



SOUTH AUSTRALIA IN A CHANGING CLIMATE:
A BLUEPRINT FOR A SUSTAINABLE FUTURE

PLANNING & DEVELOPMENT IN A CHANGING CLIMATE

CCSA'S PLANNING AND DEVELOPMENT VISION:

CCSA envisages a future where our planning and development creates cities that are largely self-sufficient, with small physical and ecological footprints. This means tackling urban sprawl and car dominance head-on, and creating healthy human-scale urban environments, with abundant localised food production, water harvesting and energy generation.

Planning: The process of setting goals, developing strategies, and outlining tasks and schedules to accomplish the goals.

Development: 1. The act or process of developing; growth; progress. 2. The act of making some area of land or water more profitable or productive or useful.

Current planning and development trends

South Australia's population growth rate is increasing in accord with the Strategic Plan target of two million people by 2050³⁵; yet there are wide variations in the state's regional population growth rates³⁶. Trends show areas such as Adelaide and peri-urban areas including Mount Barker, the Victor Harbor region and the Barossa Valley are continuing to account for a greater share of the state's population growth, placing pressure on the availability of land and urban services, and increasing tension between competing uses of land and environmental resources³⁷. In contrast, regional urban centres have experienced a decrease in population numbers linked with declining employment opportunities, potentially posing significant problems for the sustainability of these regions³⁸.

Adelaide is a city over 100 km in length and 20 km wide. With a population of little over a million, it is a sprawling, low-density, water and energy-hungry, car-dependent metropolis. Between 2001 and 2006 South Australia's population grew at an average annual rate of 0.74%, whereas the number of private dwellings grew by 1.14% per annum³⁹. The average number of persons per private dwelling decreased with projections suggesting a further decrease causing an increase demand for housing at a faster rate than population growth. These trends mean Australians use more water and energy, and own more cars per person than almost any other country in the world⁴⁰.

This type of behaviour is no longer morally justifiable, economically affordable, or environmentally prudent. In short, it is not sustainable. To counteract and re-invent ourselves in the face of the threats posed by climate change and the end of cheap oil is a necessity. We can plan our future - or be left to simply react when it arrives. It's a simple choice.

Planning and development in a changing climate

Many of the threats that climate change poses will add significant challenges to the planning and development of our cities and regional areas. Threats include more intense heat waves, bushfires and floods. These will all impact particularly on water supply and demand. Potential sea level rises will affect infrastructure and coastal communities will require greater protection from the sea. Additionally there will be increased potential for infectious diseases such as Ross River virus, as mosquitoes and other disease carrying insects become more abundant with tropical zones expanding as global temperatures rise.

On top of adaptation to these threats, we have to factor-in the changes in infrastructure and our consumption patterns that are required to reduce our current emissions of greenhouse gases. Ultimately this means rethinking our entire approach to transport, housing, power and water supply. All of these impact on and are impacted by planning, primarily at the state and local government levels.

The current target of reducing the state's ecological footprint by 30% will only be achieved if there is significant adaptation in South Australia's urban areas. CCSA has great concerns over how we will achieve this in tandem with the target of a population of two million people by 2050⁴¹. Under this target the required per capita reduction in our ecological footprint will rise to approximately 54%, creating many challenges for planning a sustainable future for our state.

What are the key planning and development issues in South Australia?

South Australia's ecological footprint averages around eight ha per person - globally the average is around two ha per person. If all people lived as extravagantly as we do here, we would need four Earths to supply all of our wants and needs. Our ecological footprint is influenced by many factors including: our society's size, levels of production and consumption; the efficiency of resource use and of the technology used to supply goods and services; and the effectiveness of governments and other organisations in preventing or repairing environmental degradation⁴². With our current lifestyles, offsetting Adelaide's carbon emissions alone (currently around 25 megatonnes per annum) would require the equivalent of over 200 000 ha of trees, every year for the next 30 years⁴³.

As identified in the State of the Environment Report 2008, rapid growth in population, increased affluence, higher aspirations, structural ageing of the population and lifestyle changes have combined to increase the rate of growth of dwellings in greater Adelaide to well above the rate of population increase⁴⁴. South Australia has an extremely low population density of 1.5 persons per square kilometre, reflecting its vast inland arid and semi-arid areas that do not sustain large cities or towns⁴⁵. It also reflects the fact that our urban settlements are among the lowest density in the world, requiring a change in the way we plan and manage urban environments. While the recent trend towards urban renewal has potential environmental benefits such as



reduced greenhouse gas emissions due to shorter travel times, it can also increase the need to upgrade heavily utilised urban infrastructure and services, as well as reducing biodiversity corridors and open space available to absorb, capture and reuse stormwater runoff.

