as they do in much of Melbourne, Victoria, for example).

Which technology is appropriate depends upon the situation (especially the level of patronage), the objectives for public transport and the resources available.

Situations with high public transport use will more likely be able to justify the higher upfront costs of rail systems, but this technology has specific requirements that cannot always be met (eg. dedicated right-of-way).

If the objectives for public transport are primarily in terms of providing a practical and equitable alternative to the private car, bus-based systems provide greater flexibility at lower cost than rail. If public transport however, is also seen as a means of encouraging and supporting particular forms and densities of development and activities, rail (including light rail) is likely to have a greater impact on development decisions than do buses.

In terms of resources, rail systems have high capital costs upfront, but lower operating costs per passenger where there is sufficient patronage.

### Freight and commercial transport

Sustainable communities require goods and services as well as the ability for members of the community to move around.

*"In striving to achieve greater integration between transport planning and land use planning, Directions 2031 supports the total freight supply chain and, therefore, mostly multi-modal approach to freight transport. Also, the use of rail over roads is actively and progressively encouraged, where appropriate and feasible. However, it should be recognised that in many instances rail transport will not be practical or efficient and that road transport will continue to transfer the majority of freight within the metropolitan area."*

Directions 2031 recognises the importance of freight movement to the city's economic prosperity and acknowledges the critical need to ensure that the freight network is well connected to key industrial areas and intermodal terminals. The Western Australian Planning Commission's *State Planning Policy 5.4 - Road and Rail Transport Noise and Freight Considerations in Land Use*

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[43] Brisbane City Council -
www.brisbane.qld.gov.au/traffic-transport/public-transport/buses/index.htm

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*Planning*[44] identifies a freight movement network of road and railway infrastructure. The Department of Transport in conjunction with Main Roads WA, other government agencies and industry is undertaking more detailed analysis of freight routes in Perth Metropolitan area.[45]

*Directions 2031* supports the development of a freight transport strategy by for the Metropolitan Perth and Peel region to complement the draft *Metropolitan Public Transport Plan 2031*, developed by the State Government. The Department of Transport is developing a Perth and Peel Freight and Intermodal Network Plan. This work is being informed by the planning, undertaken by the Department of Planning in preparing the Directions 2031 sub-regional strategies.

Sustainable communities require goods and services as well as the ability of people to move around. Despite larger vehicles and load consolidation in some parts of the transport industry, much freight transport is becoming more fragmented with increased on-demand activity and e-commerce, which the National Transport Secretariat estimated could result in a 50 per cent increase in inter-city large truck trips, for a smaller increase in tonnage, and a 50-100 per cent increase in urban light commercial vehicle kilometres as a result of consumer expectations of flexibility and reliability[46].

Contrary to some popular opinion, e-commerce does not necessarily reduce the amount of freight transport. The fastest-growing area of e-commerce is business-to-business (B2B) as it is increasingly possible to source business inputs, including goods for sale, from places further abroad (Figure 28).

Business-to-consumer (B2C) e-commerce (such as on-line shopping in its various forms) often involves purchasing goods from distant places. These goods have to be transported and delivered, usually to a residential address. It is not all 'bad news', however, there is some

**Figure 28 – Growth in e-commerce**
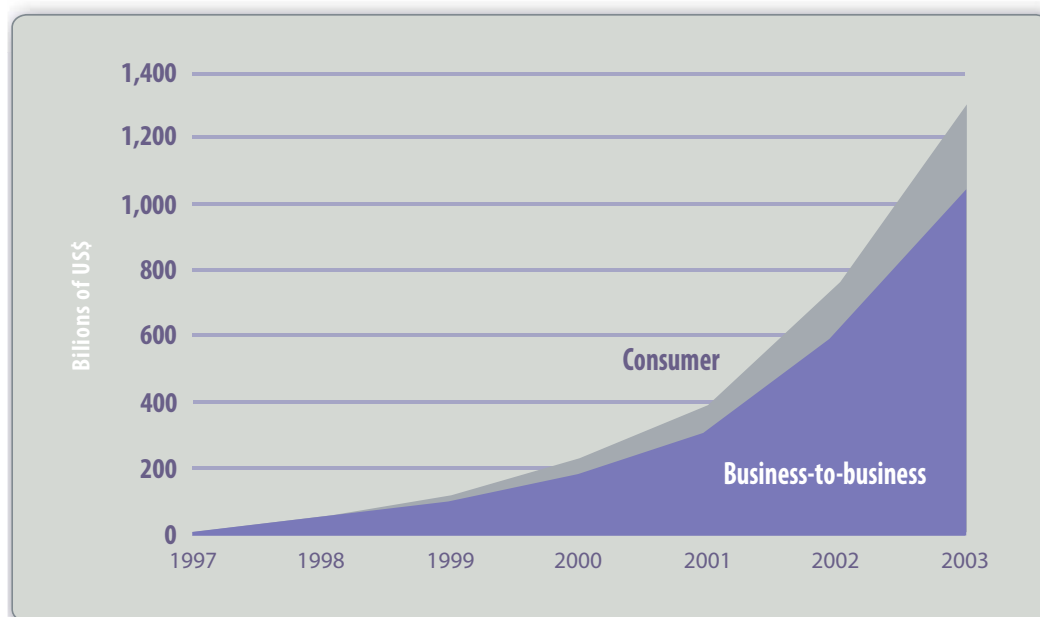


Source: *Impacts of e-business on the Transport System, 2005,* National Transport Secretariat for
Australian Transport Ministers, Brisbane, Qld.

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[44] *State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning -*
www.planning.wa.gov.au/publications/1182.asp

[45] *Directions 2031 and beyond -*
www.planning.wa.gov.au/dop_pub_pdf/plan_directions2031_Part4.pdf

[46] National Transport Secretariat.

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evidence that the overall goods-related traffic volumes in urban areas can reduce as individuals no longer have to travel to shops to collect goods. However, these changes are not all at the same time of the day.

This requires a look at the impacts of more commercial delivery trips and when they occur during the day. Reductions in traffic that is purely to support commercial and retail businesses may be able to be used to improve amenity in those areas, for example by increasing footpath widths, reducing parking provision or even removing traffic from key locations.

Depending upon the specific situation, it might be needed to consider a range of options for better managing freight and commercial traffic, including:

- Public loading docks
- Underground service tunnel network
- Distribution services
- City logistics forum
- Prioritising access
- Reallocation of kerbside space
- Universal access bays
- Enforcement and time restriction
- Encourage use of private off-street loading bays
- Conversion of private off-street parking bays to service bays
- Central collection delivery points for multi-storey or multi-tenanted buildings
- Restrict access times for large vehicles.

## 4.1.5 Safety

Transport safety is most often thought of in terms of road crashes, particularly those that result in fatality or serious injury. Road trauma is one of the major public health problems facing the community. Personal security is also an important issue affecting people's willingness to use transport other than their own private car.

### Road safety

Western Australia has the highest road fatality rate (relative to population) in Australia, with the exception of the Northern Territory. In 2010, there were 8.4 road traffic deaths per 100,000 population in WA compared to 6.1 for Australia as a whole[47]. Although the comparison is affected by WA's long distance of rural roads, road safety is an important community concern, but can be subject to misperception of where the real problems lie. The number of deaths on our roads is only part of the problem. Many of those who are hospitalised live with severe and life-long injuries.

To help resolve this problem the Western Australian Local Government Association[48] has developed road safety programs on a state-wide basis to actively engage and involve local government and the community in implementing specific initiatives of *Towards Zero, the Western Australian Road Safety Strategy* for 2008-2020. *Towards Zero* aims to improve road safety through four cornerstones:

- Safe Road Use – Improving road user behaviour.
- Safe Roads and Roadsides – Improving road infrastructure improvements.
- Safe Speeds – Ensuring speed limits and travel speeds are appropriate for the safety of the road infrastructure.
- Safe Vehicles – Improving the safety of the vehicles on the road.

RoadWise Road Safety Committees are the formal structures and extend across eleven regions encompassing metropolitan, regional and remote areas of Western Australia. This network of Committees offers an ongoing mechanism for engaging and involving communities in the dissemination and sharing of information and knowledge.

The Committees provide a regular forum where road safety is considered and strategies are developed and tailored to address road safety issues at the community level. They represent local partnerships that enable collaboration and coordination with lead agencies. More than half of the councils in WA have a formal local

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[47] Bureau of Infrastructure, Transport and Regional Economics. *Road Deaths Australia, December 2010.*
www.bitre.gov.au/publications/86/Files/RDA_Dec_2010.pdf

[48] www.alga.asn.au/policy/transport/ACRS_article.pdf

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**Figure 29 – Illustrating fatal and serious injury crashes over a five-year period**
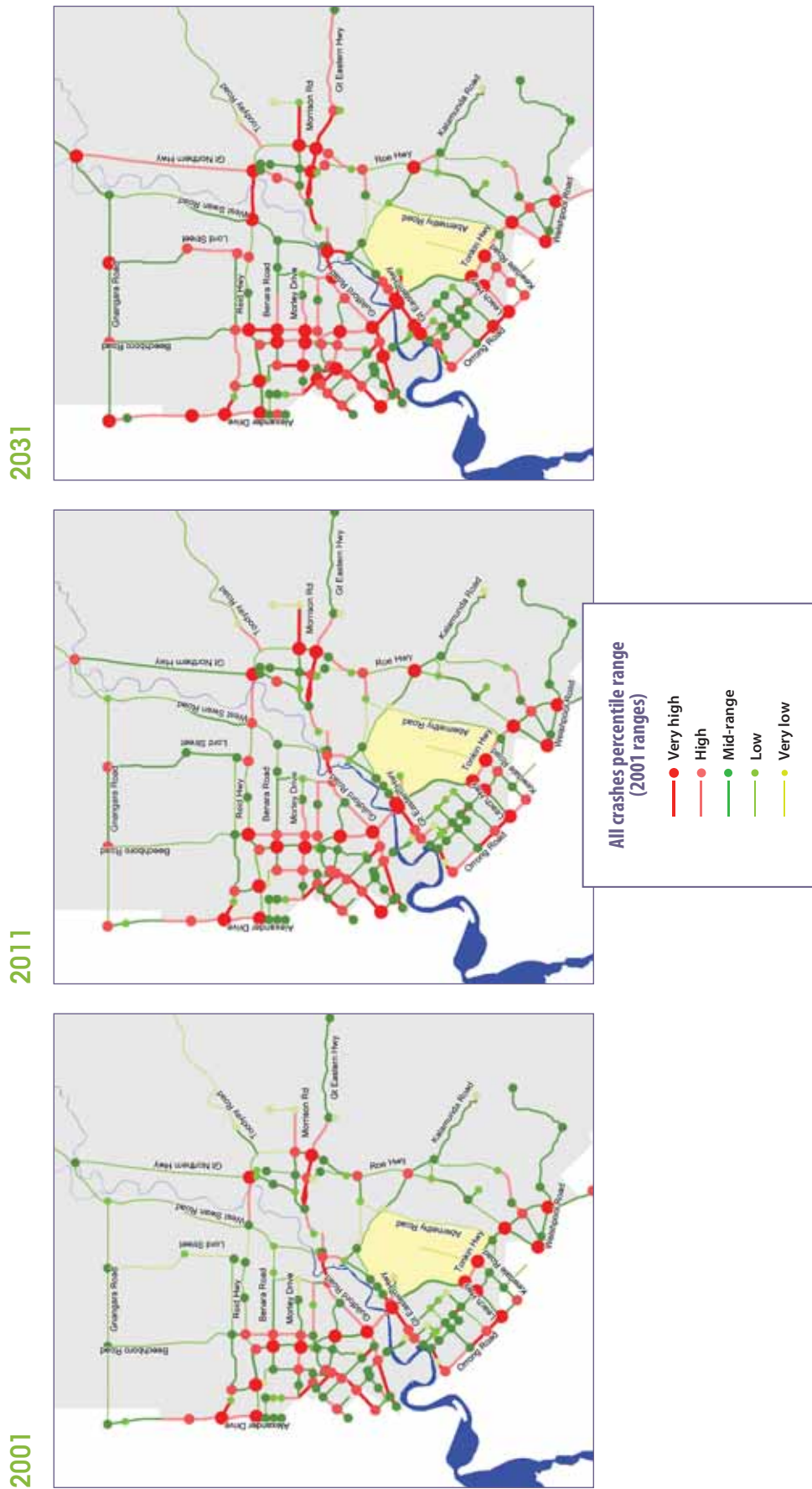


2001

2011

2031

All crashes percentile range
(2001 ranges)

Very high
High
Mid-range
Low
Very low

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road safety committee. Action plans have also been developed by most Committees to focus on and monitor local safety activity in their area.

Increased safety has been a major outcome of local government programs to improve the surface condition, width and alignment of many local roads, upgrading dangerous intersections and better signage. All road improvements make a real difference to road safety in our community and contribute to the state wide effort of reducing the incidence and severity of crashes[49].

Main Roads WA holds comprehensive data on the location of reported fatal and injury crashes that is useful in identifying where road conditions are, in practice, most dangerous for users. The example in Figure 29 has used a weighting of fatal and serious injury crashes over a five-year period to identify the most serious safety problem locations (2001) and also developed a means of using future estimates of traffic volumes and road conditions to show where safety issues are likely to emerge in the future.

It might not need to go to this level to consider transport safety in developing an integrated transport plan, but where safety is perceived to be a problem by the community, it is essential to have objective evidence either to support or refute expressed concerns.

In general, data on cyclist and pedestrian safety is less reliable than for motor vehicle occupants. It is known, for example, that not all cyclist hospitalisations are a result of crashes reported to the police. Cyclists and pedestrians are also very adept at avoiding hazardous locations even at the cost of not cycling or walking for a particular journey but taking the car instead.

An alternative approach is to ask cyclists and pedestrians where the hazardous locations are and to investigate them in the context of where it might be sensible for people to walk or cycle. Note that a single hazardous location on a route may be sufficient to stop people cycling or walking, in just the same way as a single place without access for people with disabilities is likely to prevent their getting where they want to go.

## Cycling safety

There is a common concern that cycling is less safe than other modes of transport, but it has been shown that:

- serious cyclist injuries over the long-term increases at only one-third the rate of the level of cycling activity, in part due to growth in cycling being accompanied by improvements in cycling infrastructure, but also because cyclists in larger numbers become more visible to other road users;

- the more frequently a person cycles, the lower their crash/injury rate; and

- the longer a person has been cycling, the lower their crash/injury rate[50].

Increasing the amount of cycling will reduce cyclist injury rates substantially, including benefits for existing as well as new cyclists.

## Pedestrian safety

Pedestrian safety is likely to be subject to the same 'safety in numbers' and 'safer with experience' effects as cycling[51]. It requires a multi-action approach, with a combination of engineering, enforcement, education and promotion/publicity initiatives, developed to complement and reinforce each other. They may target locations such as busy shopping and entertainment strips, and roads with high volumes of vehicle and pedestrian traffic. The multi-action approach integrates all aspects of the program, but the appropriate design and mix of initiatives will need to be assessed for each situation, including:

- provide information for professionals and community leaders;

- increase knowledge and awareness of the benefits of walking;

- review facility design criteria and develop plans to increase walking;

- promote safe and secure walking environments;

- provide, improve and maintain pedestrian routes for walking; and

- motivate more people to walk[52].

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[49] www.ors.wa.gov.au/Towards-Zero.aspx.

[50] *Bike Ahead: Bicycle Strategy for the 21st Century.* Transport WA: Perth, Western Australia.   www.transport.wa.gov.au/mediaFiles/AT_CYC_P_bike_ahead.pdf

[51] Robinson, D L (2005). 'Safety in numbers in Australia: more walkers and bicyclists, safer walking and bicycling'. *Health Promotion Journal of Australia, 16(1) 47-51.*   www.ncbi.nlm.nih.gov/pubmed/16389930

[52] *Perth Walking: The Metropolitan Region Pedestrian Strategy.* Transport WA: Perth, Western Australia.

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**Personal security**

We all like to feel secure when we are travelling. For many people, the feeling of a lack of security can be enough to prevent their travelling where, when and how they would prefer to do so. The result is that they rely on the mode where they feel they have most direct control over the security of their environment, which is the private car. Where people do not have access to a car, they may feel they have no choice but to remain at home.

The principles of Crime Prevention through Environmental Design should be universal, but in practice many of our urban areas pre-date recognition of their importance to community. From a transport perspective, *Designing Out Crime*[53] urges that particular attention be paid to:

- car parks, which can be people-unfriendly spaces;
- transit access points, including train and bus stations, bus stops and taxi ranks, especially out of peak or busy periods;
- pedestrian routes, laneways, alleyways and accessways, especially where there is limited surveillance from other users or nearby properties; and
- pedestrian overpass or underpasses, which may contribute to pedestrian or cyclist road safety by removing conflict with motor vehicle traffic but can compromise personal security unless sightlines are good and users are not able to be trapped.

It is important to consider matters such as lighting, passive and active surveillance, provision of options (to avoid predictability) and sightlines in planning and designing movement networks for vulnerable users.

Often the best way of identifying problem places at the local level is to ask local residents and business owners, including a 'walk-through' or place check.

The best solution to those problems is to get more people using those places, which improves personal security through the 'eyes on the street' effect. More people using a place is also a measure of success, as people will use places where the feel secure.

## 4.1.6  Traffic congestion

Traffic congestion is a major issue in urban areas and is prevalent in various major cities in Australia. It needs to be addressed in the integrated transport planning process.

Several measures and responses that can be used by road authorities to address this issue, including both supply-side measures (e.g. capacity enhancement), demand-side responses (e.g. travel demand management measures) and self-organising responses (e.g. behaviour change).

- *Supply-side measures*
  - Road supply management – road space allocation (high occupancy vehicle or HOV lanes), capacity enhancement, active management (including Intelligent Transport Systems or ITS based solutions) and access management.
  - Alternative passenger transport – public transport and non-motorised transport (walking and cycling).

- *Demand-side measures*
  - Freight management – regulations dealing with access, capacity and standards; supply chain logistics and infrastructure development.
  - Travel demand management – non-price measures and price measures (e.g. road use charging high occupancy toll or HOT lanes; and parking levies).
  - Urban land-use planning – transit oriented development focussing on mixed use and public transport and access/land-use strategies for major projects.

- *Measures that encourage self-organisation*
  - Behaviour change – bottom-up approaches that create situations for communities to identify their individual and community solutions to the requirements of planning. These approaches are also ideal for getting the community to recognise the need for supply and demand side measures as part of an integrated approach.

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[53]  *Designing Out Crime: Planning Guidelines.* WA Planning Commission and the Office of Crime Prevention: Perth, WA.

It is the nature of traffic congestion that it gets worse and increases rapidly as the volume of traffic approaches the capacity of the road. Traffic and congestion impact upon road users, residents, businesses and customers. Impacts may be considered as negative or positive depending upon different circumstances and points of view.

It is tempting to think that simply increasing the road capacity is the only 'solution' in terms of finding appropriate response to congestion problems, but such a conclusion should be considered carefully. In existing established urban areas, the cost of road widening can be extremely high and the community disruption unacceptable. Adding more road space for vehicle traffic only can simply remove constraints on demand and allow for 'induced traffic' to rapidly fill the additional road space.

Traffic and transport models that are used to assess the impact of local or sub-regional road network improvements will usually predict that an increase in road capacity will reduce congestion, save vehicle operating costs and reduce travel times, but this is not necessarily the case in other than the very short-term.

There is a considerable body of research evidence on what is referred to as 'induced demand', which is created by generated traffic[54] that consists of 'diverted travel' (shifts in time and route) and 'induced travel' (increased total motor vehicle travel).

Some modelling undertaken in Australia does not take account of induced traffic and therefore overestimates the benefits[55].



In a city with a mature road and transport network, it is unlikely that helping commuters in private vehicles travel faster and longer distances would allow them to access opportunities that they were previously unable to access. Even if additional road capacity would give more opportunities for car travel, the cost of doing so will often be unacceptable.

Conversely, there are numerous examples where the removal of substantial road capacity has not led to increases in congestion, as the traffic either dissipates thinly over other parts of the road network or simply 'disappears' through a combination of modes shift, more efficient use of cars (increased occupancy, trip-chaining) or making shorter trips[56]. At a local level, there are many examples of the removal or limitation of motor vehicle traffic (pedestrian malls, shared zones) that have benefited businesses and the community without detrimental impact on vehicle traffic.

