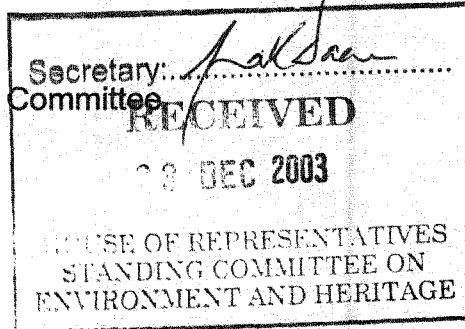


The Hon Jay Weatherill MP  
 Minister for Urban Development and Planning  
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Ref: 03MUP01069  
 PLN/03/0359

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Dear Committee members

The Government of South Australia welcomes the opportunity to provide the attached submission to the Inquiry into Sustainable Cities 2025.

The South Australian Government is committed to building the principles of ecologically sustainable development (ESD) into government decision making frameworks and processes. The Government has established peak advisory and administrative bodies to focus on the three spheres of sustainability - environmental sustainability, economic development and social inclusion.

With the recent announcement of the Commonwealth Government's Sustainable Cities program and the establishment of this Inquiry, it is hoped that the Commonwealth Government is working towards the development of a national urban policy agenda. Due to the high level of urbanisation in Australia (for example 81 percent of SA population lives in Adelaide and its peri-urban centres) it is clear that progress towards sustainability in Australia will largely depend on how we manage our cities - particularly our capital cities. This is clearly an issue of national importance.

The challenge to creating sustainable cities is that we are constrained by the existing structure of the city and within the context of most existing infrastructure. It is essential that along side the effort to transform cities into more sustainable urban forms, that other initiatives, such as improving the water and energy efficiency of products and fittings, changing culture and behaviours towards a less consumer society and developing and adopting renewable fuels/technologies, are progressed to improve sustainability within the context of the existing structure of our cities. We need to determine, and focus efforts on, what we can realistically change to facilitate progress towards sustainability. A long-term approach and commitment is essential to transforming cities towards sustainability.

Work towards improving the sustainability of cities encompasses an extensive range of issues and it is not the intention of this submission to cover, in detail, all of these issues but touch on some that are particularly relevant in the context of the Inquiry's terms of reference. There are many important issues that have not been included or expanded upon in this submission, such as noise pollution, safety and community development, which should be considered as part of the broader context of sustainability.

It is evident that all Australian jurisdictions have embarked or are developing many initiatives that will assist in the achievement of sustainable cities. However, the Commonwealth Government can play a more significant role through the provision of policy/program leadership, research, incentives and funding support and regulatory reforms. Accordingly, the SA Government has outlined a number of recommendations in the submission for consideration by the Committee and Commonwealth Government.

Yours sincerely



Hon Jay Weatherill MP  
**MINISTER FOR URBAN DEVELOPMENT AND PLANNING**  
**MINISTER FOR ADMINISTRATIVE SERVICES**  
**MINISTER FOR GAMBLING**

16/12/2003

Enc.

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**Appendix 1 – Relevant SA Government initiatives and involvement in national programs**

## Executive Summary

This submission provides comments and information in the context of the Inquiry's terms of reference, comments on existing Commonwealth Government policy and initiatives, outlines current South Australian (SA) Government policy and initiatives and makes recommendations on mechanisms that the Commonwealth Government could apply to improve the sustainability of cities. The Inquiry's five terms of reference form the basis for the main discussion sections within the SA Government submission.

The SA Government is committed to building the principles of ecologically sustainable development (ESD) into government decision making frameworks and processes. The Government has established peak advisory and administrative bodies to focus on the three spheres of sustainability - environmental sustainability, economic development and social inclusion.

ESD is part of the process that is leading us towards sustainable cities. Sustainability must be considered from a holistic perspective in the context of economic, social and environmental issues. It must be acknowledged that the ecological footprint<sup>1</sup> of Australian cities extends significantly beyond the physical boundary of the city.

Due to the continuing high level of urbanisation in Australia progress towards sustainability in Australia will largely depend on how we manage our cities – particularly our capital cities. This is clearly an issue of national importance.

The challenge to creating sustainable cities is that we are constrained by the existing structure of the city and within the context of most existing infrastructure. It is essential that along side the effort to transform cities into more sustainable urban forms, that other initiatives, such as improving the water and energy efficiency of products and fittings, changing culture and behaviours towards a less consumer society and developing and adopting renewable fuels/technologies, are progressed to improve sustainability within the context of the existing structure of our cities. We need to determine, and focus efforts on, what we can realistically change to facilitate progress towards sustainability. A long-term approach and commitment is essential to transforming cities towards sustainability.

The impacts of urban sprawl are well documented and include: loss of productive land and areas of biodiversity value on the urban fringe; increase in energy use for transport; increased cost of infrastructure to service low density development; less physical activity as people drive more often; and lack of access to public transport, services and employment opportunities. The costs of urban sprawl need to be considered in the context of the costs of the alternative, which is, increased urban population density.

In South Australia the key determinants that influenced past patterns of settlement were government land banking and release, public housing developments and increased motor vehicle ownership. The latter has resulted in a move away from “mass transit” to a “car-based” lifestyle. In the future, urban settlement patterns will be driven by the need to accommodate an aging population, an increased demand for new housing despite a slow population growth; the staging of land development for housing; the location of employment

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<sup>1</sup> A population's ecological footprint is the biologically productive area needed to produce the resources used and absorb the waste generated by that population. Refer to [www.RedefiningProgress.org](http://www.RedefiningProgress.org).

opportunities, the need for open space as urban areas become denser, settlement in peri-urban areas and the extent of culture change towards denser development.

Desirable patterns of development for Adelaide will be articulated in the revised Metropolitan Adelaide volume of the Planning Strategy within the context of the Urban Containment Boundary. The establishment of an Urban Containment Boundary around Adelaide in March 2003 is a significant policy initiative that has been implemented to arrest Adelaide's urban sprawl and encourage higher density residential development and redevelopment closer to the city's centre and major transport and service nodes. The revised Planning Strategy will guide growth and development based on the principles of ecologically sustainable development towards a more sustainable urban form. The focus of the revised strategy is on urban containment, the integration of water, energy and land use planning and the integration of transport and land use planning.

Other key initiatives relevant to this inquiry are

- The Green City Program that aims to develop Adelaide as an internationally acclaimed green city – recognised for its environmental and sustainability initiatives.
- The recently launched *Greening of Government Operations Framework* that is intended to improve the efficiency and significantly reduce the environmental impact of SA government operations.
- A number of State and Local Government partnership arrangements that are in place to facilitate collaboration between State and Local Government on common sustainability issues at a policy and service delivery level, including the Ministers' Local Government Forum.

Section 4 discusses the “visionary objectives” listed in the Inquiry's discussion paper, ie:

1. Preserve bushland, significant heritage and urban green zones.
2. Ensure equitable access to and efficient use of energy, including renewable energy sources.
3. Establish an integrated sustainable water and stormwater management system addressing capture, consumption, treatment and re-use opportunities.
4. Manage and minimise domestic and industrial waste.
5. Develop sustainable transport networks, nodal complementarity and logistics.
6. Incorporate eco-efficiency principles into new buildings and housing.
7. Provide urban plans that accommodate lifestyle and business opportunities.

The SA Government supports these seven key elements identified by the Committee as a sound basis for a sustainable city. However, the SA Government believes that there are a number of other elements that should be explicitly included in a blueprint, viz:

8. Conserving the coast and maintaining infrastructure.
9. Addressing climate change.
10. Affordable and sustainable housing.
11. Achieving sustainable economic growth.
12. Social inclusion.
13. Population policy.
14. Provincial cities.

Section 5 outlines a range of measures that can be applied to reduce the cost of urban sprawl, including urban containment, urban consolidation, urban regeneration, transit orientated development, improved public transport, improved active transport choices, triple bottom line reporting and financial levers.

Work towards improving the sustainability of cities encompasses an extensive range of issues and it is not the intention of this submission to cover, in detail, all of these issues but touch on some that are particularly relevant in the context of the Inquiry's terms of reference. There are many important issues that have not been included or expanded upon in this submission, such as noise and air pollution, safety and community development, which should be considered as part of the broader context of sustainability.

It is evident that all Australian jurisdictions have embarked or are developing many initiatives that will assist in the achievement of sustainable cities. However, the Commonwealth Government can play a more significant role through the provision of policy/program leadership, research, incentives and funding support and regulatory reforms. Accordingly, the SA Government has outlined a number of recommendations (drawn from sections 4 and 5) for consideration by the Commonwealth, including that the Commonwealth Government:

*Measure of progress - Sustainability reporting*

1. work with the states and territories to develop a meaningful range of sustainability criteria for a reporting tool that conveys our progress towards sustainability, the state of the environment and of society in addition to the economy and that such a process is used as a formal adjunct to the GDP

*Energy*

2. continue to support the development of the National Framework for Energy Efficiency, play a key role in driving implementation of the framework and facilitate a steady increase in standards for energy efficiency of appliances through the Minimum Energy Efficiency Performance Standards and within the context of the National Framework for Energy Efficiency in consultation with states and territories
3. increase the Mandatory Renewable Energy Target from 2 to 4.5 percent
4. re-think the decision to introduce an excise on LPG, LNG and CNG and develop a framework of exemptions on fuel excise that preserve the preferential position of alternative fuels, based on their carbon intensity

*Water*

5. continue to collaborate and provide funding to progress the development of national guidelines for wastewater and stormwater recycling in consultation with states and territories
6. continue to work with states and territories to develop minimum performance standards for water using domestic appliances and fittings and assess the feasibility of water efficiency labelling and standards for irrigation systems used in urban areas
7. support and take a lead in the development of water sensitive design guidelines and targets for urban areas in consultation with states and territories

*Research into sustainable technology*

8. in consultation with the states and territories develop a research strategy focussed on sustainability issues in cities, with a particular focus on more integrated and innovative approaches to address water and energy issues

*Transport*

9. re-think the current Fringe Benefits Tax arrangements related to motor vehicles to remove the present incentive for higher vehicle use. Further consideration should be given to using additional FBT exemptions for employer provided assistance with alternative travel modes, particularly walking, bike riding and public transport use
10. in consultation with the states and territories have a greater proactive involvement in addressing the fundamental national barriers to developing sustainable transport systems in Australian cities, such as public transport infrastructure investment and culture change towards more sustainable transport options

*Building*

11. support and facilitate the adoption of sustainability as a key goal for the Building Code of Australia, support and drive progressive introduction of energy efficiency standards for all buildings, support the continuation of the Australian Building Code Board and support and drive the development of a national sustainability index for housing, through the relevant Ministerial Councils, in consultation with states and territories
12. in conjunction with the building sector and in consultation with the states and territories investigate options for financial incentives that support development of 'green' buildings and sustainable refurbishments of existing buildings

*Climate change*

13. re-consider its position on ratification of the Kyoto Protocol
14. undertake a comprehensive evaluation, in close consultation with states and territories, of the potential for and operation of a national emissions trading scheme

*National Summit on the Future of Australia's Towns and Cities and national urban policy*

15. support and take an active role in the National Summit on the Future of Australian Towns and Cities, use the opportunity of provided by the summit to commit to and develop a national urban policy in consultation with the states, territories and Australian Local Government Association

*Housing*

16. take a more active role in matters surrounding housing affordability, supply and sustainability

*Population policy*

17. consider increasing Australia's overall migrant intake, consider introducing a two stage visa approach for up to half of the national migrant intake and work with the South Australian Government to ensure SA receives at least its proportionate share of the annual immigration intake

*Taxation*

18. investigate reforms to existing taxes as a means of progressing towards sustainability in consultation with states and territories.



## 1. Introduction

The Government of South Australia (SA) welcomes the opportunity to provide a submission to this inquiry. The SA Government is committed to building the principles of ecologically sustainable development into government decision making frameworks and processes as evidenced by the establishment of the Office of Sustainability in 2002 and creation of the Premier's Round Table on Sustainability in 2003. Within the context of ecologically sustainable development (ESD) there are a number of significant government initiatives that focus on improving the sustainability of cities in South Australia.

With the recent announcement of the Commonwealth Government's Sustainable Cities program and the establishment of this inquiry, it is hoped that the Commonwealth Government is working towards the development of a national urban policy agenda. Due to the high level of urbanisation in Australia (for example 81 percent of SA population lives in Adelaide and its peri-urban centres) it is clear that progress towards sustainability in Australia will largely depend on how we manage our cities – particularly our capital cities. This is clearly an issue of national importance.

### *1.1 South Australian Government Framework for Sustainability*

The SA Government has established peak advisory and administrative bodies to focus on environmental sustainability, economic development and social inclusion as described below.

The Office of Sustainability was established in 2002 and aims to drive strategies for sustainability across government building the principles of ecologically sustainable development into government decision making. The Office of Sustainability runs a number of programs including: environment/sustainability reporting, Greening of Government Operations framework, environment policy and legislation, Green Business Unit, local government and community liaison.

The Office of Sustainability also supports the Premier's Round Table on Sustainability that is chaired by Dr Tim Flannery. The Round Table will advise the Minister for Environment and Conservation and the Premier on long term issues about the environmental sustainability of South Australia.

The Social Inclusion Board is advising the Government on new ways to achieve better outcomes for the most disadvantaged people in the community. The initial focus of the Social Inclusion Board is on homelessness, school retention rates and recommendations from the 2002 Drug Summit.

The Economic Development Board is charged with revitalising the State's economy - with a specific focus on achieving long-term growth and prosperity. The Board released a report in May 2003 that provides the impetus and context for economic growth in the State.<sup>2</sup>

Another advisory board that has been established and is relevant to this inquiry is the Science and Research Council. The Council is co-chaired by the Premier and Dr Tim Flannery and has been meeting to develop a 10 year strategy to capitalise on scientific research and development in SA.

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<sup>2</sup> Economic Development Board, 2003, *A framework for economic development in SA*, [www.oed.sa.gov.au/#Economic%20Development%20Board](http://www.oed.sa.gov.au/#Economic%20Development%20Board)

The draft State Strategic Plan comprises part of the SA Government response to the Economic Development Board report. It has the role of coordinating the Government's objectives in key areas of economic and financial policy, land use and infrastructure policy, and social and environmental policy. It is intended to:

- convey a clear message to business, government and the community about the intended policy directions for South Australia
- provide guidance and discipline to government agencies on priorities for action and
- provide the coordinating framework for other overarching government plans such as the Planning Strategy, in addition to specialised plans.

The *Planning Strategy for South Australia*, given authority under the *Development Act 1993*, represents the physical manifestation of the State Strategic Plan, and has the role of coordinating the activities of the spatial aspects of other State Government agencies including the key directions of specialised plans such as the State Transport Plan, State Water Plan, State Housing Plan, Catchment Water Management Plans and Marine Plans.

The Planning Strategy's role is to set out the State Government's direction for future growth and development of the State to the community, the private sector and Local Government and to apply this direction to its own development activities. A primary function is to guide all changes to local Development Plans. It does however only relate to new development, a point that will be revisited later in this submission.

In addition to incorporating the spatial aspects of the specialised plans, the Planning Strategy will utilise relevant aspects of the Metropolitan Development Program that estimates future population levels and infrastructure requirements.

### ***1.2 Defining ESD/Sustainability***

Relevant definitions for ESD are found in the *National Strategy for ESD* and in South Australia, the *Environment Protection Act 1993*. Due to the wide variety of interpretations on what sustainable development means, ESD based guiding principles have been established as part of the review of the Planning Strategy as a "working definition" of ESD. In determining the guiding principles, reference was made to the Development Act, State Strategic Plan, and Adelaide's comparative and competitive advantage, global and national definitions of ESD, and the definition of ESD in State law, namely the Environment Protection Act. The result is a set of principles based on the National Strategy for ESD, which are tailored to Adelaide, the broader needs of the state and the terms of reference for the Planning Strategy.

ESD is part of the process that is leading us towards sustainable cities. Sustainability is a broader concept than ESD and must be considered from a holistic perspective, ie by understanding the relationships between environmental, economic and social systems. Sustainability is perceived as the guarantor of 'quality of life', and promises maintenance of resources and in some cases enhancement of those resources for the use of present and future generations. The *Melbourne Principles for Sustainable Cities*<sup>3</sup> created in 2002 and launched at the World Summit on Sustainable Development in Johannesburg expand on the concept of sustainability and provide a context for the importance of and interaction between environmental, economic and social issues in achieving sustainability.

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<sup>3</sup> [http://www.epa.vic.gov.au/business\\_sustainability/sustainable\\_cities.asp](http://www.epa.vic.gov.au/business_sustainability/sustainable_cities.asp)

In addition, it must be acknowledged that the ecological footprint of cities transgresses the overt physical boundary of the city. Such that when considering sustainability, it needs to be recognised that a city is not a closed system, in addition to using resources within its boundary, it garners inputs from its immediate external boundaries to across the globe. Its outputs also can transgress beyond its boundaries to across the globe, for instance greenhouse gas emissions and some aspects of coastal water pollution. It is some of these regional and global aspects of a city function, relating to both capital and operating costs that have the most significant impacts on sustainability. Ultimately for instance, the impact of greenhouse gas emissions on climate change has direct (change/loss of habitat) and indirect (an expanded range of competing or predatory pest plants and animals and disease vectors) impacts on biodiversity and in the case of disease vectors, on human health. This is further referred to in this submission.

In defining ESD, and sustainability more broadly, the question is raised of how we measure our progress towards sustainability and how we measure our progress and success more generally. If our ultimate aim is sustainability to protect our well-being or quality of life, we need to re-think the way we measure our success and progress as cities, states and as a nation to reflect our progress towards sustainability. This issue is raised again in section 6.

### ***1.3 Key South Australian initiatives***

#### ReVISION project

Since the early 1990s South Australia has had in place a Planning Strategy that presents the SA Government's overarching policy framework for the physical or spatial growth and development in the state. The *Development Act 1993* and original Planning Strategy, *2020 Vision: A Planning Strategy for Metropolitan Adelaide*, was the result of a comprehensive review of the planning system in the early 1990s. The ReVISION project is strengthening the Planning Strategy for South Australia (currently two volumes – Metropolitan Adelaide and Regional South Australia – with a third volume being developed) and elevating it to a central role in government to deliver policy agenda for urban regeneration and urban design, regional open space, resource management and strategic planning for the city. This is being achieved through a comprehensive review of the Metropolitan Adelaide volume and the creation of an Inner Region volume of the Planning Strategy in recognition of the importance and unique characteristics of Adelaide's peri-urban region.

As mentioned above ESD based guiding principles have been established as part of the review of the Planning Strategy as a “working definition” of ESD. ESD is built upon ecological principles, including understanding the inherent interrelationships of and interdependencies of ecosystem components and human-made components. To determine a starting point in how to form a strategy based on sustainability, ESD needs to be considered on a systematic basis, where the management of the limiting factors that provide the foundation of viable communities need to be identified and designated as forming the first step on the path towards ESD.

