sustainability assessment in the planning process

investigation report
prepared by hansen partnership and sustainable built environments
for the victorian local sustainability accord project municipalities of port phillip, darebin and moreland
8 november 2007

support and funding provided by the department of sustainability and environment, the sustainability fund and the victorian local sustainability accord committee
Executive Summary

This project investigates opportunities for inclusion of comprehensive built environment sustainability requirements into the existing legislative framework, with emphasis on the planning system within Victoria. In addition it evaluates the use of two sustainability assessment tools: Moreland’s STEPS tool for residential development; and the Port Phillip Sustainable Design Scorecard (SDS) Non Residential tool for non-residential development. These tools are presently used to assess the sustainability of buildings at the municipalities of Moreland, Darebin and Port Phillip, who are the three municipalities that have initiated this study.

The analysis of using the legislative framework to reduce the environmental impacts of developments through the implementation of Ecologically Sustainable Development (ESD) initiatives within the built environment is the key to meeting targets for reducing emissions and creating a healthy living environment. This project focuses on environmental impacts and opportunities relating to built-form, rather than broader environmental impacts associated with land use planning.

This report has been prepared in collaboration with Moreland, Port Phillip and Darebin Councils and seeks to provide clarity on how local government can adapt or use the legislative frameworks to improve built form environmental outcomes through day-to-day decision making. The emphasis is on improving cooperation between different systems and ensuring consistency.

Local government plays an important role in the sustainability agenda because of their established leadership in this field, their role as a planning authority and their close connection to community aspirations and needs. Through local government action a critical mass can be achieved which promotes change to the state and national legislation. It is critical that a dialogue is created between Councils, between all levels of government, and between different industry bodies and non-government stakeholders.

While state and federal governments are currently prioritising BCA for inclusion of ESD measures there are many strong reasons why ESD consideration should be integrated into both the planning and building framework. Whilst there are strategies for sustainable development at all levels of government, there is a need for a comprehensive sustainability assessment framework which can be used in the day to day planning decision making. In the absence of State Government direction, Councils are using voluntary processes with planning applicants employing tools such as STEPS and SDS.

The report is structured into a number of chapters which deal with a range of topics considering their implications on local government’s ability to act.

Chapter 1 sets out the project methodology, details of the consultation and acknowledgements of the people and organisations involved in the project.

Chapter 2 provides a summary of the bigger picture in relation to sustainability, what is meant by ecologically sustainable development, as well as the positioning of Victoria in relation to the national and international context. Nationally Australia has not committed to a set reduction in greenhouse gas emissions through Kyoto or otherwise, and whilst energy efficiency measures have been introduced to the Building Code of Australia, the level of stringency is behind those adopted in Europe. In contrast, the geographical constraints of living in an arid country have led to the development of stringent water conservation legislation at a state level. If Australia is to follow international trends, the logical next steps would be for the increased mandatory use of best practise tools at a local level, followed by adaptation of the standards for state and national regulation.

Chapter 3 reviews a broad range of planning legislation strategies and policies at the national, state and local level and provide an understanding of what legislative mechanisms are available within the planning realm for addressing
ESD requirements. There are no set policies at the federal level that directs sustainable urban and regional development. The State Government through the Planning and Environment Act sets out the sustainability framework within which local Councils can establish their own policies.

There are many opportunities to adapt or introduce new policies within the planning legislation, however, all changes to the Planning and Environment Act or planning schemes require authorisation from the Minister for Planning. It is important for sustainability policies to be contained in the planning scheme to ensure all planning authorities and agencies have regard to key ESD matters. Furthermore, there is a role for planning to play by introducing better assessment frameworks which complement and support other related legislation (e.g. Subdivision Act, Building Act, etc). There is no statewide sustainability assessment framework in place currently therefore some Council’s are seeking to include local policies in planning schemes with varying success and establish processes for applicants to use the STEPS and SDS tools.

Key issues which need to be addressed include:

- A consistent approach to sustainability assessment and implementation of sustainability objectives
- Suitable assessment tools are required which are relevant to the level of information usually available and expected at the preliminary design/planning phase of a project, however there should be flexibility that applicants can also choose to address matters that are particular to the detailed design phase of a project.
- The VPPs need a consolidated statement on sustainability outcomes.
- There are important macro and micro level considerations within planning that ultimately affect sustainability outcomes and it should be recognised that
- There is no clear direction from the Minister for Planning about how Council’s should or can address sustainability assessment.
- In the absence of clear state policies supporting sustainability building initiatives in the VPPs, Council’s run the risk of expending considerable time and resources in preparing amendments that may not be authorised for exhibition (in their written form) by the Minister for Planning.

Chapter 4 addresses the building legislation and regulatory tools being enforced through the building system at a national and state level in relation to ESD. Current national building legislation focuses on eliminating worst practise, with a minimum standard approach. This is important in driving industry change but it is not aspiring towards best practice. National building legislation currently focuses on energy performance for all building types and has an important role in ensuring efficiency of appliances in buildings.

National building legislation is not consistent in areas other than energy, however research is being undertaken which looks at other considerations, for example water, materials and indoor environmental quality. State and local government policies have individual policies and approaches. The differences in approaches are being addressed between an inter-governmental agreement.

Chapter 5 summarises the legislative opportunities, and their strengths and weaknesses of a number of federal, state and local policy opportunities. It is notable that the building legislation impacts all new buildings whilst planning legislation affects approximately 10% of new buildings, however it has the potential to influence land use and land subdivision, which the building regulations do not manage. There is a notable absence of planning regulations at a federal level. Key opportunities for local government to effect change in the legislative framework is via their local planning policy framework, however this is subject to authorisation by the Minister for Planning at state level. The focus for legislative change in planning needs to occur at the state level to ensure consistency with how Councils then develop their policies at a local level.

Chapter 6 provides an overview of sustainable assessment tools being utilised in Australia and outlines the comparative benefits and limitations of those tools. There are a number of assessment tools generated at a national,
state and local level can be used in regulatory frameworks or to assess best practice performance (e.g. Green Star and ABGR). Local government groups use a range of tools, however, the Docklands ESD Scorecard and ARA Scorecard cover the largest breadth of issues at a planning application stage. Typically tools used in the planning process address issues outside of traditional planning considerations.

When tools are referenced by either building or planning based policies, the greatest flexibility is given by referring to an external standard for an acceptable tool such as that used in the Building Code of Australia. This approach allows for upgrades, tool changes and competition between software providers.

Chapter 7 sets out the how Council sustainability considerations are being incorporated into the planning decision making process at Darebin, Moreland and Port Phillip Councils. Moreland is responsible for administering Moreland STEPS tool whilst Port Phillip administers SDS and there is agreement to share these tools, which are free. These Council’s encourage planning applicants to voluntarily use the tools and commit to a sustainability statement as part of their development. The cost of administering the tools, employing expert staff and other associated costs is largely born by each Council.

These Council’s have not yet implemented (or have not been successful in implementing) specific policies for sustainability assessment into their planning schemes and therefore the effectiveness of Council processes is subject to VCAT decisions, communication between ESD officers/planners/applicants and the voluntary nature of the program. Incentives in the form of rebates for FirstRate assessments, free training and awards are offered to varying degrees by Darebin, Port Phillip and Moreland Councils.

Chapter 8 analyses the results of a survey of Council planners in relation to their knowledge and understanding of how sustainability is factored into the decision-making processes of their Council. The survey results indicated that planners had greater difficulty with the SDS tools as opposed to the STEPS tools. There was mixed understanding of the role that planners play in the process involving ESD assessment. It is recognised that greater education of planning staff about the tools and Council processes is required because of the important role planners have at the pre-application stage of introducing applicants to the STEPS and SDS tools.

Chapter 9 analyses the results of planning permit applicants survey which incorporated questions evaluating the accessibility and performance of the STEPS and SDS assessment tools in the planning process, specifically to highlight the level of difficulty or ease in relation to how applicants access and use the tools. The results indicated that the majority of respondents thought the tools were valuable to the design process, valuable to the planning process and that the tools have a fair scoring system. Common themes which emerged from the responses were that there should be consistency in use across municipalities, a preference was shown for compulsory tool use and the tools are considered easy to use.

Chapter 10 sets out an evaluation of STEPS and SDS tools with a review of six development case studies across the Moreland, Darebin and Port Phillip municipalities. These case studies include a cross section of development types and the use of SDS and STEPS and the views of the planning permit applicants. This is supplemented by an evaluation of the SDS and STEPS tools and documenting valuable feedback on the tools. Feedback highlighted the importance of using the tools from the start of a project, improvements in environmental impacts of developments, and the ease of tools use. The cost of using the tools and effects that had on development in some cases did not have additional cost implications. Some projects estimated a cost of up to 1% of the project budget that could be directly linked with the ESD strategies. There are a series of suggestions for improving the tools’ applicability, stringency and consistency between local Councils which should be reviewed by the administrators of the tools.

Chapter 11 addresses the key issues that have been raised through the research and as discussed at the consultation workshop undertaken with industry stakeholders. These address the need to set targets that are legislated and which provide a strong basis from which other policy and actions can occur. This assists in establishing a consistent approach which is an important aspect of sustainability assessment frameworks which can deliver net environmental gains. There are a number of issues for Councils trying to implement sustainability assessment within
planning policy resulting from recent VCAT decisions discouraging use of ESD related matters as planning permit conditions, State Government position that Councils should not adopt policies more stringent than state or national requirements.

The role of local government in ‘pushing the boundaries’ is important to progressing sustainability objectives. Local government is adaptable, presides over a set (smaller) geographical area and is immediately connected to its community. Thus, local government is a very important conduit between communities and the State Government. It is essential that local government contributes to the dialogue about sustainability. Communication between different levels of government, with different parts of the built environment industries as well as with local communities should be a core action of local government.