[54] *Generated Traffic: Implications for Transport Planning 2011* Canada, Victoria Transport Policy Institute;  www.vtpi.org/gentraf.pdf

[55] Refers to *Induced Traffic in Urban Area Technical Report Number R397,* Department of Transport, Perth (1999) for summary discussion.

[56] Cairns, Sally, Hass-Klau, Carmen & Goodwin, Phil (1998). *Traffic Impact of Highway Capacity Reductions: Assessment of the Evidence.* Landor Publishing: London, UK.

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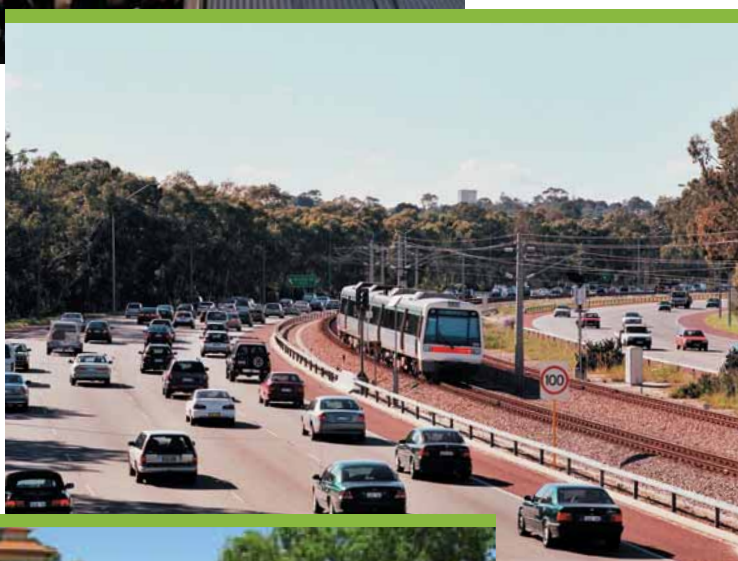
Transport models may offer insight to the traffic situation. They are tools that must be used with caution and common sense. Transport models can be useful to understand travel patterns in terms of trips, attractiveness of certain locations and mode choices. They often have shortfalls that must be understood.

The best use of transport modelling at a large area is to indicate where traffic pressures on the road system are likely to develop and where alternative modes may become competitive. The greatest importance lies in understanding the movement patterns across the region and over time rather than the situation at specific locations. For small detailed areas micro simulation models may offer more understanding of the traffic situation.

It is critical that a person using model output to assess a traffic situation needs to understand the inputs, processes, strengths and limitations of any model before attempting to interpret results or recommend transport infrastructure changes.

It should not be assumed that providing more road capacity at the local level will solve congestion problems. Improving one location might simply make another nearby location worse, if traffic there builds up as a result. If congestion is area-wide, alternatives to providing more multimodal capacity should be considered, including provision of alternatives such as public transport, or improving rail for freight and managing demand to reduce traffic or slow its growth.

Local governments should work together with neighbouring jurisdictions to minimise the risk for reduction of local traffic accessibility by providing more capacity for regional through traffic movements. Considerations should be given when a significant part of traffic in urban areas is most likely regional through traffic with cross boundary implications.

Traffic and congestion can be managed with multitude of tools. Any decision on traffic and congestion management should be based on a clear understanding of the situation. Often a mix of responses including road improvements, transit services, regulation and policy measures will be appropriate.

### 4.1.7  Travel demand management and travel behaviour change

Local government has a major role in influencing local trips providing local transport infrastructure and enhancing land use planning measures. Local government also has discretion to facilitate activities that meet local needs.

Every community will have existing patterns of travel behaviour. Even in newly-developing areas, people will bring previous travel habits with them unless there is good reason for them to change.

Travel demand management tends to be imposed on the community, through managing the supply, operation and pricing of transport services. Travel demand management is intervention so that more desirable transport, social, economic and/or environmental objectives can be achieved and the adverse impact of travel can be reduced.

Travel behaviour change is usually a voluntary process driven by demonstrated benefits to individuals and households in areas such as:

- affordability (reducing the cost of transport);
- health and fitness; and
- doing something to reduce environmental and climate change impacts of our lifestyles.

Voluntary behaviour change may be defined as change that occurs when individuals make choices for personal reasons without a 'top-down' mechanism, regulation of any sort (including pricing), or a feeling of external compulsion. People decide to make a change so that they will improve their personal life in some way.

There has been increasing recognition that individual travel behaviour, including choice of mode, is often based on inadequate information or misconceptions of the level of service available through the various modes. This has led to initiatives to bring about voluntary behaviour change, with a focus on encouraging a range of options rather than promoting a single mode, such as walking.

Integration is not simply a matter of the supply of transport infrastructure and services. It is also about helping the community to be able to use transport in ways that make the most of the opportunities available to them. A lot of transport behaviour is built up as the cumulative effect of experiences and become habit. Many people have a misperception of various parts of the transport system, usually favouring the private car over public transport, cycling and walking – people consistently under-estimate the time and cost of driving a car and over-estimate for public transport.

There is also often an under-appreciation of the availability of activities, shops and services locally, to the detriment of local economies and the benefit of regional concentrations of shops and commercial activities.

Integration that favours the local community, in terms of both transport opportunities and local activities can be enhanced by the development of a local Access Guide[57] which show routes and local facilities. One side

of the guide is for public transport – it shows bus routes, train stations, bus stops, wheelchair accessible services and train frequencies. The other side of the guide is for walking and cycling (below) – it shows Perth Bike Network routes, shared paths (for cyclists and walkers), bike lanes, walking trails, bike shops and bike parking.

These access maps have been very effective and well-received in the WA Household TravelSmart program and some local governments now routinely provide these maps to new residents for information. If there is not already available an access map for the area, it is time to consider one when developing the integrated transport plan. For larger areas, there is a need to consider a series of local maps within the region of interest.

The TravelSmart program approach is about reducing our reliance on cars and making smart choices about forms of transport[58]. TravelSmart helps people to use cars less and to choose alternatives such as walking, cycling, and public transport. A successful Western Australian program, TravelSmart encourages people to make small changes in their travel choices. These small changes can make a big difference. 'Save time and money, boost your health and help the environment by being TravelSmart'[59].

In influencing travel behaviour, it is aspired to:

- reduce the number of cars on the roads, particularly in and around centres of activity;
- increase the use of active modes (walking and cycling) for local access; and
- increase the use of public transport for longer-distance travel.

Effective programs for achieving these objectives require that the systems are in place for active modes and public transport to be both feasible and attractive options – not for every trip but for a sufficient range of trips to make a difference. Understanding the barriers that deter people from already walking, cycling and using public transport more is a key to making this happen.

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[57] Local TravelSmart Guides
www.transport.wa.gov.au/14972.asp

[58] www.travelsmart.gov.au/
[59] www.transport.wa.gov.au/14890.asp

Although many cars carry only the driver, there are opportunities for people to share cars. This is usually on an informal basis, but ride-share or car-share[60] schemes can provide opportunities for increasing the occupancy of cars. Generally, such schemes work best where there is a concentration of their market, such as large workplaces (ride-sharing) or inner urban areas with high population densities (car-sharing).

## 4.1.8 Parking

Car parking is easy to neglect in transport planning yet it is critical to managing access and amenity outcomes in urban areas. Parking is usually perceived as a passive element of the transport system. There is, however, a growing realization that it is an essential contributor to how the transport system operates and its success in meeting the needs and wishes of the community and business. This is because parking impacts the transport system in many different ways including:

- trip generation (parking availability may encourage or prevent trips);
- trip distribution (trips may go to different destinations if parking is or is not available);
- route selection – trips may be to same destination but the relative location of parking to origin and destination may involve route selection and diversion decisions;
- convenience of a destination (for those who are tied to a motor vehicle the availability of parking is critical);
- safety and security (parking lots can be perceived, rightly or wrongly, as unsafe for individuals and their cars);
- time of travel (trips may be rescheduled to take account of parking supply);
- viability, operational and economic, of modes that compete with or offer an alternative to the private car, eg. public transport, bicycles, walking; and

- cost of parking influences mode and destination choice.

These factors all contribute to demand for access and influence time, location, duration and frequency of traffic congestion within the road system. Parking is also critical for business services including deliveries and building and equipment maintenance.

### Parking issues – Activity Centres

Local government and other interested parties should refer to Western Australian Planning Commission *State Planning Policy (SPP) 4.2 - Activity Centres for Perth and Peel*[61], in particular, Section 5.3.2 Traffic and Parking and Section 5.4 Urban Form. SPP 4.2 addresses parking and the related issue of urban form in reasonable detail and provides direction for factors to consider when making parking decisions relating to activity centres of all sizes.

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[60] *Ridesharing* refers to carpooling and vanpooling, in which vehicles carry additional passengers. Ridesharing has minimal incremental costs because it makes use of vehicle seats that would otherwise be unoccupied. It tends to have lower costs per vehicle-mile than public transit because it does not require a paid driver and avoids empty backhauls. However, Ridesharing is generally only suitable for trips with predictable schedules such as commuting or attending special events. (www.vtpi.org/tdm/tdm34.htm)

*Carsharing* refers to car rental services intended to substitute for private vehicle ownership, making occasional use of a vehicle affordable, even for low-income households, while providing an incentive to minimize driving and rely on alternative travel options as much as possible. (www.vtpi.org/tdm/tdm7.htm)

[61] WAPC State Planning Policy (SPP) 4.2 Activity Centres for Perth and Peel www.planning.wa.gov.au/publications/1178.aspsp

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Parking and transport at the larger Primary, Strategic or Specialised Centres identified in SPP4.2 needs to be planned within a broader context that considers: the requirements of the community to access these centres from across a sub-regional or even the region, the capacity of the road network and public transport services to cater for anticipated demand.

The physical capacity of the existing road system is constrained and has only a limited space for expansion to allow increased private car access to the larger centres at peak traffic periods. This means that the road system will not be able, especially at peak periods, to cater for unconstrained private vehicle access to major centres as they develop further.

The following planning principles, which are derived from the decision[62] of the WA Planning Commission in regards to the Murdoch Activity Centre (MAC), could be used for planning approvals of subdivision and development applications at activity centres. The WA Planning Commission resolved to adopt and apply within the MAC the following requirements relevant to parking:

- The volume of traffic to and from the MAC is to be managed within the capacity of the planned external road network, especially during peak periods. Development approval will be conditional on not exceeding the parking cap for each sub-precinct…

- Staged developments of a sub-precinct need to demonstrate a reasonable need for the proposed parking even though it may not exceed the parking cap.

- An adequate range of parking facilities will be provided and managed having regarded to core business functionality, availability of public transport, road capacity, traffic flow and environmental conditions.

- Parking facilities will be provided and operated to maximise their efficiency in accordance with the following principles:

   - *Sharing:* parking facilities should serve multiple users and destinations in each sub-precinct

   - *Efficient utilisation:* parking facilities should be sized and managed so spaces are frequently occupied

   - *Prioritisation:* the most desirable spaces should be managed to favour higher priority users

   - *Quality:* importance should be placed on aesthetics, security, accessibility and legibility

- Subdivision of land for parking purposes will not be permitted. The landowner is to retain the management of all parking within the precinct and thus no parking bays can be allocated to individual properties as part of any lease agreement.

- Sub-precincts will be required to manage at least 25 per cent of their parking as public and visitor parking (except Murdoch University education precinct).

- The planning approval elements of the policy will not be applied retrospectively to existing parking facilities for which appropriate approvals have been gained. However, where site development or re-development occurs, proposals will be assessed in terms of the policy.

- Off-street parking areas should be located and designed so they are an integral part of the development of the site. Disabled parking and cycling facilities should be visible and conveniently located. Parking facilities can offer a mix of long stay and short stay parking.

- On-street parking areas will be for short stay parking only.

- Landowners will be responsible for developing and maintaining a Parking Management Plan for their site that will work towards achieving the intent of the MAC Parking and Access Policy and any relevant planning approvals.

- Site users and employers will be required to develop and implement Travel Plans. Draft Travel Plans will require to be submitted with all development applications and should include parking pricing strategies and the relativity with other sub-precincts including the Health Departments adopted Access and Parking Policy.

Application of good parking supply and management principles like those immediately above will encourage efficient use of available parking resources as well as influence where, when and who uses the road network. If good parking management principles are balanced with provision of high quality and capacity 'alternative' access options, such as public transport and cycling, good accessibility and mobility outcomes can be achieved.

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[62] Murdoch Activity Centre (MAC) Western Australian Planning Commission Resolution 13 May 2011.

Managing parking, including limits on supply, is intended to encourage those with viable alternative options to change from driving. This in turn reduces demand for parking resources and lessens capacity pressures on our road system. Road space and parking is freed and becomes available for those who consider they need to drive and those that have no choice other than the private car for specific trips.

Parking infrastructure and access points, together with the routes to and from parking facilities, can have a significant impact on the urban form and amenity of urban centres. A car park is generally a hostile environment for pedestrians and cyclists; the number of people living within a short distance of activities is reduced (by the area of the car park and the additional road capacity required); and the overall density of activity and population is reduced making it even more difficult to provide effective public transport at a reasonable cost.

### Key parking issues for local government

*"Local authorities have tended to either provide parking themselves or have required private developers to provide parking, so as to allow self-containment of parking demand on-site. This has generally resulted in uncoordinated parking provision. In addition, parking has also usually been provided on the basis that it should meet maximum levels of demand, leaving many parking spaces under-utilised."* [63]

- *Need for basic data*

   A first critical step for any local government is to collect and maintain basic data as to the location, quantum, types and use of parking.

- *Minimum or maximum parking requirements*

   Local planning schemes generally include minimum requirements for car parking provision. This can result in one of two distinct problems:

   - in existing developed areas, it is often not possible to provide the parking required; and

   - in newly-developing areas, there will be over-provision of parking that, in turn, makes it difficult to provide adequate provision for access by other modes, especially public transport.
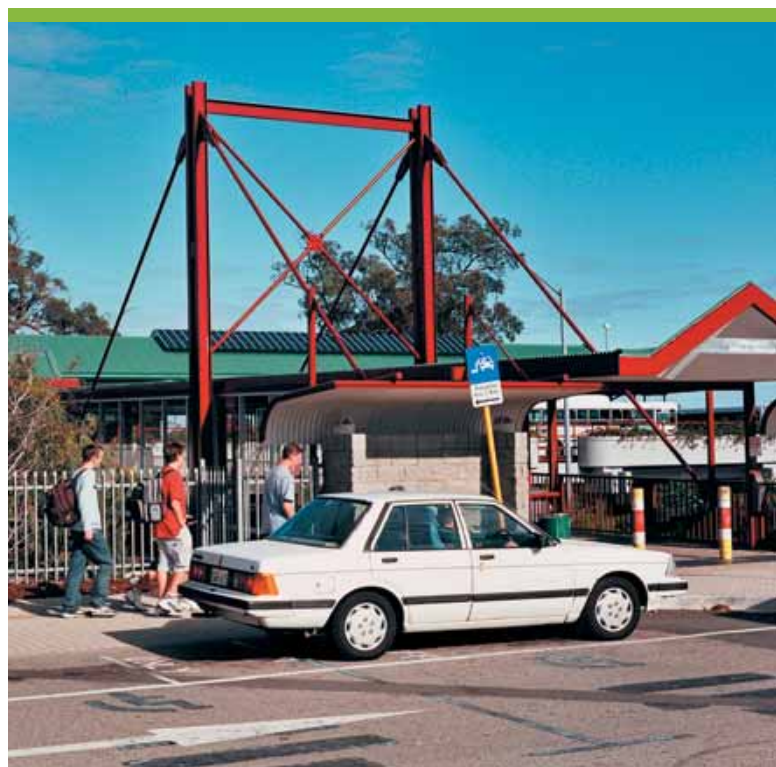
If there is a confidence of the ability of other modes of access to replace the private car to a substantial extent, local governments could set maximum rather than minimum parking requirements. In Western Australia, only the City of Perth has done this – it is, of course, better served by public transport than any other centre in WA. Since the current parking requirements are based on a suburban, maximum-demand situation, in places that have reasonable access by public transport or which have a higher-than average population within cycling or walking distance can be considered for reduced parking supply rates. The City of Vincent, for example, has instituted structured discounts for:

- proximity to train station;
- proximity to bus stops;
- proximity to public car parks;
- provision of bicycle end-of-trip facilities beyond the basic requirements;

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[63] City of Stirling Transport Strategy, 2009   www.stirling.wa.gov.au/Home/Development/Projects/Transport+Strategy.htm

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- where the development is mixed use with at least 45 per cent residential; and

- location in a District Centre (a proxy for a good of activities within easy walking distance of each other).

If all these conditions are met, the parking requirement can be reduced by 65 per cent[64].

Any such reduction must be sensitive to local conditions and the types of businesses. For example, a concentration of businesses with peak demands in the evenings or weekends will often not be effectively served by bus public transport, no matter how good the daytime service.

• *Shared or private parking?*

Parking can be shared. Private parking dedicated to individual properties or businesses makes it difficult for visitors to a centre to utilise the available parking resource and leads to underutilization of spaces provided.

Fragmented parking on a variety of sites, each with its own access, egress and access requirements leads to lack of legibility for users as well as multiplying potential conflicts between cars and pedestrians. Users may not even be aware of where there is parking and multiple vehicle entries and exits reduce the amenity of pedestrian spaces, including footpaths and shop fronts.

Public or shared parking facilities rather than having each building or tenancy providing private off-street parking should be preferred, since each space can serve many users and destinations, especially where there is a range of activities with different peak demands[65].

• *Parking and planning approvals*

Planning approvals should specify not only the quantum of parking but identify specific parking uses such as visitor, disabled or service/delivery that must be catered for. Ensuring that parking of various types is available and used appropriately is the ongoing responsibility of owners, body corporate, tenants and property managers. Local governments,

through use of planning and local law making powers must monitor how parking is being used post development and where necessary can play a role in ensuring that the on-site parking supply is actively managed so as to cater for different access needs.

• *On-street parking*

On-street parking is a valuable community resource that serves a variety of social and economic needs. Local governments need to consider how to achieve a balance between different uses in areas with high and/or competing needs. While no one particular use should, as a rule, be favoured, some special uses such as disabled, service/delivery, public transport and taxis need to be factored into the allocation of spaces. Satisfaction of some of the demand for priority use for on-street parking is very much dependent on an area by area consideration. What is appropriate for a residential area is not necessary the same as for a mixed use activity centre. When considering requests for residential priority for on-street parking local government should carefully consider the impact on businesses and accessibly to services and facilities that attract visitors.

• *Unbundling of residential parking*

Not all residents will want or need on-site motor vehicle parking, whilst others may wish for extra spaces. To meet these different needs consideration should be given to disconnecting the ownership of parking from ownership/control of residential units. This is known as unbundling – that is parking is rented or sold separately, rather than automatically included with ownership or tenancy of a residence. This offers the opportunity to reduce the cost of ownership or renting for those who do not want or need residential parking and allows those who desire extra parking to purchase or lease this within the development.

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[64] *Parking and Access.* Planning and Building Policy 3.7.1. City of Vincent: Perth, Western Australia.
www.vincent.wa.gov.au/Services/Parking_in_Vincent

[65] *Sharing Parking Facilities Among Multiple Users.* Victoria Transport Policy Institute. www.vtpi.org/tdm/tdm89.htm and

*Parking Management.* Todd Litman. Victoria Transport Policy Institute: Victoria BC, Canada. www.vtpi.org/park_man.pdf

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- *Charging for parking*

  Car parking is never free, but who pays for it can have a strong influence on how people access activities (particularly in centres) and on the amenity and economic performance of a centre[66].

  Charging the user for car parking is common practice in places where parking supply is limited. There is sometimes a fear amongst business people and planners that charging the user for parking will drive them away from that place to another place where parking is not charged. Experience demonstrates that charging for parking, provided charges are set at an appropriate level, does not drive people away as the local amenity is often improved.

## Cash-in-lieu for parking

Cash-in-lieu for car parking is an approach to parking supply that should be considered, where: the desirable amount of parking cannot be provided on-site; shared parking is being encouraged to enhance the development of a centre of activity; or alternative forms of access to the private car are both feasible and desirable but require enhancement to be effective.