As we can only provide an educated guess on the requirements and preferences of future generations, we need to select strategies that will be appropriate over as wide a range of possible future circumstances as we can foresee, ie we cannot predict the needs and preferences of future generations beyond basic needs of all humans and other biota – land, water, air, energy, and from these, food and shelter. But acknowledge that we are dependent upon a certain threshold of land, water, air quality and energy requirements which collectively

provide the basis of physical life support systems for both humans and non-humans and the foundation of growth and development. Therefore, the ReVISION process has established ESD guiding principles that aim to assist in steering a future that maintains the integrity of and access to key resources, allows for maintenance of biodiversity and capacity for choice.

#### Urban Containment Boundary

The establishment of an Urban Containment Boundary around Adelaide in March this year is a significant policy initiative that has been implemented to arrest Adelaide's urban sprawl and encourage higher density residential development and redevelopment closer to the city's centre and major transport and service nodes. This boundary will protect viable primary production land from urban encroachment, associated tourism and areas of high conservation value. It will also create a clear distinction between 'urban' and 'rural' areas, provide a clear edge to Adelaide's metropolitan area and allow for up to 20 years supply of new urban land within the boundary. Guiding future urban growth towards more sustainable patterns of development within the context of the Urban Containment Boundary will be a key feature of the Metropolitan Adelaide volume of the Planning Strategy that is currently being revised.

The SA Government has considered the consequences of the metropolitan urban containment boundary on the whole urban system, including the areas outside the urban growth boundary, surrounding metropolitan Adelaide. It is acknowledged that areas currently not experiencing development pressure may become more attractive due to supply being constrained elsewhere, so it has been agreed in principle that similar containment boundaries will be set in towns in the outer metropolitan area of the Mount Lofty Ranges, Fleurieu Peninsula and Northern Adelaide Plains (the Inner Region). An Inner Region volume of the Planning Strategy is currently being prepared and will define urban containment boundaries in these other townships in conjunction with the relevant Local Government authorities.

Urban containment in the Inner Region will assist the Government to meet its concurrent policies to encourage future development to specific areas targeted for urban regeneration in metropolitan Adelaide, minimise leap frogging of development outside the metropolitan urban growth boundary, minimise the impact of urban development on water quality and quantity, retain key primary industry areas, reduce infrastructure costs associated with greenfields development and minimise transport costs of residential development outside metropolitan Adelaide.

#### Green City program

A significant flagship program and partnership in the context of this inquiry is Adelaide's Green City program that is an initiative of the Capital City Committee<sup>4</sup>. The Green City program recognises the potential of the city centre to demonstrate innovation in the area of environmental sustainability and is developing and coordinating an umbrella for sustainability for the city centre. Adelaide's first Thinker in Residence<sup>5</sup>, Herbert Girardet, an urban ecologist of international repute was invited to Adelaide by the Capital City Committee in May 2003 to contribute to the development of Adelaide as a green city. Herbert Girardet indicated that Adelaide, and by implication, other Australian cities, could not continue to operate with current consumption patterns (metropolitan Adelaide discharging 25 million

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<sup>4</sup> The CCC is established by legislation to support a strategic and cooperative approach to the city centre by the State Government and Adelaide City Council. The Committee has six members and is chaired by the Premier - the Lord Mayor is Deputy Chair and it includes two State Ministers and two City Councillors.

<sup>5</sup> The State Government has established a 'Thinkers in Residence' Program which brings internationally known thinkers to Adelaide to work with local people on issues of importance to Adelaide ([www.thinkers.sa.gov.au](http://www.thinkers.sa.gov.au)).

tonnes of CO<sub>2</sub> into the atmosphere annually). Whilst current levels of resource consumption and emissions of greenhouse gas are unacceptable and unsustainable, he advised that through a range of measures Adelaide could reduce its CO<sub>2</sub> output while simultaneously creating sustainable industry related jobs. The report prepared by Herbert Girardet *Creating a Sustainable Adelaide* is available at [www.capcity.adelaide.sa.gov.au](http://www.capcity.adelaide.sa.gov.au). The SA Government is currently considering the report's recommendations.

The Green City Program aims to brand Adelaide as an internationally acclaimed green city – recognised for its environmental and sustainability initiatives. Success of the program will depend upon effective partnerships, community involvement and leading edge sustainable development in the fields of transport, energy, green buildings, water conservation, waste minimisation and urban biodiversity. The new ESD based metropolitan Planning Strategy will provide the overarching framework for the Green City Program. It is important that Government takes a strong leadership role in the Green City program to ensure its success.

#### Greening of Government Operations Framework

The SA Government recognises the importance of leading by example towards sustainability. The recently launched *Greening of Government Operations Framework* (GoGO) is intended to improve the efficiency and significantly reduce the environmental impact of SA Government operations.

A cross-agency GoGO Action Plan is being developed to drive implementation of mandated initiatives and provide a reporting framework. Existing Government programs, such as the Government Energy Efficiency Action Plan, have been adopted as 'foundation programs'. The Action Plan will require whole of Government and individual agency responses to meet agreed targets and goals. GoGO focuses on 8 priority areas:

- energy management
- water conservation and wastewater management
- waste management
- built facilities
- travel and fleet management
- green procurement
- human resources management
- government administrative policies and guidelines.

#### State and Local Government partnerships

South Australia has in place a number of partnership initiatives between State and Local government, which are facilitating increasing levels of collaboration to address common sustainability priorities, including those relevant to sustainable cities. These include:

- The Ministers Local Government Forum that is addressing key sustainability policy and service delivery issues such as housing, development planning, waste management, coastal protection and management and natural resource management.
- A Memorandum of Understanding between the Office of Sustainability and the International Council for Local Environmental Initiatives to collaborate on the delivery of local sustainability initiatives including Cities for Climate Protection, water conservation, green procurement and Local Agenda 21.

#### ***1.4 Addressing the terms of reference***

The Inquiry's terms of reference form the basis for each section of the submission.

The comments provided in this submission specifically relate to South Australia's capital city and its relationship with peri-urban regions. The impact on peri-urban regions surrounding cities is an important factor in the context of the sustainable cities due to issues such as urban expansion into productive agricultural land. Many of the comments and recommendations are applicable to South Australia's provincial cities, such as Whyalla, Port Lincoln, Port Pirie, Port Augusta, Mt Gambier and Murray Bridge but these urban centres are very different and have their own set of issues related to sustainability. To provide some context on the sustainability issues faced by South Australia's provincial cities a section has been included that focuses specifically on these areas (refer to section 4.14).

## **2. Impacts of sprawling urban development**

Urban sprawl is defined by a number of factors. Sprawl is a particular type of suburban peripheral growth that is low density relative to other areas in the city and expands in an unlimited and non-contiguous way outward. Land use may be residential or non-residential but for the most part land uses are spatially segregated from one another in large single use zones. Sprawl at the urban fringe consumes productive agricultural land and areas biodiversity value. A lack of established centres and services locally exacerbate a reliance on cars as the main, if not only, means of transport in areas of urban sprawl.<sup>6</sup>

The impacts of urban sprawl are well documented and include loss of productive land and areas of biodiversity value on the urban fringe, increase in energy use for transport, increased cost of infrastructure to service low density development, less physical activity as people drive more often and lack of access to public transport, services and employment opportunities.

The growth of the Adelaide urban area to a distance of 90 kilometres from north to south has built up an expectation of continued expansion. This pattern of growth has resulted in:

- areas of segregated land use poorly connected to social infrastructure, transport services and stormwater infrastructure
- highly productive primary production land being lost to urban development
- increasing pressure on areas that either have major economic opportunities (Northern Adelaide Plains, Barossa Valley and McLaren Vale) or are environmentally and aesthetically sensitive (Mount Lofty Ranges).

The alternative to urban sprawl is infill development and urban regeneration that creates urban areas of higher density living with good access to services and public transport. This may allow for the provision of services at relatively lower cost per head (replacement and/or augmentation of services may still be needed), but such initiatives do also have associated costs, such as an increased reliance on public open space and sporting and recreational facilities as higher density dwellings become more common, potentially increased land prices and increased likelihood of land use conflict. This type of development is discussed further in section 3.3.

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<sup>6</sup> Transit Cooperative Research Program, 1998, *The Costs of Sprawl – Revisited*, National Academy Press

### **3. Major determinants of urban settlement patterns and desirable patterns of development**

#### ***3.1 Past determinants of urban settlement patterns in Metropolitan Adelaide***

##### Government involvement in public housing developments and land release

A range of public housing developments throughout Adelaide from the mid-1930s have had a significant impact on the pattern of settlement. This is particularly the case for developments north and south of Adelaide. The planned development of Elizabeth in the north and Christies Beach in the south in the 1950s and 1960s are of particular note in this context.

In the late 1970s the SA Government through the SA Land Commission (now the Land Management Corporation) commenced land banking (and the subsequent staged release) with the aim of providing a continual supply of serviced and affordable land mainly in the northern and southern sectors of Adelaide. This process ensured an efficient release of land to assist in keeping land in Adelaide affordable and allowed for staged development of infrastructure and coordination of service provision. Land was (and continues to be) released through a number of major joint venture developments with the private sector - in particular: Golden Grove, Seaford, Northfield and Mawson Lakes, or through the sale of development sites to the private sector. Land release occurs in the context of the overall Metropolitan Development Plan.<sup>7</sup> Typically lands released by the SA Government in the southern and northern sectors of Adelaide have provided approximately 30 percent of housing starts for metropolitan Adelaide ie around 1500 allotments per annum.

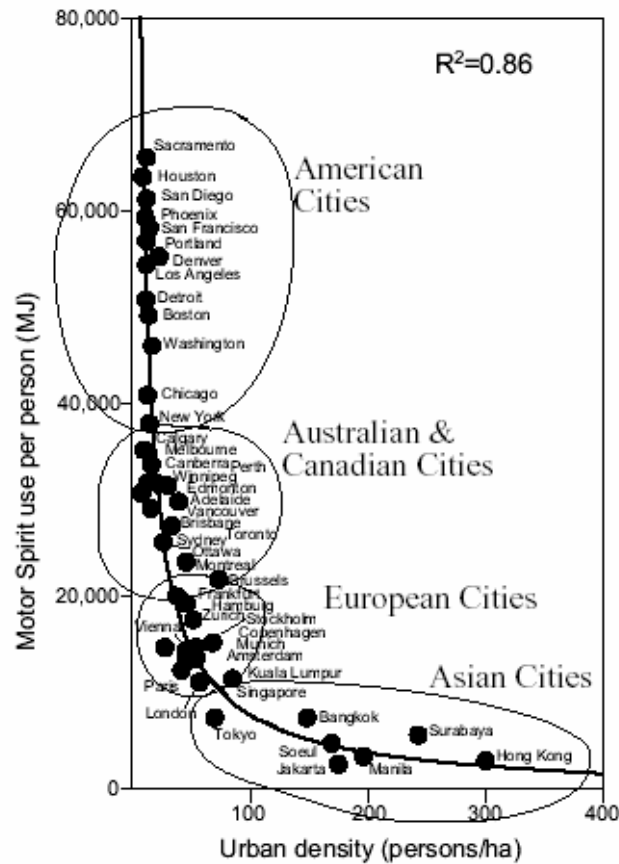
##### Increased car ownership

Since the 1950's most urbanised cities have had to deal with the challenge of maintaining accessibility despite the growing demand for decentralised business and housing floor space. Private car ownership has driven this demand and cities have abandoned their 'mass transit' orientation for a more car-based lifestyle. This has allowed a spread of community activities, easily accessed by private car but not by public transport, to occur. Over 80 percent of trips made in Adelaide are made in cars. In the past 10 years, public transport patronage fell by 32 percent, cycling as a mode fell by 55 percent and walking decreased by 20 percent. (Public transport use has however shown some increase in patronage since 2000 - refer to section 4.5.) While offering unprecedented freedom and flexibility, car dependence and low density development has left us with an energy hungry and unsustainable society (as illustrated by the figure below). People without access to cars have to depend on public transport which is limited in frequency by virtue of the low density development that it must serve, and is limited in the destinations that it can serve because the destinations are not sufficiently concentrated to justify becoming a major public transport network node. Thus, our cities have become socially exclusive rather than inclusive, as people without cars are denied equal access to employment, shopping, education and recreation.

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<sup>7</sup> The Metropolitan Development Program (MDP) is a State Government program that provides advice on the timing and location of urban development on a five-year cycle. It provides a framework within which Government agencies can plan and budget for their provision of public services and infrastructure.

**Figure 1 Private motor vehicle fuel use vs. urban density for 46 international cities (1990)**



Source: Zeibots M, 2002, *The macroeconomic structure of cities - indicators for sustainable urban infrastructure development*, Institute for Sustainable Futures (<http://www.isf.uts.edu.au/publications/Leipzig.layout.pdf>)

### 3.2 Future determinants of urban settlement patterns in Metropolitan Adelaide

#### An aging population

If the State population projections are realised, then the proportion of the State's population comprising elderly persons (aged 65 plus years) will increase from 12.9 percent in 1991 to 16.2 percent in 2011. However, the most dramatic increases will be after 2011 when those now aged 50–64 enter the elderly age brackets. This has implications for health services, transport services, housing and the work force.

#### An increase in the demand for housing despite a slow population growth

In South Australia the number of new dwellings has grown at more than twice the rate of population growth between 1981 and 2001. This is related to a decrease in average household size (due to the ageing of the population and changes in preferred living styles). The demographic and social changes leading to decreased average household size are likely to continue to increase the demand for dwellings faster than the growth in population.

#### Population growth

Population growth can be disaggregated in terms of its components: namely, fertility, migration (international and interstate), and mortality. These components all contribute to the



overall population growth. Adelaide is growing at a relatively slow rate compared to other Australian cities and the extent to which this continues or population growth increases will have a significant impact on the further pattern of settlement in Adelaide. To counteract the slow growth trend, the SA Government recognises population policy, with a focus on increasing immigration, as an imperative for greater population stability in line with recommendations in the Economic Development Board's report *A framework for economic development in SA*<sup>8</sup>. This is discussed further in section 4.13.

#### Future staging of land development for housing

As of September 2003 the Land Management Corporation (LMC) on behalf of the SA Government owns 1500 ha of land for future housing consisting of: 800ha in the northern areas of Adelaide, 200ha in the central area and 500 ha in the southern area. It is estimated that LMC has enough land available for development for the next 12 to 15 years representing approximately 65 to 70 percent of the total land likely to be developed for housing in outer metropolitan Adelaide over this period. The rate of future development of this land will depend on market trends and will be influenced by the Metropolitan Development Program, which sets a staging program for land development.

#### Location of employment opportunities

There are less employment opportunities in the southern areas of Adelaide compared with the central and northern areas. Due to the greater availability of suitable land, provision of and access to important transport routes, industrial growth is likely to continue to be focussed in the northern and central regions of Adelaide. As industry is a major employer, its location will affect the broader pattern of development and transport in Adelaide. This will need to be balanced with initiatives to develop employment opportunities in the south.

#### The need to provide open space

There will be a need to accommodate an increased reliance on public open space and sporting and recreational facilities as higher density dwellings (with less private open space) become more common in metropolitan Adelaide. This is recognised in the review of the Metropolitan Adelaide volume of the Planning Strategy.

#### Settlement in peri-urban areas

Certain sectors of the housing market find living in peri-urban areas and working in city an attractive lifestyle. Ultimately the nature of the urban containment boundaries in peri-urban areas will determine the parameters for settlement in these areas.

#### Cultural change

The extent to which we can achieve a cultural change towards denser urban areas and more sustainable patterns of travel will have a significant influence on urban settlement patterns in the future.

### ***3.3 Desirable patterns of development***

Sustainability will not be achieved in cities if the focus is only on guiding sustainable patterns of development. Due to the substantial investment in urban infrastructure and the slow growth in Adelaide the move towards sustainable patterns of development will be gradual. It is essential that along side the effort to transform cities into more sustainable urban forms, that other initiatives, such as improving the water and energy efficiency of products and

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<sup>8</sup> Economic Development Board, April 2003, [www.oed.sa.gov.au](http://www.oed.sa.gov.au)

fittings, changing culture and behaviours towards a less consumer society and developing and adopting renewable fuels/technologies, are progressed to improve sustainability within the context of the existing structure of our cities. This issue is discussed further in section 4.

The revised Metropolitan Adelaide volume of the Planning Strategy will guide growth and development based on the principles of ecologically sustainable development towards a more sustainable urban form. The focus of the revised strategy is on urban containment, an integration of water, energy and land use planning and an integration of transport and land use planning.

The Planning Strategy will be the key enabling tool to guide desirable patterns of development over the next 30 years within the context of the Urban Containment Boundary. The revised Planning Strategy will seek to:

- In the long term (beyond about 15 –20 years) increase the percentage of new housing being built on redevelopment sites from the current level of around 30% of dwelling approvals.
- Maintain the affordability of housing through providing enough dwelling sites at reasonable building costs ahead of time.
- Increase focus on intensive and ‘mixed use’ development.
- Improved integration between transport and land use planning, to improve energy efficiency, time efficiency, accessibility and pollution load by:
  - developing better connected and more compact residential densities around public transport, community services, and a certain threshold of employment opportunities, ie by clustering industry activities, designing roads, rail systems and subdivisions, buildings, activity and employment nodes for increased accessibility and efficiency and reducing the need for travel (as above)
  - providing more walking and cycling choices along transport routes to encourage a more physically active community and improved social connectivity
  - changing from minimum to maximum parking policies in areas well serviced by passenger transport
  - having flexible passenger transport services tailored to changing demographics and land use over time
- Improved integration between water and energy and land use planning to achieve greater efficiencies and sustainable use of land, water and energy resources by:
  - protecting watercourses, and areas of high conservation value in addition to rehabilitating and regenerating open space areas in conjunction with Parklands 2036 such as along transport corridors
  - incorporating water sensitive urban design and development in all new greenfields and regeneration development, from building site level to the subdivision level
  - reducing dependency on the River Murray and provide the basis for increased economic and social development by planning and design for space and infrastructure to capture, store and use stormwater, and treated wastewater to replace treated reticulated potable water for watering public gardens, and industrial use, supporting the Waterproofing Adelaide agenda
  - using the principles of energy efficient subdivision layout and building design.
- Change the trend from greater private open space to greater public open space.
- Encourage a range of options of housing forms, such as medium density and high-rise apartment buildings that should provide sufficient supply of new dwellings in a way that is practical and economic.

- Change the focus of some sectors of the development industry to adjust from extensive green-fields development to redevelopment sites within the Urban Containment Boundary.
- Discourage population movement into the peri-urban region through boundaries around these townships.