Chapter 12 provides the recommendations for progressing ESD initiatives within the planning and building framework in addition to actions that need to be undertaken to foster improved communication as well as improve the SDS and STEPS assessment tools. Local councils have invested much time and money addressing sustainability in their municipal strategic plans, by developing assessment tools, in their planning processes and more recently through draft policies which will be given weight in planning decision making, however in the absence of a statewide sustainability framework for planning it is becoming unsustainable to maintain the momentum. As such the key focus for moving forward is improving dialogue between all levels of government and establishing joint projects which address the gaps in policy and implementation of sustainability within the planning framework and integration between the building and planning systems.
# Contents

1 Introduction  
1.1 Project Methodology  
1.2 Information Gathering  
1.3 Consultation Methodology  
1.4 Acknowledgements  

2 Sustainability: The Bigger Picture  
2.1 The International Perspective  
   2.1.1 Local Agenda 21  
   2.1.2 International Rating Tools  
   2.1.3 International Planning Initiatives  
   2.1.4 International Building Initiatives  
   2.1.5 Australia in the International Context  
2.2 The National Perspective  
2.3 Cost and Benefit of Achieving Green Buildings  
   2.3.1 Commercial  
   2.3.2 Residential  
   2.3.3 Conclusion  

3 Planning Legislation: The Current ‘State of Play’  
3.1 Government Structure  
3.2 Federal Sustainability Legislation and Planning Strategies  
3.3 State Planning and Sustainability Strategies  
   3.3.1 Our Environment Our Future (2005)  
   3.3.2 Environmentally Sustainable Design & Construction Guidelines  
   3.3.3 Leaning to Live Sustainably  
   3.3.4 Energy Efficiency for Victoria: Action Plan  
   3.3.5 Victorian Greenhouse Strategy and Action Plan Update  
   3.3.6 Sustainability in the Built Environment Project Discussion Paper  
   3.3.7 Implications of State Sustainability Strategies  
3.4 Planning in Victoria  
   3.4.1 Planning & Environment Act 1987  
   3.4.2 Victorian Planning Provisions  
   3.4.3 Implications of the VPPs  
3.5 Amendment of planning schemes  
   3.5.1 Melbourne City Council – Amendment C60  
   3.5.2 Manningham – Amendment C33  
   3.5.3 Bayside Amendment C44  
3.6 Commonwealth Games Village Advisory Committee Report  
3.7 VCAT decisions  
   3.7.1 Taras Nominees v Yarra City Council (19 December 2003)  
   3.7.2 Golden Ridge Investments v Whitehorse City Council (7 September 2004)  
   3.7.3 Hasan v Moreland City Council (15 August 2005)  
   3.7.4 Jolin Nominees v Moreland City Council (8 February 2006)  
   3.7.5 VCAT decisions implications
3.8  Findings
3.8.1  Federal planning
3.8.2  State planning
3.8.3  Municipal planning scheme
3.8.4  VCAT decisions

4  Building Legislation: The Current ‘State Of Play’
4.1  Federal Building Legislation and Building Strategies
4.1.1  Building Code of Australia
4.1.3  Energy Labelling and MEPS Scheme
4.1.4  Water Efficiency and Standards (WELS) Scheme
4.2  State Policies
4.2.1  5 Star Home Energy Standard
4.2.2  Melbourne Water Stormwater Quality Offsets - Victorian Government
4.2.3  Victorian Government - Office Accommodation Guidelines 2005
4.3  Findings

5  Legislative Opportunities Analysis

6  Sustainable Assessment Tools Comparison
6.1  Overall ESD
6.1.1  STEPS
6.1.2  SDS
6.1.3  Green Star
6.1.4  BASIX
6.1.5  Docklands ESD Guide
6.1.6  Doncaster Hill Sustainability Guidelines
6.1.7  Environmental Performance Guide for Buildings (EPGB): NSW
6.1.8  Sustainability Scorecard – Armadale, Western Australia
6.2  Energy
6.2.1  NatHERS
6.2.2  ABGR
6.3  Stormwater
6.3.1  MUSIC
6.3.2  STORM
6.4  Tools Under Development
6.4.1  VicUrban Greenfields Tool
6.4.2  VicBest
6.4.3  ANZHERS
6.5  Summary of Tools and Applicability
6.6  Tools in Use by State Governments
6.7  Tools in Use by Local Governments and Precincts
6.8  Findings

7  Current Sustainability Decision Making Processes
7.1  Moreland
7.1.1  Moreland MSS
7.1.2 Structure 80
7.1.3 Process 80
7.1.4 Incentives 81
7.1.5 Costs 81
7.2 Port Phillip 81
7.2.1 Port Phillip MSS 81
7.2.2 Structure 82
7.2.3 Process 82
7.2.4 Incentives 83
7.2.5 Costs 83
7.3 Darebin 84
7.3.1 Darebin MSS 84
7.3.2 Structure 84
7.3.3 Process 84
7.3.4 Incentives 85
7.3.5 Costs 85
7.4 Findings 85

8 Council Planners Survey 87

9 Planning Applicants and Developers Survey 91
9.1 Summary of results 91
9.2 Discussion of Results 93

10 Development Case Studies 95
10.1 Lincoln Mills 95
10.1.1 Project Outline 95
10.1.2 Sustainable Design Approach 96
10.1.3 Key Outcomes 98
10.2 French Avenue Apartments 100
10.2.1 Project Outline 100
10.2.2 Sustainable Design Approach 100
10.2.3 Key Outcomes 102
10.3 St Michael’s Grammar 103
10.3.1 Project Outline 103
10.3.2 Sustainable Design Approach 104
10.3.3 Key Outcomes 107
10.4 Northcote Townhouses 108
10.4.1 Project Outline 108
10.4.2 Sustainable Design Approach 109
10.4.3 Key Outcomes 111
10.5 Longmore Street Dwellings 112
10.5.1 Project Outline 112
10.5.2 Sustainable Design Approach 112
10.5.3 Key Outcomes 114
10.6 Whitten Oval 115
10.6.1 Project Outline 115
10.6.2 Sustainable Design Approach 116
10.6.3 Key Outcomes 119
10.7 Findings and STEPS and SDS Evaluation 120

11 Discussion of Key Issues 125

11.1 Setting key objectives and targets 125

11.2 A consistent approach 126

11.2.1 Defining a consistent approach 126

11.3 Planning 128

11.3.1 Is it appropriate for building sustainability issues to be addressed in planning? 128

11.3.2 What is appropriate to go in planning? 128

11.3.3 Does it matter if planning permits are not required for all developments? 129

11.3.4 Is there a role for geographic policies? 130

11.3.5 How should sustainability be incorporated into the planning scheme? 131

11.3.6 What do you do if the Minister for Planning does not authorise a planning scheme amendment? 132

11.4 Building 133

11.5 Tools 135

11.6 Institutionalising the profession 136

11.7 Organisation structure within Council's 136

11.8 The role of local government 136

11.9 Things that still need to be resolved 137

12 Recommendations 138

12.1 Building Partnerships – General Industry 139

12.2 State Government Partnerships 140

12.3 Planning Framework 141

12.4 Council Processes 141

12.5 Use of Sustainability Tools 142

12.5.1 SDS & STEPS assessment tools 142

12.5.2 Recommendations for STEPS 144

12.5.3 Recommendations for SDS 144

13 Abbreviations 145

14 References 146
Figures
Figure 1 - National Sustainable Development Strategies: the global picture ....................................................................7
Figure 2 - state and local content within the VPPs ..........................................................................................................25
Figure 3 - STEPS interface .............................................................................................................................................66
Figure 4 - SDS interface ..................................................................................................................................................67
Figure 5 - Summary of Rating Tools and their Applicability (SBE, 2007) ........................................................................74
Figure 6 - Diagram of local government use of sustainability tools in Metropolitan Melbourne. ..............................77

Tables
Table 1 - Analysis of Legislative Opportunities ...............................................................................................................61
Table 2 – Rating Tools and Environmental Impact Areas ...............................................................................................73
Table 3 - Tools regulated for use by State Governments ................................................................................................75
Table 4 - Assessment tools used by Local Government ................................................................................................77
Table 5 – Total planning applications in Councils that have adopted STEPS/SDS. ..........................................................79
Table 6 - Moreland Sustainability Assessment Costs .....................................................................................................81
Table 7 - Port Phillip Sustainability Assessment Costs ................................................................................................83
Table 8 - Darebin Sustainability Assessment Costs .......................................................................................................85
Table 9 - SDS & STEPS development performance ....................................................................................................120
Table 10 - Planning Applications Referred to Sustainability Officer .............................................................................121
Table 11 - ESD Performance targets used in Australia ................................................................................................125
Table 12 - Assessment tools in use within planning and building frameworks .............................................................126
Table 13 - Sustainability Elements in Planning And Building .....................................................................................128

Appendices
Appendix 1 – Industry stakeholder workshop notes (27 June 2007)
Appendix 2 – Council Planners Survey Results Summary
Appendix 3 – Planning Applicants Survey Results Summary
1 Introduction

This project investigates opportunities for inclusion of comprehensive built environment sustainability requirements into the existing legislative framework, with emphasis on the planning system within Victoria. In addition it evaluates the use of two sustainability assessment tools: Moreland’s STEPS for residential development; and the Sustainable Design Scorecard (SDS) Non Residential, for non-residential development. These tools are presently used to assess the sustainability of buildings at the municipalities of Moreland, Darebin and Port Phillip, who are the three municipalities that have initiated this study.

The analysis of using the legislative framework to reduce the environmental impacts of developments through the implementation of Ecologically Sustainable Development (ESD) initiatives within the built environment is the key to meeting targets for reducing emissions and creating a healthy living environment. This project focuses on environmental impacts and opportunities relating to built-form, rather than broader environmental impacts associated with land use planning.

The report is structured into chapters which deal with key legislation and policy mechanisms, ratings assessment tools, evaluation of the STEPS and SDS tools, discussion of the key issues and recommendations for actions and priorities which are the result of this investigation project.

The project objectives as detailed in the brief are:

1. To investigate the opportunities for inclusion of a comprehensive sustainability measures (eg: setting targets, use of assessment tools and other requirements) in built environment legislation, particularly the planning system
2. To assess the suitability of the STEPS and SDS sustainability assessment tools for use by local government within both of the building and planning legislative frameworks.

The brief requires that the investigation report address a range of issues through the following tasks:

- Review of relevant existing Local, State and Commonwealth building and planning built environment sustainability legislation and policy to provide an overview of the current context.
- Identification of avenues that currently exist for implementing additional or new legislative sustainability requirements for the built environment, with specific regard to understanding opportunities for implementing sustainability measures within the Victorian planning and building frameworks, providing an analysis of the positives and negatives for each option.
- Investigate the legislative and policy measures available to local government (e.g. Design Policy, Policy Overlays and Development Overlays, the use of Local ESD Policy’s, the adoption of environmental targets, etc) and provide an analysis, into each section of both the planning and building systems, of the positives and negatives for each option, such as the strengths, weaknesses, opportunities and threats. Investigate and recommend the appropriate use of thresholds for types of applications and / or environmental targets. Develop a framework or model policy that incorporates the most effective means for local government to achieve ESD outcomes.
- Identify potential obstacles (legal, regulatory, industry based etc) to implementing legislation for sustainability requirements in the built environment and the opportunities for local government to overcome these obstacles.
- Review the positives and negatives, including limitations and potential improvements, of the current sustainability assessment methodologies and tools (Moreland STEPS and SDS Non-Residential) employed and utilised by the three project Councils (MCC, CoPP & DCC) to address ESD within the built environment for developments, both in the planning and building systems.
- Investigate how to best apply sustainability assessment tools, such as STEPS and SDS, to the development application process and how this might be achieved within the Victorian legislative framework.
1.1 Project Methodology

The project methodology comprised investigating sustainability assessment in the planning process through a desktop review of literature, legislation and policies, and consultation with key stakeholders. Particular methods of analysis included:

- identifying key aims or objectives
- identifying key outputs or outcomes
- identifying the implications and/or gaps
- synthesising information to understand what issues are to be tackled

The desktop review was supplemented by a review of real development case studies and various sustainability assessment tools, with a particular analysis of STEPS and SDS.