Local governments should develop access and parking plan or strategy that identifies land for proposed parking facilities and/or access alternatives such as public transport that will be funded by the monies received. Cash-in-lieu should be paid to a specific fund that allows the receipt and expenditure of monies to be tracked and accounted for in an open manner. This is to ensure that these funds are spent for the purposes related to parking and access. Simply collecting money with no long-term plan as to how the parking is to be supplied or access to the centre improved is not appropriate.

Cash-in-lieu is a mechanism that has been employed by councils in Perth and elsewhere in Australia for many years to provide for the access needs in a particular area. Cash-in-Lieu is particularly beneficial where parking needs to be limited and funds are required for alternative forms of access, such as public transport. It can also be beneficial to small commercial developments or retail outlets, where physically it is both impractical and expensive to provide off–street private parking. In these instances, the cash-in-lieu can be used for provision of public transport, walking or cycling provision or for a combination of public parking and public transport.

Cash-in-lieu payment should as a rule, not be less than the estimated cost to the owner/developer of constructing a parking facility sufficient to make up the deficiency of parking spaces required and the value of the land which would have been occupied by the parking spaces. The estimate for the construction cost should be based on the assumption that the parking would be provided in a decked structure and include all works necessary such as lighting, signage, line marking and landscaping. The area of land needed should be deemed as 27 square metres per bay but only included in the calculation for the first level of parking in a multi-decked structure.

Any parking bays provided as a result of cash-in-lieu contributions should be public.



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[66] Donald Shoup, *The High Cost of Free Parking,* Chicago: Planners Press, 2005.

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### Business Improvement Districts (BIDs) and Parking Benefit Districts

A *Business Improvement District* (BID) is a defined area within which businesses pay an additional tax or fee in order to fund improvements within the district's boundaries. This fee is usually a property-related levy on businesses (including special rates) but can include levies on parking spaces. A BID is similar to a *Parking Benefit District* (PBD) but is not limited to parking as its source of revenue.

BIDs provide services, such as cleaning streets, providing security, making capital improvements, and marketing the area where these are not already provided by the municipality. A BID is not a vehicle for shifting costs from the local government onto the business community but a means of enhancing the amenity of an area and the viability of businesses located in it. The revenues of a BID can also be used to improve the quality of the parking environment and experience, to some extent replacing a focus on the quantity of parking with one on its quality, including the impact on amenity.

The best-known BID in Australia is *Central Geelong Marketing* (www.centralgeelong.com.au), which was established as a Special Committee of the City of Greater Geelong Council, under Section 86 of the Victorian *Local Government Act 1989* with delegated responsibility for the expenditure of the funds raised by a Special Rate Scheme. This committee comprises of 13 members, either elected from the rate-paying community or nominated by various stakeholder bodies.

Central Geelong Marketing's Mission Statement is: *The role of the Central Geelong Marketing Committee is to, market and promote Central Geelong in a coordinated and integrated manner aimed at enhancing its economic and social viability and its general amenity, making it an exciting, and vibrant focus for the whole of the Geelong region.*

Whilst Central Geelong Marketing has a primary focus on promotion and business development, others include infrastructure and service improvements that would not otherwise be provided by the local government.

Parking charge revenue can actively be used to enhance amenity, making a place more attractive. This is especially effective where linkages between parking revenues and amenity enhancement are formalised in a Parking Benefit District or, more broadly, a Business Improvement District.

The City of Perth is effectively a Parking Benefit District, with revenues from licence fees on parking spaces being dedicated to provision of the CAT (Central Area Transit) and Free Transit Zone public transport in the City centre and, also, the potential to use those revenues to enhance other forms of access to and within the City of Perth.

## 4.2 Evaluation and review of integrated transport plans

Evaluation and review is an essential component of the integrated transport plan's life, to ensure that stated plans effectively address their objectives and respond to changing circumstances.

When done well, an integrated transport plan is likely to fundamentally change some of the ways in which travel and related activities are organised in an area.

Conventional assessment is most likely to be incremental and is best-placed to answer the question: 'How do we improve what we have?', while an improved assessment will be more complete and strategic to answer the more important question: 'How do we provide what we need?'.

Infrastructure Australia proposes the following issues to be addressed during options assessment[67]:

- submit a robust and objective benefit-cost analysis, which is supported by strong evidence;
- consider as many monetised economic benefits and costs as possible;
- consider non-monetised benefits and costs;
- consider both the overall efficiency of an initiative (the combined scale of benefits and costs), as well as its equity and distributional impacts; and
- consider issues of risk and uncertainty.

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[67] *Better Infrastructure Decision-Making: Guidelines for making submissions to Infrastructure Australia's infrastructure planning process, through Infrastructure Australia's Reform and Investment Framework,* Infrastructure Australia.

### 4.2.1 What is the value of a project or initiative?

The terms 'evaluation' and 'assessment' are often synonymous but in practice, 'evaluation' is likely to be more prescriptive and quantitative than 'assessment'. Collectively, the terms can be defined as methods of appraisal since their function is to indicate the value of a project or initiative and whether the outcomes are sufficient to justify the cost.

Evaluation or assessment may be undertaken before an initiative is undertaken, to assess its probable value, or after, to assess its actual achievements. For infrastructure projects, it is often undertaken in terms of benefit-cost analysis, which measures those outcomes on which a monetary value can be placed and the methodology may be specified or guidelines provided by the funding agency[68]. In doing so, pre-eminence is given to the economic outcomes over the environmental and, particularly, the social outcomes.

Increasingly, however, we need to account for diverse economic, social and environmental objectives and outcomes for transport projects. For example, major road projects will often state objectives in relation to:

- transport – such as reducing traffic in congested areas, improving access by other means, reducing traffic on local streets and reducing road trauma;

- land use planning – such as minimising planning blight, providing a catalyst for redevelopment and maintaining economic activity; and

- social, environmental and economic – such as encouraging inner city living, heritage retention, enhancing amenity, improving equity of access and minimising air and noise pollution.

The evaluation response, however, has usually been poor in terms of measuring those impacts that are not direct transport ones, such as travel time and travel costs. Moreover, even where broader impacts are quantified, the evaluator usually attempts to reduce these to a single cardinal or ordinal measure, either in:

- benefit-cost analysis, in which all things are reduced to a monetary equivalent; or
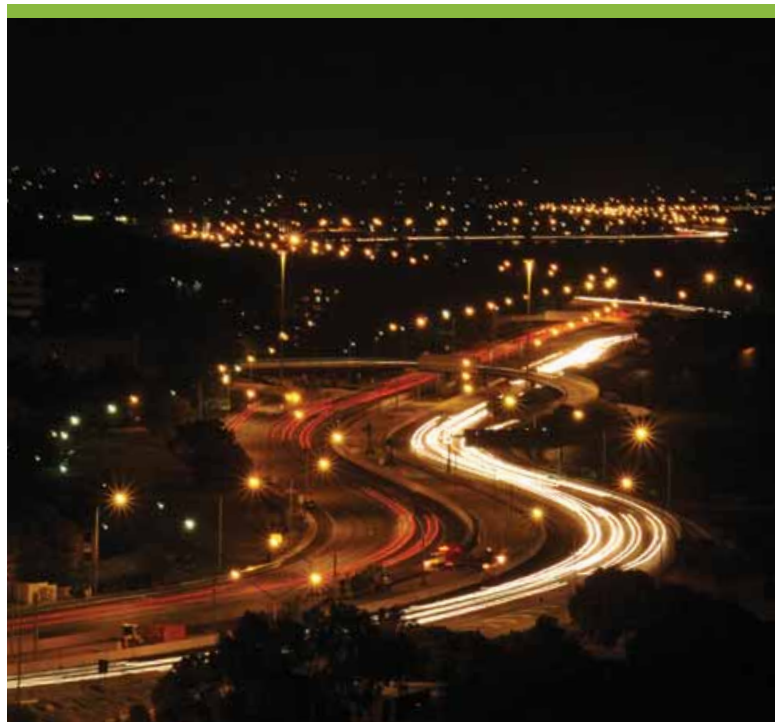
- multi-criteria analysis, in which a range of criteria are weighted to produce a ranking of projects for decision-making purposes.

For benefit-cost analysis, there is a wide range of direct impacts of travel that should be incorporated:

- vehicle operating costs – car, public transport and cycling;

- car parking costs, especially in centres of activity where car parking is a scarce resource;

- road traffic congestion;

- road trauma;

- environmental externalities, of which the major ones are greenhouse gas emissions and air pollution;

- social externalities, including community severance and social exclusion; and

- health and fitness, including both mortality and morbidity (well being/quality of life).

The last two impacts are rarely able to be included adequately in the benefit-cost analysis because there is insufficient information in a form that can be translated

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[68] *National Guidelines for Transport System Management in Australia: Part 3 Appraisal of Initiatives.* Australian Transport Council: Canberra, Australia. www.atcouncil.gov.au/documents/NGTSM.aspx

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into monetary values. In general terms, however, it can be stated that the private car is responsible for negatives in these areas and active transport modes (principally walking and cycling, but also, to some extent, public transport) produce positive beneficial outcomes.

In most transport evaluations, the cost of car parking is not included, despite modal change having substantial potential impacts on the demand for car parking. In part, this is because car parking is required to be provided at specified rates under local planning schemes, so modal shift is unlikely to have an impact on the level of provision, at least in the short-medium term. In the case of the larger activity centres with shared public parking, however, it has to be acknowledged that car parking is both in short supply and that supply can be varied. In the age of the triple bottom line, sustainability assessment and whole-of-government performance measurement, both benefit-cost and multi-criteria analyses are limited in that a very large amount of information is lost in the process of measurement and aggregation.

The alterative of some form of Goals Achievement Matrix is rarely considered by technocrats on the grounds that it is too difficult to interpret and does not give unique and clear results. The *National Guidelines for Transport System Management in Australia have developed the Appraisal Summary Table*[69] in transport, which summarises information on a range of economic, environmental and social impacts, showing both monetised and non-monetised impacts.

In principle, the Appraisal Summary Table allows decision-makers to decide subjectively if the combined monetised and non-monetised impacts suggest that there would be a net benefit from the initiative.

The Appraisal Summary Table is effectively a goals achievement matrix. In the United Kingdom, the table is the core of the integrated assessment process[70].

This form of disaggregated presentation of impacts has been demonstrated to have a systematic and transparent influence on decision-making. It can be difficult to construct a clear picture from such a table, however, and an alternative form of presentation can

be useful. A simple graphical representation of a six-criterion Appraisal Summary Table – strategic, economic, environment, social (amenity, people and communities), safety and governance (readiness for implementation) is found to be a useful aid to interpretation (Table 10).

The role of presentation is to clarify information and support decision-making, not to make the decisions, but however information is presented, there is likely to be a range of views on how it should be interpreted. These views need to be heard and, where possible, reconciled as part of the decision-making process, but this is an often-neglected aspect of inclusivity in the planning process. Two useful methods for introducing inclusivity into evaluation are:

• the Delphi Process, which is an iterative process used to collect and distill the judgments of individuals or organisations using a series of questionnaires interspersed with feedback; and

• facilitated workshops, in which participants are exposed to the range of views and are able to modify their own views in a 'non-threatening' environment.

Both these processes have been used at different stages of the evaluation for the Eastern Metropolitan Regional Integrated Transport Strategy.

### 4.2.2 Whose value?

In most cases, evaluation and assessment are based on technical information and professional judgment. While this is important to informed decision-making, we should not assume that such assessments capture and reflect all of the values of the community and stakeholders.

If stakeholders have been included throughout the integrated transport planning process, they should be able to interpret the technical information from the community/stakeholder point of view in an informed way. It is essential that such a process with stakeholders be independent of the team carrying out the planning and professionally facilitated to ensure that stakeholder responses are informed but not unduly influenced.

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[69] *National Guidelines for Transport System Management in Australia: Part 3 Appraisal of Initiatives*
www.atcouncil.gov.au/documents/files/National_Guidelines_Volume_3.pdf

[70] *Appraisal.* Transport Analysis Guidance, Unit 3.2. Department for Transport: London, England. www.dft.gov.uk/webtag/documents/expert/unit3.2d.php

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## Table 10 – Illustrative Summary Appraisal

| Name of initiative | Funds | 09/10 | 10/11 | 11/12 | 12/13 | Total: |
|---|---|---|---|---|---|---|
| **Problem** | | | | | | |
| **Description** | | | | | | |
| **Base case** | | | | | | |
| **Other option** | | | | | | |
| **SA's Strategic Plan Targets** | | | | | | |

| SA's strategic plan objectives | Impacts | Qualitative description | Quantitative measure | Assessment | Confidence |
|---|---|---|---|---|---|
| | Capital cost | | | | |
| | Infra. maintenance cost | | | | |
| | Infra operating cost | | | | |
| **Economic** <br> - Growing prosperity <br> - Fostering creativity | Journey times | | | | |
| | Vehicle operating cost | | | | |
| | Reliability | | | | |
| | Regeneration | | | | |
| | etc | | | | |
| **Social** <br> - Improving wellbeing <br> - Building communities <br> - Expanding opportunities | Crashes | | | | |
| | Public security | | | | |
| | Access to public transport | | | | |
| | Severance | | | | |
| | Pedestrian and cyclists | | | | |
| | etc | | | | |
| **Environmental** <br> - Achieving sustainability | Greenhouse | | | | |
| | Noise | | | | |
| | Local air quality | | | | |
| | Landscape | | | | |
| | Biodiversity | | | | |
| | Heritage | | | | |
| | Water | | | | |
| **Benefit – cost analysis results** | PVB = $XXXm; PVC = $YYYm; NPV = $ZZZm; NPV/K = A.A; BCR = B.B | | | | |

Source: *National Guidelines for Transport System Management in Australia:* Appraisal of Initiatives, Part 3, Page 40, Australian Transport Council.

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In many ways, this is a test of the process followed so far. Large or apparently random variations between the technical and stakeholders assessments might suggest that either:

- those doing the planning had not adequately communicated to stakeholders the ways in which their conclusions had been reached; or

- the aspirations, expectations and concerns of stakeholders had not been appropriately incorporated into the identification of issues and development of responses to them.

In either case, this is likely to be a problem for the acceptance and implementation of the integrated transport plan. It is better to find this out now, before finalisation of the plan, than when implementation is not going well.

### 4.2.3 Monitoring achievement

When using quantitative and measurable targets, it is useful to be able to present actual achievements in a single form. A 'spider diagram' is a simple and powerful way of doing so. Figure 30 uses the *Metropolitan Transport Strategy, 1995-2029* targets as an example,

with hypothetical data and works equally well when the targets are not related to each other, provided they can be represented on a numerical scale. This form of presentation allows areas of under-performance to be identified and further consideration given to why this is so and how the problem can be addressed.

## 4.3 Integrating planning and implementation

The development of an integrated transport plan is the end of the beginning, not the end. The plan itself must include and action or implementation plan that describes:

- what is to be done;
- by whom it is to be done; and
- when it is to be done.

This implementation plan should be related to resourcing and decision-making in the stakeholder organisations, including budgeting and program management, especially where this runs across existing elements in the organisation or across more than one organisation.

**Figure 30 – Measuring achievement against targets with a spider diagram**



Source: 'CATALYST'/'Sinclair Knight Merz' Consultants.

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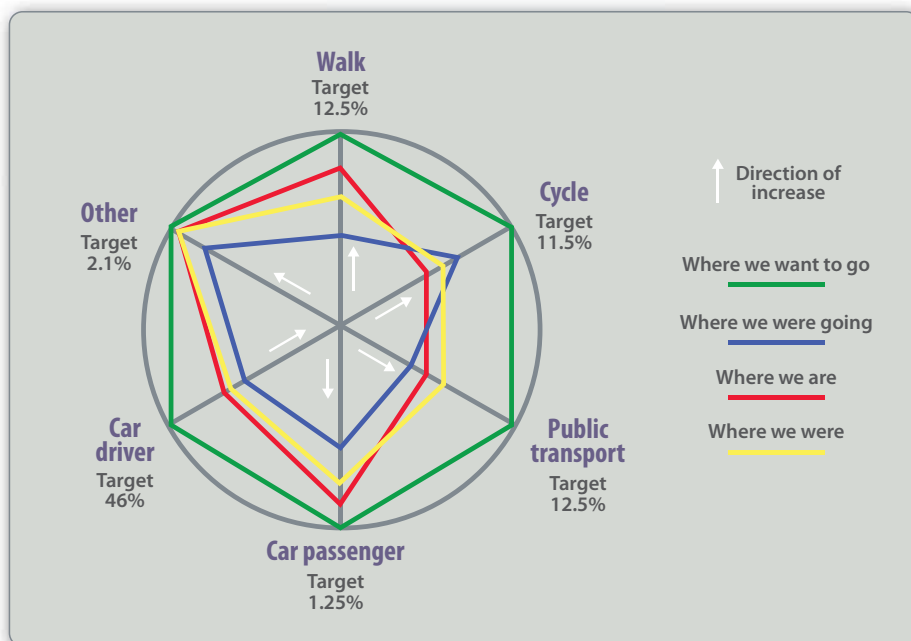
Just as a project manager is required for the planning stage, so there should be an identified 'implementation manager' to keep the process on track and, where problems arise, to address them in a timely manner.

### 4.3.1  Seamless transition – Handing over the baton

The planning started from an understanding of what the community and key stakeholders want for their future. Planning is only of value to the extent to which it leads to or influences actions that support the achievement of the community's desired future.

At least some of the implementation will depend upon the continued support and goodwill of agencies and organisation outside those directly responsible for developing the plan. With an effective process for development of the integrated transport plan, these agencies will already have been involved in the process, but this is not a guarantee of translation through to implementation.

- Celebrate completion of the plan with those who have contributed to its development.
- Acknowledge the contributions of individuals and organisations.
- Assure them that, whilst the plan is complete, the process continues.
- Hand over the baton to make sure that those with responsibilities for implementation, review and updating the plan are fully aware of this fact.

### 4.3.2 Funding

Often new types of initiatives have no obvious existing funding source, but this should not prevent integrated transport planning from demonstrating the value of such initiatives to the community.

Funding sources will vary from time to time and to some extent from place to place. Local government should seek advice from the Department of Transport or the WA Local Government Association at the appropriate time. The 'appropriate time' is during, rather than after, the planning process, as the potential for funding may influence how to define actions and projects.

It is also encouraged to investigate the potential for private sector partnerships, especially where there are clearly-identifiable benefits to defined private sector interests.

Non-metropolitan integrated transport plans may be able to qualify for funding under the State Government 'Royalties for Regions' initiative[71], which includes the:

- Country Local Government Fund to assist country local governments build and maintain their community infrastructure;
- Regional Community Services Fund to improve the access to services in the regions. It supports services that have shown they are effective in enhancing the quality of life for residents in regional areas and in providing better access to government services and infrastructure; and
- Regional Infrastructure and Headworks Fund to support large-scale, strategic regional infrastructure and headworks projects that are acknowledged as being of strategic importance to Western Australia, apply broadly across a region and do not fall neatly into the responsibilities of one State Government department or local government for implementation.

Federal and State government funding programs specifically for transport and infrastructure (such as Infrastructure Australia) tend to focus on major projects, so it is essential to integrate as many elements as possible into funding applications. Integrated transport plans that cover regions rather than a single local government are likely to be better-placed to identify projects large enough to qualify for funding from such sources.

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[71] *Royalties for Regions.* Government of Western Australia. www.royaltiesforregions.wa.gov.au

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Funding sources for actions and initiatives resulting from an integrated transport plan are likely to be fragmented. Such sources will vary from time to time, especially at federal and state government level, but it is important at all levels to continue the integration philosophy through funding as part of implementation. In particular, be sure to incorporate the detail into larger projects.

For example:

- walking and cycling should always be an integral part of road projects;
- transport and access considerations for major development projects should always include walking, cycle and public transport; and
- recreation infrastructure projects (parks, recreational trails, etc) should always have regard to the potential for local (and in some cases longer-distance) access to destinations as well as recreation.

There are funding sources for smaller-scale, lower-cost initiatives, including:

- bicycle infrastructure and other initiatives www.transport.wa.gov.au/activetransport/25722. asp#23542; and  www.transport.wa.gov.au/activetransport/24018.asp;
- walking initiatives  www.transport.wa.gov.au/activetransport/24021.asp;
- travel behaviour change in community, school or workplace settings  www.transport.wa.gov.au/activetransport/24605.asp;
- road safety improvements through engineering measures that may be eligible for funding through the State  www.mainroads.wa.gov.au/UnderstandingRoads/RoadSafety/BlackSpotProgram/Pages/BlackSpotProgramHome.aspx; and
- Federal Black Spot programs www.nationbuildingprogram.gov.au/funding/blackspots/index.aspx; and  www.mainroads.wa.gov.au/UnderstandingRoads/RoadSafety/BlackSpotProgram/Pages/national_approved.aspx; and  www.alga.asn.au/?ID=7258.