#### **4. Blueprint for sustainable patterns of settlement**

The Discussion Paper and “visionary objectives” provided by the inquiry focus on a “blueprint” for environmental sustainability. The visionary objectives should also recognise the importance of social and economic issues in the context of sustainable cities. Comments are provided below under headings related to the visionary objectives and under a number of other headings, including economic growth, that are considered to be important considerations for a blueprint for sustainable patterns of settlement.

General comments and comments on national policy, programs and possible initiatives as relevant to each heading are provided below. Details about relevant SA Government initiatives in the context of each heading are provided in Appendix 1.

The challenge to creating sustainable cities is that we are constrained by the existing structure of the city and within the context of existing infrastructure. For instance, cities with slow growth such as Adelaide and with limited funding for an expansive public transport system (particularly with increasing cross-city commuter traffic) have restricted options. In this case, planners can’t change basic layout of the established areas of the town. For example, the option of changing to a more sustainable fuel source such as hydrogen and lightweight car bodies and improving the frequency, coverage and access provided by basic public transport services need to compliment the transformation of urban form to achieve sustainability. We need to determine, and focus efforts on, what we can realistically change to facilitate progress towards sustainability. A long-term approach and commitment is essential to transforming cities towards sustainability.

Whether retrofitting existing development or working with greenfields sites, inherent in meeting ESD objectives is the need to minimise material flows (extracted, processed, used or escaping as wastes or emissions) of a given product or service. This can be done by delivering an equivalent or improved good or service or product with reduced material flows, and a closer match between the lifetime of product use and lifetime of the product, ie changed cultural behaviour, reuse, recycling and product design. In the Girardet Report this is referred to as changing from a linear metabolism to that of a circular metabolism and has relevance to the aspects of human settlement outlined below.<sup>9</sup> The change over to new and more sustainable goods, services and products can be achieved by implementing appropriate regulatory arrangements (ie energy efficiency standards) and economic instruments such as tax incentives, market-based instruments and subsidies. Education of the community will be an essential accompaniment.

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<sup>9</sup> Girardet H, 2003, *Creating a Sustainable Adelaide*, Government of South Australia ([www.capcity.adelaide.sa.gov.au](http://www.capcity.adelaide.sa.gov.au))

The blueprint states that the sustainable city will preserve the essentials of the 'Australian lifestyle'. In order to ensure a *shared* vision, it is recommended that this lifestyle be explained, its elements defined, the ways in which it is changing identified, and the circumstances causing these changes explored.

#### ***4.1 Bushland, heritage and urban green zones***

The term "green zones" implies parks and reserves. Sustainable cities require these components, but they also require other types of open space including plazas, squares, urban forests and other vegetation communities and path systems. The term "green zone" also implies that parks and reserves will be grassed areas that in most instances require irrigating. This traditional concept of parks and reserves needs to change and community acceptance of water efficient and no irrigation landscapes needs to be increased. The types of open spaces within a city should be diverse and reflect environmental, social and economic needs.

The provision of open space is also integral to the health and wellbeing of the community. The quality of the open space provided is as important a consideration as the quantity. There has been limited work in Australia on the concept of standards of open space provision. In the past planners have relied upon standards developed in other countries. This approach is arguably flawed as it ignores the Australian context, and a standards approach on its own is not recommended. A national model approach to the planning and provision of open space across Australia should be developed, but in addition, needs to acknowledge the peculiarities of the particular urban setting.

#### ***4.2 Equitable access to energy, energy efficiency and renewable energy***

The energy sector contributes 70 percent of the national total of greenhouse gas emissions and therefore is a very important sector to target as part of action to reduce emissions. In this context the SA Government recognises the importance, and supports ratification, of the Kyoto protocol. Greenhouse gas emissions and climate change are discussed further in section 4.8.

Reform of the energy supply sector towards renewable energy sources and significant improvements in energy use efficiency (within the energy sector and by end users) is essential to creating a more sustainable city. Energy efficiency is a key mechanism in meeting the Kyoto greenhouse gas emission targets, especially considering Australia's continued dependence on energy from non-renewable sources and the time it could take to establish any form of emissions trading scheme. In addition, energy efficiency and demand management will ensure better use of existing energy infrastructure and defer new supply investments.

Changes to urban form can assist to reduce energy use for transport and in buildings. Reducing our dependence on cars by making our urban environments more conducive to walking and services more accessible, particularly in regional centres, will assist to reduce our energy use for transport. Also locating industrial land with efficient access to transport corridors and markets, and to take advantage of existing infrastructure and potential alternative energy supplies, can assist to reduce energy use. The existing structure of our urban environment limits to what extent this can be achieved, but new in-fill and re-development can and should be designed with a focus on reducing energy use.

#### **National Framework for Energy Efficiency**

A *National Framework for Energy Efficiency* is being developed by the Ministerial Council on Energy. The Framework will identify the need for and benefits of investment in energy efficiency throughout the economy and identify major areas of inefficiency and areas for

improved coordination and cooperation across jurisdictions in the delivery of energy efficiency policies and programs, including strengthening of existing national programs such as the Minimum Energy Performance Standards program<sup>10</sup>. A key message of the Framework will be that investment in energy efficiency delivers net economic benefits.

The South Australian Government supports the National Framework for Energy Efficiency and is a member of the steering committee that is progressing the initiative.

#### Energy Efficiency Standards in the Building Code of Australia

From 1 January 2003 all new homes in South Australia must comply with minimum standards for energy efficiency set out in the Building Code of Australia equivalent to a 4 star energy rating. The South Australian Government will be encouraging the Australian Building Codes Board to progressively strengthen current residential dwelling standards and progressively introduce energy efficiency standards for all buildings, as soon as possible.

The South Australian Government is currently working with the Australian Building Codes Board to introduce the first stage of requirements for commercial buildings in May 2005. This first stage will apply to medium and high-rise apartment buildings, while the second stage will introduce requirements for offices, schools, hospitals and other public buildings.

The Australian Building Codes Board is due to expire in 2005. The South Australian Government supports the continuation of the Board and associated work towards national consistency and leadership on building standards particularly from a sustainability perspective.

#### Mandatory Renewable Energy Target

There is significant potential for and opportunities to attract investment to South Australia for renewable energy projects, particularly wind power, both in the construction of wind farms and the establishment of possible manufacturing facilities to support them. The South Australian Government supports the development of the renewable energy industry.

The South Australian Government has urged the Commonwealth to increase the Mandatory Renewable Energy Target from 2 to 4.5 percent, which will provide commercial impetus to develop the renewable energy industry whilst work towards a comprehensive trading scheme or other measures are undertaken to reduce greenhouse gas emissions.

#### Excise exemption for alternative fuels

Continued excise exemption is required to encourage the development of fuels alternative to petroleum based fuels. The alternative fuels which require support are those that provide greenhouse and/or air quality benefits and are indigenous to Australia.

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<sup>10</sup> MEPS is a national program that requires certain appliances to meet minimum energy performance standards. MEPS is made mandatory by state government legislation and regulations which give force to the relevant Australian Standards. MEPS has been a very successful program in improving the energy efficiency of refrigerators, freezers, three phase air conditioners and three phase electric motors. The South Australian Government is very supportive of this initiative.

Fuels that are produced from renewable sources (such as plant matter - rapeseed, mustard seed, canola, softwoods etc) or waste (tallow, grease trap) should be supported. This includes fuels like biodiesel or biogas (eg methane from landfills). Excise exemption should be provided for those fuels for either all the fuel as sold in neat form or for the fraction of the renewable fuel if mixed with petroleum based fuels.

The road transport industry, and the agriculture and horticulture industries are major consumers of diesel fuel and opportunities exist in the longer term to replace a proportion of mineral (fossil fuel) diesel with biodiesel which can be manufactured from a number of different raw materials. The South Australian Government is working with potential commercial interests to establish a significant biodiesel industry in SA. The Government has undertaken a trial to confirm the suitability of biodiesel as an alternative to mineral diesel in the State's bus fleet and further investigations are planned. A program is now being developed to enable the balance of the State bus fleet to operate on biodiesel, apart from those vehicles operating on CNG. Under this proposal SARDI will develop oil-seed plant varieties which could be used as feedstock for the manufacture of biodiesel.

The excise exemption for LPG and CNG should be maintained because of air quality benefits (reduction of particle emissions normally associated with diesel engine operation) and low greenhouse gas emissions (due to the lower carbon potential of these fuels).

The experience in operating the CNG fuelled buses in South Australia indicates that buses running on this fuel require more maintenance and fuel (on a 1 cubic metre of CNG to 1 litre of diesel comparison) during their operation and therefore the cost savings associated with the lower cost of the fuel are eroded. The operation of CNG buses in SA would not be economic if the excise exemption was removed. Experience in New Zealand in the late 1980's indicates complete collapse of the CNG industry following removal of Government support for this fuel. Work conducted by the Commonwealth in developing emissions standards for LPG/CNG engine conversions further ensures emissions compliance and reductions associated with the operation of these fuels.

The South Australian Government is very concerned about the decision to phase in excise on LPG, liquefied natural gas (LNG) and compressed natural gas (CNG) as part of the Commonwealth Government's reform package for fuel tax arrangements. Under the newly announced Commonwealth policy LPG, LNG and CNG will all become excisable from 1 July 2008 and the level of the excise will be phased in over 5 years ending 1 July 2012.

The Commonwealth decision has both economic and environmental implications for South Australia and arguably for this particular inquiry, given its focus. For example:

- SA is a net importer of oil and a net exporter of LPG.
- More than 5% of vehicles in South Australia including the majority of taxis, run on LPG.
- Local car manufacturers now make LPG versions of their vehicles and there is also a significant niche industry specialising in gas conversions.
- LPG has lower CO<sub>2</sub> emissions than petroleum and hence the SA Government has elected to use LPG fuels in the government car fleet to assist in addressing greenhouse issues.
- The SA Government has purchased CNG-powered vehicles in over 28% of the State's bus fleet to reduce the greenhouse and pollution impact of the bus fleet. South Australia is a world leader in using this alternative fuel for public transport services.
- The excise signal is expected to lead to a decline in the resale value of vehicles using LPG including more than 1000 LPG vehicles in the South Australian Government fleet.

- Vehicle manufacturers are unlikely to continue the development of LPG vehicles unless the final excise scenario is favourable.

The introduction of pricing parity for gas-derived and renewable fuels will have substantial environmental, social and economic impacts for South Australians. The resultant shift back to fossil fuels will lead to increased CO<sub>2</sub> and smog, manufacturing and distribution infrastructure will be decimated and numerous business ventures will fail or be curtailed. The excise will work against the State's attempts to position itself as 'clean and green' and will reduce the opportunity for the State to be a leader in the transition to a hydrogen economy.

### Hydrogen

The greenhouse gas emissions associated with fossil fuel use, and expected declining availability of liquid fuels worldwide, are expected to result in a progressive replacement of fossil liquid fuels by hydrogen over the next few decades. This is recognised in Japan, the USA and the EU where there is substantial investment in hydrogen technologies, especially for vehicles. It is also recognised by the CSIRO which has been active in developing such technologies, and instigated the concept of a National Hydrogen Centre to promote an appropriate policy response to the issue. The SA government is currently undertaking preliminary investigations with a view to establishing a node of the proposed Centre in Adelaide, with a focus on transport systems and efficient fuels and energy systems

Given the scale of the consequences of a switch from a fossil fuel based economy to a hydrogen based economy, and Australia's role as a manufacturer and exporter of light vehicles, there is clearly a need to develop a national policy response. The development and recent release of the *National Hydrogen Study* is a first step towards this process.

The Commonwealth Government has committed to fuel cell development through the CSIRO in partnership with the Victorian arm of Holdens Research and Development Centre. A more holistic response is needed. This might include a policy under which any grants to the vehicle industry were made contingent on the industry developing in a sustainable direction generally, and in particular in directing its efforts toward developing hydrogen fueled vehicles.

### ***4.3 Integrated sustainable water and stormwater management and water re-use***

It is imperative that a whole of water cycle approach to water resource use and management is taken, where the overall goal is to ensure the most efficient use of water supplies based on the hierarchy principles of avoidance, reduction, reuse, recycle and appropriate disposal.

In terms of water use, the following principles aim to reduce water consumption, and should be used during the development design phase:

1. Avoid and conserve – development and operational phases.
2. Design into infrastructure use of rainwater or local treated stormwater, and treated wastewater for non-potable use giving due recognition to the need for managing flood events.
3. Use potable supplies for potable use only.

### Innovative water supply/reuse projects

Past practices in developing major potable water supply infrastructure has presented an appearance to many urban communities of an over-abundance of high quality water. As a result of past practices, the urban public has a poor concept of what may constitute reasonable and efficient water use, or of the importance of water for the environment. To change this

perception requires an integrated approach between governments, industry and the community. This encompasses public education, regulation, incentive schemes and pricing strategies aimed at changing the public perception of water, as an inherently valuable resource, not to be wasted.

We also need to consider the option of water supply systems that provide for small scale local systems based on the use and reuse of rainwater and stormwater. We must review our water administrative framework in order to integrate our planning for water supplies, sewerage and drainage with those for better protecting and allocating our water resources.

“Another common assumption is that water, sewage, and stormwater systems should be considered and planned for separately. Thinking in terms of a total water cycle can enable quite different solutions. For example, in a greenfield residential development in Melbourne’s northern outskirts, water efficiency assumptions have reduced projected demand of internal residential use by 45 L/person/day. Further reductions through source substitution enabled by water cycle thinking include using rainwater for the hot water supply (44 L/p/d) and reclaimed water for toilet flushing (23 L/p/d) and garden watering (33 L/p/d). Overall, this gives a 70% reduction on demand from the reticulated water system.”<sup>11</sup>

Discussions have commenced in a national forum to progress development of national guidelines for wastewater and stormwater recycling. Commonwealth commitment and funding is needed to progress this initiative.

#### Water sensitive design

There is a need to ensure that new urban development is undertaken using water sensitive design principles that are practical and economically achievable. In particular, this entails ensuring that catchment hydrology remains comparatively unaffected as a consequence of fringe and infill development and stormwater re-use is accommodated as well as providing for flood management.

It is suggested that the Commonwealth should drive a process to set targets for minimising the amount of storm and wastewater discharged to the environment as a result of urban development. The development of water sensitive guidelines and targets should be supported and lead by the Commonwealth as was suggested in the SA Government submission to the Senate Environment, Communications, Information Technology and the Arts References Committee (ECITA) inquiry into the management of water in Australian cities.

#### Water Efficiency Labeling Scheme (WELS)

Adelaide’s per household water use is among the lowest in Australian cities. Nevertheless, Australia has one of the highest per capita water usages of any country indicating there is room for reducing water consumption nationally. More can be done to improve water use efficiency including the introduction of national water efficiency standards and labeling for appliances and fittings.

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<sup>11</sup> Extract from Mitchell C and White S, 2003, “Sustainable Urban Water Service Systems”, paper presented at *Innovations in Water: Ozwater Convention and Exhibition*, Perth, 6-10 April 2003



As a member of a national working group, South Australia is contributing to the development of a national mandatory water efficiency labeling scheme (WELS) covering showerheads, washing machines, dishwashers and toilet cisterns. The proposed labeling scheme will provide buyers with information on water efficiency and/or water use of products at the time and in the form that is most likely to influence their purchase decision.

Following introduction of mandatory water efficiency labeling, the national program may be expanded to include requirements that certain products conform to minimum water efficiency standards. It is important that minimum water efficiency standards are introduced to remove the worst performing products from the market.

Given the significant amount of water used on gardens in urban areas, the WELS program could be expanded to include irrigation equipment and the development of water efficiency standards for irrigation systems used in urban areas.

#### Plumbing Code of Australia

Although the Water Efficiency Labeling Scheme will provide the framework to influence the “point-of-sale” for products, it is equally important for the building industry to be required to use water efficient devices in new developments, in retrofits and infrastructure upgrades. This requirement would therefore need to be included in the Plumbing Code of Australia, reinforced through changes to relevant jurisdictional plumbing regulation and through adequate training and development schemes for plumbers and related trades.

#### ***4.4 Manage and minimise waste***

“In an urbanising world, in which cities use the bulk of the world’s resources and discharge most wastes, conventional “linear” waste disposal is regarded less and less as a viable option. City authorities are faced with ever increasing waste disposal costs as old dumps fill up and holes for new landfills become more difficult to find.”<sup>12</sup>

The waste management hierarchy promotes waste avoidance, reduction and reuse over recycling, treatment and disposal. It is essential that governments, waste management authorities and service providers have this in mind when developing waste management arrangements. To facilitate reuse and recycling, waste management practices should encourage separation of material at source and/or as part of the management process. The need to effectively and sustainably manage the waste streams from different sources including domestic, municipal, commercial, industrial, building and demolition, agricultural and forestry must be taken into account in planning processes. For example, the co-location of compatible industries such as those that produce animal waste that could be used in a waste-to-energy plant with those with a high energy demand, could facilitate the resourceful use of this type of waste.

#### Industrial ecology

The concept of ‘industrial ecology’ (as discussed further in section 4.11) is linked to the objective of producing little, if any, waste. Instead of waste, residual matter is repeatedly consumed with an emphasis on considering the ‘total life-cycle’ of products and services including the path through resource extraction, processing, manufacturing, marketing and distribution, to recovery and disposal. It involves rethinking conventional methods to achieve ‘smarter’ production, processes and products to achieve sustainable production. This includes

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<sup>12</sup> Extract from *Creating a Sustainable Adelaide*, Herbert Girardert, 2003

clustering industries that are symbiotic in nature, ie where one industry's waste product is used by another industry as an input to its processes.

Innovative waste management arrangements for the building and construction waste stream need considerable further development. While an increase in waste generation can be expected, large scale urban infill development could also increase the demand for recycled products, particularly concrete, asphalt, bricks and vegetation. This will be dependent on developers and government agencies specifying the use of recycled products and giving further emphasis to better allocation of all the costs and market-driven solutions. On large-scale projects it may be economical to process and reuse materials on site.

In the future higher environmental standards for businesses and better waste management standards may be introduced and this has potential to have economic impacts on the business community thus potentially affecting business competitiveness. It is therefore important that an appropriate adjustment phase is planned to allow industry to plan for accommodating these measures, along with the timely provision of waste infrastructure and services in suitable locations.

#### ***4.5 Developing sustainable transport networks***

##### Internalising costs of transport

While committed and consistent implementation of the measures set out in the State's draft Transport Plan will move Adelaide a considerable way towards a more sustainable transport system, progress will be inhibited without a significant change in the national economic transport regime. In general, the key change at the national level would be the internalising of all societal costs of transport (which includes the greenhouse emissions, local air pollution, noise pollution, water pollution, severance and amenity, and health costs).