1.2 Information Gathering

Information used in this report was collected by:

- direct input from the three councils
- SBE's library of information on ESD
- Hansen's library of information on Planning
- other relevant information available on the internet
- interviews with other Councils

1.3 Consultation Methodology

The consultation comprised:

- meetings with project council ESD officers
- interviews with council ESD officers
- online planning applicants / developer surveys
- online Council planner surveys
- interviews with 6 design team members of case study projects
- workshop with key figures in planning and building industry to discuss ‘the way forward’ which included representatives from a range of organisations. The notes recorded at the workshop and participants are attached at appendix 1.
1.4 Acknowledgements

This project was undertaken by Hansen Partnership Pty Ltd and Sustainable Built Environments Pty Ltd (SBE) in association with the three project Councils of Port Phillip, Darebin and Moreland as part of the Victorian Sustainability Accord project. The support and funding provided by the Department of Sustainability and Environment, Sustainability Fund and the wider Victorian Local Sustainability Accord Committee is highly valued and acknowledged.

The involvement of the following people in preparing this investigation report is acknowledged:

**Hansen Partnership Pty Ltd**
- David Barnes
- Emily Hillebrand
- Dijana Sarac
- Lenice White

**SBE**
- David Oppenheim
- Nicki Taylor
- Sean McArdle
- InMM Chew

**City of Moreland**
- Ed Cotter
- Daniel Murphy

**City of Port Phillip**
- Natasha Palich

**City of Darebin**
- Michelle Bennett
- Bernardo Cuter
- Bronwyn Fry

The photographs contained within this report are copyright of Sustainable Built Environments or Hansen Partnership.
2 Sustainability: The Bigger Picture

There is a significant amount of information available internationally and nationally, as well as locally, regarding the concept of sustainability. Government, non-government organisations and communities are beginning to embrace the concept of sustainability and are putting in place plans and strategies to guide future development which is sustainable – ecologically, economically and socially.

This section looks at sustainability in its broadest sense and provides an international comparison of where Australia and more specifically Victoria are presently positioned in terms of addressing sustainability.

Sustainability, sustainable development, sustainable city, ecologically sustainable development and sustainable community are all terms widely used in current planning vocabulary. They have a common definition and in many respects are interchangeable.

The most commonly accepted definition of sustainable development is found in the ‘Brundtland Report’, the 1987 Report of the World Commission on Environment and Development. It defines sustainable development as:

*Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.* (Brundtland Commission, 1987)

Australia uses the term Ecologically Sustainable Development (ESD) which is defined in the 1992 National Strategy for ESD as:

*Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.* (Australian Government, 1992)

Sustainability is achieved through attaining a balance between social, environmental and economic aspects, which are inter-dependent. In order for a development or an organisation to be considered sustainable, management and operations must be financially viable, environmental impacts must be minimised or eliminated, and social issues and community engagement must be enhanced. Consideration of all three of these aspects is termed ‘triple bottom line’.

Sustainability in the built environment has been defined by various assessment tools and policies across the globe. Some tools address a single issue, whilst others create an exhaustive list of factors that make buildings more sustainable. A review of the common themes and issues covered by these tools has lead to the development of a list of sustainability pillars that have been considered in this report:
Management

- To achieve sustainable outcomes being designed into the built environment, effective management of active systems in both construction and operational phases of a building’s life is crucial. Failure to manage and maintain service systems could result in contravention of health and safety or other legislation, reduced plant life and increase the risk of plant breakdown that could affect user comfort and safety.

Indoor Environment Quality

- Indoor Environment Quality (IEQ) is a key ESD objective in the provision of a healthy and safe work environment. Research has shown that the working environment effects absenteeism, organisational morale and employee satisfaction.
- It is generally agreed that poor indoor air can adversely affect employee health and productivity. These costs to industry have been estimated to be in the ‘tens of billions of dollars per year’ (Report to Congress on Indoor Air Quality, 1989)
- IEQ is improved when users have access to daylight, natural ventilation (fresh air with reduced pollutant loads), air movement, and visual relief, some control over their surrounds and some acoustic consideration.

Energy

- Energy remains one of the key environmental initiatives in building developments and is the area in which life cycle cost considerations are likely to be favourable. Australians are the world’s largest generators of greenhouse gas per capita, and the built environment contributes to over 40% of these emissions. The following approaches to reducing energy use are as follows:
  - minimise the need for energy consumption
  - provide technological solutions to deliver / convert energy in the most efficient and economically feasible way
  - use renewable energy where technically and economically feasible

Transport

- The greenhouse gas emissions and other environmental impacts associated with car transport approach, and in many cases exceed, the emissions and environmental impacts associated with buildings.

Water

- Australia is the second driest continent on the planet, yet Australians are the world’s largest consumers of water per capita. While water used in office buildings is a small proportion of national usage, guaranteeing the supply and quality of water to our cities has significant ramifications in terms of cost and availability of catchment resources, and there is significant potential for savings.
- Available technologies and water pricing regimes do not currently provide financially viable returns on investment for water conservation initiatives.
Materials

▪ The environmental impacts of material use in buildings are numerous and include the depletion of natural resources, the degradation and pollution of the environment in their extraction and production and use, and health impacts associated with off-gassing of pollutants in production and use.

Land Use & Ecology

▪ From an ESD perspective, the mixed zoning of community, commercial and industrial facilities in areas with existing infrastructure and transport is to be encouraged, providing development does not adversely impact on the amenity of adjoining properties or the environment.

Emissions & Waste

▪ Major emissions from sites include stormwater run-off, ozone depleting gases and light pollution into the night sky.

ESD Excellence & Innovation

▪ The definition of ESD excellence depends on the intent of the sustainability policy or assessment tool. However, many tools encourage the use of new and innovative solutions in recognition of the fact that the industry is growing and in a state of constant change.

Sustainable Built Environments defines a sustainable building in its Environmental Policy as follows:

“The ultimate environmental design aim for our built environment is to create comfortable buildings that use no energy, no water, produce no waste in operation or construction, and are made of materials that are derived from fully sustainable sources. Whilst this is very difficult to achieve in practice, this aim should act as a theoretical lighthouse for the opportunities that should be considered in any project.”

2.1 The International Perspective

2.1.1 Local Agenda 21

Key organisations involved in advancing sustainability objectives include the United Nations (UN), World Health Organisation (WHO), World Bank, European Union (EU) and International Council for Local Environmental Initiatives (ICLEI).

The UN 1992 Rio Earth Summit resulted in Agenda 21 and subsequent declarations. As a result a number of countries have committed to National Strategies for Sustainable Development and Sustainable Development Action Plans as a step forward for Agenda 21. Agenda 21 encourages local authorities to engage with communities to formulate action plans. The United Nations key goals for the millennium on environmental sustainability include:

Integrate the principles of sustainable development into country policies and programmes, reverse loss of environmental resources

Reduce by half the proportion of people without sustainable access to safe drinking water
Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020 (http://www.un.org/millenniumgoals/)

Such plans have been prepared by a number of nations including the United Kingdom, Canada and many Western European nations as demonstrated in Figure 1 below.

Within the international context, Australia has also prepared the National Strategy for Ecologically Sustainable Development (NSESD). Its aim is to provide:

...broad strategic directions and framework for governments to direct policy and decision-making. The Strategy facilitates a coordinated and co-operative approach to ecologically sustainable development (ESD) and encourages long-term benefits for Australia over short-term gains. (http://www.environment.gov.au/esd/national/nsesd/index.html)

It addresses key areas of Agenda 21 such as manufacturing, agriculture, mining, gender, native vegetation, pricing, taxation, coastal zone management, etc.

Figure 1 - National Sustainable Development Strategies: the global picture

2.1.2 International Rating Tools

Two sustainability assessment tools have led the international scene to date, the Building Research Establishment’s Environmental Assessment Method (BRE-EAM) from the UK and Leadership in Energy and Environmental Design (LEED) from the US. The tools set benchmarks for the assessment of environmental design initiatives across the range of environmental issues. Both of these tools have been expanded to cover all building classes and existing buildings since their initial releases in the early 1990’s.

Both BRE-EAM and LEED are voluntary tools with levels of certification rewarding applicants for going beyond the base level of certification. In the US, the LEED tool has gained wide acceptance and has now been mandated for use by a select number of municipalities. The BRE-EAM tool was adapted for use in residential building regulation by the UK in 2007, ear-marking a major step forward for building regulation in the UK.

The success of these tools has led to neighbouring countries using and adapting the tools for their own use. LEED has now been adapted for use in 13 different countries, and BRE-EAM has developed BREEAM International, for use and adoption by anyone outside the UK. The local Green Star tool was developed based on the standards developed by these two tools combined with local knowledge.

2.1.3 International Planning Initiatives

The issue of setting benchmarks for the use of ecologically sustainable development (ESD) is something that has been gaining worldwide attention since the release of the Brundtland Report 1987. While many countries have begun to note the ways in which ESD principles can be applied to their planning mechanisms, systems closest to the Victorian planning mechanisms can be found throughout Canada, where both planning mechanisms and Environmental Impact Assessments are currently being re-considered.

The Canadian Environmental Assessment Research Council (CEARC) is committed to ensuring that the deficiencies surrounding ESD found within the current Canadian planning system are ameliorated through the implementation of preventative planning methods, rather than the reactive methods that are contained within the Victorian model (Jacobs & Sadler, 1990). CEARC has indicated throughout its background report that there are major deficiencies contained within the overarching policy and with application of its Environment Impact Statement (EIS) systems to development applications. It notes that the current systems do not provide certainty and are often the initiators of conflict between the developer and the community, and the developer and Councils.

While CEARC does note that there is a level of understanding among developers that EIS should be a priority, the most prolific problems associated with applying EIS principles, is the way in which current systems for assessment do not provide for practical responses to the policies that exist. Further to this, it notes that there is a lack of government funding for further investigation of how these methods of assessment can be better utilised within planning frameworks, giving them greater regulatory backing.

A recent study by the International Council for Local Environmental Initiatives (ICLEI) summarises policy initiatives adopted by councils across the globe. These include:

- US Local Governments mandating the use of the LEED tool for all municipal buildings.
- Community demonstration projects in a number of municipalities.
- US councils offering tax incentives for LEED accredited buildings, low-interest loans, and grants to green developers.
- US city councils allowing heights, density or area limits to be exceed by a set amount upon achieving a LEED rating. In Europe, case-by-case concessions have been made for large commercial buildings.
Chicago San Diego City Council’s expedite projects that meet set sustainability criteria.

Some US cities have mandated the use of LEED in larger developments (>5000m²).

South Tyrol in Italy developed a certification program for builders to use on a voluntary basis, which then gained support to become mandatory. 10 other local councils then adopted the program and 3 years later was adopted by the provincial government as standard.

### 2.1.4 International Building Initiatives

Mandatory building requirements that incorporate sustainability are applied in the United Kingdom and Washington State. Canada operates a voluntary scheme that supports building code compliance. Voluntary programs are also run in Germany, Switzerland, France, Hong Kong, Japan and Taiwan but are not detailed here.

**United Kingdom**

The **Code for Sustainable Homes** was introduced in 2007 and gives a star rating to residential dwellings. The Code specifies standards in the areas of energy efficiency, water conservation, surface water management, site waste management, household waste management, and the use of materials.

At present the Code is currently compulsory only when public sector funding is awarded, however, it is likely that it will be applied to all new dwellings in the coming years.