### 4.3.3  Be prepared – Create space for opportunistic implementation

Forecasts are often wrong, yet they are a critical part of business planning, management, and strategy[72]. It is common of any activity that involves trying to understand and forecast the future that it is most likely to be wrong. This is not a negative statement, it is simply the reality that the future is uncertain.

The future is more uncertain when one objective of a plan is to change the way things are managed at present. By definition, we do not have the same experience with, and therefore confidence, in the outcomes of new ways of managing transport and access issues and problems.

It could be easy to develop too much confidence in the integrated transport plan or its forecasts, especially after investing substantial time, effort and money in its development. However, it should not be expected to anticipate every circumstance that might arise in the future.

One of the uncertainties is when opportunities will arise for implementation (including funding) of components of the integrated transport plan.  A part of the implementation stage should be to maintain a watching brief on opportunities that have not been foreseen at the time the planning has been developed and, to the extent possible, ensure that the implementation program is flexible enough to accommodate changes and take advantage of the presented opportunities.

An important part of implementing an integrated transport plan is to keep the external environment under review, partly, as outlined in Section 4.2, to ensure that the plan, strategies and actions keep on track to achieve the objectives, but also to identify opportunities than could enhance the effectiveness of the plan. Being flexible and opportunistic adds to the robustness of the integrated transport plan by minimising the possibility of not being able to implement key elements because implementation and funding opportunities have been missed.

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[72] www.practicalforecasting.com

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# GUIDANCE

# Part 5 –
# Consultation &
# partnership

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# 5.0  Summary – Part 5

The key to successful integrated transport planning is a comprehensive and inclusive approach to identifying problems and solutions, not just from a transport perspective but also from the point of view of the wellbeing of the community – with a particular focus on how it is serviced by transport.

Experience in the preparation of integrated transport plans demonstrates the value of an inclusive approach to establishing dimensions, parameters and vision for the integrated transport planning process.

It is important that the consultation held to achieve this is both informed and interactive:

- *informed* – so that the outcomes are based on a shared and realistic view of the current situation; and

- *interactive* – so that all those participating have a real opportunity to shape the plan and its development.

Community involvement can play an important role in identifying and understanding important transport issues from the perspective of those directly affected by them and in developing of agreed transport solutions for implementation programs.

The consultation process for an integrated transport plan requires community and stakeholder input on issues regarding all aspects of the transport system or other areas interacting with transport within a specific local area. The local community and stakeholders are usually invited to comment on any existing transport problems and issues. While local residents acknowledge the value of a vision for an integrated transport plan, they do not always acknowledge the need for local government intervention.

Consultation with the community and stakeholders should be a continuing feature of the development, implementation and review stages of integrated transport plans. Effective consultation gives credibility to the process and the final stages of a plan, but the required scale and form of consultation will vary depending of its type and nature.

Any consultation will bring out a range of issues and suggestions. While some of these will be too detailed or localised to be addressed in the integrated transport plan, it is essential they are not disregarded. Such issues should also be considered and referred to the appropriate authority for response and action, and provide feedback to the person who raised the issue.

An Integrated Transport Planning Partnering Agreement (a State and local government initiative) was put in place in 2001 -

*"to bring together Perth's local government authorities and relevant State government agencies to discuss opportunities to improve the approach to metropolitan transport planning. It records the commitment of state and local government to work together to achieve shared strategic transport objectives and sound transport planning outcomes for Western Australia".*

The agreement endorses common goals of State Government agencies and local governments in the Perth metropolitan area for integrated transport planning, to maximise benefits for an effective metropolitan transport system. Good practice and case studies of integrated transport plans undertaken in the Perth metropolitan areas show that plans do work where there is a partnering agreement in place from the beginning of the process for developing an integrated transport plan.

The more strategic partnering agreements between the State Government agencies and local government elected members commitments there are in place from the beginning of the process, the better it is for the final success of the integrated transport plan at its implementation stage. The result is producing a final integrated transport plan as an agreed transport plan, which is ready to be implemented.

The major transport portfolio players (Department of Transport, Main Roads WA and Public Transport Authority) should be involved as key stakeholders during all stages of integrated transport planning. Without this, it will be difficult to develop the level of agreement and compromise between organisations that will be necessary to develop a plan that has a high level of stakeholder acceptance and, as a result, a good prospect of being implemented.

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In addition to embedding the integrated transport plan recommendations and actions in the stakeholder organisations, it is important to create a continuing forum for consideration of the effectiveness of implementation and the extent to which changes in circumstances (including experience with implementation) may make updating and changes to the original plan desirable.

The nature of integrated transport plans is that while there are likely to be directions that are common, the component strategies will depend on the specific situations. That is one of the reasons why inclusiveness is such an important principle to be applied at all stages of the plan's development and implementation.

## 5.1 Before the integrated transport plan

The key to a successful integrated transport plan is in ensuring a comprehensive and inclusive approach to identifying problems and solutions, not just from a transport perspective but also from the point of view of the wellbeing of the community, with a particular focus on how it is serviced by transport.

This approach must start 'at home', with the organisation(s) undertaking the integrated transport planning process, involving all areas of its own activity, not just those directly involved in planning and transport. This can best be achieved by establishing a steering group from across the local government, although the direct responsibility for the plan will usually rest with one or two specific areas within the organisation.

Successful implementation of the integrated transport plan should be a primary goal in its development. As part of the integrated transport plan initiation, local governments should seek to establish financial partnerships for its preparation and, where possible, its implementation.

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It is important to establish early partnerships with neighbouring local governments, particularly those also engaged in the preparation of regional integrated transport plans. Collaborative sharing of common transport issues and agreement on key transport priorities throughout the development process of an integrated transport plan can benefit economic development across the respective areas and communities of the local government alliance.

Experience in preparing integrated transport plans proves the value of an inclusive approach to establishing dimensions, parameters and a vision for the integrated transport plan process. Workshops facilitated to develop these should be:

- *informed* – so that the outcomes are based on a shared and realistic view of the current situation; and

- *interactive* – so that all those participating have a real opportunity to shape the plan and its development.

It is recommended that these workshops be professionally facilitated, preferably by non-transport people who are able to acknowledge and integrate the wide range of issues and concerns that are likely to be raised.

The development of a good city in which to live and conduct business is about more than just creating a transport system to service certain activities and land uses. It is essential therefore to identify key stakeholders and involve them in the planning process from the very beginning. There may be many interested stakeholders and it is best to include as many people or groups that want to be involved as possible. Potential stakeholders include:

- elected councillors;
- council staff from various disciplines – planning, engineering, environment, sustainability and health;
- State government agencies;
- business groups;
- community groups;
- professional groups;
- environmental groups;
- health organisations; and
- local people with an interest in or expertise in city and transport planning, and community development.

It will be beneficial to tailor workshops for selected key stakeholders to involve them in developing principles on which the integrated transport plan will be based. This will be a good time to find out what specific interest groups want for the future of the area and to discuss how transport solutions might benefit their areas of interest. Discussions with the major stakeholder groups should focus on the lifestyle and type of future they desire for themselves and their children, and on how an integrated transport plan and land use initiatives can help achieve this for the local area.

At this early stage, it is quite likely that matters will be raised that are outside the scope of the integrated transport plan. It is essential that these are acknowledged, recorded and referred to the appropriate organisation or people for further response and resolution.

## 5.2 Consultation for integrated transport plans

Community involvement in integrated transport planning has an important role in identifying and understanding important transport issues from the perspective of those directly affected by them, and in developing agreed transport solutions for implementation programs.

The main value of effective consultation is to reach a shared understanding of the community's aspirations for the future transport system and of the ways to achieve that future. Keeping the community and key stakeholders informed throughout the integrated transport planning process therefore must involve more than one-way communication.

Understanding what is important to the community and other key stakeholders is central to developing an effective assessment and evaluation methodology of an integrated transport plan. This will, in turn, improve community support for the integrated transport plan's recommended actions and provide information on implementation (including funding) proposals.

Community consultation is about establishing a dialogue with and between state and local government agencies, community, industry and various stakeholder groups to best develop and support the implementation of an integrated transport plan (Table 11).

From the start of the process, extensive community consultation is critical in order to develop a true understanding of community issues, the existing transport system and what is needed to improve quality of life through better transport options.

The consultation should be a continuing feature of the development, implementation and review stages of the integrated transport plan. In some cases, such as the *Eastern Metropolitan Region Integrated Transport Strategy 2007*[1], stakeholders have a direct role in prioritising strategies and actions, with very positive results.

Effective consultation gives credibility to the process and the final stages of an integrated transport plan, but the required level and form of consultation will vary depending on the nature and scale of the plan. For example:

• Small-scale local area or issue-specific integrated transport plans lend themselves to direct consultation with residents and businesses directly affected by the plan.

• Larger local area, but still single local government integrated transport plans may be able to use existing local government consultation structures and processes such as precinct or ratepayer groups; however, consultation for such a plan is more likely to focus on local area transport issues, however it should also consider cross-regional transport matters.

• Integrated transport plans or strategies for partnerships and local governments groups involve more complex (cross-regional and regional) transport and broader strategic issues.

The consultation process should be tailored to the scale and needs of the particular integrated transport plan.

Any consultation will bring out a range of issues and suggestions. While some of these will be too detailed or localised to be addressed in the integrated transport plan, it is essential they are not disregarded. Such issues should also be considered and referred to the appropriate authority for response and action, and provide feedback to the person who raised the issue.

## Table 11 – Considerations for designing and implementing a consultation strategy

Local government may be able to use existing consultation or involvement networks and processes, provided these are not too identified with particular points of view or negative connotations regarding transport and any related issues.

Direct community consultation may not be feasible or effective for large local government areas, collaborations between local governments and more complex integrated transport plans.

Most people do not fully understand 'who' does 'what'. E.g. State and local government responsibilities for transport planning and infrastructure provision.

The community does not always have a good understanding of strategic transport planning, and people often want immediate change rather than discussing long-term transport improvements. It will take time to inform the community and for it to contribute effectively to planning.

There are risks associated with direct community consultation and public meetings. Consultation of this type needs a good facilitator to keep it manageable, productive and to complete required tasks in a reasonable timeframe. Emotions can run high if facilitators cannot establish an open discussion environment to share all views expressed.

Perceptions and reality are not necessarily the same. Wherever possible, misperceptions – whether about problems and issues, or opportunities and their impacts, should be resolved early in the planning and consultation process.

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[1] *Eastern Metropolitan Region Integrated Transport Strategy (2007)*
www.emrc.org.au/regional-integrated-transport-strategy.html

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It is important to work with key stakeholders individually and collectively – for example in stakeholder workshops – to identify key transport issues and to test the likely effects of strategies on them. Many of the issues raised would vary depending on the views of the stakeholders involved. Divergent perspectives on key issues would need to be further articulated through stakeholder discussions and meetings. Involving the main stakeholders in the actual assessment and prioritisation of issues (rather than seeing them as purely technical tasks undertaken by transport professionals) is a very powerful consultation exercise.

The initial consultation process via surveys, workshops and meetings should clarify what people want and identify their issues of concern. It is important to further analyse, determine and address what the key transport needs and priorities are for local or regional areas, and the emerging challenges and opportunities required to resolve them. The tasks of moving people and goods where they need to go vary greatly from area to area and are based on an area's specific social, economic and environmental characteristics. Transport solutions will depend on the physical environment, the nature of the transport tasks and the type of travel demands for the area.

There is a need to assess and analyse the initial information obtained in the 'Issues and Options' report, and to summarise and articulate issues for resolving and suggestions for future transport options. Further advice on the report should then be obtained from stakeholders, individuals and community-interest groups. Feedback from this consultation will help to group and prioritise initial concerns (excluding those beyond the aim of the integrated transport plan), identify key strategic transport issues and opportunities for the local area. Each transport mode is equally important for the integrated transport planning approach and should be assessed to ensure it meets both travel demands roles and community needs.

Further joint consultation with main stakeholders could be facilitated to target specific transport issues to ensure a common vision and to help develop the integrated transport plan. Specifying actions and obligations for local government and stakeholders and involving them in the decision-making processes of local councils is very important for the success of the plan's implementation stage.

The draft plan should be presented to stakeholders and the general public in a way that is easily accessible. Copies of the draft integrated transport plan (including supporting reports and technical analysis) should be publicly available on the internet during the initial development stage to show its vision and key principles, and to encourage comment. This will help achieve broader ownership and acceptance by stakeholders and the community at later stages.

The final agreed integrated transport plan should be a living document, with information progressively provided on implementations of recommended actions, benefits achieved, and possible changes to the plan. The designated integrated transport plan website or webpage should be designed to maintain interest and encourage community support and ownership. Consideration can be given to a menu-based approach to website information if possible.

## 5.3  Consulting effectively

Upfront consultation is important to establish a broader community vision and understanding of key transport issues and objectives. Awareness of the community view is very important for success of the integrated transport plan's processes. The degree of community consultation depends of the size of the scope of works and the complexity of future projects. Overlooking community views could be dangerous to the development of the plan while no upfront consultation could lead to a change of scope of works later. A poor scope of works may lead to cost implications for future transport projects identified by the integrated transport plan.

The consultation process for an integrated transport plan requires community and stakeholder input on issues regarding all aspects of the transport system or other issues interacting with transport within a specific local area. The local community and stakeholders are usually invited and asked to comment on any existing transport problems and issues. While local residents acknowledge the value of a vision for an integrated transport plan, they do not always acknowledge the need for local government intervention (Table 12).

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## Table 12 – Effective consultation methods

**Interviews and discussions with community, residents and business target groups** – face-to-face meetings with stakeholders to gain information. Provides opportunity for in-depth information exchange and to obtain feedback from stakeholders.

**Reply-paid mail questionnaire community surveys** – survey /questionnaire should be professionally developed. Most suitable for general attitudinal surveys. Provides input from cross-sections of the public, not just activists. Could be labour intensive and expensive.

**Telephone surveys** – random sampling of population by telephone to gain specific information. Provides input from individuals who would be unlikely to attend meetings. Higher response rate than with mail-in surveys. More expensive and labour intensive than mailed surveys.

**Interactive website seeking information and input on different issues** – web-based response polls. Provides input from individuals. Generally provides statistically invalid results.

**Newspaper advertisements** – provides community-wide distribution of information. Provides opportunity to include public comment forum.

**Workshops with focus groups and local community groups** – an informal public meeting that may include presentations, but ends with interactive working groups. Foster one-to-one communication. Builds credibility. Maximises feedback obtained from participants. Foster public ownership in solving the problem. Several small-group facilitators are necessary.

**Community meetings and forums** – open space meetings. Set up the meeting to be welcoming and receptive as possible to ideas and opinions and to increase interaction between technical staff and the public. Participants hear relevant information and have the opportunity to ask questions. It is possible that meeting escalates out of control because of loud voices and high emotions. Requires a good meeting facilitator.

**Stakeholder discussions** – important to have a powerful theme or vision statement to generate topics. Gives people opportunity and responsibility to create valuable experience. Includes immediate summary of discussion.

Responses are different from individuals and community groups. Therefore, the consultation methods should be tailored to the specific needs of targeted groups and type of data, which has to be collected in order to give a realistic description of existing transport system problems and issues within the area.

Source: International Association for Public Participation (IAP2).

Table 13 shows the IAP2 Spectrum of Public Participation. More information on the consultation process, including a public participation toolbox, can be obtained from the International Association for Public Participation (IAP2) website http://iap2.affiniscape.com.

## 5.4  Partnership

Cooperation and partnership with the different levels of government, community and major stakeholders is vital to the success of the integrated transport plan.

An *Integrated Transport Planning Partnering Agreement (A State and Local Government Initiative)* was put in place in 2001 "to bring together Perth's local government authorities and relevant State government agencies to discuss opportunities to improve the approach to metropolitan transport planning".

This agreement records the commitment of state and local government to work together to achieve shared strategic transport objectives and sound transport planning outcomes for Western Australia. It endorses common goals of local governments in the Perth metropolitan area and state government agencies for integrated transport planning to maximise benefits for an effective metropolitan transport system.

The shared principles of the above agreement are still valid and applicable to current and future integrated transport plan initiatives in the Perth metropolitan area. Partners to this agreement are committed to and value:

- the broad concepts of sustainable community development;
- participative planning processes that enable stakeholders to make informed contributions;
- a consensus style of decision making supported by a sharing of information based on sound data and analysis;
- promoting improved working relationships through a co-operative, team approach to problem solving;
- honesty in all dealings with open communication at all times;
- understanding the needs and respecting the values of all stakeholder groups; and
- producing cost-effective outcomes that have stakeholder commitment to implement.

Good practice and case studies of integrated transport plans undertaken in the Perth metropolitan area show that plans do work where there is a partnering agreement in place from the beginning of the process. Partnering agreements with all key stakeholders, state government agencies and local councils are necessary at the beginning of the planning process to better ensure successful implementation of the final integrated transport plan.

Partnered integrated transport planning is based upon a:

- process agreed by key stakeholders and documented in a project plan;
- participative approach to community consultation;
- clearly defined group of project roles and responsibilities;
- team approach to developing agreed outcomes;
- desire to resolve project matters through consensus; and
- commitment to implement agreed outcomes.

The major transport planning agencies in Western Australia (Department of Transport, Main Roads WA, Public Transport Authority and Department of Planning) should be involved as key stakeholders during all stages of integrated transport planning process. Without them, it will be more difficult to develop the level of agreement and compromise between organisations that will be necessary to develop a plan with a high level of stakeholder acceptance. The plan will have good prospects of implementation if this strategy is followed.

Reaching an agreement between these agencies, which may have conflicting views on transport infrastructure priorities would help establish a common vision and provide ownership of the integrated transport plan. It is relatively easy to devise a plan – but to have one that is supported by various agencies requires upfront consultation: having the right people around the table at the right time. Key players should be involved at all 'key milestones' and stages of the plan's processes.

It is also important to know the current activities of those organisations and their future plans that may affect the area concerned. These are not fixed restraints on the future, but they do provide a benchmark against which the vision of the integrated transport plan can be assessed, including the extent of change needed to achieve that vision.

## Table 13 – IAP2 Spectrum of Public Participation

| | | | | Increasing level of public impact → |
| --- | --- | --- | --- | --- |
| | **Inform** | **Consult** | **Involve** | **Collaborate** | **Empower** |

| | **Inform** | **Consult** | **Involve** | **Collaborate** | **Empower** |
| --- | --- | --- | --- | --- | --- |
| **Public participation goal** | To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/ or solutions | To obtain public feedback on analysis, alternatives and/or decisions | To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered | To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solutions | To place final decision-making in the hands of the public |
| **Promise to the public** | We will keep you informed | We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision | We will work with you to ensure that you concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision | We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible | We will implement what you decide |
| **Example techniques** | - Fact sheets<br>- Web sites<br>- Open houses | - Public comment<br>- Focus groups<br>- Surveys<br>- Public meetings | - Workshops<br>- Deliberative polling | - Citizen advisory committees<br>- Consensus – building<br>- Participatory decision-making | - Citizen juries<br>- Ballots<br>- Delegated decisions |

Source: International Association for Public Participation (IAP2).

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## 5.5 Beyond the integrated transport planning

Developing an integrated transport plan is only the first stage of creating a sustainable transport future for the community.

The planning process is based on inclusion – that of the community and of key stakeholders – in order to understand their needs and aspirations, and also to create support for implementation.

Finally, it is also important to maintain an open forum with all parties involved to consider the efficacy of the integrated transport plan's implementation, and whether current practical experience may make revisions or changes to the plan necessary.

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# OVERVIEW OF PRACTICE

# Part 6 –
# Case studies of integrated transport plans

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## 6.0 Summary – Part 6

This section outlines key learning areas from a selection of integrated transport plans developed in the Perth metropolitan area as part of broader regional integrated transport strategies and local area integrated planning.

Information provided for each case study's integrated transport plan allow comparison of the principles and processes followed and in particular, the factors that contributed to their success.