Options that have been canvassed at the national level include road/congestion pricing, changes to fringe benefits tax for company vehicles (and vehicle tax exemptions generally) and a carbon tax or emissions-trading regime. Congestion pricing is not an appropriate solution in the Adelaide context at this stage as congestion levels are insufficient to make such a measure effective (plus there are equity and spatial implications which do not appear to have been well addressed to-date).

##### Fringe Benefits Tax

Our cities would benefit from environmental taxation reforms such as changes to Fringe Benefits Tax (FBT) provisions that could bring about reduced car usage. [Environmental taxation reforms are discussed further in section 5.8]. About 40 percent of passenger vehicles used during peak periods are covered by corporate or private FBT arrangements.

Fringe Benefits Tax (FBT) is a tax payable by employers on the value of certain fringe benefits that have been provided to their employees. A fringe 'benefit' is widely defined to include any right (including property right), privilege, service or facility. The FBT legislation specifies how the taxable value of fringe benefits is determined. The FBT payable by the employer is calculated from this taxable value. The valuation rules can vary.

The FBT payable on a motor vehicle purchased for \$40,000 as part of a salary package is approximately 7 percent if more than 40,000 kms are travelled within a year, or 24 percent if less than 15,000 kms are travelled in a year, when using the Statutory Formula method. The

FBT arrangements support higher mileage by private motor vehicles that are salary packaged and fleet vehicles used for non-business purposes.

The FBT system encourages greater use of motor vehicles by providing for reductions in FBT as more kilometres are driven. This does not support sustainable behaviour and encourages fringe urban growth.

Certain benefits are specifically exempt from FBT. For example, free or discounted transport (not air transport) provided to current employees by their employer who carries on a business of providing such transport to the public may be exempt from FBT (*Fringe Benefits Tax Assessment Act 1986 Section 47(1)*).

There may be opportunities to use FBT exemptions to promote more sustainable modes of transport. For example, removing FBT from employer provided bicycles or public transport season tickets (provided that the employee uses those modes of transport for commuting purposes) could provide an incentive for greater take-up of those modes of transport.

#### Addressing national barriers to sustainable transport

With limited growth in the State, the challenge of meeting the initial levels of government investment that are required to re-instate public transport as an urban mass transit system is a considerable one, even though there are longer-term government, societal and private benefits to be gained from such a strategy. A more pro-active approach by the Commonwealth Government to addressing the fundamental national barriers to achieving more sustainable transport would greatly assist the State in advancing the measures that are planned.

#### **4.6 Eco-efficiency principles for buildings**

“As the world’s population continues to expand, implementation of resource-efficient measures in all areas of human activity is imperative. The built environment is one clear example of the impact of human activity on resources. Buildings have a significant impact on the environment, accounting for one-sixth of the world’s freshwater withdrawals, one-quarter of its wood harvest, and two-fifths of its material and energy flows. Structures also impact areas beyond their immediate location, affecting the watersheds, air quality, and transportation patterns of communities.”<sup>13</sup>

#### Sustainability as key goal in the Building Code of Australia

The Building Rules (under the South Australian *Development Act 1993* and Regulations) provide cost-effective technical requirements, compatible with the public interest, to which building development must conform. These provisions include requirements for energy efficiency in houses, access for people with disabilities, housing on designated Aboriginal lands, and retention of stormwater. Where possible, uniform national provisions are encouraged through the Australian Building Codes Board for inclusion in the Building Code of Australia. Specific State requirements are provided through Minister’s Specifications to deal with matters not covered by national codes and standards. These measures set a minimum level of regulation for ensuring sustainable development in the State while other promotional material encourages best practice.

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<sup>13</sup> Extract from Public Technology Inc and US Green Building Council, 1996, *Sustainable Building Technical Manual – Green Building Design, Construction, and Operations* (<http://www.sustainable.doe.gov/pdf/sbt.pdf>)

The South Australian Government supports the adoption of sustainability as a key goal for the Building Code of Australia. This move would strengthen the focus of technical provisions on achieving sustainability and eco-efficiency through energy efficiency, water efficiency, building materials and other design areas.

#### National Sustainability Index

The South Australian Government supports the development of a national sustainability index for housing. The index would provide an important and powerful tool for changing the impact of housing on the environment, by encouraging developers to focus on the areas that can be addressed at the design and construction stages, such as energy and water efficient fittings and appliances, building materials and landscaping.

Given that the NSW Government has developed a Building Sustainability Index to assist architects, builders and developers to define and standardise better development practices, this tool should be tailored for use across all other jurisdictions.

The Commonwealth Government should support and drive the development of a national sustainability index for housing, through the relevant Ministerial Councils.

#### 'Green' building financial incentives

In recent years there has been increased attention on sustainable building design. The establishment of the Green Building Council of Australia and recent release of the Green Star rating tool that evaluates the environmental performance of the design of new office buildings or refurbishment is evidence of this, but there is still a long way to go to move sustainable building design into the mainstream. One of the main on-going barriers to green building is that there is often a need to spend more up-front on the building design and fittings compared with a conventional design. However, significant savings are made on on-going costs (energy etc) that more than compensate for the additional up-front costs. As well as reduced operating costs, other benefits of green buildings are: they are healthier, ie better air quality etc (which leads to better staff productivity), increase property value over conventional design and reduce resource use. In cases where a building is leased the owner/developer may not benefit from investing in a green building design as the tenants experience most of the benefits. To overcome this barrier (and other barriers) to green building there is a need for financial incentives to promote best practice green building design for new buildings and refurbishments. A financial incentive for green building (new and refurbishments) would help to drive market transformation towards sustainably built buildings and technology and move green building design into the mainstream.

An example of a financial incentive is a taxation mechanism that has been introduced in New York. It allows builders who meet energy goals and use environmentally sound materials to claim up to US\$3.75 per square foot for interior work and US\$7.50 per square foot for exterior work against their state tax bill. To qualify for the credit, buildings must be certified by a licensed architect or engineer, and must meet specific requirements for energy use, materials and furnishings selection, indoor air quality, waste disposal and water use.

#### Existing buildings and built heritage

Refurbishment and preservation of existing buildings is very important in the context of eco-efficiency. We need to ensure the momentum towards sustainably designed new buildings is increased to reduce "missed opportunities", but concurrently we need to address the sustainability of existing buildings. To preserve and take advantage of the embodied energy

in existing buildings re-design and refurbishment should be undertaken to maximise eco-efficiency opportunities. This must be achieved in the context of preserving the heritage values of listed heritage buildings.

#### ***4.7 Urban plans that accommodate lifestyle and business opportunities***

Urban plans can guide desirable patterns of development in cities. Key issues to be addressed by the revised Planning Strategy for Metropolitan Adelaide are discussed in section 3.3.

#### National summit on the future of Australia's towns and cities

The SA Government recognises that the prosperity and success of Adelaide and its regional cities will influence the State's future. The Local Government and Planning Ministers' Council recently considered and supported a proposal for a national summit on the future of Australia's towns and cities in recognition of the need to work collaboratively on issues such as economic development, urban and regional growth, housing affordability, taxation policy and environmental sustainability in the context of achieving urban sustainability. The Planning Officials Group is working to organise such a summit. The Commonwealth did not accept the need for a national summit, however with the recent appointment of a new Commonwealth Minister there is an opportunity to change this decision.

#### National urban policy

Forces of change, including globalisation, social and demographic shifts, the information economy, better community understanding and the need to work towards sustainability present significant challenges for urban communities in Australia. A number of peak national interests including the Property Council of Australia recognise the need for a shared national approach in the sustainable management of Australia's urban growth and development. It is clear that progress towards sustainability in Australia will largely depend how we manage our cities – particularly our capital cities. This is clearly an issue of national importance worthy of Commonwealth Government attention. Development of an urban policy agenda would demonstrate:

- an understanding that many issues that need to be addressed to progress towards sustainable cities are influenced by nationally based programs and policies
- a willingness to assist to address these issues.

In the context of the national summit mentioned above and the Commonwealth's new Sustainable Cities program there is an opportunity for the Commonwealth Government to develop a national urban policy to address the sustainability of cities. As discussed later in section 4.9 it is suggested that the Commonwealth Government should also take a more active role in matters surrounding housing affordability, supply and sustainability and as such these processes need to be linked.

#### ***4.8 Conserving the coast and maintaining infrastructure***

The management and conservation of our coastal areas is relevant as the majority of our cities in Australia are located on the coast. Flooding, erosion and pollution threats present the highest risks to sustainability of the coastal areas of Adelaide and necessary measures will include levee banks to prevent tidal flooding, seawalls and sand management to counter beach erosion and cliff stabilisation work to manage risks of cliff erosion. This will become increasingly evident as a result of climate change and sea level rise. Progress toward increased sustainability of coastal protection and management practices will require additional funding. Beneficiaries of coastal public infrastructure need to be determined and more equitable funding arrangements examined such as task-specific taxes or levies.

#### ***4.9 Addressing climate change***

South Australia's greenhouse emissions continue to rise, increasing by 7.8% between 1995 and 2001. Per capita emissions have risen from 21.48 tonnes of greenhouse gases per person in 1995 to 22.34 tonnes of greenhouse gases per person in 2001. South Australia's emissions account for only 7.4% of Australia's emissions, but per capita are close to the national average and among the highest in the industrialised world; 35% higher than the USA.

These impacts are significant and will affect the sustainability of cities in the future. It is essential that all Australian governments work together to reduce greenhouse gas emissions and to adapt to climate change.

#### **Kyoto Protocol and Emissions Trading**

The SA Government is committed to supporting Australia's ratification of the Kyoto Protocol in the belief that ratification is in the nation's best interest.

The SA Government encourages the Commonwealth Government to undertake a comprehensive evaluation, in close consultation with states and territories, of the potential for and operation of a national emissions trading scheme (ETS). An ETS may achieve the emissions targets, at least cost to the community, especially if linked to a global scheme.

#### ***4.10 Affordable and sustainable housing***

Access to affordable, adaptable and environmentally sustainable housing is an important element for a sustainable city. New housing products will need to be cognisant of an ageing population, where the aged live in lone person or couple households, and the fact that the number of families with children are unlikely to grow if at all. It is questionable whether fringe expansion will meet the needs of a population with these changing characteristics e.g. where the aged need to be close to family support and social services. A wide range of housing types and sizes in a variety of configurations best suits sustainable communities rather than the more limited choices that currently exist commercially.

In order to achieve environmental improvements for the wider community, specific attention is needed both to the systems of housing provision overall, and to low income or disadvantaged households within it. Environmental improvements are difficult to achieve in the face of persistent poverty and inadequate provision of basic necessities, including adequate housing, and thus specific attention to the social context is seen as essential. Nonetheless, design or appliances that conserve water and energy will decrease operational costs over time. This is particularly important for low to medium income households. Subsidies via tax incentives or subsidies may be appropriate (where the benefits were demonstrated to exceed the costs) and could assist households, but many low income households may still find the capital cost prohibitive. Programs targeting low income householders will therefore be particularly important and need to take into account that most low income households live in rental properties.

It is apparent that achievement of large-scale environmental improvements means major change in infrastructure provision, necessitating significant expenditure over time. It will be important to ensure that the financial burden of this change is borne fairly between governments and consumers, and across groups of consumers.

### National housing policy

Housing policy over the last decade has been characterised by a lack of focus and coordination across tenures and with other policy areas (such as economic development and urban/regional policy), as well as a greater focus on tight targeting of the available Commonwealth State Housing Agreement (CSHA) funding. For example the Commonwealth Government no longer has a dedicated Housing Minister - choosing instead to address housing issues in the context of its community services responsibilities. For nearly two decades, there has been a decline in CSHA funds which has further compounded difficulties of the states in delivering an appropriate supply of affordable housing, ensuring appropriate redevelopment of older stock, and maintaining financial viability. There have been calls from diverse groups, including the private sector and non-government organisations, for a national approach to housing policy. As property prices have increased, there is greater urgency in considering a wide range of housing issues and impacts, beyond those specific to very low income and disadvantaged households. State Housing Ministers have, over the past 12 months, attempted to engage the Commonwealth in a wider agenda. This includes a proposal to specifically dedicate the next meeting to consideration of options for improving housing affordability.

The Productivity Commission's Review into First Home Ownership may help to address some issues associated with the affordability and sustainability of housing.

## ***4.11 Achieving economic growth***

### Green economy

Economic growth is an essential component of a sustainable city. For Adelaide to be sustainable, it is critical that it at least hold its economic line by ensuring it achieves jobs and export growth rates in keeping with national growth forecasts, while also achieving environmental and social objectives. To achieve the complimentary aims of environmental and social sustainability it is important that the focus of economic growth shifts more towards gaining competitive advantage through the adoption of sustainable production processes by industry and the fostering of new environmentally sustainable industries such as renewable energy and environmental services. A recent example is the Starfish Hill wind farm that has generated about 160 South Australian jobs during the design and construction phase. More than \$25 million in contracts were awarded to South Australian companies and there were many flow on benefits.

The green economy will be one of the fastest growing sectors in the future. The Green City Program recognises that a clean and green image is important for Adelaide and that green businesses are an important source of economic growth. The program is building on local initiatives and efforts whilst at the same time embedding environmentally sustainable principles into local policies and regulations. It is believed that cities that take a strong approach to sustainability will achieve positive economic benefits.

### Changing unsustainable patterns of consumption and production

Economic growth needs to be balanced with a cultural shift towards a less consumption orientated society. This was recognised at the World Summit on Sustainable Development in Johannesburg in 2002 with one of the key components of the Implementation Plan a focus on changing unsustainable patterns of consumption and production.<sup>14</sup> Australia needs to

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<sup>14</sup> [www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/POIToc.htm](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm)

accelerate the shift towards sustainable consumption and production to promote social and economic development with the carrying capacity of ecosystems by ensuring that economic growth does not contribute to further environmental degradation. This can be achieved by improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste.

Another significant lever to attain this shift towards a less consumer driven society while maintaining economic growth is a review of the national system of financial incentives via the taxation system. The application of environmental taxes, such as tax rebates on green buildings (as mentioned in section 4.6) and taxes on greenhouse gas emissions, can reduce negative externalities associated with consumption and production. Environmental taxation is discussed further in section 5.8.

This shift is particularly important in the context of existing industries that support our economy. Manufacturing is a major export sector in South Australia. This sector underpins the State economy and creates a large proportion of wealth, while many other metropolitan services are generally said to be derived from the activities of manufacturing, both directly and indirectly. It is currently anticipated that manufacturing will remain important in the economy, therefore nurturing this sector and providing for its growth with operational certainty is of major importance to ensuring Adelaide remains globally competitive and economically viable. This process must involve these businesses improving their environmental credentials and, where practicable, making a shift towards sustainable processes and manufacture of sustainable products.

Globally, consumers are demanding higher environmental standards from industry, which is creating an opportunity for local business to gain a competitive advantage through sustainable production processes and by supplying 'clean and green' products and technologies. Locally, environmental performance of the manufacturing sector is improving as it becomes increasingly more aware of the economic, social and environmental benefits associated with clean and green and supplier chain requirements.

### Industrial ecology

A coordinated approach to the planning for industrial activities within managed facilities would assist in moving towards a more sustainable model, or 'industrial ecology'<sup>15</sup> and the establishment of 'eco-industry parks' whether that be on 'green field' or 'brown field' sites. There is a growing expectation within the community that business activities should not produce impacts on surrounding areas and the environment.

The concept of 'industrial ecology' is linked to the objective of producing little, if any, waste. Instead of waste, residual matter is repeatedly consumed with an emphasis on considering the 'total life-cycle' of products and services including the path through resource extraction, processing, manufacturing, marketing and distribution, to recovery and disposal. It involves rethinking conventional methods to achieve 'smarter' production, processes and products to achieve sustainable production. This includes clustering industries that are symbiotic in nature, ie where one industry's waste product is used by another industry as an input to their processes.

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<sup>15</sup> Industrial ecology involves designing industrial infrastructures as if they were a series of interlocking man-made ecosystems interfacing with the natural global ecosystem. Industrial ecology takes the pattern of the natural environment as a model for solving environmental problems, creating a new paradigm for the industrial system in the process. See [www.bfi.org/pdf/gbn\\_ecology.pdf](http://www.bfi.org/pdf/gbn_ecology.pdf).



A further development of this considers products in a ‘cradle to cradle’ scenario where they circulate in closed loops being recycled and reconfigured rather than going to waste. Such product stewardship schemes already exist where items remain the property of the producer and are merely leased to users.

Edinburgh Parks in Adelaide adopts elements of ‘industrial ecology’ in that through the clustering of like industries there is an opportunity to take advantage of supply opportunities to establish industrial precincts which complement the adjoining establishments of GMH Holden, DSTO laboratories and RAAF Edinburgh.

Industrial parks and similar agglomeration of like and compatible uses would also assist in focusing employment opportunities in a spatial sense such that efficiencies in public transport infrastructure may be achieved and shorter journey to work patterns may be achieved in terms of use of individual passenger vehicles. Employment opportunities should be provided in locations that are readily accessible by the workforce, while managing and minimising the potential for amenity impacts and conflicts that may arise between industrial and more sensitive land uses such as residential.

#### ***4.12 Social inclusion***

Social inclusion is likewise an essential component of a sustainable city. For Adelaide to be sustainable, it is critical that South Australia enhances its social development. Strong, healthy democracies are built on inclusive societies where all citizens have the means and opportunity to participate in the civic, cultural, social and economic life of their communities, and where there is mutual respect between citizens, irrespective of circumstances. Such societies cannot be sustained without an economic foundation that provides the employment and infrastructure required by its citizens; neither can they be sustained without those qualities that bind truly inclusive societies.

The costs of social exclusion are clear – unemployment, poverty, poor health, injury and early death are costs now passed from generation to generation in South Australia, while the capacity of our community is limited by inadequate school completion, fear, anti-social behaviour and crime. The socially excluded are the first to feel the negative impacts of urban sprawl. The socially excluded will be the first to be disadvantaged by unsustainable transport systems, unsustainable energy production, unsustainable building practices, and they will be further marginalised.

#### **Housing supply strategies**

A key mechanism through which the Commonwealth can support urban development reform and promote ecologically sustainable patterns of settlement is through a stronger focus on housing supply strategies. The last decade has seen a shift in the balance of Commonwealth policy away from supply strategies, such as the direct provision of social rental housing, towards demand based subsidies such as Commonwealth Rent Assistance (CRA) and the First Home Owners Scheme.

CRA has not been identified as stimulating investment in the lower cost housing sector and the Industry Commission 1993<sup>16</sup>, and King 2002,<sup>17</sup> have highlighted negative cost benefit comparisons with public housing investment.

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<sup>16</sup> Industry Commission (1993) *Public Housing* Volume 1.