**Canada**

R2000 is a voluntary national standard that set environmental criteria beyond building code compliance for residential dwellings. The program provides a national accreditation standard for all new homes.

**US**

In 2005 Washington became the first state in the U.S. to enact green building legislation. According to the law, all major public agency facilities with a floor area exceeding 5,000 square feet (465 m²), including state funded school buildings, are required to meet or exceed LEED standards in construction or renovation.

### 2.1.5 Australia in the International Context

Historically, sustainable cities policies are driven by the lead nation’s commitment to reducing Greenhouse Gas emissions. Nationally Australia has not committed to a set reduction in greenhouse gas emissions through Kyoto or otherwise, and whilst energy efficiency measures have been introduced to the Building Code of Australia, the level of stringency is behind those adopted in Europe. In contrast, the geographical constraints of living in an arid country have led to the development of stringent water conservation legislation at a state level.

Whilst the BREEAM and LEED tools have now been available on a voluntary basis for use for over 10 years, the Australian Green Building Council has only been in existence for 5 years and hence the market is comparatively young. The Green Star tool does not yet address the full gamut of building types, however, several are being developed. Two city councils have mandated the use of leading practice assessment tools, Green Star and/or ABGR for office buildings, and the NSW government has adopted its own sustainability assessment tool, BASIX for residential assessment (Chapter 5). If Australia is to follow international trends, the logical next steps would be for the increased mandatory use of best practise tools at a local level, followed by adaptation of the standards for state and national regulation.
2.2 The National Perspective

General

The Sustainable Cities report authored by the House of Representatives Standing Committee on Environment and Heritage (August 2005) focused on establishing a ‘vision for a sustainable city’ and ‘a pathway to sustainability’. Key principles for sustainable cities included the following:

- Conserve bushland, significant heritage and urban green zones.
- Ensure equitable access to and efficient use of energy, including renewable energy sources.
- Establish an integrated sustainable water and stormwater management system addressing capture, consumption, treatment and re-use opportunities.
- Manage and minimise domestic and industrial waste.
- Develop sustainable transport networks, nodal complementarity and logistics.
- Incorporate eco-efficiency principles into new buildings and housing.
- Provide urban plans that accommodate lifestyle, employment and business opportunities. (HRSCEH, 2005, p 9)

Planning

These principles can be found in many of the regional and local planning strategies throughout Victoria and are generally accepted as appropriate for planning to seek to achieve. The HRSCEH formed the view that ‘…the Australian Government has a responsibility to provide national leadership in urban policy as it impacts on the sustainability of Australian cities’ (HRSCEH, 2005, p 18). This would require a national governance structure that would ensure a strategic approach across all levels of Australian government. It is observed that at present there is no co-ordinated approach towards sustainability, although links between federal, state and local government policies or strategies on matters of sustainability do come from a common understanding and framework for ESD.

The Sustainable Cities report highlights the necessity for all tiers of governments to work together to formulate and implement sustainability objectives. The central role of the Australian Government needs to ‘…provide leadership, put in place systems of governance to coordinate urban issues, and ensure that national policies facilitate sustainable urban practices, at the very least at the broad strategic policy level’ (HRSCEH, 2005, p 27). As such, Recommendation 1 of the report suggests that the Australian Government establishes an Australian Sustainability Charter, which would incorporate national targets for water, transport, energy, building design and planning. Subsequently, the HRSCEH in conjunction with the University of Adelaide issued the Inquiry into a Sustainability Charter in June 2006. However as yet there is no published Sustainability Charter.
Building Policies

It is notable that in relation to building design and management, the HRSCEH committee Recommendation 17 recommends the Australian Government encourage the States and Territories to mandate disclosure of the energy efficiency and greenhouse performance of residences at point of sale and point of lease (HRSCEH, 2005, p 106). Recommendation 19 encourages the Australian Government to work with the HIA, CSIRO and other organisations to investigate the establishment of a ‘sustainable building material’ labelling scheme (HRSCEH, 2005, p 114).

There are a range of different sustainability assessment tools utilised across Australian states and territories as outlined in Chapter 5 of this report. The HRSCEH acknowledges the lack of nationally accepted and implemented building rating tools. There are many rating tools available which apply to different types of development and address many or few aspects of sustainability. It can be confusing for developers, planners and other industry and lay people to understand the differences, particularly as there is no consistent application of assessment tools. As such Recommendation 22 of the HRSCEH suggests that the ABCB develop a nationally consistent building ratings tool that takes into account the range of environmental and sustainability factors dealt with by existing codes. This is followed by Recommendation 24, that all States and Territories that do not already have a 5 star NatHERS house energy rating system implement one as a priority, and further by Recommendation 25 that Australian Government departments and agencies that own property take steps to improve their buildings to achieve at least a 5 star energy rating (presumably with the Australian Building Greenhouse Rating tool).

The Australian Government and Victorian State Government have policies and guidelines for ensuring that their organisations are accommodated within sustainable buildings (eg: Energy Efficient Government Buildings 2001). Many local governments have also adopted similar policies related to their own buildings, with the most notable example of the City of Melbourne with the establishment of its municipal offices within Council House 2, a 6 Green Star rated building.

Victoria

Environmental Sustainability Issues Analysis for Victoria (CSIRO, 2004) highlights the key issues Victoria faces are land resources, biodiversity, water resources, climate change, waste and recycling, and settlement structures and urban development. The primary concerns for urban development are the pollution and emissions aspects of transport and buildings. However, sustainable settlement patterns also need to address land availability, native vegetation and biodiversity issues, water sensitive design and planning for waste management/reduction in a proactive manner.

Population growth in Victoria coupled with increasing water use, waste generation and energy use, highlights the need to become more efficient in the distribution and use of resources such as water and energy. It is worth noting that in Victoria waste sent to landfill is decreasing per capita, and recycling has doubled in the period 1992-2002 (CSIRO, 2004, p 28). The impact of urban settlement and transport is measured by the CSIRO in terms of pollutants, with increasing car ownership and use compounding growth in air pollutants despite advances made in modifying cars to use less petrol and emit less pollution. Buildings on the other hand are increasing in size (both residential and non-residential) whilst household size is falling (CSIRO, 2004, p 42).

This highlights the need for action in relation to creating urban development that seeks to limit high resource input and emissions. However the CSIRO acknowledges that:

‘...there is limited value to considering these issues in an isolated sense, and it is arguably more effective to consider the range of issues in an integrated fashion’ (CSIRO, 2004, p 55).

This is pertinent in how this investigation report largely focuses on sustainability assessment for urban development. However, it is clear the elements of sustainability at some point need to be broken down to be able to practically implement change. It is worth noting that whilst Victoria has issues which it must face in relation to sustainability, Victoria was one of the first states to require 5 star energy ratings for all new homes.
Potential at National Level

The sustainability framework can be pursued at a national level for the building industry. However, there is not a national agency of planning to coordinate state planning agencies, and each state has its own system comprising of state, regional and local level policies.

The Sustainability and the Building of Australia research project (8 August 2003) was undertaken by Sustainable Built Assets. The report sought to examine overseas sustainable building requirements and case studies on sustainable developments in Australia, identify issues and implications of sustainable building requirements, and provide advice on provisions for BCA21. The report recognised that:

- Building construction and associated activities impose significant impacts on the environment.
- Local and State Governments are introducing their own sustainability regulations for building and land use.
- The community is increasingly voicing concerns on environmental issues.
- For sustainability to be regulated there must be a demonstrated case of ‘market failure’.
- The Building Code of Australia is just one of many tools available to governments of all levels for implementing sustainability.
- Many major sustainability issues are well outside the scope of the current BCA. Whether the scope of the BCA needs to be extended so that it can manage sustainability more effectively is a question that needs to be considered. (Sustainable Built Assets, 2003, p 1)

It is also pertinent that the following key recommendations of the research project informed the review of the Building Code of Australia:

- That a definition of sustainability be agreed upon in the context of building and construction (for the purposes of development of the BCA21).
- That the ABCB considers adopting one of the four following options:
  - The ABCB adopts sustainability as a theme and a goal for the BCA21.
  - That the ABCB adopts sustainability as a theme only for BCA21
  - That ABCB considers introducing sustainability as a key goal only for the BCA21.
  - That the ABCB does not address sustainability in any capacity at this time.
- That the considerations for understanding Regulatory Impact Statements (RIS) be reviewed.
- That the ABCB considers introducing criteria for selecting which specific sustainability issues are included in the BCA21.
- That the ABCB draws up a list of sustainability issues which are not suitable for regulation but where National consistency is desirable.
- That the ABCB be prepared to act as the national coordinator on all regulatory matters regarding sustainability in building construction, bearing in mind that other regulators may also be involved.
- That the ABCB considers monitoring overseas developments on sustainability in building and construction, particularly those associated with policy, regulation, standards and consequences of adopting specific sustainability practice.
- That the ABCB considers undertaking an educational / informational program to keep the building and construction industry and the Australian community up-to-date with building-related sustainability issues.
The report also highlighted the opportunities for non-mandatory measures as a starting point for industry to get used to the ideas and to develop appropriate tools and incentives. ‘Institutional fragmentation’ may also present a key barrier to progressing sustainability principles. The report also noted that it is desirable for sustainability activities to be coordinated in a framework that is nation-wide and furthermore ‘…the ABCB exists to bring consistency to national building regulation, and sustainability is one area…that national consistency is highly desirable.’ (Sustainable Built Assets, 2003, p 8)

2.3 Cost and Benefit of Achieving Green Buildings

One of the challenges in effecting change in the planning and building industries is the perceived greater cost of developing ‘green buildings’ or incorporating sustainability principles in the design of development projects.

A study of Listed Property Trusts has shown that the economic motivations to incorporate environmental initiatives into buildings differ between building types (Merryl Lynch, 2005). For commercial buildings, securing government tenants and tenant retention are important factors and gives a green building a marketing edge. In residential buildings, consumer demand and willingness to pay for sustainable houses both play a role, with developers willing to bear the extra costs where the consumer is willing to pay. In retail and industrial buildings, the line is not as clear cut and other factors such as the social impact on surrounding areas may have more weighting than environmental initiatives.

2.3.1 Commercial

Emerging analysis by Davis Langdon indicates that there are significant benefits in utilising ESD principles in building design and construction.