The information is grouped under the following headings:

- Context
- Overview
- Purpose
- Drivers
- Objectives
- Major issues and needs, challenges and opportunities
- Principles of the integrated transport plan
- Developing the integrated transport plan, consultation and partnership process
- Strategies to achieve desired outcomes
- Action and targets
- Integrating planning and implementation
- Lessons learned – key success factors

A summary of the key aspects of each integrated transport plan gives insight to the processes followed in planning, developing and implementing the plan and the key lessons learned.

In addition to these good practice examples from Perth, there are many relevant 'best practice' examples of integrated transport plans or resources from outside Western Australia, including:

- *Integrated Transport Planning Framework for Queensland: A guide for transport planning.* Local Government Association of Queensland and the Government of Queensland: Brisbane, Queensland, http://tmr.qld.gov.au/Projects/Name/I/Integrated-Transport-Planning-Framework.aspx

- Various information from Victoria Transport Policy Institute, Canada such as: *Sustainability and Livability Summary of Definitions, Goals, Objectives and Performance Indicators,* www.vtpi.org/sus_liv.pdf

- Online Travel Demand Management Encyclopedia, Victoria Transport Policy Institute, Canada www.vtpi.org/tdm/index.php

- *Guidance on Local Transport Plans,* Department for Transport, UK, 2009, www.dft.gov.uk/adobepdf/165237/ltp-guidance.pdf

- *Suffolk Local Transport Plan 2006-2011,* Suffolk County, UK 2006, www.suffolk.gov.uk/TransportAndStreets/Policies/SuffolkLocalTransportPlan2006-2011.htm

- *Knox Integrated Transport Plan,* Knox City Council, Victoria, undated www.knox.vic.gov.au/

- *Mackay Area Integrated Transport,* Department of Transport and Main Roads in partnership with the Mackay Port Authority and Mackay City Council, Qld, 2002. www.tmr.qld.gov.au/Projects/Name/M/Mackay-Area-Integrated-Transport-Plan.aspx

- *Rutland County Local Transport 2006-2011,* Rutland County, UK, 2006, www.rutland.gov.uk/ltp

## 6.1 South West Group of Councils – Travelling Together (2003)

| | |
|---|---|
| **Local governments** | City of Melville, City of Cockburn, City of Rockingham, Town of East Fremantle and Town of Kwinana (and later, City of Fremantle) |
| **Integrated transport plan type** | Partnership of local governments integrated transport plan |
| **Developed in 2003** | • Major transport consultant – Sinclair Knight Merz (SKM)<br>• Transport planning agencies – Department for Planning and Infrastructure, Main Roads WA, Transperth<br>• Implementation status – projects completed |
| **Further information** | The South West Group of Councils is currently lobbying for the preparation of a new regional integrated transport strategy. Background information on the recent work done by the South West Group is available online at http://www.southwestgroup.com.au/south-west-group/projects/regional-integrated-transport-planning/ |

| | |
|---|---|
| **Vision** | South West Group of Councils – *Travelling Together* (2003) Integrated Transport Plan envisages a:<br>• balanced multi-modal transport system with an efficient network that links local, district and regional centres and which provides employment, education, shopping and recreation facilities;<br>• balanced transport system that promotes economic activity by providing a high level of accessibility in all modes;<br>• multi-modal transport system that sustains and supports healthy lifestyles, offering travel choice with a high level of accessibility;<br>• sustainable transport system that improves air quality and other environmental standards by actively promoting use of public transport, walking and cycling within safe and convenient networks that link activity nodes within communities; and<br>• transport system that offers affordable and safe accessibility for all social and age groups within communities. |

## Context

The South West Group of Councils' integrated transport plan *Travelling Together* (2003) was the result of collaboration between local government authorities in the Perth south west metropolitan region, the Department for Planning and Infrastructure and Transperth. It was prepared with State and local government authorities as a model of the *State Integrated Transport Planning Partnering Agreement* (2000).

The group of Councils' integrated transport plan sets out to coordinate complex transport planning issues in the region by considering various state and local government transport planning policies, projects and initiatives. All partners have adopted a common style for making decisions and implementing the integrated transport plan.

## Overview

The Group of Councils' integrated transport plan aims to develop a safe, efficient, convenient and green-friendly regional transport network. The plan looks to the future transport needs of the region – how best to meet them and the priorities for implementation.

The regional transport planning process seeks to interface between two levels of government. The integrated transport planning partnership of local governments focuses on strategic regional and local transport issues. In completion, all projects will assist in promoting sustainable urban growth and transport system; and more community opportunity.

## Purpose

The purpose of the Group of Councils' integrated transport plan is to achieve government consensus on the future direction of integrated planning, transport infrastructure and services in the Perth south west region and to support the agreed vision for the region. This consensus approach recognises the right of individual local governments and the State Government to have different policy and planning perspective on elements of the plan, which integrates inter-regional and local transport aspects and all parties involved in developing the integrated transport plan.

## Drivers

Rapid urban growth in the south west metropolitan region has led to:
- congestion and lack of safety on regional roads;
- inadequate public transport and facilities;
- the need to improve cycling and walking facilities and access to land use development; and
- the need for adjoining  Local governments' cooperation to resolve regional and local transport problems.

## Objectives

The main objectives of the Group of Councils' integrated transport plan are to:
- develop sustainable transport solutions based on satisfying stakeholder and community needs;
- successfully integrate transport with current and future land use;
- cater to regional and local community transport needs;
- produce cost effective results with stakeholder funding commitment for implementation;
- develop a sustainable transport system to meet lifestyle needs;
- balance accessibility with maintaining a clean, liveable and productive city;
- meet wider community demand for better transport  whilst reducing impact on local communities; and
- integrate regional and local transport needs and reflects operational and strategic directions.

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### Major issues, needs, challenges and opportunities

The process identified the following key transport issues for the Perth south west metropolitan region:
- improve east-west transport network;
- improve public transport services and infrastructure;
- improve walking and cycling networks;
- reduce reliance on road expansion projects, by designing for connectivity rather than capacity;
- influence behaviour change through travel demand management strategies; and
- plan future land development that supports walking, cycling and public transport use.

The Group of Councils' regional integrated transport plan identifies opportunities to create an efficient and reliable transport system with less expansion of the road system by making substantial improvements to the public transport services, cycling and walking facilities and by better integration of land use development with transport.

### Principles

Four key principles of the Group of Councils' integrated transport plan are to:

1. Manage travel demand
2. Integrate transport and land uses
3. Improve public transport services
4. Develop infrastructure.

### Developing the consultation and partnership process

Consultation through different stages of the Group of Councils' integrated transport plan development process included:
- workshops to establish a common vision, current transport trends, gap assessment and key directions for strategic transport planning; and
- workshops with key stakeholders to discuss trends and principles for public transport planning, including required service and infrastructure improvement.

Throughout the consultation process, state and local government agencies established the agreed vision, strategies and components of the Group of Councils' integrated transport plan.

### Strategies to achieve desired outcomes

The Group of Councils' integrated transport plan is based on five major strategies:

1. Land use and transport integration
2. Major transport infrastructure developments
3. Public transport service improvement
4. TravelSmart and travel demand management
5. Pedestrian infrastructure improvement.

### Action and targets

The Group of Councils' integrated transport plan makes many recommendations for developing a sustainable transport system in the region. The councils recognise the cost implications and financial constraints facing the state and local governments and accept that implementing the plan may depend on other priorities and/or funding capacity.

### Integrating planning and implementation

The Group of Councils' integrated transport plan incorporates the following funding and implementation principles:

- Principles to 2010
  - Regional funding to increase leverage and advantage from the Perth south west metropolitan railway.
  - High proportion of overall funding to public transport system.
  - Flexible funding to support TravelSmart and access to rail stations.
  - Partnership agreement with State Government.

- Principles beyond 2010
  - Maintain broad focus on sustainable people movement options.
  - Freight movement infrastructure funding plan – AUSLINK.

### Key success factors

The success of the Group of Councils' integrated transport plan is largely attributed to:
- an agreed strategic transport planning vision for the Perth south west metropolitan region;
- commitment and consensus by all local and State Government agencies participating in developing and implementing the integrated transport plan;
- long-term sustainable strategies for transport infrastructure improvements for the region;
- a focus on short-term goals and delivery of recommended transport infrastructure projects; and
- a funding and implementation plan to assist in transport infrastructure delivery for the region.

## 6.2 East Metropolitan Regional Council – Integrated Transport Strategy for Perth's Eastern Region (2007)

| | |
|---|---|
| **Local governments** | Town of Bassendean, City of Bayswater, City of Belmont, Shire of Kalamunda, Shire of Mundaring, City of Swan |
| **Integrated transport plan type** | Partnership of local governments integrated transport strategy that incorporated broader objectives; common solutions and coordination; and high level objective setting and actions. |
| **Developed in 2007** | • Transport consultant – ARRB Consulting<br>• Agencies – Department for Planning and Infrastructure, Eastern Metropolitan Regional Council<br><br>Implementation status: Regional Integrated Strategy Action Plan 2010–2013 at www.emrc.org.au/Documents/8020/download/933/Regional-Integrated-Transport-Strategy-Action-Plan-2010-2103.pdf |
| **Further information** | Background information on the recent work done by the Eastern Metropolitan Regional Council is available online at www.emrc.org.au/regional-integrated-transport-strategy.html |

| | |
|---|---|
| **Vision / Objectives** | The objectives of the Eastern Metropolitan Regional Council's integrated transport strategy included to address transport issues and meet community aspirations to:<br>• foster a safe and healthy community<br>• ensure sustainable economic development<br>• achieve strategic objectives through collaboration with State and local government. |

## Context

The Eastern Metropolitan Regional Council comprises the Town of Bassendean, City of Bayswater, City of Belmont, Shire of Kalamunda, Shire of Mundaring and the City of Swan.

The Regional Council and the Department for Planning and Infrastructure commissioned ARRB Consulting to develop the integrated transport strategy for the region. The resulting strategy is an integrated approach to meeting future access and mobility needs of the Perth eastern metropolitan region. It covers regional land use and activity planning, local modes of transport such as walking and cycling, major transport infrastructure and public transport services.

## Overview

Perth's eastern region is a major air, rail and road transport hub servicing passengers and freight for the State. The region also services WA's construction and resources sector. The Regional Council's integrated transport strategy provides a clear framework for the development and management of the region's transport system and for providing access to main activity centres. The strategy has enabled the six regional local councils to agree on major transport initiatives and implementation plans.

## Purpose

The Regional Council's integrated transport strategy aims to improve integration between:

- all transport users
- land use and transport planning
- economic, social, health and environmental sectors
- government policy
- government planning agencies
- funding arrangements for transport infrastructure delivery in the Perth eastern metropolitan area.

## Drivers

The Regional Council's integrated transport strategy was developed to:

- improve local government transport infrastructure
- ease road congestion
- improve traffic safety
- integrate with land use development
- facilitate available funds.

## Identified major issues and needs

Major issues were identified from a review of current planning and transport documents and consultation with the six local governments of the Regional Council. They include common local government and regional transport issues such as:

- traffic congestion
- road safety
- Great Eastern Highway
- region's northern access
- region's southern access
- high and wide traffic loads
- cycling and walking infrastructure
- access to Perth Airport for passengers and employees
- 'Park and Ride' arrangements
- public transport access within the region
- response to high car dependence
- changes to oil prices
- local access to employment locations
- rail lines and the Swan River as barriers
- access to Perth Airport and Kewdale area
- freight access
- transit-oriented developments
- planning, decision-making, funding and strategy implementation
- responsibility for major urban roads in the region.

## Challenges and opportunities

A key challenge was to develop a strategy that genuinely integrated, rather than simply joined separate entities, such as transport modes. This was achieved by focussing on outcomes such as economic and social wellbeing, health, fitness and sustainability.

## Principles

The Regional Council's transport plan complements the State Government's Network City and Metropolitan Transport Strategy and complements the principles of the Western Australian State Sustainability Strategy. It provides a model for implementing the strategies and principles set out in those documents.

## Developing the consultation and partnership process

The Eastern Metropolitan Regional Council was developed on the basis of integrated partnering approach between the six local councils with State Government agencies. The Regional Council's transport strategy involved lobbying stakeholders, partnering agreements and achieving consensus on priorities and actions.

## Strategies to achieve desired outcomes

Five strategies to address transport and access needs in the Regional Council are:
1. Land use and activity planning
2. Transport infrastructure
3. Transport services
4. Travel demand management
5. Integration.

## Action and targets

Each specific strategy requires one or more actions for implementation and sets out priorities and timeframes for various actions. As a guide to implementation, each strategy identifies who is responsible for each action and the key stakeholders who should be involved.

Stakeholders and representatives of local governments in the region have assessed the implementation process of the defined actions in terms of priority, timeframe and responsibility.

## Integrating planning and implementation

A Regional Integrated transport Strategy advisory group was established to guide implementation and further review of the action plan, and to coordinate important projects in land use and transport planning. Effective implementation is an ongoing process.

In 2009, the Regional Integrated Transport Strategy Action Plan was reviewed to assess progress over the previous two years and to align action for 2010–2013 with the State Government's strategic policy framework for metropolitan planning, such as Directions 2031 and other recent State Government strategic initiatives.

## Key success factors

The success of the Eastern Metropolitan Regional Council integrated transport plan is largely attributed to:
• an agreed strategic transport planning vision for the Perth south west metropolitan region;
• a partnering agreement;
• political advocacy;
• a good lobbying process;
• monitoring, evaluation and implementation;
• a reordering of local government priorities for infrastructure projects;
• a flow-on workshop and regular meetings with Main Roads WA;
• ongoing consultations between the Regional Council and local government;
• periodic reviews of the transport strategy and future priorities;
• secure government funding for regional projects;
• further integration of the strategy with State Government planning policies and major regional projects; and
• appropriate resourcing – one full-time officer is employed at the Regional Council to coordinate the implementation of the Integrated Transport Strategy Action Plan.

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## 6.3 City of Rockingham – Rockingham Integrated Transport Plan (2007)

| Local governments | City of Rockingham |
|---|---|
| Integrated transport plan type | Single local government integrated transport plan |
| Developed in 2007 | • Transport consultant – WorleyParsons<br>• Agencies – City of Rockingham, Department for Planning and Infrastructure |
| Further information | The integrated transport plan can be obtained from the City of Rockingham on request. |

| Vision | Council planning, engineering and TravelSmart officers and elected members with local area knowledge assisted in developing a comprehensive plan to achieve the City of Rockingham's transport vision around economic, social and environmental sustainability principles.<br><br>This helped to reach agreement on the City's vision for integrated transport planning, which is in line with the City of Rockingham's strategic plan. |
|---|---|

### Context

The City of Rockingham covers a large local area which experienced complex transport issues resulted from rapid urban growth and population increase.

The City's commitment to the sustainability agenda, incorporated in its strategic plan, provided the basis for the development of integrated transport plan.

The integrated transport plan is tailored to the specific local transport needs of the City and is a reference point for local government when dealing with transport related issues.

### Overview

The integrated transport plan was prepared by transport consultant Worley Parsons on behalf of the City of Rockingham. The plan identifies and prioritises actions and allocates future resources for transport improvements in the City. Developed as a living document the plan will be reviewed and updated twice yearly as recommendations and actions are implemented and new ones are made.

### Purpose

The Rockingham Integrated Transport Plan brings together work done in the transport planning process into a concise plan. The plan's main purpose is to coordinate transport planning and investment across the engineering and planning departments of the City of Rockingham and improve the integration of transport and land use developments in a responsive socio economic way.

### Drivers

The main reasons for the development of an integrated transport plan were:
- increased transport demand within the City of Rockingham;
- available funds and local government resources to produce the plan;
- full commitment from the City's elected council;
- local government's aspirations to sustainability;
- Department for Planning and Infrastructure promotion on the importance of integrated transport plans; and
- pressing transport issues.

### Objectives

The main objectives of the Rockingham Integrated Transport Plan are to:
- promote sustainable regional development and economic activity in Rockingham through efficient provision and operation of transport services and infrastructure;
- provide a high level of access to employment, social, educational and commercial activities, and efficient freight movement;
- provide equitable access to the City's services, facilities and cultural activities;
- provide a choice of transport modes to enhance lifestyle and the City's identity; and
- promote the use of 'green' transport modes, minimising pollution and protecting the City's unique environment.

## Identified major issues and needs

The broad range of transport issues identified included:

- traffic congestion on local roads;
- the lack of provision for alternative travel modes;
- the need to improve community travel and health benefits; and
- the need to improve integration between transport modes and land use.

## Challenges and opportunities

Among the transport challenges identified through community consultation and study team investigations were:

- integrating land use with transport;
- improving access to public transport;
- improving cycling and pedestrian facilities;
- improving road safety and congestion management; and
- improving coordination in transport infrastructure provision.

## Principles

The main six principles adopted for the Rockingham transport plan from the Department of Transport's Metropolitan Transport Strategy 1995–2029 were:

1. Safety
2. Efficiency
3. Effectiveness
4. Environmental responsibility
5. Social responsibility
6. Robustness.

## Developing the consultation and partnership process

Transport consultants used a simple methodology, transparency and an holistic approach to consider all transport modes and to maximise benefits across a broad range of sectors. The consultation process was tailored according to the order and complexity of transport issues to be resolved.

The process involved:

- interacting with the community to discuss various transport options; and
- informing State and local government about specific community needs.

Community consultation was achieved through:

- a community forum;
- engaging special local interest groups and associations; and
- telephone surveys.

The development of the integrated transport plan was based on strong partnerships between local government, State Government and the community.

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### Strategies to achieve desired outcomes

The integrated transport plan identifies a range of strategies and actions. Each strategy or action is linked to the identified challenges and grouped into the areas of:

- strategies and actions relating to policy and process matters within the City;
- strategies and actions that include developing physical infrastructure or preparation of detailed plans and studies to identify such implementation; and
- strategies and actions linked to managing travel demand, empowerment and lobbying.

Strategies that help local government  prioritise main transport planning issues and achieve desired outcomes in community involvement are:

- consultation;
- land use and transport integration;
- enhancing quality of life for local residents; and
- identifying implementation priorities and budget estimates to improve transport infrastructure.

### Action and targets

The final integrated transport plan included recommendations for future improvements and actions to be undertaken.  These focus on strategic outcomes with local solutions including developing a list of actions, duration, commitments, responsible agencies and prioritisations of actions.

### Integrating planning and implementation

The Integrated Transport Plans brings together the engineering and planning divisions in the City of Rockingham and aims to identify solutions to improve and integrate transport infrastructure with land use.

The Rockingham Integrated Transport Plan helps classify and prioritise actions to allocate resources for future transport improvements.  The plan has been used in various infrastructure projects in the City and to set up groups for the implementation process.

### Key success factors

The success of the City of Rockingham's integrated transport plan is largely attributed to:

- involving the community through consultation and education;
- integrating local government planning, engineering and TravelSmart policies and expertise;
- developing partnership between local and State governments, key stakeholders and the community;
- local government ownership and local council support;
- funding provision for developing and implementation the plan;
- supporting the final plan by technical documentation, strategies and clear recommendations for implementation; and
- implementing the plan by completed budget estimates and defined responsibilities for implementation of actions.

## 6.4  City of Subiaco – Integrated Transport Strategy (2007)

| | |
|---|---|
| **Local governments** | City of Subiaco |
| **Integrated transport plan type** | Single local government – integrated transport strategy |
| **Developed in 2007** | • Major transport consultant – Sinclair Knight Merz (SKM)<br>• Agencies – City of Subiaco; Department for Planning and Infrastructure |
| **Further information** | Information on the City of Subiaco's Integrated Transport Strategy is available online at<br>www.subiaco.wa.gov.au/fileuploads/Integrated%20Transport%20Strategy(1).pdf |

| | |
|---|---|
| **Vision** | The City of Subiaco's integrated transport strategy is built on existing State strategic and local government policies and community views through consultation.<br><br>The agreed strategy vision is:<br>*'Residents and visitors to Subiaco will enjoy convenient safe access and movement to, from and within the City by all transport modes (walking, cycling, public transport and car) on a sustainable basis without negative impacting on Subiaco's diversity of amenity and lifestyle'.* |

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## Context

The City of Subiaco has a strong commitment to sustainability. The development and implementation of an integrated transport strategy is identified as a component of the City's strategic plan and in its environmental and economic development strategies.