<sup>17</sup> King, A., *Housing Assistance : the lifetime impacts*, Australian Housing and Urban Research Institute

While there are negative social impacts to urban sprawl, halting it will potentially create greater social exclusion of a new kind, unless accompanied by strategies to improve housing affordability. It is essential for the Commonwealth, in developing its 'blueprint' for ecologically sustainable cities, to give renewed attention to housing supply policies. Without such attention the stated aim of equity in the provision of services and infrastructure will not be achieved, housing affordability will continue to decline for people on low incomes and social exclusion will increase.

#### **4.13 Population**

Population policy is needed to create a better-balanced age structure to reduce the problem of possible shortages in labour supply and ensure support for sustainable economic growth. Job creation is the key to arresting both an outflow of workers and attracting an inflow of skilled workers. Population policy must also be balanced with consideration of the natural resources base needed to maintain quality of life.

Adelaide is growing at a relatively slow rate compared to other Australian cities. To counteract this trend, the SA Government recognises population policy, with a focus on increasing immigration, as an imperative for greater population stability. This is discussed in the Economic Development Board's report *A framework for economic development in SA*<sup>18</sup>.

The EDB has advocated an increased government focus on population policy and work towards ensuring that South Australia receives at least its proportionate share of the annual immigration intake, in addition to working with the Commonwealth Government to increase Australia's overall migrant intake.

At the recent Australian Population Institute (APOPI) Summit held in Adelaide, the South Australian Government suggested improvements to the existing visa categories and processing mechanisms to increase South Australia's migrant intake. It is suggested that bonus points should be provided for those migrants that commit to settle in regional areas, or "low population growth areas" such as South Australia. The South Australian Government urges the Commonwealth Government to consider a two stage visa approach using such a bonus points scheme. A permanent visa would only be granted upon proof that the applicant has collected bonus points by successfully settling and stayed in a low population growth area for a specific period. The Commonwealth should consider treating up to half of the national migrant intake in this way.

#### **4.14 Provincial cities**

Many of the comments and recommendations provided in this submission would also apply to provincial cities in South Australia, such as Whyalla, Port Lincoln, Port Pirie, Port Augusta, Mt Gambier and Murray Bridge. This includes the issues of existing urban form that supports car-based lifestyle, the need for sustainable water management and improved energy efficiency. It is important to acknowledge that these cities are all very different and have their own set of issues related to sustainability. These issues include:

- Changes in employment opportunities including the loss of full time employment and slow growth of part time employment as regions struggle to diversify the local economy.
- Population decline largely associated with the loss of employment opportunities.

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<sup>18</sup> Economic Development Board, April 2003, [www.oed.sa.gov.au](http://www.oed.sa.gov.au)

- Declining local availability of services, such as education, health, retail and wholesale trade and financial services leaving the remaining population significantly disadvantaged.

## **5. Measures to reduce costs of continuing urban expansion**

The costs of urban sprawl include:

- loss of productive land and areas of biodiversity value on the urban fringe
- increase in energy use for transport
- increased cost of infrastructure to service low density development
- less physical activity as people drive everywhere contributing to increased levels of obesity and subsequent rise in cardiovascular disease , diabetes etc
- lack of access to public transport on the urban fringe
- lack of services and employment opportunities on the urban fringe.

A range of measures are needed to reduce these costs, including urban containment and subsequent increase in higher density development, transit orientated development, improved public transport services, improved walking and bicycle paths, programs to encourage reduced use of cars, triple bottom line assessment and reporting and initiatives to address sustainability on the urban fringe. These measures are discussed below in the context of the progress that has been made in South Australia.

### ***5.1 Urban containment boundary and urban consolidation***

The SA Government recognises that continued urban fringe growth is not a desirable or sustainable form of development and acted by imposing the Urban Containment Boundary around Adelaide. Urban containment is a necessary part of the future sustainability of Adelaide and will drive the development of a more sustainable pattern of growth. With the introduction of an urban containment boundary for the metropolitan region, priority will be placed on the orderly staging of development to meet demand, and the coordination of service provision to ensure the efficient and timely delivery of key infrastructure such as roads. The Metropolitan Development Program facilitates this by identifying development trends in different sectors of the Adelaide region and providing population forecasts. The revised Metropolitan Adelaide volume of the Planning Strategy will include a Spatial Development Framework to guide development within the Urban Containment Boundary. The Spatial Development Framework (10-30 year horizon) will be more specific about future development opportunities within the context of urban containment and over a longer period than the Metropolitan Development Program (5 year cycle). The framework will identify preferred development and re-development opportunities, based on a holistic assessment of opportunities and constraints to development across the metropolitan area.

The Urban Containment Boundary around Adelaide achieves a number of important strategic aims, including containing Adelaide's urban sprawl, retaining important agricultural land and open space, optimising social and physical infrastructure and minimising the need for costly new services. Adelaide is now grappling with the notion of denser urban development and its associated environmental and wider sustainability implications.

### Benefits of urban containment

The broad medium to long-term environmental benefits of urban containment include reductions in greenhouse gas emissions through shorter journeys by car and increased public transport patronage, and reduced pressure on agricultural land and areas of biodiversity value at the urban fringe. The Urban Containment Boundary protects prime agricultural land to the north and south of Adelaide that is currently devoted to intensive high value agricultural production.

The SA Government has commenced an economic appraisal of the Urban Containment Boundary to examine the potential savings (ie benefits) to Government over a 15 year time frame in maintaining the boundary. Preliminary work indicates that on a metropolitan wide level it conservatively costs approximately \$19,000<sup>19</sup> per new house in direct infrastructure subsidy on the fringe. Adelaide's new Urban Containment Boundary has essentially preserved well over 5000 hectares for agricultural use or open space and potentially saved the state about one billion dollars<sup>20</sup> in social and physical infrastructure costs over the next 20 to 30 years. A study of Perth<sup>21</sup> costs revealed this estimate to be a very conservative one. When one looks at the hidden economic costs of servicing each dwelling over a 15-year period the infrastructure and servicing costs on the fringe of Perth were about \$73,000 per dwelling versus \$20,000 in the inner city. More importantly, transportation costs (including all externalities such as accidents and pollution) were about \$175,000 per dwelling versus \$90,000 in the inner city areas. In other words a total of \$250,000 per dwelling in private and public costs over a 15 year period on the fringe or about 2.2 times that of inner city locations. Therefore the direct infrastructure and community cost savings (ie benefit) associated with urban containment could amount to several billion dollars based on these figures. These figures do not include the additional burden of maintenance costs.

### Costs of urban containment

The costs associated with urban containment may include replacing or augmenting infrastructure with constrained capacity, an increased reliance on public open space and sporting and recreational facilities as higher density dwellings become more common, increased land prices and increased potential for land use conflict.

The infrastructure costs associated with infill development are influenced by the extent and nature of available excess capacity in urban facilities and services. In some cases there may be excess capacity in the water, sewage, stormwater, electricity, gas or road system to account for increased demand. Where there are capacity constraints in some services, additional costs of replacing or augmenting infrastructure need to be taken into account.

Another cost associated with urban containment is the role it may play in a potential increase in land prices (due to constrained supply) and subsequent affect on housing affordability. The urban containment boundary is only one of the numerous complex factors that will influence house prices in the future. In part to address the concern regarding higher land prices and impact on house prices, a study has been commissioned that is looking at what mix of regulatory, planning and market mechanisms will provide the optimum outcome for preserving affordable housing in South Australia (this study is discussed further in section 4.9).

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<sup>19</sup> Extrapolated estimate based on the Metropolitan Development Plan 1997

<sup>20</sup> Based on an average land take of 1000 square metres

<sup>21</sup> Newman and Kenworthy, 2000, *Sustainability and Cities - Overcoming Automobile Dependence*

Urban containment may cause the encroachment of residential uses upon traditionally industrial areas and may require the placement of higher environmental and operational standards upon industry. In addition, industrial land supply is also likely to be threatened as a result of increased competition for land by higher value uses such as residential and commercial, which reduces opportunities for industries to relocate or expand.

### ***5.2 Urban regeneration***

Urban regeneration is a significant focus for development within the Urban Containment Boundary and will improve the sustainability of areas particularly from a social perspective. Urban regeneration needs to occur within well defined guidelines to ensure that it contributes to environmentally and socially sustainable outcomes. The SA Government, through the South Australian Housing Trust, has facilitated a range of significant redevelopment projects in areas of public housing, including most recently in Westwood, Hillcrest and Windsor Gardens. The range of urban regeneration measures also includes revitalisation (Playford North) and the use of vacant and under-utilised land (DSTO, Regent Gardens and Oakden), the rehabilitation of sites and the improvement to open space and water catchment areas.

Some of the social, economic and environmental benefits of urban regeneration include:

- making better use of our existing investment in infrastructure, housing, roads, public transport and other services
- allowing for improvements in public transport services with a greater market for existing services
- reducing the need to provide additional infrastructure and government services (ie schools, health services) to outer areas
- improving social and living conditions, especially in older areas
- better matching of services and housing to community requirements
- enhancing the value of property and community assets
- improving the efficiency and effectiveness of government expenditure
- improving environmental and economic outcomes by protecting productive agricultural and industrial areas and enhancing water management
- enhancing the ability of communities to develop with wide age groupings
- improving the viability of local business and professional services.

### ***5.3 Transit orientated development***

“Transit supportive development involves concentrating housing, employment and other activities close to public transport to help create urban areas that are compact, accessible, self-sufficient and environmentally sustainable. This development helps to reduce the environmental costs associated with development and transport by:

- improving access to work, recreational and social opportunities by reducing long distance
- commuting by car
- increasing the number of potential passengers on public transport
- reducing the need to travel by car which moderates local and arterial road congestion
- creating an urban form that can be more effectively served by pedestrian and cycle paths.”<sup>22</sup>

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<sup>22</sup> Extract from “Guideline on Transit supportive development” in *Promoting Best Practice in Transport and Land Use Planning*, National Taskforce for National Greenhouse Strategy Measure 5.3

### The North West Project

The South Australian Government is well advanced in an audit of the North West corridor. The potential exists to develop an “urban villages” program such as the one recently implemented by the Premier of Victoria as part of Melbourne’s 2030 plan and apply the principles of transit orientated development.

*Transit Cities* is a major Victorian State Government initiative that is about creating safe, vibrant and accessible communities that are centred on public transport. One of the aims of *Transit Cities* is to link people to social services and employment opportunities and pursue a ‘sustainable development framework’ along the rail corridor within 800 metres of all stations.

### **5.4 Improved public transport**

Public transport is an essential community service with an estimated 25 percent of people in Adelaide catching a bus, train or tram at least once a week. The whole community gains from the use of public transport because less car use results in reduced traffic congestion, crashes and pollution. Importantly, it enables people who would otherwise have limited mobility to better participate in community life.

In Adelaide public transport struggles to maintain its role in the face of greater dispersal of jobs and shopping and housing, increasing ownership of cars and good parking provision. Experience has shown that the most effective way to increase patronage is to provide more frequent, reliable and better quality services that are well integrated and supported by sound marketing. Public transport patronage rose by 9 percent between 2000 and 2003, reversing a 20 year decline. Contributing factors include the introduction of Go Zones, increased frequency of service across the network, proactive marketing, improved customer service and a rise in petrol prices. This growth in patronage compares favourably with interstate where, despite strong population growth, public transport patronage has not kept pace. Despite the service improvements made in the 2000-2003 period, there are many more required, particularly in the Northern and Southern suburbs. In addition, shopping hours are being extended, but many public transport services operate to poor frequencies or not at all during these extended hours, meaning that shoppers and workers dependent on public transport will not have equal access to those shops.

The draft State Transport Plan contains a range of strategies to improve the public transport system including:

- exploring opportunities for major new bus-train interchanges and upgrading other interchanges, stations and stops
- making the public transport system fully accessible to mobility-impaired people.
- upgrading and replacing the Glenelg tram line
- upgrading the ticketing system to improve its flexibility and convenience
- increasing bus services to minimum service standards and introduce new cross-town services to major centres
- extending Go Zone system to all major train stations and additional bus routes
- introducing an innovation program to support the trialing of new services
- examining the potential to extend the current vehicle location and passenger information (real-time information) project to the entire public transport system
- increasing bus priority through traffic signal pre-emption and provision of bus lanes and the Transitways program
- increasing capital investment in public transport and invest more effectively

- investigating the most effective means to maximise the value of dedicated public transport corridors
- working with State and Local Government planners to better integrate urban development and public transport.

### ***5.5 Improving active transport choices – walking and cycling***

#### Walking Action Plan

A draft walking action plan for urbanised areas of South Australia is currently under development. The action plan recognises that walking provides a broad range of benefits to individuals and the liveability of their communities. In particular the action plan recognises the need to improve physical activity to reduce rising obesity and the links between social exclusion, land use and transport planning solutions. The draft focuses on aligning planning and policy practices, providing supportive and sustainable physical walking environments, coordinating the investment in walking and promoting the diverse range of walking choices.

#### Cycling

Since the mid 1990's the State Government in partnership with Local Government has developed a comprehensive bicycle network for the Adelaide metropolitan area and in many regional areas. Adelaide's bicycle network is known as BikeDirect and covers over 2100 km. The routes consist of a number of different styles of facilities to cater for the diverse range of people that cycle ranging from school children to athletes in training. The routes use arterial roads, lightly trafficked local roads and off-road paths. Adelaide currently has over 250 kms of bicycle lanes and 220 kms of paths as part of the BikeDirect network. The routes are signed and shown on a series of eight maps that are available free from a number of outlets. A number of regional centres have developed Strategic Local Area Bicycle Plans and have or are currently developing bicycle networks within their urbanised areas.

SA has a draft Recreational Trails Strategy 2003-2010 to provide a sustainable network of quality trails to enhance the lifestyle, health, environment and opportunities for South Australians and visitors to our State. Many of the recreational trails in the network play an important role in the transport system and will provide further opportunities through enhancements to existing cycling and walking networks, new trails, linkages and greater promotion of these opportunities.

### ***5.6 Travel demand management programs***

#### TravelSmart SA

TravelSmart SA is a behavioural and educational approach to travel demand management. It involves directly engaging individuals and providing personalised information on realistic, achievable alternative travel options to those interested as well as educating and raising awareness of the impacts of various travel options and promoting alternative travel behaviours.

The strategic objective of TravelSmart SA is to achieve significant greenhouse gas emissions reductions by realising travel behaviour change and a shift in societal values to more efficient care use and increased walking, cycling and public transport use.

The program has been implemented on a small-scale since 1998, with interventions targeting households, workplaces and schools being the program's core components.

The TravelSmart SA 5 year plan identifies, as a priority for delivery, rollout of a large-scale household travel behaviour change tool along a key transport corridor in metropolitan Adelaide. A structured program of supportive components to reinforce behaviour change and evaluation, partnerships and sustainability of change underpin the whole program.

The SA Government is a party to the National Travel Behaviour Change Program, partly funded by the Commonwealth Greenhouse Gas Abatement Program.

#### The Walking school bus

The Walking School Bus program aims to reduce car emissions and congestion caused by the trip to school and is part of the TravelSmart SA Program. The SA Government, in partnership with the City of Mitcham, trialed two Walking School Buses during 2002/03. Parent volunteers pick children up from set 'walking stops' and continue walking the 'bus' to school being dropped off safely within the school grounds. The trial has proved to be immensely successful with over 50 parent volunteers involved, walking approximately 80 children across seven different routes to school. An independent evaluation of the trial has found the program to be successful in bringing about modal shift - with over 60 per cent of the participants formally making the trip to school by car. Currently Transport SA is investigating future program options, in collaboration with Local Government. In addition to the obvious environmental benefits it has been recognised that the 'active transport' element of the walking school bus contributes to the health and well-being of the participants.

#### ***5.7 Triple bottom line reporting and assessment***

Triple Bottom Line (TBL) reporting is becoming an accepted approach for organisations to demonstrate they have strategies for sustainable growth. TBL focuses on decision-making and reporting against an organisations economic, environmental and social performance, as such it is an internal management tool and external reporting framework. It is therefore an essential tool to assist with progress towards sustainability. The Commonwealth Government's report, *Triple Bottom Line Reporting in Australia – A Guide to Reporting against Environmental Indicators*, is a good step towards raising awareness and moving TBL into the mainstream for business operations.

TBL concepts can also be applied to individual infrastructure projects to assess the sustainability of the project. A project appraisal tool is being developed by the South Australian Government to augment the present practice of benefit cost analysis to take into account the economic, environmental and social impacts that transport projects have upon land use patterns (and vice versa) which may otherwise be treated in an inconsistent fashion or be overlooked. It is also intended to guide land use planners (or others evaluating the wider impact of infrastructure projects) of the range of attributes or issues to consider in formulating their decisions and how to present the basis for their decision in a transparent and reproducible manner. The project appraisal tool is designed to be used in conjunction with other appraisal frameworks and systems already in place in South Australia. This decision support tool is designed to incorporate and complement the applicability of existing frameworks/appraisal tools in the area of transport/land use interactions.



## ***5.8 Economic instruments***

### Environmental taxes

The debate about environmental taxes has developed over recent years and despite the potential of these taxes to improve the efficiency of the tax system and the wider economy by improving resource allocation they have not been applied in Australia to any great extent. Suggestions have been made in this submission regarding the application of environmental tax reform within the context of Fringe Benefits Tax arrangements (see section 4.5) and to encourage green building practices (see section 4.6). Appropriately designed environmental tax reform can greatly reduce the economic cost of protecting the environment and in some cases can actually increase economic growth, while at the same time improving the environment. These have the potential to expand the revenue base and raise significant amounts of revenue, allowing less desirable taxes (such as those on salaries and wages) to be reduced whilst providing environmental gains – the so called “double dividend”.<sup>23</sup>

Environmental tax reform will not be relevant in all instances but should be considered and investigated further as one of a range of tools to progress sustainability in Australia.

### Australian taxation system

The taxation system is a revenue collection and redistribution system that is a significant driving force for change and therefore the incentives and disincentives provided by the system should further the social, environmental and economic objectives of sustainability.

## **6. Mechanisms for the Commonwealth to bring about urban development reform and promote ecologically sustainable patterns of settlement**

It is evident that South Australia, along with other Australian jurisdictions have embarked or are developing many initiatives that will assist in the achievement of sustainable cities. There are implications for Australian cities and the Australian community if attention is not further increased on the challenges that are evident in the context of sustainability. Over investment in road infrastructure and lack of focus on sustainable transport options, such as public transport, will continue to drive unsustainable transport choices and increase community and government costs in the long term. Lack of attention on housing policy and supply strategies will result in poor social outcomes and lack of community capacity to drive economic growth. Lack of support for alternative transport fuels will result in an over reliance on imports, missed opportunities to affect market transformation and continued increases in transport related greenhouse gas emissions. The Commonwealth Government can play a more significant role in assisting to address the issues discussed in this submission through the provision of policy/program leadership, research, incentives and funding support and regulatory reforms. Accordingly, the SA Government has outlined the following major areas for consideration by the Commonwealth Government.