The Australian Conservation Foundation's 'Build Liveable Suburbs' policy brief identifies how the urban form we are locked into today is anything but sustainable⁴⁶:

Low density suburbs have high environmental, economic and social costs, our low density suburbs lock in the waste of water, energy and natural resources and are systematically destroying biodiversity. The story is similar with transport: the further apart our houses are built, the greater the distance we need to travel, generating more greenhouse emissions and air pollution. Low density suburbs increase the costs of transport infrastructure as more railways, roads, and fuel is required to travel from point A to point B. Poor public transport in the outer suburbs of our cities means people have no choice but to depend on cars.

Car dependence also brings with it other consequences; communities are divided and dislocated by roads, whilst individuals are afflicted with rising rates of asthma and obesity - both linked to car use. The looming spectre of peak oil is also starting to bite with rising petrol prices impacting on household budgets, forcing many families to reassess their car use.



The planning decisions of our state's past have led to a significant decrease in biological diversity, and an increase in water and energy requirements. One attempt to overcome the environmental impact associated with land clearance and development is offsetting. The Department of Industry, Tourism and Resources explains biodiversity offsets as the 'conservation actions intended to compensate for the residual, unavoidable harm to biodiversity caused by development projects, so as to ensure no net loss of biodiversity'⁴⁷. The complexity of issues such as how to measure and monitor biodiversity loss mean that offsets require further and ongoing development to work effectively as a functional and supportive tool in biodiversity conservation.

To reach the environmental targets included in South Australia's Strategic Plan and ensure a sustainable future for South Australia we must address issues of the past, and reinvent planning for the future.



Changing the future - new ways forward

As climate change is increasingly shaping public policy and our lives, the big question for our society is, 'How can we make the transition from a post-industrial society to post-industrial sustainability'?

CCSA envisages a future where our planning and development creates cities and towns that operate within sustainable limits; where all developments (residential, commercial and industrial) are energy and water efficient and where possible, self-sufficient. This is not particularly difficult to achieve, but it does require government support and guidance, industry acceptance and a population that understands the underlying need for such actions.

A sustainable society requires both a sustainable economy and a sustainable environment to underpin it all. You cannot have the former without the latter. We cannot expect to achieve these by accident; they require planning. It is for this reason that planning is such a crucial discipline within government, impacting on literally everyone. In an era when emissions trading and carbon reduction have become household terminology, it is inappropriate for planners to continue to direct growth into areas that are unsuitable, whether because they are low-lying and prone to inundation from rising sea levels, or because they are peripheral and dependent on cars.

Open dialogue with all key stakeholders is a critical part of any planning process, together with transparency and accountability. Community consultation must be genuine, which means that it must inform decision-making and provide for reasonable feedback to be given. To further ensure fair representation of the environment in planning and development, third party rights of appeal on environmental grounds for any development applications are essential. A reform of the longstanding imbalance which allows the developer in the planning system to appeal against a decision, but denies a similar opportunity to other parties, must be urgently addressed.

Planning reforms designed to streamline the planning system are supported with the important proviso that they do not reduce the current level of protection for native vegetation and significant trees as part of our biodiverse environment. We consider that the existing planning system is top-heavy with regulations and that substantial savings can be made to consumers by reducing cumbersome red tape, particularly around minor matters that essentially comply with basic criteria. However, it is essential that the state government provides a measured and balanced response. This must incorporate climate change, peak oil, energy efficiency, public transport, protection for native vegetation and significant trees, water-sensitive urban design (including stormwater harvesting) and other considerations.



The will and investment to achieve genuine integrated planning should be favoured over other options such as offset schemes. Further loss of ecological function in the landscape cannot be sustained even in the short term. Many biodiversity assets are not replaceable; restoration and revegetation science is in its infancy and their outcomes are uncertain; there is a paucity of evidence on which to accurately measure the value of losses and gains; and there are few resources to monitor the effectiveness of decisions in the long term. We must reduce our ecological footprint to a sustainable level.