An effective and appropriate transport system is seen as a key part of achieving sustainable development, as well as preserving amenity and wellbeing in Subiaco and its environs.

## Overview

The integrated transport strategy enables the City to plan for a suitable transport system to relieve increasing transport pressures and to apply principles for sustainable development.

The strategy identifies, protects and enhances best practice and improves the City's existing transport infrastructure.

## Purpose

The strategy adopts a coordinated approach to assessing transport needs. It aims to help local government and the public to improve local accessibility without disruption to the City; maintain local amenities; and reduce road congestion.

## Drivers

The strategy is driven by the City's strategic plan and its commitment to provide a sustainable community living environment.

## Objectives

The City of Subiaco's integrated transport strategy addresses and prioritises current and future local transport issues and identifies actions for future improvement. It provides a framework to guide land-use planning decisions, investments in transport infrastructure and management by local, State and federal governments. The strategy identifies five main objectives:

1. Managing travel demand
2. Improving walking and cycling
3. Improving public transport
4. Managing vehicular traffic
5. Managing and improving parking.

### Identified major issues and needs

Identified issues and needs in the Strategy are:

- growth of the City;
- road congestion; and
- need to improve public transport.

### Challenges and opportunities

Challenges and opportunities noted in the Strategy are:

- rapid urban growth and increased travel demand;
- land use intensification and urban consolidation; and
- the need to justify improvements to transport infrastructure and provision of better travel options, including reducing car travel.

### Principles

The Strategy is developed in accordance with national and State Government principles for sustainable transport planning.

### Developing the consultation and partnership process

The Strategy was developed in consultation with the community, stakeholders and reference groups.

## Strategies to achieve desired outcomes

Strategies identified in the integrated transport strategy are to:

- improve access to facilities and services within the City without increasing car travel, and manage vehicle traffic at peak times;
- encourage walking and cycling for local and daily trips as a sustainable option to car use through a safe and efficient walking and cycling facilities;
- encourage greater use of public transport through better infrastructure and services, and informing the community on alternatives to car use;
- provide safe vehicle movement around the City centre and efficient use of existing road infrastructure; and
- provide sufficient parking facilities in the City to accommodate current and future needs, and to ensure best use of existing parking facilities.

## Actions and targets

Actions in the Strategy relate to existing and future key initiatives undertaken by the City to achieve practical transport infrastructure and land use solutions for sustainable transport travel.

## Integrating planning and implementation

Commitment to implementing the integrated transport strategy is the most important factor for its success. Implementation of the Strategy will involve the City's infrastructure, parking, planning, building and community officers.

## Key success factors

The success of the City of Subiaco's integrated transport plan is largely attributed to:

- the strategy being driven by the City's strategic plan;
- community consultation, involvement and ownership;
- the integrated transport partnering agreement between the City and main stakeholders; and
- consultation at the start of the development process, which allowed for good understanding of community views and expectations.

## 6.5 Shenton Park – Integrated Transport Plan (2000)

| Local governments | City of Subiaco, City of Nedlands and Town of Cambridge |
|---|---|
| Integrated transport plan type | Small local area integrated transport plan |
| Developed in 2000 | • Major transport consultant – ARRB Transportation Planning<br>• Agencies – Department of Transport, City of Subiaco, City of Nedlands and Town of Cambridge<br>• Implementation Status – Implementation projects completed |
| Further information | More information on the Shenton Park Integrated Transport Plan is available from the State Library and the Department of Planning. |

| Vision | The agreed vision for the Shenton Park Integrated Transport Plan is to:<br>• improve travel options for everyone in the community;<br>• improve pedestrian and cycling safety;<br>• enhance public transport in the area; and<br>• maximise safety and accessibility to major attractions in the area. |
|---|---|

### Context

The Shenton Park Integrated Transport Plan is an issues-based planning exercise in response to community concerns about deficiencies in the local transport network.

In 1999, the City of Subiaco and City of Nedlands requested the Department of Transport to improve transport infrastructure in their local area. As Shenton Park is a small local government area, the transport plan focused on localised solutions with a specific transport infrastructure. Completion of the transport plan brought cost benefits to the local transport network.

### Overview

The Shenton Park Integrated Transport Plan is the first of its type and an example of the cooperative approach to transport planning in the Perth metropolitan area. It took nine years to complete all the recommended transport infrastructure projects and actions.

The Shenton Park plan demonstrates that integrated transport plans can resolve pressing transport issues in a coordinated and holistic way. Its completion required a long-term local government commitment and dedicated staff to drive the process from development to implementation.

### Purpose

The Shenton Park Transport Plan was intended to provide more opportunity and travel choices for the local community. Improving transport safety and efficiency were made a priority through the completion of specific projects, which improved the local transport network.

### Drivers

Specific local area transport issues were:
- the need for an additional rail crossing and bridge at Aberdare Road;
- the need for general improvements of accessibility within the subject area;
- funding to undertake the study by external consultants and prepare an integrated transport plan; and
- a commitment to the transport plan by the Department of Transport and local governments.

### Identified major issues and needs

Key issues and needs identified included:
- improving local access and safety for vehicles, pedestrian and cyclists crossing the railway;
- transport issues that negatively impacted the Claremont and Subiaco communities;
- transport safety and impact to movement in the surrounding network;
- motor vehicle congestion;
- improving safety for 'circle' bus routes to cross the railway;
- expanding residential development and facilities in the local area;
- increased pressure on the existing transport system; and
- improving transport infrastructure in local areas.

## Challenges and opportunities

Challenges and opportunities highlighted in the plan included:

- providing cost-effective solutions to resolve various transport needs in the local area;
- preparation for unexpected issues or events; and
- integrating all transport modes and solving all identified issues in one process.

## Principles

Recommended transport projects were assessed against the six safety principles noted in the Department of Transport's 1995–2009 Metropolitan Transport Strategy:

1. Efficiency
2. Effectiveness
3. Environmental responsibility
4. Social responsibility
5. Robustness.

## Developing the consultation and partnership process

Developing an integrated transport plan for a small area and resolving specific transport issues require consultation with residents and businesses who would be directly affected.

The Shenton Park Transport Plan maintained a strong focussed on community issues. Extensive community consultation was undertaken to understand important issues and priorities, not just the solutions.

A major objective of the consultation process was community interaction from the beginning – educating local residents about important transport issues and learning from them by their feedback and comments.

The transport plan involved extensive community consultation, stakeholder workshops and public meetings. Mapping tools for analysis and presentation data were prepared and used for transport issues with opportunity for further consultation and feedback. An external transport consultant was appointed to produce the final integrated transport plan report for Shenton Park.

## Strategies to achieve desired outcomes

The Shenton Park Integrated Transport Plan produced a set of projects for implementation to improve travel options for the community. The largest infrastructure proposals were for a railway underpass and a bridge for buses, pedestrians and cyclists crossing the railway line.

## Action and targets

Recommendations and actions for the transport plan were considered practical, affordable and productive. The defined actions helped the local governments involved to prioritise transport infrastructure projects for implementation.

### Integrating planning and implementation

The project design and implementation plans were prepared with the local governments. Options for project funding were explored and developed including preliminary costing of proposed infrastructure improvements.

### Key success factors

The success of the Shenton Park Integrated Transport Plan is largely attributed to:

- the development of a integrated transport plan that benefits the local community and business;
- upfront community consultation to discuss vulnerabilities, options and issues, which provided a sense of ownership and avoided the risks associated with the implementation of plans without the community approval;
- key stakeholders and agencies being engaged at the start of the planning process to establish a common vision, main objectives and outcomes;
- extensive community consultation that sought agreement and/or voluntary commitments from stakeholders and State and local governments to approve projects and actions;
- shared financing for the implementation of projects;
- being prepared for the unexpected – for example by preliminary designs and upfront costings of proposed projects; and
- partnering with participating agencies on most matters.

**Table 14 – Existing local government integrated transport plans and strategies in Perth metropolitan area (as at June 2010)**

| Ref No. | Local government | | Single local government's ITP or ITS | Grouping of local governments ITP or ITS | E- copy ITP/ITS (URL link website) |
|---|---|---|---|---|---|
| 1 | City of | Armadale | NO | NO | |
| 2 | Town of | Bassendean | NO | EMRC ITS 2007 | www.emrc.org.au/regional-integrated-transport-strategy.html |
| 3 | City of | Bayswater | NO | EMRC ITS 2007 | www.emrc.org.au/regional-integrated-transport-strategy.html |
| 4 | City of | Belmont | NO | EMRC ITS 2007 | www.emrc.org.au/regional-integrated-transport-strategy.html |
| 5 | Town of | Cambridge | NO | NO | |
| 6 | City of | Canning | NO | NO | |
| 7 | Town of | Claremont | Town of Claremont Traffic and Transport Management Strategy 2009 | NO | www.futureclaremont.com/public/documents/3/3/090617%20Connecting%20Claremont.pdf |
| 8 | City of | Cockburn | NO | SWGOC ITP 2003 | |
| 9 | Town of | Cottesloe | NO | NO | |
| 10 | Town of | East Fremantle | NO | SWGOC ITP 2003 | |
| 11 | City of | Fremantle | Fremantle Transport Strategy 2003-2007 | NO | |
| 12 | City of | Gosnells | NO | NO | |
| 13 | City of | Joondalup | NO | NO | |
| 14 | Shire of | Kalamunda | NO | EMRC ITS 2007 | www.emrc.org.au/regional-integrated-transport-strategy.html |
| 15 | Town of | Kwinana | NO | SWGOC ITP 2003 | |
| 16 | City of | Mandurah (Peel) | Integrated Transport Strategy 2010 (part of Mandurah Inner Area Strategic Plan) | NO | |
| 17 | City of | Melville | City of Melville Transport Strategy 2000 | SWGOC ITP 2003 | |

| Ref No. | Local government | | Single local government's ITP or ITS | Grouping of local governments ITP or ITS | E- copy ITP/ITS (URL link website) |
|---|---|---|---|---|---|
| 18 | Town of | Mosman Park | NO | NO | |
| 19 | Shire of | Mundaring | NO | EMRC ITS 2007 | www.emrc.org.au/regional-integrated-transport-strategy.html |
| 20 | City of | Nedlands | City of Nedlands Transport Strategy 2006 | NO | |
| 21 | Shire of | Peppermint Grove | NO | NO | |
| 22 | City of | Perth | NO | NO | |
| 23 | City of | Rockingham | City of Rockingham Integrated Transport Plan 2007 | SWGOC ITP 2003 | |
| 24 | Shire of | Serpentine/ Jarrahdale | NO | NO | |
| 25 | City of | South Perth | City of South Perth Integrated Transport Plan 2006 | NO | |
| 26 | City of | Stirling | City of Stirling Transport Strategy 2009 | NO | www.stirling.wa.gov.au/NR/rdonlyres/A6DB9B5C-2B7E-4BF9-A2CA-4478D5B9CA31/0/CityofStirlingIntegratedTransportStrategy.pdf |
| 27 | City of | Subiaco | City of Subiaco Integrated Transport Strategy 2007 | NO | www.subiaco.wa.gov.au/fileuploads/Integrated%20Transport%20Strategy(1).pdf |
| 28 | City of | Swan | NO | EMRC ITS 2007 | www.emrc.org.au/regional-integrated-transport-strategy.html |
| 29 | Town of | Victoria Park | NO | NO | |
| 30 | Town of | Vincent | NO | NO | |
| 31 | City of | Wanneroo | NO | NO | |

Integrated Transport Strategy (ITS)

Integrated Transport Plan (ITP)

East Metropolitan Regional Council (EMRC) - Integrated Transport Strategy (2007)

South West Group of Councils (SWGOC) - Travelling Together 2003

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## Part 7 –
## Template for developing an integrated transport plan

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**Figure 31 – Template for developing an integrated transport plan**



**Initiate integrated transport plan**
Define scope and issues
Establish goals and objectives
Identify and involve stakeholders
Identify needs, issues, problems and opportunities
Plan for the acquisition of services/ resources

**Identify current and desired future state**
Consent to the desired future trends.
Consent to the desire future state

**Assess alternatives**
Undertake technical assessment
Undertake stakeholder and community assessment

**Review, amend and improve**
Remove negative impacts
Revisit earlier stages
Select package of actions that best supports implementation

**Develop preferred plan**
Maximise synergies
Assess feasibility and affordability
Assess delivery responsibilities and financial impacts

**Implementation and delivery**
Establish implementation monitoring measures
Market the plan
Long-term commitments
Down stream funding

**Monitor and evaluate**
Efficiency
Effectiveness
Triple-bottom line

Source: 'CATALYST'/'Sinclair Knight Merz' Consultants.

Note: This template should be read in conjunction with the Guidelines for preparation of integrated transport plans.
It should also reflect the required key steps set out in Part 3 - Principles and process for integrated transport plans.

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| Task 1 - Initiate integrated transport plan<br>For guidance on Task 1, refer to sections 3.2 and 3.4 of the *Guidelines for preparation of integrated transport plans for local government* (refer also sections 2.3, 4.1, 5.2 and 5.4). | | Complete | Not applicable |
|---|---|---|---|
| Task 1.1 | Define issues and scope of the integrated transport plan | | |
| Task 1.2 | Review transport plan implementation drivers | | |
| Task 1.3 | Determine planning partners | Decide who can help or hinder implementation | | |
| | | Decide who will drive the planning | | |
| | | Decide who needs to approve actions | | |
| Task 1.4 | Establish goals and objectives taking into account socioeconomic and cultural context | Community aspirations | | |
| | | Accessibility to jobs, education, social, cultural activities | | |
| | | Business and commerce viability | | |
| | | Sustainability | | |
| | | Robustness to changing circumstances | | |
| | | Making best use of existing infrastructure | | |
| | | Feasible and affordable / Safety and security | | |
| | | Long-term as well as short-term planning | | |
| Task 1.5 | Create project management and governance arrangements | | |
| Task 1.6 | Determine the planning horizons | Is it a regional or local plan? | | |
| | | Are there any cross-boundary issues? | | |
| | | Is it area-wide or specific location? | | |
| Task 1.7 | Identify who has a legitimate interest in the outcomes | Neighbourhood and community groups | | |
| | | Businesses, business groups and associations | | |
| | | Transport operators – passenger and freight/ public and private | | |
| | | Major shopping centres | | |
| | | Industrial and business parks | | |
| | | Major medical centres | | |
| | | Universities, colleges and school districts | | |
| | | Land and property developers | | |
| | | National, State and local government | | |
| Task 1.8 | Seek activities to engage and communicate with stakeholder, eg. workshops etc | | |
| Task 1.9 | Identify and manage risks | Ageing population | | |
| | | Obesity | | |
| | | Climate change | | |
| | | Peak oil | | |
| | | Traffic congestion | | |
| | | Amenity | | |
| | | Safety and security | | |
| | | Severance | | |
| Task 1.10 | Identify and manage opportunities | Community aspirations | | |
| | | Business viability | | |
| Task 1.11 | Determine the level of detail or quality required | | |
| Task 1.12 | Develop schedule and budget | | |

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| Outputs Task 1 | Complete | Not applicable |
|---|---|---|
| Context/background paper integrated transport plan (ITP) | | |
| Risks and opportunities management plan | | |
| Engagement and communication plan | | |
| Study management plan | | |

| Task 2 – Identify current and desired future state of infrastructure and services<br>For guidance on Task 2, refer to Section 3.4 of the Guidelines for preparation of integrated transport plans (refer also sections 5.2 and 5.3). | | Complete | Not applicable |
|---|---|---|---|
| Task 2.1 | Identify the current state | | |
| Task 2.2 | Identify the future state based on the continuation of trends | | |
| Task 2.3 | Identify alternative futures | | |
| Task 2.4 | Identify the desired future state infrastructure and services | | |
| Task 2.5 | 'Gap' assessment comparing current to desired future state | | |
| Task 2.6 | Consent to the desired future state | | |

| Outputs Tasks 2 | Complete | Not applicable |
|---|---|---|
| 'Gap' analysis and alternative options desired future state | | |

| Task 3 – Assessment of alternative options<br>**For guidance on Task 3, refer to sections 4.1 and 5.2 of the Guidelines for preparation of integrated transport plans (refer also Section 5.3).** | | | Complete | Not applicable |
|---|---|---|---|---|
| Task 3.1 | Develop evaluation framework and assessment criteria | | | |
| Task 3.2 | Identify economic, environmental or social impacts | | | |
| Task 3.3 | Consider different ways to provide and manage transport demand | Travel behaviour change | | |
| | | Travel demand management — Regulation or market mechanisms | | |
| | | Travel demand management — Road/congestion pricing Parking management | | |
| | | Transport and land use integration | | |
| | | Transport infrastructure — Walking | | |
| | | Transport infrastructure — Private and public transport | | |
| | | Transport infrastructure — Cycling | | |
| | | Transport infrastructure — Roads/ rail/ water | | |
| Task 3.4 | Evaluate options against assessment criteria | | | |
| Task 3.5 | Select preferred option(s) | | | |
| Task 3.6 | Identify actions to implement selected option | | | |

| **Outputs Tasks 3** | Complete | Not Applicable |
|---|---|---|
| **Options analysis report** | | |

| Task 4 – Review, amend and improve<br>**For guidance on Task 4, refer to sections 3.4 and 4.2 of the Guidelines for preparation of integrated transport plans (refer also sections 5.2 and 5.3).** | | | Complete | Not applicable |
|---|---|---|---|---|
| Task 4.1 | Assess preferred option | | | |
| Task 4.2 | Remove or ameliorate negative impacts | Economic | | |
| | | Environmental | | |
| | | Social | | |
| | | Long-term effectiveness | | |
| Task 4.3 | Revisit earlier stages | Goals and objectives | | |
| | | Scope and area | | |
| | | Stakeholders involved | | |
| | | Issues and opportunities | | |
| Task 4.4 | Select package of actions that best supports implementation | | | |

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| Task 5 – Development of preferred plan<br>For guidance on Task 5, refer to sections 4.1 and 5.2 of the Guidelines for preparation of integrated transport plans<br>(refer also sections 5.3 and 5.4). | | | Complete | Not applicable |
|---|---|---|---|---|
| Task 5.1 | Community and stakeholder preferences | | | |
| Task 5.2 | Maximize synergies | Within transport | | |
| | | With public sector | | |
| | | With private sector | | |
| Task 5.3 | Assess feasibility and affordability | Approval requirements | | |
| | | Funding sources | | |
| | | Long-term maintenance and operation | | |
| Task 5.4 | Assess delivery responsibilities | | | |
| Task 5.5 | Assess financial impacts | | | |
| Task 5.6 | Create contingency plan for future scenarios | | | |

| Outputs Tasks 5 | Complete | Not applicable |
|---|---|---|
| Integrated transport plan – agreed by all parties | | |

| Task 6 – Implementation / delivery<br>For guidance on Task 6, refer to sections 4.3, 5.4 and 5.5 of the Guidelines for preparation of integrated transport plans | | | Complete | Not applicable |
|---|---|---|---|---|
| Task 6.1 | Establish organizational delivery processes | | | |
| Task 6.2 | Develop implementation measures | | | |
| Task 6.3 | Identify who will implement | | | |
| Task 6.4 | Establish implementation monitoring measures | | | |
| Task 6.5 | Market the plan | Approval requirements | | |
| | | Funding sources | | |
| Task 6.6 | Long-term commitments | Minimize reliance on annual budgeting | | |
| Task 6.7 | Down-stream funding | Operation and maintenance | | |
| Task 6.8 | Hand over the baton to implementing agencies | Clearly identify responsibilities and timeframes | | |

| Outputs Task 6 | Complete | Not applicable |
|---|---|---|
| Implementation report | | |

| Task 7 – Monitor and Evaluate<br>For guidance on Task 7, refer to sections 4.2 and 4.3 of the Guidelines for preparation of integrated transport plans<br>(refer also section 5.5). | | | | Complete | Not applicable |
|---|---|---|---|---|---|
| Task 7.1 | Monitor and Evaluate: | Efficiency | Actions completed | | |
| | | | Transport costs | | |
| | | Effectiveness | Measure against original objectives | | |
| | | Triple bottom line | Economic | | |
| | | | Environmental | | |
| | | | Social | | |
| | | Sustainability | | | |

| Outputs Tasks 7 | Complete | Not applicable |
|---|---|---|
| Evaluation review plan | | |

| Summary outputs documents | Complete | Not applicable |
|---|---|---|
| 1. Context/background paper integrated transport plan | | |
| 2. Risks and opportunities management plan | | |
| 3. Engagement and communication plan | | |
| 4. Study management plan | | |
| 5. 'Gap' analysis and alternative options desired future state | | |
| 6. Options analysis report | | |
| 7. Integrated transport plan (agreed by all parties) | | |
| 8. Implementation report | | |
| 9. Evaluation review plan | | |

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# Glossary of Terms

**Access –** The means by which people, goods, services and information arrive at or depart from a location. Provision of technologies and services enabling users to reach and use social and economic opportunities.