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<sup>23</sup> Hatfield Dodds S, 2003, *When should we use taxes to address environmental issues? A policy framework and practical agenda for Australia*, Plenary Speaking Notes, Fourth Annual Global Conference on Environmental Taxation Issues, Experience and Potential, Sydney, Australia 5- 7 June 2003 ([www.clw.csiro.au/research/peru/publications/Environment\\_taxJune2003.pdf](http://www.clw.csiro.au/research/peru/publications/Environment_taxJune2003.pdf))

### **6.1 Measure of progress - Sustainability reporting**

If our ultimate aim is sustainability we need to re-think the way we measure our success and progress as cities, states and as a nation to reflect our progress towards sustainability. We currently rely on the Gross Domestic Product (GDP) as a measure of our success. Many commentators doubt the value of this measure in leading us towards sustainability.

What is required is a nationally agreed approach by governments to measurement of sustainability which would take into account a broader range of factors that contribute to our well-being than is included in the GDP, such as personal consumption, costs of noise pollution, costs of urban water pollution, costs of climate change etc. Raised awareness about the importance of and relevance of sustainability reporting is also needed. This could supplement the State of the Environment reports currently being undertaken across Australia and build on the process to measure national performance against the core objectives of the National Strategy for ESD (*Are we sustaining Australia? Report against Headline Sustainability Indicators*). It could also be used to add depth to the GDP figures which are so inadequate in describing the status of the environment and society.

It is recommended that the Commonwealth government work with the states and territories to develop a meaningful range of sustainability criteria for a reporting tool that conveys our progress towards sustainability, the state of the environment and of society in addition to the economy and that such a process is used as a formal adjunct to the GDP.

### **6.2 Energy**

#### **6.2.1 National Framework for Energy Efficiency and Minimum Energy Performance Standards for appliances**

A national approach to energy efficiency programs is increasingly important as many energy retailers and business enterprises are operating on a national basis and are therefore more likely to be responsive to consistency and clarity of programs across state borders. This can be achieved through a National Framework for Energy Efficiency.

One of the existing national programs, Minimum Energy Performance Standards for appliances, is of particular importance and the Commonwealth Government should drive the steady increase in standards for energy efficiency of appliances through this program.

It is recommended that the Commonwealth Government:

- continue to support the development of the National Framework for Energy Efficiency
  - play a key role in driving implementation of the framework and
  - facilitate a steady increase in standards for energy efficiency of appliances through the Minimum Energy Efficiency Performance Standards and within the context of the National Framework for Energy Efficiency
- in consultation with states and territories.

#### **6.2.2 Mandatory Renewable Energy Target**

The South Australian Government has urged the Commonwealth to increase the Mandatory Renewable Energy Target from 2 to 4.5 percent, which will provide commercial impetus to develop the renewable energy industry whilst work towards a comprehensive trading scheme or other measures to reduce greenhouse gas emissions is undertaken.

It is recommended that the Commonwealth Government increase the Mandatory Renewable Energy Target from 2 to 4.5 percent.

### **6.2.3 Excise exemption for alternative fuels**

Continued excise exemption is required to encourage the development of fuels alternative to petroleum based fuels. The alternative fuels which require support are those that provide greenhouse and/or air quality benefits and are indigenous to Australia, including biodiesel, LPG, LNG and CNG. Major initiatives in SA that aim to reduce the environmental impact of passenger transport rely heavily on the use of alternative fuels.

The road transport industry, and the agriculture and horticulture industries are major consumer of diesel fuel and opportunities exist in the longer term to replace mineral (fossil fuel) diesel with biodiesel which can be manufactured from a number of sources. Continued Federal support in this area is vital such as the preferential excise duty treatment of bio-diesel which will allow the fuel to be cost-competitive and drive its growth.

The decision to phase in excise on LPG, LNG and CNG is a backward step in the process of transformation.

It is recommended that the Commonwealth Government re-think the decision to introduce an excise on LPG, LNG and CNG and develop a framework of exemptions on fuel excise that preserve the preferential position of alternative fuels, based on their carbon intensity.

## **6.3 Water**

### **6.3.1 National guidelines for wastewater and stormwater recycling**

Continued Commonwealth commitment and funding is needed to progress the development of national guidelines for wastewater and stormwater recycling.

It is recommended that the Commonwealth Government continue to collaborate and provide funding to progress the development of national guidelines for wastewater and stormwater recycling in consultation with states and territories.

### **6.3.2 Water efficiency standards and labeling**

The South Australian Government recognises the importance of continuing the development of a national mandatory water efficiency labeling scheme and minimum performance standards for domestic appliances. Given the significant amount of water used on gardens in urban areas, the WELS program could also be expanded to include irrigation equipment and the development of water efficiency standards for irrigation systems used in urban areas.

It is recommended that the Commonwealth Government continue to work with states and territories to develop minimum performance standards for water using domestic appliances and fittings and assess the feasibility of water efficiency labeling and standards for irrigation systems used in urban areas.

### **6.3.3 Water sensitive design guidelines**

The development of water sensitive guidelines and targets should be supported and lead by the Commonwealth as was suggested in the SA Government submission to the Senate Environment, Communications, Information Technology and the Arts References Committee (ECITA) inquiry into the management of water in Australian cities.

It is recommended that the Commonwealth Government support and take a lead in the development of water sensitive design guidelines and targets for urban areas in consultation with states and territories.

### **6.4 Research into sustainable technology**

Research into technology and processes that will support sustainability is needed. Research should capitalise on international research by giving a local focus that draws on our natural advantages, such as wind and sun, and/or addresses our environmental problems such as salinity, and by linking it to industries that are significant to our economy, such as the motor vehicle industry. This includes research looking at:

- alternative energy sources
- measures for storing energy such as hydrogen fuel cells
- new and more cost effective ways to treat and use stormwater and wastewater.

It is recommended that the Commonwealth Government in consultation with the states and territories develop a research strategy focussed on sustainability issues in cities, with a particular focus on more integrated and innovative approaches to address water and energy issues.

## **6.5 Transport**

### **6.5.1 Fringe Benefits Tax**

The FBT system encourages greater use of motor vehicles by providing for reductions in FBT as more kilometres are driven. This does not support sustainable behaviour and encourages fringe urban growth.

Further there may be opportunities to use FBT exemptions to promote more sustainable modes of transport. For example, removing FBT from employer provided bicycles or public transport season tickets (provided that the employee uses those modes of transport for commuting purposes) could provide an incentive for greater take-up of those modes of transport.

It is recommended that the Commonwealth Government re-think the current Fringe Benefits Tax arrangements related to motor vehicles to remove the present incentive for higher vehicle use. Further consideration should be given to using additional FBT exemptions for employer provided assistance with alternative travel modes, particularly walking, bike riding and public transport use.

### **6.5.2 Addressing national barriers to sustainable transport systems**

With limited growth in the State, the challenge of meeting the initial levels of government investment that are required to re-instate public transport as an urban mass transit system is a considerable one, even though there are longer-term government, societal and private benefits to be gained from such as strategy. A more pro-active approach by the Commonwealth Government to addressing the fundamental national barriers, such as public transport

infrastructure investment and culture change towards more sustainable transport options, would greatly assist the State in advancing the measures that are planned.

It is recommended that the Commonwealth Government in consultation with the states and territories have a greater proactive involvement in addressing the fundamental national barriers to developing sustainable transport systems in Australian cities, such as public transport infrastructure investment and culture change towards more sustainable transport options.

## **6.6 Building**

### **6.6.1 Building Code of Australia and national sustainability index for housing**

The South Australian Government supports the progressive introduction of energy efficiency building standards for all buildings and the development of a national sustainability index for housing. The latter provides an important and powerful tool for changing the impact of housing on the environment, by encouraging developers to focus on the areas that can be addressed at the design and construction stages, such as energy and water efficient fittings and appliances, building materials and landscaping.

Two important vehicles to lead the development and progression of national sustainability building measures include relevant Ministerial Councils and the Australian Building Code Board.

It is vital the Australian Building Code Board have an ongoing role in progressing standards to achieve higher levels of environmental sustainability. The adoption of sustainability as a key goal for the Building Code of Australia is imperative to ensure that there is national consistency and leadership on building standards from a sustainability perspective.

Similarly, Ministerial Councils could take a more active role in progressing the national adoption of other measures, such as a national sustainability index for housing, particularly where jurisdictions have already progressed such measures.

It is recommended that the Commonwealth Government:

- support and facilitate the adoption of sustainability as a key goal for the Building Code of Australia
  - support and drive progressive introduction of energy efficiency standards for all buildings and
  - support the continuation of the Australian Building Code Board
  - support and drive the development of a national sustainability index for housing, through the relevant Ministerial Councils
- in consultation with states and territories.

### **6.6.2 'Green' building financial incentives**

Consideration should be given to the type of financial incentives that would encourage development of sustainable or 'green' buildings and refurbishment of existing buildings to improve sustainability, particularly commercial and apartment buildings. Such an initiative has been introduced in New York recently. A financial incentive for green building would help to drive market transformation towards sustainably built buildings and technology and move green building design into the mainstream.

It is recommended that the Commonwealth Government in conjunction with the building sector and in consultation with the states and territories investigate options for financial incentives that support development of 'green' buildings and sustainable refurbishments of existing buildings.

## **6.7 Climate change**

### **6.7.1 Kyoto Protocol**

The SA Government has committed itself to support Australia's ratification of the Kyoto Protocol, which it considers is in the nations best interest, despite the position taken by the Commonwealth Government.

It is recommended that the Commonwealth Government re-consider its position on ratification of the Kyoto Protocol.

### **6.7.2 Emissions Trading Scheme**

The SA Government encourages the Commonwealth Government to undertake a comprehensive evaluation, in close consultation with states and territories, of the potential and operation of a national emissions trading scheme. The adoption of a comprehensive emissions trading scheme is likely to achieve the Kyoto target at the least cost to the community, especially if linked to a global scheme.

It is recommended that the Commonwealth Government undertake a comprehensive evaluation, in close consultation with states and territories, of the potential for and operation of a national emissions trading scheme.

## **6.8 National Summit on the Future of Australia's Towns and Cities and National urban policy**

The Local Government and Planning Ministers' Council recently considered and supported a proposal for a *National Summit on the Future of Australia's Towns and Cities* in recognition of the need to work collaboratively on issues such as economic development, urban and regional growth, housing affordability, taxation policy and environmental sustainability in the context of achieving urban sustainability. The Commonwealth did not accept the need for a national summit, however with the recent appointment of a new Commonwealth Minister there is an opportunity to change this decision.

In the context of the national summit mentioned above and the Commonwealth's new Sustainable Cities program there is an ideal opportunity for the Commonwealth Government to develop a national urban policy to address sustainability of cities. Forces of change, including globalisation, social and demographic shifts, the information economy and the need to work towards sustainability present significant challenges for urban communities in Australia. A number of peak national interests including the Property Council of Australia recognise the need for a shared national approach in the sustainable management of Australia's urban growth and development. Development of an urban policy agenda would demonstrate:

- an understanding that many issues that need to be addressed to progress towards sustainable cities are influenced by nationally based programs and policies
- a willingness to assist to address these issues.

It is recommended that the Commonwealth Government:

- support and take an active role in the *National Summit on the Future of Australian Towns and Cities*
- use the opportunity of provided by the summit to commit to and
- develop a national urban policy in consultation with the states, territories and Australian Local Government Association.

### **6.9 Housing**

Housing policy over the last decade has been characterised by a lack of focus and coordination across tenures and with other policy areas (such as economic development and urban/ regional policy), as well as a greater focus on tight targeting of the available Commonwealth State Housing Agreement funding. State Housing Ministers have, over the past 12 months, attempted to engage the Commonwealth in a wider agenda. This includes a proposal to specifically dedicate the next meeting to consideration of options for improving housing affordability. A key mechanism through which the Commonwealth can support urban development reform and promote ecologically sustainable patterns of settlement is through a stronger focus on housing supply strategies.

It is recommended that the Commonwealth Government take a more active role in matters surrounding housing affordability, supply and sustainability.

### **6.10 Population policy**

Population structure and growth needs to be better balanced to reduce the problem of possible shortages in labour supply and ensure support for sustainable economic growth. The South Australian Government suggests the Commonwealth increases Australia's overall migrant intake and consider a two stage visa approach using a bonus points scheme. A permanent visa would only be granted upon proof that the applicant has collected bonus points by successfully settling and staying in a low population growth area for a specific period. The Commonwealth should consider treating up to half of the national migrant intake in this way.

It is recommended that the Commonwealth Government consider increasing Australia's overall migrant intake, consider introducing a two stage visa approach for up to half of the national migrant intake and work with the South Australian Government to ensure SA receives at least its proportionate share of the annual immigration intake.

### **6.11 Taxation**

The taxation system is a revenue collection and redistribution system that is significant driving force for change and therefore the incentives and disincentives provided by the system should further the social, environmental and economic objectives of sustainability.

It is recommended that the Commonwealth Government investigate reforms to existing taxes as a means of progressing towards sustainability in consultation with states and territories.

## 7. Recommendations

It is recommended that the Commonwealth Government:

### *Measure of progress - Sustainability reporting*

1. work with the states and territories to develop a meaningful range of sustainability criteria for a reporting tool that conveys our progress towards sustainability, the state of the environment and of society in addition to the economy and that such a process is used as a formal adjunct to the GDP

### *Energy*

2. continue to support the development of the National Framework for Energy Efficiency, play a key role in driving implementation of the framework and facilitate a steady increase in standards for energy efficiency of appliances through the Minimum Energy Efficiency Performance Standards and within the context of the National Framework for Energy Efficiency in consultation with states and territories
3. increase the Mandatory Renewable Energy Target from 2 to 4.5 percent
4. re-think the decision to introduce an excise on LPG, LNG and CNG and develop a framework of exemptions on fuel excise that preserve the preferential position of alternative fuels, based on their carbon intensity

### *Water*

5. continue to collaborate and provide funding to progress the development of national guidelines for wastewater and stormwater recycling in consultation with states and territories
6. continue to work with states and territories to develop minimum performance standards for water using domestic appliances and fittings and assess the feasibility of water efficiency labelling and standards for irrigation systems used in urban areas
7. support and take a lead in the development of water sensitive design guidelines and targets for urban areas in consultation with states and territories

### *Research into sustainable technology*

8. in consultation with the states and territories develop a research strategy focussed on sustainability issues in cities, with a particular focus on more integrated and innovative approaches to address water and energy issues

### *Transport*

9. re-think the current Fringe Benefits Tax arrangements related to motor vehicles to remove the present incentive for higher vehicle use. Further consideration should be given to using additional FBT exemptions for employer provided assistance with alternative travel modes, particularly walking, bike riding and public transport use
10. in consultation with the states and territories have a greater proactive involvement in addressing the fundamental national barriers to developing sustainable transport systems in Australian cities, such as public transport infrastructure investment and culture change towards more sustainable transport options



*Building*

11. support and facilitate the adoption of sustainability as a key goal for the Building Code of Australia, support and drive progressive introduction of energy efficiency standards for all buildings, support the continuation of the Australian Building Code Board and support and drive the development of a national sustainability index for housing, through the relevant Ministerial Councils, in consultation with states and territories
12. in conjunction with the building sector and in consultation with the states and territories investigate options for financial incentives that support development of 'green' buildings and sustainable refurbishments of existing buildings

*Climate change*

13. re-consider its position on ratification of the Kyoto Protocol
14. undertake a comprehensive evaluation, in close consultation with states and territories, of the potential for and operation of a national emissions trading scheme

*National Summit on the Future of Australia's Towns and Cities and national urban policy*

15. support and take an active role in the National Summit on the Future of Australian Towns and Cities, use the opportunity of provided by the summit to commit to and develop a national urban policy in consultation with the states, territories and Australian Local Government Association

*Housing*

16. take a more active role in matters surrounding housing affordability, supply and sustainability

*Population policy*

17. consider increasing Australia's overall migrant intake, consider introducing a two stage visa approach for up to half of the national migrant intake and work with the South Australian Government to ensure SA receives at least its proportionate share of the annual immigration intake

*Taxation*

18. investigate reforms to existing taxes as a means of progressing towards sustainability in consultation with states and territories.

## Relevant SA Government initiatives and involvement in national programs

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***Social inclusion***

Planning Strategy for Metropolitan Adelaide

Social Inclusion Initiative

Safe Communities Initiative

***Bushland, heritage and urban green zones***

Parklands 2036

A major initiative by the Government of South Australia is the development of Parklands 2036.<sup>1</sup> As the State Government's open space strategy Parklands 2036 will improve open space management processes and enable a planned, efficient and equitable approach to the acquisition, development and ongoing use of Adelaide's open space. The strategy will build on the role of the Metropolitan Open Space System (MOSS) that was developed in 1991 to establish a second generation of parklands around Adelaide and includes land in both public and private ownership.

Parklands 2036 will set the direction for:

- Enhancing and conserving open space throughout the metropolitan area.
- Providing a recognisable and natural reinforcement to the metropolitan urban growth containment boundary.
- Increasing recreational opportunities of the entire open space system for the people of Adelaide.
- Developing major waterways and the metropolitan foreshore as linear parks.
- Preserving and enhancing the natural character of the Adelaide Hills.
- Integrating conservation and recreation values in urban development.
- Protecting biodiversity and reintroducing native plants and animals.

A major initiative of the Parklands 2036 strategy is the creation of Coast Park. Adelaide's coastline is recognised and valued for its enormous diversity. The Coast Park extends over 70 kilometres along the entire length of the metropolitan coast and links the many special places of interest to provide a publicly accessible linear park.

The Parklands 2036 strategy is allied to Yurrebilla – Greater Mt Lofty Parklands which is being developed as a dedicated network of trails linking local areas and reserves into a cohesive Parkland network. These corridors will preserve native vegetation and provide increased opportunities for the community to access a wide range recreational, educational, spiritual and cultural activities in different locations throughout the Mt Lofty Ranges.

Maintaining biodiversity

Maintaining areas of biodiversity and enhancing open space areas are an important part of improving the sustainability of cities. The Urban Forest Biodiversity Program<sup>2</sup> and One Million Trees Program will deliver key outcomes in this area, particularly through

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<sup>1</sup> [www.planning.sa.gov.au/p2036](http://www.planning.sa.gov.au/p2036)

<sup>2</sup> [www.urbanforest.on.net](http://www.urbanforest.on.net)

partnerships with nursery industry groups, local government and non-government organisations.