Adapting to climate change involves a change in thinking, for example towards urban density. We need to contain sprawl and reverse our trend toward car oriented development. One way in which this can be achieved is through Transit Oriented Developments (TODs). TODs help to redirect growth away from the unsustainable greenfield sites on the urban fringe by focusing development along dedicated rail or light rail corridors. This enables significant urban regeneration to occur, reduces car dependence, and maximises public transport usage. The critical mass of population enables a healthy and diverse mix of housing styles, land uses (residential, commercial, retail) and a vibrant and energetic cultural life to develop and add value to previously rundown precincts.



Utilising planning as a tool to improve outcomes can be achieved through modifying buildings codes to ensure our buildings are energy efficient, appropriately oriented, insulated, with climate modifying features such as eaves, pergolas, and verandas, and that they have suitable cross ventilation and light coloured roofs to minimise air-conditioning requirements. Retrofitting energy-guzzling appliances like electric hot water heaters and mandating their replacement with solar hot water heaters or heat pumps is another example. Girardet quotes Energy SA figures showing that such initiatives would save 1.2 Petajoules (PJ) of energy per year.

In addition, planning can make other positive contributions when it comes to contributing to South Australia's water security. Mandating rainwater tanks in all new housing developments has already been implemented by the state government, but there is no reason that this shouldn't be extended to commercial and industrial premises. Planning on a broader scale is also vital if we are to feasibly harvest, filter and reuse our stormwater resource.

Overall, compact, well planned cities and towns lead to lower greenhouse emissions, less air pollution and less destruction of urban biodiversity. They also lead to better public transport, less congestion, less commuting time, lower transport costs, better health and more time spent with friends and family.

RECOMMENDATIONS

Holistic, long-term planning

37. The 30 Year Plan for Greater Adelaide should be an interim marker within a 100 year plan that addresses the impacts of climate change and 'peak oil'. All legislation and policy should be evaluated against whether it would help or hinder adaptation and mitigation for climate change and the impacts of dwindling fossil fuel availability. Planning must focus on reducing the carbon intensity of our society.

- 37.1. The population growth target in South Australia's Strategic Plan is completely inappropriate given our state's current ecological footprint and should be scrapped. Any population growth must be conditional on a level of consumption that does not deplete our ecosystems and natural resources. Population growth targets should be informed by extensive public debate.
- 37.2. The state government should commence an Oil Vulnerability Assessment for South Australia and a Peak Oil Action Plan that addresses the challenges, opportunities, impacts, costs and responses to Peak Oil across all sectors of society.
- 37.3. South Australia's Strategic Plan should be amended to include complementary indicators to monitor interactions and potential conflicts between targets such as population growth and water conservation or species loss.
- 37.4. A Transport Master Plan (incorporating Transit Oriented Developments) should be developed, integrated and implemented in a timely manner with the proposed Oil Vulnerability Assessment and Peak Oil Action Plan, existing Planning SA strategy, and the state government program Tackling Climate Change.
- 37.5. South Australia's Strategic Plan target to improve Adelaide's public transport patronage to 10% by 2018 should be increased to 25% overall with interim targets set in accordance with public transport infrastructure upgrading programs, and include matching targets for reduced car use. Targets for public transport travel into the CBD alone should be raised to 50% by 2018.

Shrinking Adelaide's physical and ecological footprint

38. The Urban Growth Boundary should be maintained, and the 30 Year Plan for Greater Adelaide should target a progressive reduction in the urban footprint by site acquisitions and higher rise developments in selected areas, both to actively increase residential density and to protect and restore valuable natural resource assets within the metropolitan and peri-urban region.

- 38.1. Zoning policies should encourage mixed use developments (and redevelopments) including the re-use of commercial and industrial buildings for residential accommodation where appropriate.
- 38.2. The South Australian Government should facilitate increased residential densities by providing financial and planning incentives for group planning title developments.
- 38.3. Planning policy must prevent any further subdivision or development of prime agricultural land close to urban centres.
- 38.4. Protecting and restoring remnant vegetation including waterways as green space and strips in urban areas should be planned for and encouraged.



Coastal development

39. The impact of sea-level rise on infrastructure and housing must be factored into plans to develop coastal regions. Plans to develop low-lying areas that are particularly susceptible are of major concern.

- 39.1. Recommendations from the South Australian parliamentary Inquiry into Coastal Development should be implemented in planning and on-ground management of coast and marine environments.
- 39.2. A moratorium on coastal development should be implemented within at least 1.5 metres of current sea level as an interim measure in the approach to long term planning for the effects of climate change in development plans.
- 39.3. A long-term acquisition strategy is needed for inappropriately-developed land in low-lying or sensitive coastal areas.