**Accessibility –** The ability of people including elderly, disabled and those with young children to move around and to reach places, facilities and services.

**Activity centres network –** a network and hierarchy of centres that provide a more equitable distribution of jobs, services and amenity throughout the city.

**Alternative fuels –** Substitutes for traditional liquid, oil-derived motor vehicle fuels like gasoline and diesel. Includes mixtures of alcohol-based fuels with gasoline, methanol, ethanol, compressed natural gas, and others.

**Amenity –** The experience of a place as pleasant or attractive.

**Assessment –** The technical process of identifying the outcomes of a particular action or proposal, compared with their intentions or objectives.

**Australian Bureau of Statistics (ABS) –** Australia's official statistical agency, whose functions are outlined in the *Census and Statistics Act 1905* and other legislation. The ABS is responsible for producing official statistics including national accounts figures, population estimates, and the five-yearly Census of Population and Households.

**Austroads –** The association of Australian and New Zealand road and transport and traffic authorities whose purpose is to contribute to the achievement of improved road transport outcomes.

**Business Improvement District (BID) –** A defined area within which businesses pay an additional tax or fee, in order to fund improvements within the district's boundaries.

**Community engagement –** An open and accountable exchange of information between government and the community, where individuals and groups can participate in decision-making processes, influence the outcomes of a policy or decision, and participate in the delivery of programs and services.

**Congestion** (See traffic congestion).

**Congestion pricing –** Payment to access a road – or area within a cordon – to manage peak-period demands placed on various sections of the network. Depending on objectives and technology used, charges may be adjusted by the time-of-day, level of congestion present or type of vehicle being driven.

**Comfort –** Travel without unnecessary discomfort due to noise and other factors.

**Consultation –** Meeting for deliberation, discussion or decision.

**Corridor –** A major area of travel between two points. It may include more than one major route and more than one form of transport.

**Cost – effectiveness –** Producing optimum results for the expenditure. Economic measure defined as the effectiveness of an action or treatment divided by the present worth of life-cycle costs.

**Cost-benefit analysis (CBA) –** Means of analysing investment or policy decision as far as practicable in monetary terms. Future costs and benefits are discounted to represent present day values.

**Demand –** The traffic volume desiring to travel along a given route.

**Demographics –** The statistical data of a population, especially those showing average age, income, education, etc.

**Efficiency –** Optimal allocation of resources in moving people and goods through the transport system.

**Evaluation –** The process of determining whether the outcomes are desirable, affordable or acceptable; properly involves those with an interest in the result, or at least an over consideration of their requirement.

**Functional Road Hierarchy (FRH) –** A grading of roads according to their traffic-carrying functions or other functions.

**Holistic –** Looking at something as a whole and not part-by-part.

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**Horizontal integration –** Synergy between distinct parts of a larger system – most commonly, in respect of transport, in terms of land use planning and transport.

**Implementation –** execution of a plan, idea, model, design, specification, standard, algorithm, or policy.

**Induced traffic –** Additional traffic resulting from some improvement in a road or in traffic arrangements.

**Induced travel demand –** Applied to provision of road infrastructure, induced demand refers to the phenomena of additional traffic being generated (above baseline measures) by the creation of new road capacity.

**Integration –** A holistic approach that combines separate elements into a unified system taking into account all modes of transport, land use and social, environmental and economic considerations.

**Integrated land-use and transport planning –** A planning process in which land use attributes, origin–destination choices, modal choice and transport network efficiencies are jointly considered at the beginning and throughout the process.

**Integrated transport plan –** A transport plan prepared by a single local government or groupings of local governments to address local or sub-regional transport issues in their areas of jurisdiction. Integrated transport plans are useful tools for the comprehensive analysis of existing and future transport system requirements within an area.

**Integrated transport planning –** A process to identify current and future access needs – for people, places, goods and services – and inform decision makers on ways to manage the transport system and land use to best address these needs. It aims to do this in a way that sustains economic growth, conserves the environment and supports the quality of life of current and future generations.

**Journey time –** The time taken to travel between two specified points on a route, excluding the time for any stoppages other than those due to interruptions by traffic.

**Journey-to-work –** Information extracted from the national census, which includes where people live and work, their industry, occupation and sex.

**Land use –** Use to which land is put, e.g residential, commercial, open space. In transport analysis the term encompasses measures of social and economic activity that take place on the land. E.g. size of population, number of employees.

**Land use planning –** Way in which planners recommend that land resources be utilised whether by housing, commerce, industry, etc.

**Level of service (LOS) –** An index of the operational performance of traffic on a given traffic lane, carriageway or road when accommodating various traffic volumes under different combinations of operation conditions. It is usually defined in terms of the convenience of travel and safety performance. In a transport context, LOS is defined as a qualitative measure describing operational conditions within a traffic stream.

**Link –** In a road network, portion of a road between two intersections. (Note: Its basic characteristics are length, vehicle speeds, travel times and number of lanes).

**Local by-passable traffic –** Term normally used to refer to short distance traffic that can be diverted usually at the expense of increase distance, not increased time.

**Local government area –** The geographical area for which a local government council is responsible.

**Methodology –** A system of ways of doing something.

**Mixed use developments –** Use of a building, set of buildings, or neighbourhood for more than one purpose.

**Mobility –** The ability of people and goods to move about (physical movement).

**Modal split –** Describes the percentage of people or goods on different forms of transport. E.g. the percentage of people using private cars as opposed to public transport.

**Mode of travel –** Method of transport e.g. motor vehicle travel (as driver or passenger), bus, train, light rail, walking or cycling. In the Census of Population and Housing, this term is used for the method of travel to work (where up to three methods are recorded) for each person aged 15 years or more who was employed during the week before the census.

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**Monitoring –** The process of assessing the implementation of a plan, strategy or action and its effects, with a view to making amendments as required to ensure that the desired outcomes are achieved.

**Movement –** A stream of vehicles that enters from the same approach and departs from the same exit (i.e with the same origin and destination).

**Movement network –** An integrated system of public and private transport networks that are designed to support and reinforce the activity centres network, and reduce the time, cost and impact of travel.

**Multimodal –** The consideration or use of more than one mode of transport to facilitate the mobility of people, goods and services, or the carriage of goods or passengers by at least two different modes of transport.

**Network –** Set of roads that provides a means of road based travel within a region. In transport terms it is defined in terms of links and nodes.

**Outcome –** The effects, or consequences, of a plan, strategy or action.

**Peak oil –** Point in time at which the maximum rate of oil production is reached, equivalent to the midpoint of oil resource depletion.

**Perceived  costs –** Costs as perceived by those who outlay those costs. This especially relates to costs of travel where most motorists underestimate their own and the community costs.

**Permeability (or connectivity) –** The extent to which urban forms permit (or restrict) movement of people or vehicles in different directions. The terms are often used interchangeably, although differentiated definitions also exist. 'Connectivity' refers solely to the number of connections to and from a particular place. 'Permeability' refers to the capacity of those connections to carry people or vehicles. Permeability is generally considered a positive attribute of an urban design, as it permits ease of movement and avoids severing neighbourhoods.

**Placemaking –** The process of creating squares, plazas, parks, streets and waterfronts that will attract people because they are pleasurable or interesting.

**Planning process –** The systematic application of actions to achieve an outcome/output.

**Proximity –**  A measure of how close desired goods or services are.

**Public road –** A public place provided for the use of the public for traffic movement and which has been declared, or proclaimed, notified or dedicated.

**Purpose of travel –** Reason why a journey is undertaken. In transport planning these reasons are usually grouped into general purpose categories within the two sets of home based and non-home based.

**Quality of life –**  A person's satisfaction (or dissatisfaction) with the cultural or intellectual conditions under which they live (as distinct from material comfort).

**Road capacity –**  Maximum number of vehicles or pedestrians that can pass over a given section of a lane, road or footpath in one direction (or in both directions for a two-lane or three lane road) during a given time period under prevailing road and traffic conditions.

**Safe system –** The Safe System approach emphasises the way different elements of the road transport system combine and interact with human behaviour to produce and overall effect on road trauma. The key components of the system are safer roads and roadsides (infrastructure), safer speeds and safer vehicles.

**Stakeholder –** An individual or group of people that has particular interest or stake in a matter under consideration.

**Strategy –** A coordinated approach to achieve a desired outcome.

**Sustainable  development –** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Sustainable transport –** Meeting the needs of society to move without sacrificing other essential human or ecological requirements.

**Through traffic –** Traffic with neither an origin nor a destination within the local area. Depending on the definition of the local area, this may not be traffic which diverts between two arterials.

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**Traffic congestion –** Traffic congestion occurs when a volume of traffic or modal split generates demand for space greater than the available road capacity; this point is commonly termed saturation. When traffic demand is great enough that the interaction between vehicles slows the speed of the traffic stream, congestion is incurred. As demand approaches the capacity of a road (or of the intersections along the road), extreme traffic congestion sets in. When vehicles are fully stopped for periods of time, this is known as a traffic jam.

**Traffic flow (volume) –** The number of vehicle passing a given point during a specified period.

**Traffic forecast –** An estimate of future traffic parameters including projected growth rates.

**Traffic generator –** A development or area capable of generating traffic, e.g. shopping complex, industrial area, car park.

**Transport disadvantage –** The inability to reach desired activities within a reasonable time and cost.

**Transport infrastructure –** Fixed structures or equipment, such as roads, railways, stations, rollingstock, airports, seaports, vehicle fleets and facilities, needed to provide transport services.

**Transport planning –** Planning of the operations and development of transport including the efficient and equitable allocations of resources.

**Transport services –** regular operation of transport infrastructure or related activities to connect people, places, goods and services.

**Transport system –** The collection of infrastructure, services and equipment that provides for the movement of people, goods and services.

**Travel demand management –** Measures to influence the demand for travel and to modify travel decisions so that more desirable transport, social, economic and environmental objectives can be achieved, and the adverse impacts of travel can be reduced.

**TravelSmart –** A travel behaviour change program. It helps people to use cars less and to choose alternatives mode such as walking, cycling, and public transport.

**Trip –** One-way movement from one place to another for a particular purpose.

**Vertical integration –** Synergy and consistency between the various levels of government and private organisations, so that there is mutual support or, at least, they do not work against each other.

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# References

Australian Government, Canberra, Australia, 2011, *Social Inclusion Webpage,*
www.socialinclusion.gov.au/about/what-social-inclusion – link viewed 30 August 2011

Australian Local Government Association, 2001, *Roads to Recovery,*
www.alga.asn.au/policy/transport/r2r/ – link viewed 30 August 2011

Australian Local Government Association, 2006, *Local Government Roads and Transport Strategy: 2006 - 2016,*
www.alga.asn.au/policy/transport/transportstrategy/ALGA_TransportStrategy_2006-16.pdf – link viewed 30 August 2011

Australian Local Government Association, 2011, *Recent Updates,*
www.alga.asn.au/index.php?id=ac39a762b9285db00317c34061089eaf – link viewed 30 August 2011

Australian Local Government Association, 2011, *Sustainable Transport,*
www.alga.asn.au/policy/transport/sustran/ – active link viewed 31 August 2011

Australian Transport Council: Canberra, Australia, 2003, *National Charter of Integrated Land Use and Transport Planning,*
www.atcouncil.gov.au/documents/files/National_Charter_ATC_MAY_03.pdf – link viewed 31 August 2011

Australian Transport Council, Canberra, Australia, 2006, *National Guidelines for Transport System Management in Australia: Volume 1, Introduction to the Guidelines and Framework,*
www.atcouncil.gov.au/documents/files/National_Guidelines_Volume_1.pdf – link viewed 31 August 2011

Australian Transport Council, Canberra, Australia, 2006, *National Guidelines for Transport System Management in Australia: Volume 2, Strategic Transport Planning and Development,*
www.atcouncil.gov.au/documents/files/National_Guidelines_Volume_2.pdf – link viewed 31 August 2011

Australian Transport Council, Canberra, Australia, 2006, *National Guidelines for Transport System Management in Australia: Volume 3, Appraisal of Initiatives,*
www.atcouncil.gov.au/documents/files/National_Guidelines_Volume_3.pdf – link viewed 31 August 2011

Australian Transport Council, Canberra, Australia, 2006, *National Guidelines for Transport System Management in Australia: Volume 4, Urban Transport,*
www.atcouncil.gov.au/documents/files/National_Guidelines_Volume_4.pdf – link viewed 31 August 2011

Australian Transport Council, Canberra, Australia, 2006, *National Guidelines for Transport System Management in Australia: Volume 5, Background Material,*
www.atcouncil.gov.au/documents/files/National_Guidelines_Volume_5.pdf – link viewed 31 August 2011

Australian Transport Council, Canberra, Australia, 2009, *National Road Safety Action Plan 2009 and 2010,*
www.atcouncil.gov.au/documents/files/ATC_actionplan0910.pdf – link viewed 31 August 2011

Australian Transport Council, Canberra, Australia, 2011, *National Road Safety Strategy 2011 - 2020,*
www.atcouncil.gov.au/documents/files/NRSS_2011_2020_20May11.pdf – link viewed 31 August 2011

Australian National Road Safety Council, *Website Homepage,*
www.nrsc.gov.au/index.aspx – link viewed 31 August 2011

Austroads, Sydney, NSW, 2010, *Glossary of Terms, 4th Edition*

Austroads, Sydney, NSW, 2011, *Website Homepage,*
www.austroads.com.au – link viewed 31 August 2011

Austroads, Sydney, NSW, 2005, *Report AP-R266/05: Bus-Bike Interaction within the Road Network,*
www.austroads.com.au/documents/AP-R266-05.pdf – link viewed 31 August 2011

Austroads, Sydney, NSW, 2006, *Information Note No 3, Minimising Pedestrian-Cyclist Conflict on Paths,*
www.austroads.com.au/documents/03_Urban_Design.pdf – link viewed 31 August 2011

Austroads: Sydney, NSW, 2008, *Guide to Project Evaluation: Part 4 Project Evaluation Data,*
www.onlinepublications.austroads.com.au/items/AGPE04-08 – link viewed 31 August 2011

Austroads, Sydney, NSW, 2009, *Guide to Road Transport Planning,*
www.onlinepublications.austroads.com.au/items/AGRTP-09 – link viewed 31 August 2011

Austroads, Sydney, NSW, 2006, *Report AP-R287/06 Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths,*
www.onlinepublications.austroads.com.au/items/AP-R287-06 – link viewed 31 August 2011

Austroads, Sydney, NSW, 1998, Report AP-55/98 RTP *Principles for Strategic Planning*

Burke, M and Brown, A,L, 2007, *'Distances people walk for transport', Road and Transport Research,* Volume 16 No 3, September 2007.

Bureau of Infrastructure, Transport and Regional Economics (BITRE), Canberra, ACT, 2010, *Report 119, Population growth, jobs growth and commuting flows in Perth,*
www.bitre.gov.au/info.aspx?ResourceId=775&NodeId=21 – link viewed 1 Sept 11

Bureau of Infrastructure, Transport and Regional Economics (BITRE), Canberra, ACT, 2011, *Road Deaths Australia, December 2010,*
www.bitre.gov.au/publications/86/Files/RDA_Dec_2010.pdf – link viewed 1 Sept 11

Cairns, S., Hass-Klau, C. and Goodwin, P, 1998, *Traffic Impact of Highway Capacity Reductions: Assessment of the Evidence.* Landor Publishing: London, UK.

Carlin, G, 2001, *Napalm and Silly Putty,* 1st Edition, Hyperion, New York.

City of Stirling, 2009, *Transport Strategy Website Homepage,*
www.stirling.wa.gov.au/Home/Development/Projects/Transport+Strategy.htm – link viewed 1 Sept 11

City of Subiaco, 2007, *Integrated Transport Strategy 2007,*
www.subiaco.wa.gov.au/fileuploads/Integrated%20Transport%20Strategy(1).pdf – link viewed 2 Sept 11

Commission for Architecture and the Built Environment, 2011, K*ensington High Street, London, case studies*
http://webarchive.nationalarchives.gov.uk/20110118095356/http:/www.cabe.org.uk/case-studies/kensington-high-street – link viewed 2 Sept 11

ComLaw, Canberra, 1966, *Transport Co-ordination Act 1966 (WA),*
www.comlaw.gov.au/Details/C2010Q00248/Download – link viewed 2 Sept 11

ComLaw, Canberra, 2002, *Disability Discrimination Act 1992: Accessible Public Transport Standards Disability Standards for Accessible Public Transport 2002,*
www.comlaw.gov.au/Details/F2005B01059/Download – link viewed 2 Sept 11

ComLaw, Canberra, 2003, *Disability Discrimination Amendment Regulations 2004 (No. 1), 2004 No. 43,*
www.comlaw.gov.au/Details/F2004B00058/Download – link viewed 2 Sept 11

ComLaw, Canberra, 2004, *Disability Discrimination Act 1992: Accessible Public Transport Standards Disability Standards for Accessible Public Transport 2004,*
www.comlaw.gov.au/Details/C2004Q00677/Download – link viewed 2 Sept 11

ComLaw, Canberra, 2010, *Disability Discrimination Act 1992,*
www.comlaw.gov.au/Details/C2010C00023/Download – link viewed 2 Sept 11

US Department of Transportation , *Context Sensitive Solutions (CSS), 2005, Website Homepage,*
www.contextsensitivesolutions.org/ – link viewed 2 Sept 11

Council of Australian Governments (COAG), 2011, *Website Homepage,*
www.coag.gov.au/ – link viewed 2 Sept 11

Department for Transport: London, England. 2003, *Transport Analysis Guidance, Unit 3.3.5: The Greenhouse Gases Sub-Objective,*
www.dft.gov.uk/webtag/documents/expert/pdf/unit3.3.5.pdf – link viewed 2 Sept 11

Department for Transport: London, England, 2004, Appraisal. Transport Analysis Guidance, Unit 3.2,
www.dft.gov.uk/webtag/documents/expert/unit3.2d.php – link viewed 2 Sept 11

Department for Transport, UK, 2007, *Manual for Streets,*
www.dft.gov.uk/publications/manual-for-streets – link viewed 2 Sept 11

Department for Transport, UK, 2010. *Transport investment, transport intensity and economic growth. Standing Advisory Committee for Trunk Road Assessment: London, England,*
www.dft.gov.uk/topics/appraisal-evaluation/sactra/ – link viewed 2 Sept 11

Department of Climate Change and Energy Efficiency: Canberra, ACT, 2011, *National Greenhouse Gas Inventory - Kyoto Protocol Accounting Framework, 2008*,
www.ageis.greenhouse.gov.au/ – link viewed 2 Sept 11

Department of Health and Ageing, Australian Government, 2008, *Cycling: Getting Australia Moving: Barriers, facilitators and interventions to get more Australians physically active through cycling,*
www.cyclingpromotion.com.au/images/stories/downloads/CPFHlthRpr08V3prf1.pdf – link viewed 2 Sept 11

Department of Infrastructure and Transport, 2010, *Black Spot Program*,
www.nationbuildingprogram.gov.au/funding/blackspots – link viewed 25 Oct 11

Department of Transport, Bikewest, Perth, WA, 1996, *Bike Ahead, Bicycle Strategy for the 21st Century*,
www.dpi.wa.gov.au/mediafiles/cycling_bike_ahead.pdf – link viewed 25 Oct 11

Department of Transport, Perth, WA, 1995. *Metropolitan Transport Strategy, 1995-2029,*
www.transport.wa.gov.au/tsmart_mts.pdf – link viewed 25 Oct 11

Department of Transport Perth, WA, 1996, *Going Out and Getting There: Action Plan for Accessible Public Transport for People with Disabilities in Perth*,
www.transport.wa.gov.au – link viewed 25 Oct 11

Department of Transport, Perth, WA, 2011, *Website Homepage,*
www.transport.wa.gov.au – link viewed 25 Oct 11