According to Davis Langdon in its report ‘Cost and benefit of achieving Green buildings’ (2007), the benefits to building owners of green buildings include:

- potential higher occupancy rates
- higher future capital value / reduced risk of obsolescence
- less need for refurbishment in the future
- ability to command higher lease rates
- higher demand from institutional investors
- lower operating costs
- lower tenant turnover

The report states that the conversion from 4 Star to 5 or 6 Star currently comes at a cost, but results in a more appealing building to investors and occupiers and meets rising expectations of the market. Research carried out by Davis Langdon based on a building greater than 15,000 m², shows initial impact on construction costs for 4, 5 and 6 Star Green Star. The impact on initial construction costs:

- 4 star 0%
- 5 star 3-5%
- 6 star 9-11+%

According to Davis Langdon, the 4 Star Green Star rating is achieved fairly simply when complying with Property Council of Australia’s Guide to Office Building Quality. To approach better Green Star ratings, either an improved reduction of energy or water at a 5 Star level will result in a 5 Star rating, while consideration of both energy and water
improvements at this level, along with demonstration of innovative technologies, will potentially result in a Green Star rating of 6. Davis Langdon also describes the potential consequences of ignoring green initiatives to include:

- Increased public awareness of necessity of healthy / green working conditions will lead to poor perception of non-Green buildings
- Lower employee productivity in poor working conditions
- Greater impact from carbon taxes
- Energy cost increase
- Water cost increase

2.3.2 Residential

In order to achieve nationally consistent 5-star standards for all homes, the Building Code of Australia has been amended, outlining new Deemed to Satisfy Provisions (DTS) for achieving this. Prior to the amendments taking place a Regulatory Impact Statement was prepared. The DTS Provisions were developed by undertaking a comprehensive cost benefit analysis that identified the impacts on construction cost and lifetime energy cost by type of dwellings for 8 different climate types. For the individual, the DTS Provisions add relatively little to construction costs, with the national average increase being 0.6%. This cost is offset by savings on HVAC plant. The regulations were predicted to save 88,000 tonnes/yr in 2010 and 276,000 tonnes/yr in 2017 nationally.

The Department of Infrastructure, Planning and Natural Resources have recently conducted research on the cost impact of applying BASIX to residential dwellings in NSW (Parliamentary discussion, 2007). The study concluded that an additional $3,000 to $9,000 is required to achieve compliance per dwelling. The consumer savings are $300 to $600 per year. The environmental savings include:

- Reduction in water consumption of 287 billion litres over 10 years (15% of the Warragamba Dam).
- 9.5 million tonnes of greenhouse gas saved over ten years (2.6 million cars off the road).

Beyond the impact of regulation which have been measured and predicted as above, very little data about the cost impact of building green residential buildings is available. The Merryl Lynch study concludes that ‘being green’ adds value from a brand and corporate image perspective but does not translate into higher end margins for residential developments. The Australian Government has recently commissioned work into the impact of mandatory disclosure of a star rating at the point of sale in the Australian Capital Territory. This study is yet to be released but earlier studies indicated that ‘a 1 star improvement in a home’s energy rating coincides with an average increase in advertised sale price of around $15,000’ (Energy Partners, 2003). Should this trend continue, market willingness to pay for sustainable buildings appears to be growing.

2.3.3 Conclusion

Green buildings are predicted to become mainstream, thus non-Green buildings will become obsolete. Current accounting methods that deal with depreciation only, are unable to accurately value Green building aspects like longer lifespan, reduced replacement and lower operating costs. Despite this, sufficient evidence exists in the market to encourage investors to veer towards responsible development. Incremental governmental implementation of green policies suggests the necessity of achieving Green buildings. To evaluate Green buildings, it is necessary to shift the focus of economic assessment from initial capital costs to wider lifecycle benefits. Government policies (at all levels) and environmental assessment tools can aid in the decision making process and turn what is seen as a cost barrier into a marketing edge.
3 Planning Legislation: The Current ‘State of Play’

The aims of reviewing current planning legislation in relation to sustainability assessments are to:

- Identify gaps in current federal, state and local legislation and opportunities for sustainability assessment policy implementation; and
- Identify potential obstacles to implementing legislation for sustainability requirements and opportunities for local government to overcome those obstacles.

Firstly however, it is important to reflect on what planning sets out to achieve. The role of planning in Victoria currently is to provide guidance and control over how land use and development occurs. Planning is compartmentalised into statutory planning and strategic planning. The latter usually refers to research and the formulation and evaluation of policies, whilst statutory planning is concerned with the formulation and administration of planning controls and regulation. The statutory and strategic planning realms are inter-related, despite municipal organisational structures often separating the two into different departments. Ultimately strategic planning provides the basis for statutory planning controls and the content of municipal planning schemes. (Eccles & Bryant, 1999, p 1)

Statutory planning powers were introduced into Victoria from 1921 but it was not until 1944 that the first explicit planning legislation was introduced via the Town and Country Planning Act 1944. That act empowered municipal councils to prepare and administer planning schemes. Subsequent amendments in 1968 restructured the act to provide more power to the Town and Country Planning Board, which became responsible for promoting and co-ordinating planning throughout Victoria.

More recently planning schemes have become performance based and less prescriptive in what they seek to achieve. The intention of this approach is to provide flexibility to consider development projects on their ‘planning merits’, on the basis of stated planning policies and controls. At the same time applicants and communities seek greater certainty in decision making process.

A tiered approach to planning exists within the structure of planning schemes. Development proposals may evolve over the course of the process due to input from Council, referrals officers within Council, objectors / submitters and external referral authorities. This can potentially result in minor or substantial building changes.

Within the Victoria planning system there is a hierarchy of federal, state, local, limited regional governance that creates strategies and policies, makes decisions and ultimately provides for the orderly planning of metropolitan and provincial cities and rural areas.

The following chapter addresses the different tiers of government and their planning policies as well as reviewing VCAT decisions and recommendations of Planning Panels Victoria. The analysis crosses both statutory and strategic planning and synthesises the key objectives, outcomes, gaps and implications of various planning related legislation that is contributing to the ‘current state of play’.
3.1 Government Structure

Generally sustainability falls within the province of both state and local government. The state level provides overall statements and strategic initiatives such as Our Environment Our Future, Melbourne 2030, the Victorian Greenhouse Strategy, and the Water Resource Strategy etc.

In order to implement those strategies, both state and local authorities are provided with frameworks administered under legislation such as the Victorian Building Act and the Planning and Environment Act 1987. It is through this framework that the Victorian Planning Provisions, the State Planning Policy Framework, and the regulatory / legislative controls contained in the local sections of planning schemes are established. These matters are generally administered by local government.

At the time of writing the Department of Planning and Community Development (DPCD) is the Victorian government department responsible for urban planning matters. Urban and regional planning activities within Victoria are overseen by Minister for Planning, The Honourable Justin Madden, whilst the Honourable Gavin Jennings provides support to the Department as Minister for the Environment, Minister for Water and Minister for Climate Change and oversees the environment focussed Department of Sustainability and Environment (DSE). The DPCD and DSE are two of 10 Government departments along with Education, Human Services, Infrastructure, Innovation / Industry / Regional Development, Justice, Premier and Cabinet, Primary Industries, and Treasury and Finance. It should be noted that prior to 14 August 2007 urban and regional planning matters formed part of the Department of Sustainability and Environment responsibilities.

Local government structures provide for the administration and implementation of many state sustainability initiatives such as Melbourne 2030. Local government has a statutory responsibility through the Planning and Environment Act 1987 to administer the planning scheme and provide for the orderly use and development of land.

Whilst the State Government determines the overarching policies and the framework for planning controls, local government can tailor the Local Planning Policy Framework (LPPF) to reflect the local conditions provided that the local policies are consistent with the overall Victorian Planning Provisions (VPP). Thus municipalities can set their own sustainability agendas through the implementation of Municipal Strategic Statements (MSS) and local planning provisions contained within their planning scheme. However this ability has recently been fettered by the requirement for all planning scheme amendments to be authorised by the Planning Minister / DPCD prior to being placed on public exhibition. The Ministerial pre-authorisation and final approval processes can limit ESD outcomes as policy prepared by Council can be changed by the Planning Minister/DPCD.

The Building Act is also administered at the local level, with all development requiring a building permit and assessment against 5 Star initiatives for residential dwellings and Section J for non-residential buildings. However there is no opportunity for local government to change state wide building requirements at the local government level (further detail is provided in Chapter 4).

Each municipality is different in terms of the departments that exist within the organisational structure. As such, in some Councils ESD designers and ESD engineers are part of the same department as planning and building officers, whilst in other Council’s they are in different departments. This can influence the way sustainability is dealt with, particularly by planning officers (refer to Chapter 6 for further discussion of Council organisational structures).

Sustainability principles at the national level are driven by the Department of Environment and Water Resources (DEWR – formerly the Department of Environment and Heritage). The DEWR states its role as developing and implementing national policy, programs and legislation to protect and conserve Australia’s natural environment and cultural heritage (http://www.environment.gov.au/). At the national level Malcolm Turnbull MP is the Minister for Environment and Water Resources.
### 3.2 Federal Sustainability Legislation and Planning Strategies

There is no set policy on sustainability requirements for built form during planning nor is there a national planning strategy for the development of cities. Government discussion papers on the topic are available and have been addressed in the above chapter.

As noted above in Chapter 2.2 the HRSCEH has established the overarching goals for sustainable cities in their *Sustainable Cities* report (August 2005) however, as yet there is no published sustainability policy.

### 3.3 State Planning and Sustainability Strategies

The current State Government has numerous broad strategies that place emphasis on improving environmental performance and introducing targets for sustainability in all aspects of governance. This investigation report reviews the most pertinent strategies relating to sustainability assessment in development approvals.

#### 3.3.1 Our Environment Our Future (2005)

*Our Environment Our Future: Victoria’s Environmental Sustainability Framework* (2005) aims to provide ‘...direction for government, business and the community to built environmental considerations into the way we work and live’ (*Victorian Government, 2005, p 1*), in essence to make sustainability part of all aspects of daily life. The framework recognises the inter-relationship between economic and environmental wellbeing, with the fundamentals of the framework encompassing:

- maintaining and restoring natural assets
- using resources more efficiently
- reducing everyday environmental impacts

Whilst the last objective incorporates objectives for liveable cities and towns, efficient transport systems and communities with a water, energy, materials saving ethic, the framework deals only with macro level targets e.g. public transport use in Melbourne as a proportion of trips taken by motorised is to increase from 11% in 2002 to 20% by 2020. Specific to development, the framework sets a target for ‘a greater percentage of new dwellings located at strategic re-development sites in Metropolitan areas’ (*Victorian Government, 2005 p 29*). This target is not explained and further does not indicate what the ‘greater percentage’ is to be measured against.

The strategy demonstrates the Victorian Government’s commitment to sustainable development at a macro level. The core value of making environmental sustainability a part of everything Victorians do is the key message. Progress to date includes the following:

- releasing Melbourne 2030 was one of the actions undertaken as well as setting 5 star energy and water efficiency standards for all new homes
- involvement in establishing Victoria’s first environmentally sustainable suburb – Aurora at Epping North
- appointed Victoria’s first Commissioner for Environmental Sustainability

The strategy also gives rise to other strategies such as the Victorian Greenhouse Strategy.
The Sustainability Framework is broad and does not specifically influence sustainable assessment in the planning process, other than setting an overall framework for action. Essentially the framework is the top tier of the hierarchy within the state government – other more detailed policies such as planning schemes may be tools for achieving the broad objectives set out in that document.

The strengthening of international environmental regulation is creating an enormous worldwide market for sustainable goods and services. (Victorian Government, 2005, p 19)

This demonstrates the Victorian government’s commitment to leading by example. This strategy is also complemented by the Securing Our Water Future Together strategy, which sets targets in relation to water management and usage. Chapter 5 of Securing Our Water Future sets out the policy framework for water use in Victorian cities and towns in particular that:

Victoria’s cities and towns will have safe, secure and reliable supplies and provide for growing populations into the future, while managing environmental impacts, this will be achieved through sustainable urban water management. (Victorian Government, 2004, p 92)

The water strategy also sets a target of reducing water use by 25% in all new developments (Victorian Government, 2004, p 104). This target is also factored into the STEPS and SDS tools.