Transport and transit oriented development

40. All levels of government must work together to actively encourage walking, cycling and public transport use, and promote the shift away from car-dominated urban environments.

- 40.1. New Transit Oriented Development (TOD) hubs complying with world's best practice in energy, water and resource efficiency, should include a minimum 15% affordable housing and be planned along all major transport routes, particularly rail and tram corridors.
- 40.2. The South Australian Government should lobby the federal government for a substantial proportion of the new Building Australia Fund (BAF) to be invested in public and active transport infrastructure and high-speed rail, instead of the current preference for new highways and freeways. BAF funding should be based on sustainable land use development and integrated public transport planning. This should be included on the agenda for COAG meetings.
- 40.3. State and local governments should work together to develop an integrated network of bike paths and walkways separated from motorised traffic throughout existing urban areas and incorporated into the planning of new and redeveloped urban areas. Secure, undercover bike parking facilities and bicycle security at public transport stations/terminuses, within the CBD and at suburban hubs should also be provided.
- 40.4. Street reconfiguration, paving design, street furniture and traffic calming devices should be introduced in TOD hubs, commercial and retail precincts and residential neighbourhoods to provide more pedestrian-friendly environments. Planning SA should provide planning principles and encouragement for local governments to incorporate these.



- 40.5. The Adelaide City Council's Free Bike scheme should be transformed into a viable transport alternative for the public as demonstrated in other cities and incorporated into major TOD hubs.
- 40.6. Funding to keep public transport fares as low as possible should be increased and the government should continue purchasing new rolling stock and equipment.
- 40.7. Creative mechanisms to reduce congestion on existing roads should be examined, such as congestion pricing, car pooling, bus and transit lanes and encouraging flexible work times to help distribute the peak hour rush.
- 40.8. Car-pooling should be encouraged and facilitated by state and local governments, through workplaces and web-based programs. Flexibility in work start/finish times should be encouraged to spread peak loads across a broader timeframe to reduce congestion during 'peak hour'. Priority should be given to buses and car pool traffic in dedicated peak hour transit lanes within existing road infrastructure.
- 40.9. South Australia should continue to encourage and facilitate the switching of road freight to rail. This will require further investment in rail infrastructure across rural and regional South Australia and investment in transitional arrangements for road freight industry employees.

'Greening' the built environment

- 41. The South Australian Government should work through COAG to substantially improve the environmental performance standards in the Building Code of Australia, and a target of carbon neutrality for all new buildings by 2016. The government should apply this target to all its new buildings, and retrofit existing stock to improve performance.
 - 41.1. All South Australian Government buildings currently owned (including public housing) should be progressively retrofitted to meet enhanced environmental performance standards. Housing should be a minimum of 6 star residential rating; commercial buildings should meet a minimum of 5 stars under the Australian Building Greenhouse Rating (ABGR) or Green Building Council of Australia (GBCA) rating tools.
 - 41.2. All new South Australian Government buildings should be designed and constructed to meet a 6 star rating under the GBCA Green Star rating scheme where such tools are available for the respective building types. A target should be set for all new buildings constructed from 2016 to achieve carbon neutrality.
 - 41.3. All new subdivisions and major developments should be required to incorporate water-sensitive urban design elements to minimise water consumption (e.g. permeable surfaces, swales, stormwater capture, grey water reuse and recycling infrastructure).