Department of Transport, Perth, WA, 2011, *TravelSmart Website Homepage,*
www.transport.wa.gov.au/14890.asp – link viewed 25 Oct 11

Department of Transport, Perth, WA, 2011, *Perth Bike Maps,*
www.transport.wa.gov.au/cycling/14679.asp – link viewed 25 Oct 11

Department of Transport, Perth, WA, 2011, *Local TravelSmart Guides,*
www.transport.wa.gov.au/14972.asp – link viewed 25 Oct 11

Department of Transport WA, Perth, 1996, *The Perth Bicycle Network Plan,*
www.transport.wa.gov.au/mediaFiles/cycling_PBNP.pdf – link viewed 31 Oct 11

Department of Transport, Perth, WA, 2000, *Shenton Park Integrated Transport Plan*

Department of Transport, Perth, WA, 2011, *Welcome to Bikewest Website Homepage,*
www.transport.wa.gov.au/1515.asp – link viewed 26 Oct 11

Department of Transport, Perth, WA, *Walking Initiatives,*
www.transport.wa.gov.au/walking/1542.asp – link viewed 26 Oct 11

Department for Planning and Infrastructure, Perth, WA, 2002, *Working Paper: 8 Bassendean Enquiry-by-Design Workshop
(2001 & 2002), Outcomes Report,*
www.planning.wa.gov.au/publications/740.asp – link viewed 26 Oct 11

Department of Planning, Perth, WA, 2004, *Metropolitan Region Scheme,*
www.planning.wa.gov.au/1222.asp – viewed 26 Oct 11

Department of Planning, Perth, WA, 2011, *Website Homepage,*
www.planning.wa.gov.au/ – viewed 26 Oct 11

Department of Regional Development and Lands, Perth, WA, *Royalties for Regions,*
www.royaltiesforregions.wa.gov.au – link viewed 26 Oct 11

Department of Sport and Recreation, Physical Activity Taskforce, 2010, *Physical Activity Levels of Western Australian
Adults 2009,*
www.beactive.wa.gov.au/assets/files/Research/2009%20Adult%20Survey%20Main%20Report.pdf –
link viewed 26 Oct 11

Department of Sport and Recreation, Physical Activity Taskforce, Perth, WA, 2011, *Walk WA: A Walking Strategy for Western
Australia 2007- 2020,*
www.beactive.wa.gov.au/assets/files/PATF%20Strategic%20Plans%20and%20Committee%20Docs/PATF%20
Strategic%20Plans/Walk%20WA%20A%20Walking%20Strategy%20for%20Western%20Australia%202007%20to%20
2020%20.pdf – link viewed 26 Oct 11

Department of the Environment, Transport and the Regions: London, England, 2000, *Encouraging Walking: advice to
local authorities,*
http://webarchive.nationalarchives.gov.uk/+/www.dft.gov.uk/pgr/sustainable/walking/uragingwalkingadvicetolo5793.pdf
– link viewed 26 Oct 11

170 **Guidelines**
for preparation of
**integrated transport plans**

Department of the Premier and Cabinet, Perth, WA, 2009, *Lead Agency Framework: A guidance note for implementation*, www.transport.wa.gov.au/mediaFiles/FINAL_LAF_doc.pdf – link viewed 26 Oct 11

Dodson, J. and Sipe, N. 2008, *Unsettling Suburbia: The New Landscape of Oil and Mortgage Vulnerability in Australian Cities*. Research Paper 17, Urban Research Program, Griffith University: Brisbane, Qld, www.griffith.edu.au/__data/assets/pdf_file/0003/88851/urp-rp17-dodson-sipe-2008.pdf – link viewed 26 Oct 11

East Perth Redevelopment Authority and Subiaco Redevelopment Authority: Perth, WA., 2003, *Small Street Activation Discussion Paper*.

Engwright, D. 2005, *Mental Speed Bumps: The smarter way to tame traffic*. Envirobook: Annandale, NSW

Falconer, R., Newman, P., Giles-Corti, B. 2007, *Living on the Edge - Transport sustainability in Perth's Liveable neighbourhoods*, PATREC

Ferreira. L., Smith, N. and Mead, E., 2001, *'Assessing the transport impacts of e-business in Australia'*. In: Urban Transport and the Environment VII. Sucharov, L. and Brebbia C. A. (Eds), Wessex Institute of Technology Press. Shaw, G, B., 1921, *Back to Methuselah*, Oxford University Press, UK

Gehl Architects for City of Perth and WA Planning Commission: Perth, WA, 2009, *Perth 2009: Public Spaces and Public Life*, www.planning.wa.gov.au/publications/1141.asp – link viewed 26 Oct 11

Gehl Architects: Copenhagen, Denmark, 2010, *Our Cities Ourselves – 10 principles for transport in urban life*, http://gehlarchitects.wordpress.com/2010/07/06/our-cities-ourselves-10-principles-for-transport-in-urban-life – link viewed 26 Oct 11

Government of Western Australia: Perth, WA, 2003, *Hope for the future: The Western Australian State Sustainability Strategy*, viewed 14th May 2011, www.dec.wa.gov.au/content/view/3523/2066/ – link viewed 26 Oct 11

Government of Western Australia, Perth, WA, 2004, *Western Australian Greenhouse Strategy*, www.dec.wa.gov.au/component/option,com_docman/task,doc_download/gid,1691/Itemid,1 – link viewed 26 Oct 11

Government of Western Australia, Office of Road Safety, 2009, *Towards Zero, Road Safety Strategy To Reduce Road Trauma in Western Australia 2008-2020*, www.ors.wa.gov.au/getattachment/Towards-Zero/towardszero-strategy.PDF.aspx – link viewed 26 Oct 11

Government of Western Australia, Office of Road Safety, 2011, *Website Homepage*, www.ors.wa.gov.au/ – link viewed 26 Oct 11

Infrastructure Australia, 2008, *Regional Integrated Transport Strategy for Perth's Eastern Region, Submission to Infrastructure Australia for Consideration for funding from the Building Australia Fund, 15 October 2008*, www.infrastructureaustralia.gov.au/public_submissions/published/files/410_EasternMetropolitanRegionalCouncil_SUB. pdf – link viewed 26 Oct 11

Infrastructure Australia, 2010, *Better infrastructure Decision-Making, Guidelines for making submissions to Infrastructure Australia's infrastructure planning process, through Infrastructure Australia's Reform and Investment Framework*, www.infrastructureaustralia.gov.au/reform_investment/files/Better_Infrastructure_Decision_Making_Guidelines_v3_0. pdf – link viewed 26 Oct 11

Infrastructure Australia, Major Cities Unit, 2010. *State of Australian Cities 2010*,
www.infrastructure.gov.au/infrastructure/mcu/soac_files/SOAC_Contents.pdf – link viewed 26 Oct 11

Institute of Public Works Engineering Australia, WA, 2011, *Local Government Guidelines for Subdivision Development, Edition 2.1*,
www.planning.wa.gov.au/dop_pub_pdf/IPWEA_Subdivision_Guidelines_Edition_2.1__28_July_2011_.pdf –
link viewed 27 Oct 11

Institute of Transportation Engineers, USA, 2006, *Context Sensitive Solutions (CSS)*,
www.ite.org/css/ – link viewed 27 Oct 11

Intergovernmental Panel on Climate Change: Geneva, Switzerland, 2007, *Climate Change 2007: Synthesis Report – Summary for Policymakers*,
www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm –
link viewed 27 Oct 11

International Association for Public Participation, 2006, *IAP2's Public Participation Toolbox*,
www.iap2.org/associations/4748/files/06Dec_Toolbox.pdf – link viewed 27 Oct 11

International Association for Public Participation, 2007, *IAP2 Spectrum of Public Participation*,
www.iap2.org/associations/4748/files/IAP2%20Spectrum_vertical.pdf – link viewed 27 Oct 11

International Centre for Technology Assessment, Washington DC, USA, 2000, *In-Car Air Pollution: The Hidden Threat to Automobile Drivers. Report No 4, An Assessment of the air quality inside automobile passenger compartments*,
www.icta.org/doc/In-car%20pollution%20report.pdf – link viewed 27 Oct 11

JESSICA (Joint European Support for Sustainable Investment in City Areas), 2011, *Website Homepage,*
http://ec.europa.eu/regional_policy/thefunds/instruments/jessica_en.cfm#1– link viewed 27 Oct 11

Ker, I. and Ginn, S. 2003, *Myths and realities in walkable catchments: The case of walking and transit. Road and Transport Research,* Volume 12 No 2, June 2003. ARRB Transport Research: Melbourne, Victoria.
Kontentreal Production, 2008, e2:transport – Portland, Oregon,
www.e2-series.com – link viewed 27 Oct 11

Kurte, J, 2005, *B2C E-Commerce: Impact on Transport in Urban Areas.* 4th International Conference on City Logistics: Langkawi, Malaysia, in Recent Advances in City Logistics, Elsevier Science Ltd.

Litman, T. 2003, *Measuring Transportation: Traffic, Mobility and Accessibility,* ITE Journal, Vol. 73, No. 10, October, pp. 28-32,
www.vtpi.org/measure.pdf – link viewed 27 Oct 11

Litman, L, 2011, *Parking Management.* Victoria Transport Policy Institute: Victoria BC, Canada,
www.vtpi.org/park_man.pdf – link viewed 27 Oct 11

Litman T, 2011, *Shared Parking: Sharing Parking Facilities Among Multiple Users.* Victoria Transport Policy Institute,
www.vtpi.org/tdm/tdm89.htm – link viewed 31 Oct 11

Local Government Association of Queensland and the Government of Queensland: Brisbane, Queensland, 2010.
*Integrated Transport Planning Framework for Queensland: A guide for transport planning*,
http://transport.qld.gov.au/Home/Projects_and_initiatives/Plans/Integrated_transport_plans/Integrated_transport_
planning_framework – link viewed 31 Oct 11

Local Governments for Sustainability (ICLEI), 2008, *Cities for Climate Protection*,
www.iclei.org/index.php?id=11322 – link viewed 31 Oct 11

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**Guidelines**
for preparation of
**integrated transport plans**

Lucas, K. (Ed), 2004, *Running on Empty: Transport, social exclusion and environmental justice.* The Policy Press, University of Bristol: Bristol, England.

Main Roads WA, 2006, *Guidelines for Assessing Cycling Level of Service*, www.mainroads.wa.gov.au/NR/rdonlyres/F59918C4-4A1D-4CF8-A661-1E7629CDBA4E/0/ E80529_20060518140710790.PDF – link viewed 31 Oct 11

Main Roads WA, 2006, *Guidelines for Assessing Pedestrian Level of Service*, www.mainroads.wa.gov.au/_layouts/getAsset.aspx?URI=1240822&REV=1&RCN=D06#47977 – link viewed 31 Oct 11

Main Roads WA, 2007, *Black Spot Program*, www.mainroads.wa.gov.au/UNDERSTANDINGROADS/ROADSAFETY/BLACKSPOTPROGRAM/Pages/BlackSpotProgramHome. aspx – link viewed 31 Oct 11

Main Roads WA, 2011, *About Mainroads: Our Role and Regions webpage*, www.mainroads.wa.gov.au/ABOUTMAINROADS/OURROLEREGIONS/Pages/OurRoleRegions.aspx – link viewed 31 Oct 11

Main Roads WA, 2011, *About Mainroads: Our Strategic Plan – 2k12 webpage*, www.mainroads.wa.gov.au/AboutMainRoads/AboutUs/Pages/StrategicPlan.aspx – link viewed 31 Oct 11

Main Roads WA, 2011, *Website Homepage*, www.mainroads.wa.gov.au – link viewed 31 Oct 11

Office of the Prime Minster, Social Exclusion Unit, London, England, 2003, *Making the Connections: Final Report on Transport and Social Exclusion*, www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_policy/---invest/documents/publication/wcms_asist_8210.pdf – link viewed 31 Oct 11

Peak Oil, 2006, 10 July, *Four Corners*, television broadcast, ABC Television, www.abc.net.au/4corners/content/2006/s1680717.htm – link viewed 31 Oct 11

Planning Institute of Australia, Heart Foundation and Australian Local Government Association, Kingston, ACT, 2007, *Healthy Spaces & Places: A national guide to designing places for healthy living*, www.healthyplaces.org.au – link viewed 31 Oct 11

Practicalforecasting.com, 2007, *Searching for Better Forecasting Methods?*, www.practicalforecasting.com – link viewed 31 Oct 11

Project for Public Spaces, 2011, *What is Placemaking?*, www.pps.org/articles/what_is_placemaking/ – link viewed 31 Oct 11

Prof Jones, P., Centre for Transport Studies, UCL, London, 2009, *Link and Place: A Guide to Street Planning and Design*, www.thinkingtransport.org.au/sites/www.thinkingtransport.org.au/files/Link%20and%20Place%20-%20Prof%20 Peter%20Jones%206.10.09.pdf – link viewed 31 Oct 11

Public Transport Authority (PTA), Perth, WA, 2011, *Website Homepage*, www.pta.wa.gov.au/ – link viewed 31 Oct 11

Queensland Transport: Brisbane, Queensland, 2010, *Easy Steps – a toolkit for planning, designing and promoting safe walking*, www.tmr.qld.gov.au/~/media/07e721cd-9197-4c04-bc69-4c2741024578/pdf_easy_steps_web_final.pdf – link viewed 31 Oct 11

Guidelines
for preparation of
integrated transport plans

Robinson, D L, 2005, Safety in numbers in Australia: more walkers and bicyclists, safer walking and bicycling'. *Health Promotion Journal of Australia, 16(1) 47-51,*
www.ncbi.nlm.nih.gov/pubmed/16389930 – link viewed 31 Oct 11

Rogers, R. and Power, A. 2000, *Cities for a Small Country,* Faber & Faber: London, England

Shoup, D, C. 1999, *The Trouble With Minimum Parking Requirements,* Transportation Research Part A Vol 33, pp549-574.

Shoup, D, C. The University of California Transportation Centrer, 2005, *The High Cost of Free Parking,*
www.uctc.net/papers/351.pdf – link viewed 31 Oct 11

South West Group of Councils, 2003, *Travelling Together,* viewed 14th May 2011,
www.southwestgroup.com.au/south-west-group/projects/regional-integrated-transport-planning/ – link viewed 31 Oct 11

Taylor, S. and Ker, I. 2004, *Feasibility Study for Provision of a Commercial or Subsidised Community Transport Service.* ARRB Transport Research FOR WESROC, City of Fremantle and Department for Planning and Infrastructure: Perth, WA.

TechRepublic, 2002, *Help for writing a project brief,*
www.techrepublic.com/article/help-for-writing-a-project-brief/1055972 – link viewed 31 Oct 11

The Australian Transport Council, 2011, *Website Homepage,*
www.atcouncil.gov.au – link viewed 31 Oct 11

The University of Winnipeg, Canada, 2011, *Centre for Sustainable Transport,*
http://cst.uwinnipeg.ca/monitor.html  – link viewed 31 Oct 11

Town of Vincent and the WA Planning Commission: Perth, WA, 2004, *Vincent Vision 2024: A vision for the Town of Vincent 2004-2024,*
www.vincentvision2024.com.au/home.html – link viewed 31 Oct 11

Town of Vincent: Perth, WA, 2011, *Economic Development Strategy 2011-2016,*
www.vincent.wa.gov.au/files/1b178ff2-9f4a-4c8e-a91f-9ebe009bc15c/Economic_Development_Strategy.pdf – link viewed 31 Oct 11

Town of Vincent: Perth, WA, 2008, *Parking and Access. Planning and Building Policy 3.7.1,*
www.vincent.wa.gov.au/Services/Development_Services/Planning/Planning_and_Building_Policies – link viewed 31 Oct 11

Town of Vincent: Perth, WA, 2009, *Plan for the Future: Strategic Plan 2009-2014,*
www.vincent.wa.gov.au/files/2ca49823-9911-4db4-86a5-9ebe009bbd42/Strategic_Plan_2009-2014.pdf – link viewed 31 Oct 11

TravelSmart Australia, 2008, *A better way to go, Website Homepage,*
www.travelsmart.gov.au/ – link viewed 31 Oct 11

Urban Design Alliance, *Website Homepage,*
www.placecheck.info – link viewed 31 Oct 11

Victoria Transport Policy Institute, 2010, *Car Sharing,*
www.vtpi.org/tdm/tdm7.htm – link viewed 31 Oct 11

Victoria Transport Policy Institute, 2010, *Ridesharing: carpooling and Vanpooling*,
www.vtpi.org/tdm/tdm34.htm – link viewed 31 Oct 11

Victoria Transport Policy Institute, 2011, *Sharing Parking Facilities Among Multiple Users*,
www.vtpi.org/tdm/tdm89.htm – link viewed 31 Oct 11

Waikato Regional Council: Hamilton, New Zealand, 2007. *A Discussion on Decoupling Economic Growth from the Emissions of Carbon Dioxide*,
www.waikatoregion.govt.nz/PageFiles/6131/tr07-02.pdf – link viewed 2 Nov 11

Westerman, H, L. 1998. '*Cities for Tomorrow. Volume 1: Better Practice Guide*'. [Out of Print: Not currently available]
Volume 2: Resource Document. Reports AP57/98 and AP58/98. Austroads: Sydney, NSW.

Western Australian Government Gazette 3235, WA, 1999. *Perth Parking Management Act 1999: Perth Parking Policy*,
www.transport.wa.gov.au/mediaFiles/DOT_R_ParkPol.pdf – link viewed 2 Nov 11

Western Australian Government Gazette 4135, WA, 2010. *Planning and Development Act 2005, State Planning Policy 4.2, Activity centres for Perth and Peel*,
www.planning.wa.gov.au/publications/1178.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 1997, *State Planning Strategy: Final Report*,
www.planning.wa.gov.au/Plans+and+policies/Publications/52.aspx – link viewed 2 Nov 11

Western Australian Planning Commission, 1998, *Policy No. DC 1.5: Bicycle Planning*,
www.planning.wa.gov.au/publications/797.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2005, *Network City: community planning strategy for Perth and Peel*,
www.perthperth.com/cityplanningperth.pdf – link viewed 2 Nov 11

Western Australian Planning Commission, 2006, *Designing Out Crime Planning Guideline*,
www.planning.wa.gov.au/publications/789.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2006, *Development Control Policy 1.6 - Planning to Support Transit Use and Transit Oriented Development*

Western Australian Planning Commission, 2006, *Transport Assessment Guidelines For Developments*,
www.planning.wa.gov.au/publications/1197.asp – link viewed 2 Nov 11

Western Australian Planning Commission, Planning Bulletin Number 81, WA, 2006. *Planning and Development Act 2005 – Frequently asked questions*,
www.planning.wa.gov.au/publications/1025.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2007, *Liveable Neighbourhoods: a Western Australian Government sustainable cities initiative*,
www.planning.wa.gov.au/publications/919.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2009, *Directions 2031 Draft Spatial Framework for Perth and Peel*,
www.parliament.wa.gov.au/intranet/libpages.nsf/WebFiles/Document+Directions+2031/$FILE/Directions+2031.pdf – link viewed 2 Nov 11

Western Australian Planning Commission: Perth, WA, 2009, *State Planning policy 5.4: Road and Rail Transport Noise and Freight Considerations in Land Use Planning*,
www.planning.wa.gov.au/publications/1182.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2009, *Planning Makes it Happen – a blue print for planning reform*, www.planning.wa.gov.au/publications/1127.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2010, *Directions 2031 and beyond- Metropolitan Planning beyond the horizon*, www.planning.wa.gov.au/publications/826.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2010, *Local Planning Manual: A guide to the preparation of local planning strategies and local planning schemes in Western Australia*, www.planning.wa.gov.au/publications/819.asp – link viewed 2 Nov 11

Western Australian Planning Commission, 2011, *Infrastructure Coordinating Committee membership homepage*, www.planning.wa.gov.au/5130.asp#Infrastructure – link viewed 2 Nov 11

Western Australian Planning Commission, 2011, *Sustainable Transport Committee membership homepage*, www.planning.wa.gov.au/5130.asp#Sustainable – link viewed 2 Nov 11

Western Power Corporation and Department of Environmental Protection, Perth, WA, 1996, *The Perth Photochemical Smog Study*, http://portal.environment.wa.gov.au/pls/portal/url/item/FCC4C5820AE3FB51E03010AC6E051A0D – link viewed 2 Nov 11

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