### 3.3.2 Environmentally Sustainable Design & Construction Guidelines

DSE has issued Environmentally Sustainable Design & Construction principles and guidelines (2003), a series of design principles and guidelines for all building projects (including new construction, renovations and fitouts) to be undertaken by the Department. Checklists will be used by DSE from the initial project concept and business case through to design, construction and occupancy. In addition, the State Government has established Energy Efficient Government Buildings 2001, which includes key energy targets.

A pilot tool was initially developed by the DSE in 2005 to test the concept of using a performance based system to predict environmental building performance. This tool will help inform a way forward for Government, in concert with other assessment approaches. (Further detail at Chapter 6.4.2).

### 3.3.3 Learning to Live Sustainably

Following on from Our Environment, Our Future, the State Government has embarked on a more specific strategy and action plan for implementing sustainability in everyday living for Victorians via Learning to Live Sustainably (draft 2005). This document focuses on state-wide principles and priorities and is targeted at organisations and programs that have a major role to play in ‘learning-based change for environmental sustainability’ (Victorian Government, 2005, p 3).

Learning-based change for environmental sustainability is simply put as ‘development of knowledge, skills, values, attitudes and aspirations leading to changed behaviour in support of environmental sustainability’ (Victorian Government, 2005, p 9).
Whilst not specific to sustainable development assessment, it tackles key issues of behavioural change and education. It is important because it potentially provides a ‘vehicle’ for sharing knowledge about changes being made in practice. The strategy acknowledges that:

Measures for learning-based change are often much less effective and efficient if used on their own. Strategies for behaviour change should be based on a comprehensive package of all relevant measures, designed to optimise the multiplier effect between. (Victorian Government, 2005, p 9)

The document provides the impetus for the State Government to review and make changes where necessary to all frameworks where environmental sustainability is addressed. The learning-based change approach will, amongst other things:

Be based on the recognition that maximum effect will come from integrating measures for learning-based change with a comprehensive suite of other behaviour change measures for sustainability (including economic processes and incentives, infrastructure and technology, market development, regulation and enforcement, fundamental policy settings and use of sustainability indicators and feedback mechanisms). (Victorian Government, 2005, p 9)

The State Government wants to embrace positive change in relation to sustainability. This needs to be harnessed in the realm of land use and development outcomes which planning encompasses.

### 3.3.4 Energy Efficiency for Victoria: Action Plan

The Energy Efficiency for Victoria Action Plan sets in place key objectives and actions for reducing energy use in preparation for a ‘carbon constrained future’. The action plan recognises that energy underpins activity across all sectors of the economy. The action plan addresses energy efficiency in equipment, buildings, commerce and industry operations, residential, government and other organisations.

Key barriers to energy efficiency have been identified as poor information, split incentives for tenants / landlords, behavioural and institutional inertia, and perceived risks of energy efficiency investment. Furthermore, energy is not a high proportion of business or household expenditure. The Victorian Government’s key objectives for energy efficiency include:

- Requiring minimum energy performance standards:
  - Energy efficiency design standards for new homes and commercial buildings.
  - Minimum energy performance standards (MEPS) for key appliances and equipment.

- Facilitating industry development and capacity building to meet growing consumer demand:
  - Training and accreditation programs to skill up tradespeople and the energy services industry.
  - Benchmarking the energy efficiency of key sectors to stimulate uptake of best practice.

- Encouraging innovation to design and implement energy efficiency improvements:
  - Incentives for action beyond minimum energy performance standards including support for demonstration projects.
  - Promotion of advanced energy efficiency practices and technologies.
  - Support for research, development, demonstration and commercialisation of energy efficiency technologies.
Key achievements by the State Government thus far include:

- New homes in Victoria to be built to a 5 star energy standard (introduced July 2004). This is expected to save $30-40 million per annum after 4 years and reduce greenhouse gas emissions by 2 million tonnes over the first 10 years.
- Minimum Energy Performance Standards (MEPS) and energy efficiency labelling schemes.
- Upgrading the energy efficiency of Office of Housing homes and other low income homes to improve their energy efficiency, which has boosted energy ratings from 1.5 to 3 stars, 3,300 homes have been retrofitted as part of the Energy Task Force program by the Office of Housing too.
- New commercial buildings (Classes 5-9) and those undergoing major refits must be built to new minimum energy efficiency standards (equivalent to a 4 star Australian Building Greenhouse Rating – ABGR) introduced from 1 May 2006. (Victorian Government, 2006, p 25)

In relation to the built environment the action plan sets out the following:

- Energy efficiency requirements for new housing (5 star homes) which came into effect on 1 July 2005, requiring building fabric to achieve 5 star energy rating and to install a rainwater tank or solar hot water system.
- Further develop the 5 star approach, undertaking analysis to establish sustainability performance standards for residential buildings, incorporating energy and water efficiency. As part of this initiative the State Government will: consider the current trade-off between saving energy or saving water; clarify requirements for the installation of solar hot water systems; and examine the case for consideration of other installed fixtures as part of sustainability performance assessments, and for new homes and major renovations to install a gas boosted solar hot water system.
- Implement a flexible tool to assess the sustainability performance of residential buildings for application through the building system (as a basis for meeting new sustainability performance standards) and in the planning system (to meet sustainability design elements).
- Conduct a pilot program to provide consumers with information about the environmental performance of residential buildings at point of sale, lease or rental.
- Green offices – minimum energy efficiency requirements for new and refurbished commercial and public buildings (Classes 5-9) including office, retail, warehouses and health care facilities.

This document is fairly broad and does not set out, review or specify targets, but reinforces other Victorian Government initiatives and strategies. It is noted that energy standards have been introduced for residential and commercial buildings, with additional minimum standards to be set for healthcare, government and education buildings to follow. As such planning policy needs to keep abreast of these changes and the evolve design tools for more building types. The Government’s use of energy rating tools is primarily being implemented through the Building Code.

### 3.3.5 Victorian Greenhouse Strategy and Action Plan Update

The Greenhouse Strategy Plan (2002) seeks to:

- Build awareness and understanding of greenhouse issues
- Limit Victoria’s Greenhouse gas emissions and enhance greenhouse sinks
- Position Victoria to prosper in a future carbon constrained economy – including creating an environment in which Victorian industry can take advantage of business opportunities in greenhouse gas mitigation
Develop a greater understanding of climate change impacts and, where appropriate, initiate adaptation actions relevant to Victoria (Victorian Government, 2002, p 19)

The strategy focuses on the energy aspects of sustainability, however it crosses over into integrated transport planning as well as addressing energy efficient behaviour and buildings. The Action Update (published 2005) highlights some of the key actions to date and makes comment on matters relevant to this investigation project, including the following:

- The development of ‘Sustainable Neighbourhood Provisions’ (which are now incorporated into Clause 56 of the VPPs - Subdivision Provisions) which require greenhouse issues to be considered more closely in the design of residential subdivisions by encouraging reduced car use, with public transport easier to use, and walking and cycling more realistic options in daily life.
- Linking Melbourne: Metropolitan Transport Plan (November 2004) is a 10 year plan for the management and development of Melbourne’s transport system.
- Release of Melbourne 2030 (in 2002) as the key strategy for urban development, which seeks to contain urban sprawl and continue the trend toward higher density living in appropriate locations, especially around key activity centres and public transport nodes.
- Continued promotion of more environmentally-sensitive housing and other development in non-metropolitan Melbourne.
- Transit cities programs, which co-ordinates and promotes public and private sector projects aimed at creating safe, vibrant and accessible communities centred on and around public transport. The action plan update also recognises that this program has the ability to deliver greenhouse benefits by building energy efficiency improvements into the design and project planning stages of development. (State Govt of Victoria, 2005, p21 and 22)
- Victorian Government is committed to introducing mandatory energy efficiency standards for commercial buildings.
- The Commercial Office Building Energy Innovation Initiative (COBEII) launched in 2003, supports projects involving new and existing office buildings that demonstrate innovation in their design and reduced energy use.
- 5 star energy efficiency requirements for new homes, which is a Victorian Government initiative over and above the national building regulations.
- Solar Hot Water Rebate, consumer information on energy efficient applicants and water efficient shower roses were key initiatives implemented by the State Government.

3.3.6 Sustainability in the Built Environment Project Discussion Paper

The principle aim of the DSE discussion paper Sustainability in the Built Environment was to ‘determine the role of the planning system in implementing urban sustainability outcomes in the built environment, having regard to the whole scope of Government sustainability strategy and implementation tools.’ (Victorian Government DSE, 2003, p 6)

One of the key concerns arising out of the implementation of sustainability requirements is the potential for added complexity and time needed to resolve planning permit applications.

The discussion paper addresses the crossing over of different legislative boundaries – planning, building and plumbing (the latter two being recognised as being more technical regulatory systems) – and the different aspects of sustainable buildings such as technical aspects and performance based requirements. The paper also acknowledges that ‘...the imperative being for planning decisions simply not to inhibit the ability of proposals to meet such requirements. In some cases, the roles of the various systems may overlap and detailed consideration may need to be given to the building / plumbing issues as early as possible in the design phase to ensure that they can be addressed at a later stage.’ (Victorian Government DSE, 2003, p 22)
A range of industry organisations were interviewed about the gaps or barriers to successful implementation of urban sustainability which were grouped into system, strategic, operational and cultural issues as part of the discussion paper. Some of the points made by participants included the following:

- The Planning & Environment Act 1987 is not clear enough in its directions for matters to be considered in preparing planning scheme amendments and determining planning permit applications.
- The planning objectives for Victoria should provide a more effective framework for consideration of environmental, economic and social factors as well as better aligning competing objectives.
- The planning system does not capture all types of development and there are associated equity issues.
- Translating strategic ‘motherhood’ statements into statutory requirements that planners and others can quantify.
- Different requirements and assessment tools in different municipalities. “Should there be a distinction? Are there local considerations that should be addressed or is it the absence of consistent requirements that generate local requirements?” (Victorian Government DSE, 2003, p 29)
- Strategic planning is a key tool for achieving urban sustainability in the planning system because it is capable of dealing with complex sustainability issues. A State ESD policy could be used to provide consistent strategic direction across Victoria.
- Lack of direction for local council’s from the State Government in relation to implementing policy directions within individual planning schemes.
- The ongoing operation of a building in a sustainable manner once constructed and occupied.
- The planning system does not provide tools to measure and assess the sustainability of urban development proposals.
- Perception that using quantifiable tools might inhibit innovation.

The above points highlight some of the barriers and key issues raised through the process of preparing the Discussion Paper. It should be noted that the Discussion Paper was the first step towards establishing a Sustainability Framework for the Victorian Planning System and how the development approvals framework can be adapted to appropriately deal sustainability policy.