Valuing and protecting native vegetation and biodiversity

- 42. Ecological sustainability must be given the same priority as economic development and social issues in planning considerations and development processes, and achieving biodiversity resilience must be an integral driver in all state-wide, regional, local and land-use planning and development assessment in South Australia.
 - 42.1. Natural resource accounting principles, where healthy natural environments are ascribed a value for their ecosystem services and public amenity benefits, should be applied in the development process.
 - 42.2. The scale of restoration required to achieve healthy ecosystem function in many South Australian regional landscapes (e.g. 30% minimum for bioregions) needs to be recognised and catered for in all key planning and policy documents.
 - 42.3. Greater environmental representation in strategic planning and decision-making within government is required to ensure the opportunities and risks to achieving biodiversity resilience across state-wide policies and plans are adequately considered.
 - 42.4. Biodiversity impacts need to be considered early in processes under legislative development assessment and other statutory decision-making.
 - 42.5. Development assessment under South Australian legislation must provide greater regard for ecosystems and the services they provide (e.g. wetland services). Assessment services need to be better integrated.
 - 42.6. Greater referrals mechanisms are required to ensure that best available information guides decision making.
 - 42.7. Enabling legislation is required to ensure that biodiversity considerations such as listed species and reserve management plans are adequately considered under other legislation, to ensure biodiversity policy is delivered.
 - 42.8. Integration of assessment services is required.
 - 42.9. The Native Vegetation Council should be given prescribed body status within the *Development Act 1993*.
 - 42.10. Rezoning/subdivision should be conditional to the land undergoing biological assessment to determine if there is significant native vegetation on site (e.g. significant trees, habitat, species listed under *EPBC Act*).
 - 42.11. The provisions of the *Native Vegetation Act 1991* should not be overruled by urban zoning. Plans to reduce concurrences and referrals in relation to native vegetation are of concern and action must be taken to ensure entire swathes of native vegetation cannot be cleared at the subdivision stage.
 - 42.12. Developments proposing to remove significant native vegetation should be considered Category 3 and 'non-complying' under the *Development Act 1993*. Developers should be required to demonstrate that all avenues have been explored to retain native vegetation on site.
 - 42.13. Policies for protection of native vegetation should be transparent and give priority to protecting biodiversity. Native vegetation must be protected at a local as well as at a regional and state level.
 - 42.14. Urgent action to fast-track mapping of native vegetation is critical to ensure that native vegetation issues are incorporated adequately into regional planning.
 - 42.15. Biodiversity offset schemes should only be considered as a last resort and not applied liberally in development assessment processes. Furthermore, they must demonstrate best practice, be accountable and transparent and include adequate monitoring and enforcement.
 - 42.16. The state government should develop an offset discussion paper to publicly debate ground rules for the application of an offset scheme and associated guiding principles, developed in consultation with stakeholders and community.

Improving public participation in the development process

43. Under the *Development Act 1993*, the provisions relating to opportunities for public participation and notification must be reviewed to ensure greater public influence on decision-making, particularly under the development plan amendment and review processes. There is also a need for improvement in the way agencies are consulted in the development assessment process, i.e. improved integration.

43.1. On the issue of joining parties to environmental actions, the present test for joinder should potentially be expanded, for example to include others who don't have a 'special interest' as defined by the Courts.

43.2. The rights to bring a third party appeal should possibly be expanded, for example in special cases to those who did not put in a representation as a result of Category 3 notification and certain Category 2 matters.

43.3. In relation to notification of development applications under section 38 of the *Development Act 1993*, consideration could be given to broadening the scope of such notification, particularly in relation to Category 2 developments.

³⁵ Government of South Australia (2007) *South Australia's Strategic Plan 2007*, Accessed online <http://saplan.org.au/images/pdf/South_Australia_Strategic_Plan_2007.pdf>

³⁶ Environment Protection Agency (2008) *State of the Environment Report*, Government of South Australia, Adelaide

³⁷ Environment Protection Agency (2003) *State of the Environment Report*, Government of South Australia, Adelaide

³⁸ Environment Protection Agency (2003) *State of the Environment Report*, Government of South Australia, Adelaide

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⁴⁰ Australian Conservation Foundation (2007) *Build Smart, Sustainable Cities and Towns*, Accessed online <http://www.acfonline.org.au/articles/news.asp?news_id=1235>

⁴¹ Environment Protection Agency (2008) *State of the Environment Report*, Government of South Australia, Adelaide

⁴² Environment Protection Agency (2003) *State of the Environment Report*, Government of South Australia, Adelaide

⁴³ Girardet, H. (2003) *Creating a Sustainable Adelaide*, Accessed online <<http://www.capcity.adelaide.sa.gov.au/pdf/Executive%20summary.pdf>>

⁴⁴ Environment Protection Agency (2008) *State of the Environment Report*, Government of South Australia, Adelaide

⁴⁵ Environment Protection Agency (2003) *State of the Environment Report*, Government of South Australia, Adelaide

⁴⁶ Australian Conservation Foundation (2007) *Policy Brief (3.2): Build Liveable Suburbs*, Accessed online <http://www.acfonline.org.au/uploads/res%5C3.2_Build_Liveable_Suburbs_FINAL.pdf>

⁴⁷ Department of Industry, Tourism and Resources (2007) *Biodiversity Management: Leading Practice Sustainable Development Program for the Mining Industry*, Commonwealth of Australia, Canberra