### Centre for Urban Habitats

The Centre is based at the University of Adelaide and was established last year. It was formed as a partnership between SA's major scientific institutions, the Adelaide City Council and SA Government and will research, advise and communicate on such issues as the parklands, introduced and native plants in the urban environment, the conservation and management of urban animals and urban design. The Centre will be an important resource and source of information for urban biodiversity and open space programs.

### ***Equitable access to energy, energy efficiency and renewable energy***

#### Energy Efficiency Action Plan

The SA Government is leading by example through the implementation of the Energy Efficiency Action Plan<sup>3</sup> that defines a comprehensive energy management program for State Government operations, including measures for greening of buildings, vehicle fleet and equipment purchasing. The State Government leases approximately 60 percent of its office accommodation requirements which in total amount to approximately 25 percent of the office market in Adelaide CBD and this market power will be used to drive commercial building owners towards consideration of energy efficiency. As part of this initiative the South Australian Government has committed to purchasing 6.4 percent of its electricity requirements from a renewable energy source. With the recent introduction of the Greening of Government Operations Framework the Action Plan will form a key mechanism for implementation of the energy management priority.

#### SA Government sustainable energy initiatives

In addition to providing an energy advisory service to the community and business the SA Government has initiated a range of programs aimed at promoting renewable energy sources and improving energy efficiency. A few key programs are:

- *South Australian State Government's Solar Hot Water Rebate Scheme*  
The objectives of this scheme are to increase the efficient use of energy and reduce the amount of greenhouse gas emissions from residential water heating. This will be achieved by encouraging the replacement of electric water heaters with solar hot water heaters through the allocation of rebates to installations that meet the scheme's eligibility criteria. In March 2003, the State Government committed an extra \$2.6 million over the next 18 months to the scheme. This means that the scheme will have \$2.0 million to allocate towards rebates during 2003/04. Since inception of the scheme in July 2001 and until the end of June 2003, over 3,300 applications have received rebates. Solar hot water units installed with the assistance of the rebate will result in a reduction of approximately 9,900 tonnes of greenhouse gas emissions annually from the residential sector.
- *Energy Friends program*  
This is a grass roots energy efficiency program. Resources such as a home energy auditing training manual, energy auditing kits, energy efficiency product samples and technical support are available to those undertaking an Energy Friends Auditor training course. Welfare and charity agencies such as Family and Youth Services, St Vincent DePaul, The

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<sup>3</sup> [www.sustainable.energy.sa.gov.au/pages/programs/government/state/pdf/action\\_plan.pdf](http://www.sustainable.energy.sa.gov.au/pages/programs/government/state/pdf/action_plan.pdf)

Central Mission and environmental organisations have, or intend to participate in Energy Friends auditing training. These organisations have far reaching programs in metropolitan and regional areas throughout the state, and have the potential to provide an energy auditing service to thousands of South Australians. In addition to the auditing training and resources, the Energy Friends audit kit has been modified to a 'self audit kit' that is available through 17 councils, to be loaned via their library services.

- *Reach for the Stars program*  
This is a national education program focusing on the benefits of choosing energy efficient household appliances. The aims are to reduce domestic appliance energy costs and greenhouse gas emissions, and increase the promotion and sale of high efficiency energy appliances. Managers and staff from 63 retail appliance stores were trained in the understanding of the Energy Rating label that is affixed to all single phase air conditioners, refrigerators, freezers, washing machines, dishwashers and clothes dryers. The training covered how to calculate annual dollar running costs and greenhouse gas emissions.
- *Eco Grote Street Project*  
The first stage of this project was launched in February 2003. The Grote St Business Association's aim is to showcase this precinct as proactively environmentally conscious and promote its "green benefits" both domestically and internationally. This first stage involves undertaking a series of energy audits in different types of Grote St precinct businesses and holding a workshop/seminar for similar businesses to communicate results and significant energy efficiency practices by way of case study example.
- *Cities for Climate Protection (CCP) Program*  
The South Australian Government supports this international program by coordinating CCP network meetings, arranging forums and workshops on topics such as streetlighting, energy performance contracts, alternative fuels etc, and providing an advisory service to CCP Officers and other general support in relation to energy efficiency and renewable energy projects.

### Photovoltaic Rebate Program

The Photovoltaic Rebate Program (PVRP) is a Commonwealth program which provides funds for the installation of photovoltaic systems and is administered by the SA Government. The program is very successful and SA has the highest number of grid-connected systems in Australia. To date 870 applicants have been approved and \$5.87 million has been committed. It is estimated that 1600 MWh of electricity is generated by the systems installed as part of the program and 1773 tonnes of CO<sub>2</sub> has been saved.

### ***Integrated sustainable water and stormwater management and water re-use***

#### Water Proofing Adelaide

In keeping with the above, and in recognition of the significance of urban water management issues, the South Australian Government is developing a long-term water resources plan for Adelaide, called *Water Proofing Adelaide* that will provide a strategy for more effective use of the water resources available to Adelaide. A key issue is the effective integration of water resources and stormwater management to achieve multi-objective benefits including reuse for productive and amenity purposes, water quality protection and hazard risk management.

The Water Proofing Adelaide project is investigating:

- greater use of artificial wetlands to clean urban run-off
- aquifer storage and recovery potential in the Adelaide region
- increased wastewater reuse
- increased use of roof runoff for domestic use.

The strategy aims to find better ways to harness more of appropriate resources across Adelaide so that over the next two decades we can limit Adelaide's dependence on external water supplies such as the River Murray, fostering more sustainable use of the resource.

Adelaide and its adjacent Mount Lofty Ranges catchments theoretically have enough total water resources to sustainably meet its water needs. However, notwithstanding a number of successful reuse projects the difficulty in capturing and storing considerable large quantities of stormwater runoff, most of which falls in winter, for summer use, and the quality of urban runoff and effluent (or cost for distributing them to potential users of non-potable quality water) are significant barriers to extensive use of alternative supplies. The *Water Proofing Adelaide* project will consider barriers to the use of local water resources and opportunities to address them.

The current inter-dependence between cities and rural areas needs to be acknowledged. Sustainable resources management in rural areas, most notably in relation to food production, improves the efficacy of the total resource needs of our cities. There are a growing number of examples of treated wastewater from urban areas being used in adjacent rural areas. These include large-scale reuse of metropolitan wastewater in horticultural and viticultural areas north and south of Adelaide.

A large proportion of the State's economy is dependent on secured access to water for agricultural, horticultural and industrial uses. Any initiatives such as re-using metropolitan stormwater and wastewater, that will reduce the draw of water from the River Murray and Mount Lofty Ranges, are clearly welcomed from an economic, environmental and social standpoint. The treatment of wastewater at Bolivar and subsequent piping to Virginia is a clear example of how this approach can aid with economic development.

### Innovative water supply/reuse projects

One of the advantages of establishing an urban containment boundary is that investments in wastewater reuse infrastructure and horticultural enterprises requiring irrigation can be made on fringe lands adjacent to urban development, with a significant degree of certainty about the longevity of the investments. Several wastewater reuse projects are already established in Adelaide.

The SA Government fosters urban water-related projects by providing part support to various water management activities. Adelaide's Catchment Water Management Boards (CWMBs) also provide significant funding and in-kind assistance to research and development activities through annual grant schemes. Some of the innovative schemes supported by State Government and the CWMBs are:

- The Glenelg Wastewater Treatment Plant (WWTP) processes 1.4 GL of 'B' class water, predominately for the irrigation of parks, ovals and golf courses. An additional treatment process has recently been installed with the capability of treating up to 1 GL per annum to 'A' class water. This will provide some current users with access to class A water to meet regulatory requirements, thereby reducing the need to draw from mains water. Current users include West Beach Trust, Glenelg Golf course, Holdfast Bay CC, Adelaide Airport,

University Sportsfield, Lockleys Oval, Kooyonga Golf Course, Lockleys Primary, Glenelg WWTP and Glenelg Baseball Club.

- The Parafield Airport wetland and Aquifer Storage and Recovery (ASR) scheme which diverts stormwater from the local stormwater network. The scheme when fully developed has potential to provide up to 3 GL of water per year. GH Michell & Sons Pty Ltd is the first commercial business to receive water from the first stage of this scheme, which commenced operation in early 2003. The project was part-funded by the Commonwealth.
- The Mawson Lakes ASR Project is an urban greenfield housing development and joint venture between Land Management Corporation and Delfin Lend Lease Consortium. It will cater for 10,000 people by 2010. The contract requires the Joint Venture to achieve specified benchmarks in each of a number of areas of innovation. Both stormwater and treated wastewater will be recycled via a dual reticulation supply.
- Bolivar to Virginia pipeline project is a \$23 million project that delivers class 'A' standard reclaimed water from the Bolivar WWTP to irrigators in the northern Adelaide plains. The Class A standard has been achieved through a large Government capital investment in a dissolved air flotation and filtration plant to treat the water to an appropriate quality prior to deliver to growers in the Virginia region via a privately owned distribution scheme
- The Willunga pipeline delivers class 'B' standard reclaimed water from the Christies Beach WWTP to McLaren Vale for viticulture use.
- The New Brompton Estate Roof Runoff Management scheme is a 'water sensitive urban development' commissioned in 1991. It diverts the roof runoff from cluster-housing dwellings into an infiltration trench-bore system. Ninety-eight percent of runoff is captured and retained on-site.
- Parfitt Square Urban Re-Development Project commenced in 1996 when the City of Charles Sturt, supported by State funding, constructed a stormwater management scheme at Parfitt Square. Runoff from residential roofs, gardens, a public reserve and residential streets are retained within a small reserve and ASR scheme which captures all runoff up to and including the 'once in 100 year' design flow event.

### *Manage and minimise waste*

#### Zero Waste SA

To drive more sustainable waste practices according to the waste management hierarchy<sup>4</sup> the South Australian Government has established Zero Waste SA. Zero Waste SA has been established as an administrative unit but legislation will be introduced in 2003 to establish Zero Waste SA as an independent statutory body with its own source of revenue from the waste depot levy. Its responsibilities will include the development and implementation of a State Waste Strategy. Initially a business plan will be developed that includes funding for market development, research & development and industry assistance.

To fund Zero Waste SA initiatives and implementation of the State Waste Strategy the waste depot levy (that is collected from all waste depots under the *Environment Protection Act 1993*) has been doubled to \$10.10 per tonne within metropolitan Adelaide and \$5.05 per tonne outside the metropolitan area.

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<sup>4</sup>Waste management hierarchy: (1) Avoid producing waste, (2) reduce the amount of waste produced, (3) reuse any waste that is produced, (4) recycle any waste that is produced, (5) treat the waste in a suitable way, (6) dispose of the waste in a suitable way.

### Environment Protection (Waste to Resources) Policy

Specific regulatory measures to deal with waste and resource management are being considered as part of development of an Environment Protection (Waste to Resources) Policy.<sup>5</sup> The Environment Protection (Waste to Resources) Policy is likely to include requirements for waste management plans, kerbside service performance targets, landfill bans for some materials, and a range of other waste minimisation initiatives.

### Waste management facilities

In Adelaide, waste management is becoming an acute issue as the Wingfield landfill site will be full to capacity by December 2004 and the bulk of wastes would have to be disposed 60 km north of the city at Dublin or Inkerman. This, in turn, will increase the cost of waste disposal to Councils from \$26.4 to \$37.9 million, due to additional transportation costs to the new site. A proposal for an Integrated Resource Recovery and Renewable Energy Centre at Wingfield may alleviate some of these cost increases and increase recycling rates.

### Greening of Government Operations Framework

The South Australian Government is progressing waste minimisation and recycling within its own operations as part of a broader *Greening of Government Operations Framework* and an Ecological Sustainable Development Framework for buildings that includes promoting waste minimisation and recycling initiatives. As part of this process an assessment is currently being undertaken with the contractor responsible for the refurbishment of the Education Centre building in Adelaide to obtain some benchmarks on the nature and extent of materials capable of being recycled compared with those going to landfill.

### ***Developing sustainable transport networks***

The South Australian Government has developed an agenda around sustainable urban transport since the mid-1990s. Actions include:

- Increases in public transport patronage (by 6% from 2000 to 2002), for the first time since the 1970s, following service improvements and improved marketing (discussed further in section 5.4).
- Development of a TravelSmart travel behaviour change program for households, schools and workplaces, with small-scale implementation of projects since 1998 (discussed further in section 5.6).
- Investment in a metropolitan and regional centres on- and off- road cycle network (discussed further in section 5.5).

The State has also participated in national programs relating to vehicle fuel efficiency, emission reductions and air quality, and the development of the National Transport Secretariat's Emissions Abatement Package for Urban Transport.

### State Transport Plan

The draft State Transport Plan<sup>6</sup> (which is likely to be finalised by the end of 2003) gives prominence to developing a sustainable transport system. This matches the identification of sustainability as the guiding principle of the draft Metropolitan Adelaide volume of the Planning Strategy, and the proposed State Strategic Plan.

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<sup>5</sup> An Environment Protection Policy (EPP) is one of a number of legislative tools provided for by the *Environment Protection Act 1993* (the Act) to address environment protection matters. An EPP can be made for any purpose directed towards securing the objects of the Act. This may include setting out requirements or mandatory provisions that will be enforceable under the Act.

<sup>6</sup> [www.dtup.sa.gov.au/transport\\_plan/index.html](http://www.dtup.sa.gov.au/transport_plan/index.html)



The draft State Transport Plan (STP) has set targets for moving towards a more sustainable transport system. These include:

- No rise in greenhouse gas and other pollution, despite an expected medium-term increase in transport demand.
- Walking and cycling trips doubled by 2018.
- Public Transport to be used for 10% of all passenger travel by 2018 (currently 4.6% of weekday trips).

The STP explicitly prioritises “shifting the emphasis from new construction to better maintenance of assets and provision of public transport services”. It includes a wide range of strategies to develop a more sustainable transport system, particularly -

- Changes to fees and charges to encourage more sustainable transport behaviour.
- Investment in the public transport system.
- Investment in measures to increase walking and cycling.
- Measures to shift freight from road to rail and sea.
- Improved integration of land use and transport planning to increase accessibility to public transport, reduce the need for longer trips and create more pedestrian and cycle friendly environments.
- Making it safer and more convenient to walk and bicycle.

The Urban Containment Boundary provides a new context within which the metropolitan transport network will be planned, largely shifting the focus from expansion of the network to management of the existing network. In this context, there will be greater emphasis on efficient planning to enhance accessibility within a defined geographic area, and less emphasis on planning for mobility per se.

Land use planning must also take particular account of the need to design carefully for public transport provision, eg:

- by locating centres for employment, shopping, education and recreation facilities at public transport nodes wherever possible and vice versa
- by concentrating higher densities along public transport routes – especially at railway stations and interchange points
- by ensuring that major shopping centre complexes, particularly those which contain ancillary recreational facilities, provide good, centralised access for public transport, and are located adjacent to, or over, interchanges (eg railway stations) wherever possible
- by ensuring that residential areas are designed with adequate and direct through access for bus services, and direct all weather pedestrian access to those bus services
- by ensuring that urban development is staged correctly to facilitate public transport provision
- by ensuring that funding is available at the right time to allow provision of public transport.

Land use and transport planning has a key role to play in delivering social, economic, and environmental sustainability. Roads will continue to dominate as the means of movement for the majority of people and freight in Australia in the foreseeable future. However, by shaping the pattern of development and influencing the location, scale, density, design, and mix of land uses, planning can help to facilitate an efficient transport and land use system by:

- reducing the need to travel
- reducing the length of journeys
- increasing active transport journeys, particularly for short 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 improved freight flows
- providing for the efficient distribution of goods and services to business and community
- providing a choice of travel modes
- ensuring flexibility to meet the demands of a changing economy and market environments.

### Promoting Best Practice in Transport and Land Use Planning

*Promoting Best Practice in Transport and Land Use Planning* is a significant and very relevant piece of work that was completed in 2002 by a National Taskforce for the National Greenhouse Strategy Measure 5.3. These initiatives included:

- policy guidelines for integrated urban land use and transport planning
- a Good Practice Guide on integrated urban land use and transport planning
- greenhouse performance indicators (transport and residential) to assess progress against objectives and to facilitate inter-urban comparisons
- an integrated investment assessment framework for funding of urban transport
- a research program on potential policy responses to support more efficient outcomes from decisions on urban land development
- policies facilitating urban consolidation and the use of pricing and other economic mechanisms to support more efficient outcomes from urban location decisions
- an educational and awareness program on the outcomes of this research program.

### National Charter of Integrated Land Use and Transport Planning

In July 2003 Planning Ministers endorsed the National Charter of Integrated Land Use and Transport Planning which establishes a national commitment to an agreed set of good planning practices. The charter also provides for governments at all levels to work together to achieve better land use and transport outcomes across Australia. Land use and transport planning has a key role to play in delivering social, economic, and environmental sustainability for our communities. The National Charter identifies aims, plus a range of measures available to pursue them, and highlights the need for co-ordination of land use and transport planning between each level of government. Furthermore, the Charter could assist governments and planners to shape the pattern of development by influencing the location, scale, density, design, and mix of land uses, and thereby help to create an efficient transport and land use system. The National Charter incorporates the intent of the strategic responses prepared for the National Greenhouse Strategy Measure 5.3 Best Practice Guidelines for Land Use and Transport Planning.

### ***Eco-efficiency principles for buildings***

#### Greening of Government Operations Framework

The *Greening of Government Operations Framework* (GoGO) identifies Built Facilities Management as one of eight key priority areas for Government to focus on in demonstrating its commitment to sustainability and eco-efficiency through changes in its own operational practices. The SA Government is responsible for up to half of the commercial construction in the state, over a quarter of the lettable accommodation in the Adelaide CBD and a Facilities Management Contract with an annual value in the order of \$65 million. It is therefore essential that the Government lead by example in its dealings with the building construction and management industry.

As part of the GoGO process an Ecologically Sustainable Development (ESD) Framework has been developed for application within the Government's Strategic Asset Management Framework. It is intended that accompanying guidelines and measurement/rating tools will be developed and integrated within existing asset management processes eg planning, acquisition, sustainment and disposal. Although not a legislative mechanism it covers an extensive range of sustainable issues and will be implemented within the GoGO Framework.

The ESD Framework is consistent with a triple bottom line approach to business. The framework sets its sights beyond the current intensive focus on meeting the requirements of the Government Energy Efficiency Action Plan. It addresses areas such as resource use, waste reduction, re-cycling, stormwater re-use strategies, preservation of biodiversity and the natural environment, and includes consideration of social and cultural heritage issues, building-user amenity (eg, quality of air, water, soil, light), and selection of renewable and low energy, construction materials and processes.