### 3.3.7 Implications of State Sustainability Strategies

The above summary of key State Government strategies on planning and sustainability raises the following implications:

- There are many strategies and principles for sustainable built environment outcomes, however many are strategies that do not have any statutory weight and are not referenced in planning schemes. It is noted that of the strategies reviewed above the Victorian Greenhouse Strategy is the only reference document within Clause 12 of every planning scheme.
- The government has undertaken new initiatives such as 5 star home ratings. However there have been no specific initiatives in implementing the planning framework other than the ongoing commitment to Melbourne 2030, which is an overarching strategy and Clause 56 (residential subdivisions) which addresses integrated water management specifically and sustainable subdivision design (which are more general provisions).
- Our Environment, Our Future is a new strategic framework for Victoria which is continually being expanded with further work to support its strategic objectives, however it is not a reference document in the VPPs.
- Energy standards have been introduced into the building regulations for residential and commercial buildings, with additional minimum standards to be set for healthcare, government and education buildings to follow. Planning policy needs to keep abreast of these changes and evolution of design tools for more building types.
The Government’s use of energy rating tools is primarily being implemented through the Building Code but this is currently limited to energy related matters.

The Our Environment, Our Future strategy acknowledges the role of both planning and building frameworks, the distinction being that in building it is ‘performance standards’ whilst in planning it is ‘design elements’.

The planning system does not explicitly support the use of rating or assessment tools, however whilst they are not mentioned in the state level strategies, there is now precedent of tool application in Clause 56 which refers to the use of MUSIC and STORM for water quality. (Refer to Chapter 3.4.2)

The State Government’s intentions for supporting and furthering sustainability initiatives are clear, and the Sustainability Framework forms a clear basis for further more detailed work in both the planning and building industries to take the ‘words’ and put them into practice.

3.4 Planning in Victoria

3.4.1 Planning & Environment Act 1987

Planning in Victoria is governed by the Planning and Environment Act 1987 which sets out the objectives for planning in Victoria as well as the administration processes and criteria for determining planning land use and development decisions. The core objectives for planning in Victoria as specified in the Planning and Environment Act, include the following:

Section 4 (1):

(a) to provide for the fair, orderly, economic and sustainable use, and development of land;

(b) to provide for the protection of natural and manmade resources and the maintenance of ecological processes and genetic diversity;

(c) to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria;

(d) to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value;

(e) to protect public utilities and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community;

(f) to facilitate development in accordance with the objectives set out in paragraphs (a), (b), (c), (d) and (e);

(g) to balance the present and future interests of all Victorians. (Author’s own emphasis)

These principles and objectives have been written with an underlying view to maintain and create legislation focused upon protecting the environmental, social and economic feasibility of Victoria.

Having regard to this, Section 4 (2) the Planning and Environment Act 1987 states that the objectives of the Victorian planning framework should seek (among other things):
(a) to ensure sound, strategic planning and coordinated action at State, regional and municipal levels;

(b) to establish a system of planning schemes based on municipal districts to be the principal way of setting out objectives, policies and controls for the use, development and protection of land;

(c) to enable land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels;

(d) to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land;

(e) to facilitate development which achieves the objectives of planning in Victoria and planning objectives set up in planning schemes;

(f) to provide for a single authority to issue permits for land use or development and related matters, and to co-ordinate the issue of permits with related approvals;

(g) to encourage the achievement of planning objectives through positive actions by responsible authorities and planning authorities;

(h) to establish a clear procedure for amending planning schemes, with appropriate public participation in decision making;

(i) to ensure that those affected by proposals for the use, development or protection of land or changes in planning policy or requirements receive appropriate notice;

These planning framework objectives are broad and assist in providing the basis for sustainable land use and development at both the State and local level. They form the legislative framework upon which planning schemes are based. A planning scheme is the key regulatory tool for guiding land use and development in Victoria. It is a legal document administered by local government and approved by the Minister for Planning. It sets out the State and local planning objectives and controls.

### 3.4.2 Victorian Planning Provisions

The Victorian Planning Provisions (VPPs) are provided for by the Planning and Environment Act. It is a state-wide statutory template that forms the basis of each municipal planning scheme in Victoria. It comprises strategic frameworks, land use zoning, overlays and provisions for specific types of development. All municipalities have a planning scheme to direct how, where and in what form land use and development may occur.
Local planning authorities (Councils) are responsible for the administration of planning schemes. A planning scheme cannot be amended by a Council unless the amendment is authorised by the Minister for Planning.

Figure 2 details the various sections of the VPPs and whether the content is state or local.

The State Planning Policy Framework is a statement of state policy and is by the State Government. The Local Planning Policy Framework is the statement of local policy prepared by local Councils. It must be consistent with the state policy.

The framework of the VPPs is discussed below.

State Planning Policy Framework

The State Planning Policy Framework (SPPF) comprising Clauses 10-19 within each planning scheme has several specific strategic clauses that are relevant to sustainability assessment within the planning process. The SPPF is the same in every planning scheme and the content is determined by the State Government.

Clause 11: Introduction, goals and principles - generally provides a set of goals and principles that aim to ensure that all planning and development undertaken within Victoria is based upon the objectives of Section 3 and 4 of the Planning and Environment Act. Having regard to this, Clause 11 states that the SPPF aims to inform and guide planning policies and practices which:

‘Integrate relevant environmental, social and economic factors in the interests of net community benefit and sustainable development.’

The principles and goals of planning in Victoria, as outlined within Clause 11, include directions on settlement and more specifically on the environment, and demonstrate a commitment from the State Government to ensure that scope exists in the assessment of planning applications to consider sustainability principles. It is the policies and strategic development directions contained within this clause that provide overarching guidance for Clauses 14 (Settlement) and 19.03 (Particular Uses and Development), which seek to protect and maintain the environment, along with promoting sustainable development and land use.

Clause 12 – Metropolitan development is based on Melbourne 2030, which provides a long term strategic development plan for metropolitan Melbourne, which aims to encourage and promote environmentally sustainable development.
practices. Within each sub section of that clause, objectives for the use and development of land are stated. Directions providing guiding principles to encourage, promote and achieve environmentally sustainable development within new developments, subdivisions and the remodelling of older, less environmentally sustainable buildings. The following sub-clauses are most relevant to this review:

- Clause 12.01 - A more compact city
- Clause 12.02 - Better management of metropolitan growth
- Clause 12.05 - A great place to be
- Clause 12.07 - A greener city

These directions provide the State legislative framework, framed by the central objectives of the Planning and Environment Act 1987. The above mentioned clauses illustrate a strong commitment to ensure that development places focus on:

- Improving the environmental performance of existing buildings and those to be renovated.
- Encouraging environmentally sustainable design and built form within the initial stages of development.
- Promoting the use of alternative water sources and the use of on site effluent recycling.
- Achieving design standards that ensure natural and environmental features of an area are protected and maintained.
- Centralising new development and increasing residential and office densities to ensure good access to sustainable modes of transport.
- Limiting the level of 'out of centre' commercial development to protect environmentally sensitive areas.

Clause 15.12 – Energy efficiency aims to achieve high levels of sustainability and energy efficiency through encouraging and promoting good design and built form, along with sustainable subdivision design in newly developing areas. This provision also aims to minimise greenhouse gas emissions and increase the level of energy efficiency in buildings as a standard practice within the development industry.

Clause 16- Housing encompasses the development of single residential dwellings, medium density housing, and affordable housing, with specific sustainability based objectives that aim to promote and encourage housing and urban design which minimise environmental impacts. Throughout Clause 16 general sustainability objectives are based around increasing energy efficiency, water sensitive design and encouraging public transport use.

Clause 19.03 – Design and built form seeks to achieve high quality architectural and urban design outcomes within new developments. It applies to all non-residential development, and to residential development not covered by Clauses 54, 55 and 56 (further detailed below). Council’s must have regard to design principles including context, safety, landmarks and vistas, heritage, site consolidation, light and shade, overall architectural quality and landscape architecture. Importantly, this clause indicates that Council’s must recognise energy and resource efficiency within buildings, subdivision and engineering works. This consideration is to be balanced against other matters such as context, architectural and landscape architectural quality, heritage and access to sunlight.

Further to the above overarching strategic provisions contained in the SPPF, more specific and technical policies are outlined for decision making in relation to specific land use and development types, including single dwellings, multi-unit dwellings and subdivision, as detailed below.

Local Planning Policy Framework

The Local Planning Policy Framework (LPPF) comprises Clauses 21 and 22 in planning schemes. Local councils undertake strategic planning to formulate the policies and provisions of their LPPF. Clause 21 outlines the Municipal Strategic Statement (MSS) which includes the municipal planning vision, overarching strategies and implementation of
Clause 22 of the planning scheme is the place for Council’s to include Local Planning Policies (LPP) that may address a particular form of development and/or land use or provide a policy that applies to the whole or a particular geographic area of the municipality. The LPP is a tool for day to day decision making which should generally only be used where a particular planning strategy cannot be more effectively communicated in the MSS, zones and overlays. The LPP enables the Council to state its view on an issue or its intentions for an area.

The LPP cannot trigger a requirement for a planning permit, nor can it include mandatory controls, rather it is a discretionary policy which supplements the zones or overlays. If mandatory policies are sought, then they are better included within the zones or overlays of the planning scheme.

The LPP is written by the relevant local authority administering the planning scheme, but requires authorisation by the State Government before it can be included in the scheme. The LPPF must accord with the state planning provisions and there are a number of tests to justify the inclusion of an LPP into a planning scheme which are outlined in the VPP Practice Note Writing a Local Planning Policy (December 1999). The LPP should not repeat or contradict other policies within the planning scheme, and the LPP should receive a positive answer to the following seven tests:

1. Does the LPP respond to a demonstrated need?
2. Does the LPP implement an objective or strategy in the MSS?
3. Does the LPP relate to a specific discretion or group of discretions in the scheme?
4. Does the LPP help the responsible authority make a decision?
5. Does the LPP help any other person to understand whether a proposal is likely to be supported or not?
6. Does the LPP add to the other planning tools in the scheme, especially the relevant zone or overlay?
7. Does the LPP address the format, content and language guidance in this Practice Note? (VPP Practice Note Writing a Local Planning Policy, December 1999)

Council’s can introduce local policies that address sustainable development, however, the policy will only be effective where a zone or overlay triggers a permit for development (e.g. for buildings and works or subdivision). Furthermore, for the LPPF to be implemented into the planning scheme the Planning Minister/DPCD must authorise the amendment.

Land Use Zones

The land use zones are found at Clauses 30-37 and address a range of land use categories including residential, business, industrial, public land, rural and specialist zones for the capital city, docklands and priority development areas. Zones are displayed on planning scheme maps and applied to geographic areas of each municipality so that all land is designated within a zone. Each zone includes a purpose, table of uses which specifies discretionary, permit required and prohibited uses, permit triggers for subdivisions and development, decision guidelines and a statement of the relevant category for outdoor advertising signage.

The suite of zones available is determined at the state level. Zones have a limited capacity to be altered by a local planning authority via the Zone Schedule. Each schedule has different variations that might be written in relation to maximum floor areas, subdivision lot sizes and variations to select ResCode provisions, however the scope of variations is very limited.