### SA Government eco-efficiency related initiatives

The SA Government is involved in a range of eco-efficiency related initiatives, including:

- The Government has joined the Green Building Council of Australia to align itself with property industry leaders in sustainable building design nationally and internationally, and promote sustainability principles through its own office accommodation and public works.
- The Building Tune-Up Program – a collaboration between state and local Government to rate the greenhouse performance of three Government-owned and seven privately owned CBD office buildings – will also provide energy conservation advice to building owners and improve the ratings of the buildings.
- Through the Australian Building Code Board a mandatory energy efficiency building standard equivalent to a 4 star rating has been introduced for new residential dwellings, as an incremental step towards prescribing a 5 star rating.
- Through the Australian Building Codes Board, the Government has been working on the development of a national standard for energy efficiency rating tools for multi-storey commercial and residential buildings, and the adoption of broader sustainability criteria within the Building Code of Australia.

### **Case example: Lyell McEwin Hospital Redevelopment**

The Lyell McEwin Hospital Redevelopment is seen as a flagship ESD project. The \$87.4 million Lyell McEwin Hospital redevelopment is one of the largest capital building projects being undertaken by the SA Government. In addition to the standard goals of delivering a functional, comfortable, economical and productive health facility the project team have been tasked to deliver an innovative facility that minimises its impacts upon the environment and in doing so help to deliver on the complementary objectives of delivering a facility which is both economically and environmentally more sustainable.

Energy efficiency is a major focus for the Lyell McEwin redevelopment. The target is to create a facility that consumes less than 912mj per m<sup>2</sup> per annum - this is 25 percent less energy consumption than would be expected with a 'business as usual' approach. Specific energy reduction initiatives include:

- More than 70 percent of the sites hot water will be produced by solar hot water heaters; this measure alone is projected to reduce energy consumption by more than 10 percent.
- An extremely innovative solar thermal cogeneration system is being actively explored for possible incorporation into the next stage of the LMHS redevelopment.
- Heat recovery units, high efficiency chillers and motors are used extensively.
- High efficiency T5 fluorescent tubes will be used throughout the new facility

**Case example: Lyell McEwin Hospital Redevelopment *continued***

Waste minimisation has been a major focus during the construction phase at the Lyell McEwin (50% of all landfill in Adelaide comes from the Construction sector). In addition to a comprehensive program to avoid waste during construction in excess of 85 percent of all waste onsite waste has been recycled. In addition 100 percent of non-toxic deconstruction waste from the first stage of demolition has been recycled or reused.

Considerable effort was devoted to achieving some significant outcomes in water conservation. The achievements include:

- Rain water from all roof surfaces will be captured, treated and reused on-site (It is estimated that this measure alone will reduce mains water consumption by 10 percent).
- Water conservation features, such as triple A rated showerheads are specified for all taps and outlets.
- The Building Management System will include a leak detection system for the water supply.
- Only a limited amount of stormwater from peak flows will enter municipal system. Flow is being controlled in the carpark areas through the use of grassed swales. Stormwater entering the municipal stormwater system from this area is treated in the Barker inlet Wetlands.
- The feasibility of installing ‘waterless urinals’ is currently being investigated.
- A new prototype water and energy efficient bedpan flusher is to be trialed.

Suppliers of furniture, fitting and equipment have been required to complete an ESD product submission form which requires all tenderers to provide information on a wide variety of ESD issues. Performance in relation to these ESD issues was an explicit part of the product evaluation and selection process. All timber will be sourced from plantations or re-growth from sustainably managed forests.

Indoor air quality issues are being addressed. In particular issues related to off gassing and emissions of Volatile Organic Compounds (VOC) has been recognised as a significant environmental issue at the Lyell McEwin. Other initiatives include:

- Low off-gassing products have been given preference.
- All paints used must be certified as low off-gassing, with additional preference being extended to water based paints.
- E1 low emission plantation softwood particleboard has also been specified.
- No toxic pest/vermin treatments such as CCA treated timber or chemical termite treatments are being used. Potential pest issues are being designed out of the building.

**Case example: Playford Primary School**

The new Playford Primary School was designed to develop new benchmarks for ESD in school building design. The \$5.6 million project was also intended to consider the latest directions in education methodology emphasising activity based learning for a core enrolment of 480 students from Reception through to Year 7.

The design incorporates some twenty-five ESD initiatives from well-established principles to unique features. Some of these are detailed as follows:

- passive design features
- east-west building alignment with north and south facing windows
- all windows shaded from direct sun but maximising daylight penetration
- high levels of roof and ceiling insulation
- all external walls in rammed earth to provide high thermal mass
- opening windows and vent to maximise natural ventilation.
- materials chosen for their reduced environmental impact
- pure wool carpet and natural linoleum floor finishes
- paints with no volatile organic compounds
- timers and control systems provided on lights and equipment

### **Case example: Playford Primary School *continued***

- thermal roof flues linked to wall grilles to enhance natural ventilation
- limited air conditioning linked with flues and vents for automatic or manual control of internal conditions
- management regimes have been developed with staff to establish optimum user control.

The design details, features and materials were also selected to provide good educational opportunities for staff and students to learn about best practice environmental building design as part of their experiences at school.

One of the four classroom buildings was monitored by the University of South Australia Sustainable Energy Centre over a twelve month period and was found to be achieving energy savings of some \$4,000 per year compared with a similar conventional school building.

The project won the Royal Australian Institute of Architects (SA Chapter) Award of Merit for Sustainable Architecture in 2002.

### ***Urban plans that accommodate lifestyle and business opportunities***

#### Planning Strategy for South Australia

The *Planning Strategy for South Australia* presents the South Australian Government's policy for the physical development of the State and is discussed in more detail in sections 1.3 and 3.3. In addition to a range of other objectives the Planning Strategy aims to maintain Adelaide's livability and provide opportunities for economic growth.

#### Industrial land

The location and management of industrial land within a city is a factor that should be considered. Supporting economic growth requires an available supply of marketable industrial land, not only for exporters but also for their suppliers. Adelaide currently has a limited amount of marketable and suitable industrial land and this problem is being considered as part of the review of the Metropolitan Adelaide volume of the Planning Strategy. The encroachment of incompatible uses towards industrial land is also a major threat for manufacturing in the metropolitan area and for metropolitan sustainability.

Over the past 10 years South Australian manufacturing has restructured, creating industry that is (generally), globally competitive and has increased productivity through liberalism in labour that has enabled business to operate longer hours to increase the relative capacity of their existing site. Many are also facing operational constraints in their present locations. Future industrial land will be required for attracting new investment as well as the relocation of industries constrained by their current locations. The advantage of industries relocating is that it is also an opportunity to replace equipment with more efficient processes and models that have better environmental performance. The exploitation of new building techniques and technologies also offer opportunity to achieve higher levels of productivity.

Improving the quality of the urban environment and achieving the most efficient use of urban land can best be achieved by a negotiated approach that works from the incentive of identifying operational advantage in another location, cost effective access to a site in that location, and synchronisation with the investment cycle to ensure a minimal burden in relocation. Often this will be managed over a period of time.

Traditionally industrial zones have served as a catch-all for environmentally imposing land uses. This had often resulted in the location of incompatible activities both in terms of performance and perception occurring in industrial zones, or attempts to separate activities based upon environmental impacts. However, a combination of OH&WS requirements, environmental licensing requirements, global environmental considerations in machinery design and the prospect of litigation from adjoining uses is driving a strong trend towards the internalising of impacts.

Industrial estates assist in reducing costs of infrastructure and stimulate additional economic activities, joint marketing initiatives, shared telecommunications networks and equipment, together with assisting in achieving improved environmental systems, health and safety regimes.

An agglomeration or cluster of like and complementary uses may also provide the necessary critical mass to examine opportunities for the co-generation of electrical power. Potential also exists for other shared infrastructure such as wastewater treatment plants, waste management systems, and logistical facilities including storage and transport facilities.

### Urban Design

A relevant initiative is the South Australian Government's Urban Design Charter. The Charter is a vehicle for Government policy that recognises the roles of local councils and the private sector in the delivery of sustainable and people-focussed places. Urban design has the capacity to revitalise neighbourhoods and reinforce local character. It provides a comprehensive approach to rebuilding the physical capital of communities and boosting self-image. Designed improvement to urban fabric can positively impact on the extent of social networks, cooperation, trust and safety within urban communities, enhancing their social capital.

The Urban Design Charter emphasises the opportunity for alliances between Government, councils, property owners and the utilities in the search for quality place-making. A public sector responsiveness to good urban design can enhance local business and local lives. The Charter also emphasises environmental responsibility and the integration and cooperation of such interests and expertise in the search for quality in the public realm.

### *Conserving the coast and maintaining infrastructure*

#### Port Adelaide Enfield flood study

A joint state and local government study was undertaken to look at the risks of seawater flooding of low-lying areas of urban and industrial development in the Port Adelaide, Lefevre Peninsula and Gillman area. The study aims to determine current and future (climate change) flood risk, the potential costs from flooding and to identify possible flood protection measures to ensure sustainability of land use in these areas of the city. Further stages of the study will select the most appropriate flood protection measures, planning controls and design and construction in a staged program.

These types of investigations and subsequent processes to reduce risk to infrastructure and assets while protecting the coastal environment will become increasingly important in the future as climate change affects the incidence of storm surges and the sea level rises.

### Adelaide plains coast protection review

The southern Adelaide plains coastline is a receding one, and the rate of recession is increasing due to seagrass loss and a rise in sea level relative to the land (which will become increasing worse with climate change). The location of the coast has been maintained for the past 30 years with a beach replenishment program - ie sand has been manually placed on the southern eroding beaches, in sufficient quantities to offset the rate of erosion. Prior to 1972, foreshore development was protected from coastal erosion by seawalls, however the valuable recreational asset of sandy beaches was not protected by this approach. Beach replenishment maintains sandy beaches, however, it is a high energy use approach, particularly as sand needs to be manually bypassed at the two harbours which interrupt the movement of sand along the coast (Glenelg and West Beach). The study is quantifying future sand management requirements under worsening future conditions and assessing whether the increasingly high cost of maintaining sandy beaches remains the best approach for coast protection at Adelaide. Resource consumption is also a consideration in the study, as the current approach is to mine sand from sources distant to Adelaide to maintain the beaches, creating an ongoing demand on this natural resource. The study will consider methods of recycling sand within the coast, and assess the energy consumption associated with this approach.

### Cliff erosion and stability

There is a cliff stability risk assessment and prioritisation project for the southern coastline (City of Onkaparinga) which has many areas of roads and housing precariously situated near eroding cliffs. While climate change (sea level rise) may increase the erosion rates of these cliffs - this is probably small compared with current risks. The cliff instability risks are associated with both coastal erosion and stormwater management.

Progress toward increased sustainability of coastal protection and management practices will require additional funding. Beneficiaries of coastal public infrastructure are being determined and more equitable funding arrangements are being considered, such as task specific taxes or levies.

### *Addressing climate change*

#### CSIRO Report

The SA Government has recently released a report commissioned from the CSIRO on the potential impact of climate change in South Australia. The report indicates that there are potentially severe environmental, economic and social impacts associated with climate change in South Australia, which presents a series of important and immediate challenges to scientists, policy makers and the public. Likely impacts include a change in the extent and range of ecosystems, increased vulnerability of plants and animals, pressures on watercourses, wetlands and water supply systems, a drop in agricultural productivity, economic restructuring, increases in sea level and coast impacts and the intensity of storm events and related impacts on human settlements, in particular, coastal suburbs and towns.

#### South Australian Greenhouse Plan

While responsibility for addressing greenhouse rests with the entire community the SA Government recognises that it can play a significant role in leading by example and has commenced development of a *South Australian Greenhouse Plan*. The Plan will provide a policy framework and a series of measures to be undertaken by the SA Government. The aims and objectives of the *SA Greenhouse Plan* will be consistent with the national overarching framework and specific action plans will be developed for outcomes where State

Government involvement will offer the greatest benefit. It will establish priorities in those areas where the State is vulnerable to climate change and where the State Government can contribute to aid adaptation to climate change and abatement of greenhouse gas emissions, in both the shorter and longer term.

It is recognised that industry, commerce, local government and the community at large will have a major role to play, as indicated by the major sources of South Australia's greenhouse emissions. The *South Australian Greenhouse Plan* will identify where State Government can support and work in partnership with these sectors to reduce greenhouse emissions and build upon the work already being undertaken.

### ***Affordable and sustainable housing***

#### State Housing Plan

The SA Government is developing a *State Housing Plan*. The *State Housing Plan* will map out a comprehensive strategy for maintenance of housing standards and affordability in South Australia. The scope of the Plan covers; Government and industry partnerships; planning, land supply and urban regeneration; alternative financing and investment for affordable rental housing; sustaining social housing; homelessness and transitional housing; and the private rental and homeownership markets. Objectives and strategies are being prepared to address environmental sustainability, adaptability and affordability, in the context of social sustainability. These are areas of long-term change and development, and with significant whole of government linkages.

Input into the development of the State Housing Plan has emphasised the importance of more systematically incorporating "universal" or "adaptable housing" standards in housing design. Adaptable housing is designed in such a way that it can be modified easily in the future to become accessible to both occupants and visitors with disabilities or progressive frailties.

The objectives for the State Housing Plan in relation to environmental sustainability are:

- To improve recognition of the fundamental importance of housing in the achievement of environmental and social sustainability goals.
- To improve social housing, maximising environmental and social outcomes within our financial resources.
- To more clearly locate the State's housing agencies in whole-of-government plans to improve environmental and social outcomes, and to maintain housing affordability.
- To develop more systematic ways to improve environmental outcomes through market based housing provision, in conjunction with the private sector.
- To contribute to whole-of-government assessment of the costs of changes required to meet environmental objectives, including consideration of equitable outcomes for low income and disadvantaged households.

#### Sustainable housing

Housing agencies are actively progressing initiatives to promote better environmental outcomes. Many of these projects are nationally significant, on the leading edge and demonstrate a commitment to continuing improvement over many years.

A number of private initiatives are also exploring types of development that deliver more environmentally and socially sustainable communities such as the Aldinga Arts Eco-Village and the Christie Walk development by Urban Ecology Australia in the Adelaide CBD.



### Housing affordability

Trends in housing affordability reflect both cyclical and structural forces. Cyclical factors are currently giving rise to heightened concerns regarding affordability and have provided the impetus for the Department of Human Services and the Department of Transport and Urban Planning to work together to explore various mechanisms for the provision of sustainable affordable housing. The recent strong growth in residential property prices and housing construction reflects the combined influence of low interest rates, investor driven demand stimulated in part by the relatively attractive returns in residential property vis-à-vis other assets such as equities, strong employment and income growth and the destabilising impact on the housing cycle in recent years caused by indirect tax reform (including the First Home Owners Grant in its various permutations).

Adelaide has experienced strong growth in residential property prices over the past 3 years, which have been comparable to those experienced (on average) nationally. The recent growth in house prices in Adelaide has, however, followed a period during much of the 1990's when residential property price growth "underperformed" relative to other States.

### ***Achieving economic growth***

#### Economic Development Board report

The *State of the State* report, released by the Economic Development Board in November 2002, clearly highlighted South Australia's lower economic performance relative to other States over the past 10 years. Following considerable consultation the Economic Development Board released, *A Framework for Economic Development in South Australia*, in May 2003.<sup>7</sup> The Framework for Economic Development outlines the key actions that business, the community and government must take to revitalise the South Australian economy and place the State on a higher growth path. The report contains 72 individual recommendations in the areas of economic development strategy, government efficiency, effectiveness and leadership, population, education, export capability, finance, infrastructure and implementation. The SA Government has adopted and is implementing 70 of the 72 recommendations made by the EDB.

A particularly relevant recommendation in the context of this Inquiry is that the SA Government give sufficient recognition and appropriately resources the role of urban and regional planning in the economic development of the State and in particular improve the integration and coordination between the Planning Strategy for South Australia and the objectives of environmental and infrastructure planning to reflect the State Strategic Plan. This recommendation is being implemented through a range of mechanisms including the ReVISION project that is discussed in section 1.3.

### ***Social inclusion***

#### Planning Strategy for Metropolitan Adelaide

The revision of the Metropolitan Adelaide volume of the Planning Strategy is addressing social exclusion by including:

- a focus on areas of social disadvantage and opportunities to increase access in these areas to employment, transport, services, health and affordable housing

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<sup>7</sup> [www.oed.sa.gov.au/#Economic%20Development%20Board](http://www.oed.sa.gov.au/#Economic%20Development%20Board)

- urban regeneration
- housing affordability
- measures to provide a greater balance and equity of access to employment opportunities from the north to south, including distribution of zoning for industrial and commercial land
- consideration of physical accessibility to health services for the aging population
- incorporation of “crime prevention through urban design” requirements to improve safety.

### Social Inclusion Initiative

South Australia’s vision for the future involves responding to the global and local demands for economic change with a commitment to social inclusion. Without investment in inclusion – investment to reduce social dislocation and ill health, and to increase the capacity of socially disadvantaged areas to improve their situation – our future will be economically as well as socially burdened, and sustainability will be a more difficult goal to achieve. It is essential that our investment in a sustainable future be made in a way that enhances social inclusion.

Through the Social Inclusion Initiative<sup>8</sup>, the SA Government is adopting a coordinated and integrated approach to the delivery of social services. It is developing joined up solutions to social problems which share common causes.

### Safe Communities Initiative

The World Health Organisation (WHO) Safe Community Initiative offers a practical approach to reduce injuries, in particular those affecting vulnerable groups in a community.<sup>9</sup> In South Australia, the WHO model was adopted in Noarlunga more than a decade ago and through partnership and collaboration they were able to improve safety of public spaces and other areas of community life to reduce injuries. Noarlunga was designated as a Safe Community by the WHO in 1996 and redesignated in October 2003. The City of Adelaide adopted the WHO Safe Communities approach in 2002 and is working towards Safe Community designation with an aim to achieve that recognition by the WHO in 2006. The Adelaide City Council recently endorsed the Community Safety Strategy to reduce injuries through better urban planning and safety programs involving SA Police and organisations that support vulnerable groups in the City. The LGAs of Barossa & Light, Goyder Region, Clare and Gilbert Valleys and Mount Barker recently took steps to develop Safe Communities programs. According to the WHO, for every \$1 spent on Safe Communities, society saves \$40. Injury prevention programs and the promotion of a safety culture consistently raise the quality of life in all communities and will contribute positively to sustainable cities.

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<sup>8</sup> The Social Inclusion Initiative includes the establishment of the Social Inclusion Board. The Board is advising the Government on new ways to achieve better outcomes for the most disadvantaged people in the community. The initial focus of the Social Inclusion Board is on homelessness, school retention rates and recommendations from the 2002 Drug Summit.

<sup>9</sup> Safe Community Initiative website is at <http://www.phs.ki.se/csp/Default.htm>