The content of zone schedules requires strategic justification and is subject to the planning scheme amendment process and hence authorisation by the Minister for Planning is required. Zones trigger planning permits for either use
or buildings and works (or both). Zones include decision guidelines that outline the matters to be taken into account in assessing planning permit applications. These do not currently include sustainability. All zones could include, within the decision guidelines a statement that sustainable built environment outcomes are considered as appropriate in the decision making of an application.

**Overlays**

Zones relate to land use whilst overlays are primarily addressing buildings and works. Overlays at Clauses 41-45 of the planning scheme supplement land use zones and are applied selectively to land according to the outcomes which are sought for that area. Overlays address a range of environmental, design and infrastructure matters and set out planning permit triggers and requirements that development needs to achieve. The suite of overlays available are set by the State Government whilst the schedules are written by the local planning authority and considered by the Planning Minister/DPCD via the planning scheme amendment process.

Overlays are structured in much the same way as zones. They include a purpose, buildings and works requirements, subdivision requirements and decision guidelines. There is greater scope for locally specific content within overlay schedules as compared to zones. Local planning authorities can generally vary the permit requirements for buildings and works (but not for use) in the schedule to an overlay and can impose specific design requirements on land use and development within the specified structure of an overlay schedule as per the VPP framework.

Currently there is no overlay which specifically requires or triggers a permit requirement for sustainable buildings. Depending on what elements of sustainable development are being sought, there is scope within some overlays to address sustainable design principles. However, overlays are not usually applied to entire municipalities and the opportunities are limited. Within the existing framework the key opportunities within the current VPPs which could be adapted to address sustainable buildings include:

- **Design and Development Overlay (DDO)** – sustainable design requirements could be specified under the buildings and works provisions and within the decision guidelines. This could be used where geographic policies are desirable, e.g. Docklands. This provides the best opportunity because design requirements and principles can be included, and the DDO can be applied either geographically (for example activity centres or strategic redevelopment site) or across a municipality.

- **Incorporated Plan Overlay (IPO)** – is a tool for implementing a plan such as an outline development plan, detailed development plan or master plan which becomes an incorporated document within the planning scheme, which is approved by the Minister for Planning and hence requires a planning scheme amendment if it is to be changed. The IPO is used in very selective circumstances to enable a co-ordinated approach to land use and development of particular land parcels (e.g. a new town centre, strategic redevelopment sites). Compliance with sustainability assessment tools such as STEPS or SDS could be given effect as part of an IPO requirement. An IPO cannot set up a permit trigger, rather it supports the zone and other overlays to ensure a permit is not issued without an overall plan for development. It could be used to include a requirement that permit applications demonstrate achievement of sustainable development or provision of information relating to sustainability/ESD measures. This option does not have broad scale application.

- **Development Plan Overlay (DPO)** – is similar to the IPO in that it can specify permit requirements for applicants to prepare a development plan but cannot trigger the need for a permit. The development plan is not incorporated into the planning scheme rather it is prepared ‘to the satisfaction of the responsible authority’ and hence the responsible authority approves the plan. The DPO usually relates to particular parcels of land/geographic areas earmarked for future development therefore it does not typically have broad scale application.

Of the above opportunities the Design and Development Overlay may provide the best opportunity to influence sustainable built environment outcomes as it can incorporate a requirement for planning approval and it is suited to
municipal wide application. As part of an integrated sustainability framework it may be necessary to establish a new overlay within the VPPs which specifically facilitates sustainability assessment.

It is noted that the Heritage Overlay which is applied in circumstances to conserve and enhance heritage places of cultural significance requires a permit for all buildings and works for all properties affected by the Heritage Overlay. There is not much within the overlay that enables sustainability measures to be taken into account. Overlays can only address matters which are particular to the overlay triggers. As the purpose of Heritage Overlay relates to protecting cultural significance, sustainability is not a consideration triggered by the overlay. This is not to say that there is no link between ESD and heritage, local policies may be prepared which detail how the two matters can be considered together. At the time of writing this report, the City of Port Phillip was drafting guidelines addressing these matters.

**Particular Provisions**

The Particular Provisions are found at Clauses 52-57 of any planning scheme. They apply to specified categories of use and development above in addition to the other provisions of the planning scheme. There are specific Particular Provisions outlined below which include, in part, some planning controls relating to sustainability assessment or provide scope to address sustainable buildings.

**Clause 54 (One dwelling on a lot)** and **Clause 55 (Two or more dwellings on a lot and residential buildings)** provide a set of Objectives and Standards that single dwellings requiring a planning permit and all multi unit development need to address. Whilst these provisions are generally based around neighbourhood character, on and offsite amenity and overall built form there are a number of provisions within Clauses 54 and 55 which addresses elements of sustainability. These provisions outlined below are performance based with objectives and some provisions including measurable standards to be met:

- site surface permeability: 20% of the site should have permeable surfaces (Standard A6 and B9)
- energy efficiency: objectives seek to maximise passive solar design of the site and minimise impact to neighbours (Standard A7 and B10)
- access to daylight: maintain a minimum 1m setback and 3m² space for existing windows (Standard A13 and B19)
- protecting existing north facing windows: setbacks (as specified in Standard A13 and B20) are required from existing north facing habitable room windows
- daylight access to new windows: provide 1m setback and 3m² space for new habitable room windows (Standard A13 and B27)
- north facing private open spaces: the southern edge of new private open spaces are required to be setback (as specified in Standard A13 and B21) from walls to the north

These aspects of design require consideration of sustainability matters, however, they are not exhaustive and do not specifically address how on-site water retention/recycling should occur, nor is there specific reference to achieving benchmarks or targets via use of sustainability assessment tools. Furthermore, the policy objectives do not specifically reference sustainability or sustainable design. Planning applications should meet the standards of Clause 54 and 55 but they must meet the objectives of Clause 54 or 55 as applicable.

It is noted that Clause 55 has been amended to remove a requirement for a four star energy rating for multi-unit developments. Previously there was a General Practice Note on energy efficiency issued in June 2002, which outlined that prior to planning decisions being made applicants needed to demonstrate that a four star rating could be achieved according to the First Rate tool. The practice note also gave tips on improving the energy efficiency of developments and was generally a useful tool for building designers. The practice note is no longer relevant because energy rating is now addressed in the building regulations. However, it is noted that there is no replacement practice note that addresses how sustainability should be addressed in planning schemes and planning decisions.
There is scope within these policies for requirements or provisions to be included on aspects of sustainable design such as clearer guidelines on water sensitive urban design and material selection. The policy might also reference use of sustainability assessment tools to elevate consideration of these matters, however changes to this policy would be required at the State Government level. Local councils have the ability to modify requirements of Clause 54 and 55 via the schedules to the residential zones, however, the above mentioned standards cannot be varied by local councils. Hence, local government cannot play a direct role in changing Clause 54 and 55 to include a greater range or more direct assessment of sustainability factors.

Clause 56 - Residential subdivision sets out the requirements for new residential subdivisions. A key objective of Clause 56 is that residential subdivision design provides for livable and sustainable communities.

Clause 56 currently provide the greatest level of environmentally sustainable development consideration contained in planning schemes, as all residential subdivisions are required to gain planning approval. Clause 56.03 (introduced in October, 2006) includes provisions that encompass all levels of sustainable development, from infrastructure provision to social networks, protection of biodiversity, integrated water management, integrated mobility (walking/cycling/public transport) and site management.

Clause 56 aims to address both spatial and built form aspects of sustainability such as urban consolidation, energy efficiency through maximising passive solar design opportunities in lot design and orientation, and the protection and maintenance of natural resources. Generally the principles encompassed within Clause 56. Clause 56 also facilitates the use of assessment tools such as MUSIC and STORM through the provisions contained at Clause 56.07 Integrated Water Management. These tools are not specifically referenced in the policy, however the VPP Practice Note Using the Integrated Water Management Provisions of Clause 56 – Residential Subdivision (October 2006) encourages the use of these tools to assess the stormwater quality performance of development proposals.

Clause 52.34 - Bicycle parking sets out provisions for ensuring the inclusion and consideration of appropriate levels of bicycle parking for new land uses and development much like the car parking provisions contained at Clause 52.06 of the VPPs. This policy addresses all building types and requires the provision of facilities for building occupants and visitors. The success of this policy is that it considers particular uses separately. However there is no joint consideration between these provisions and car parking requirements versus public transport (i.e. integrated transport).

Decision Guidelines

Clause 65 of the planning scheme sets out the common decision guidelines for approval of an application plan or subdivision application. These are part of the standard provisions that form part of the VPPs. The general decision guidelines which are to be considered in addition to other relevant policies include such matters as orderly planning of the area, effect on amenity, native vegetation, land degradation potential and flood, erosion and fire hazards associated with the land. Whilst stormwater quality is referred to, consideration of other aspects of sustainability are not specifically mentioned. These could be amended to relate to sustainability. The benefit of addressing sustainability in Clause 65 is that it will apply to consideration of every planning application regardless of its zone or overlays.
3.4.3 Implications of the VPPs

As illustrated above, the majority of the Victorian Government’s strategic focus is placed upon creating sustainable urban form which is energy efficient and cost effective.

The VPPs provide the basis for considering integrated transport planning, sustainable design and built form, and guidance for the inclusion of environmentally sustainable long term goals and strategic plans. The ResCode provisions contained in Clause 54 and 55, and the Sustainable Neighbourhood Provisions of Clause 56 have in part addressed sustainable development for residential development where a planning permit is required. There is an omission in policy in relation to other types of non-residential buildings and subdivisions including for commercial, institutional or industrial purposes.

The policy framework does not provide any clear mechanisms for the use of ESD assessment tools such as STEPS and SDS in the assessment and development of either residential or non-residential buildings. The effect of this is that those reviewing or applying sustainability principles or assessment tools through the planning system (such as VCAT and Panels Victoria) often form the view that there is little or no strategic basis for applying such principles in planning scheme amendments, or in the consideration of planning permit applications.

Whilst the VPPs do provide for overarching goals for sustainability, they fail to provide a more detailed framework that is necessary to implement more quantifiable aspects of sustainability in relation to matters such as water conservation, energy conservation, sustainable building principles, and the use of assessment tools.

Within the existing framework of the VPPs there are opportunities for Councils to introduce sustainability assessment within the MSS where strategic principles and municipal vision can include these matters, whilst elaborating on more specific or technical matters via a local policy. There are few other opportunities to introduce sustainability assessment other than within the overlays.

It is also noted that there is often a conflict in the implementation of the sustainability principles that do exist in the VPPs with other social or economic objectives. The result is that sustainability is not quantifiable and consequentially can ‘lose out’ to other factors which may be perceived to be of greater priority.

In summary the key implications and gaps in the Victorian Planning Provisions are:

▪ The VPPS rely on decision makers to balance different policies, which in some circumstances compete and conflict.
▪ The introduction and goals of planning in Victoria does state conflicting objectives but are balanced in favour of ‘net community benefit and sustainable development’
▪ There is only limited policy direction in relation to residential development and residential subdivisions, and no specific policy direction for sustainable commercial and industrial developments.
▪ There are no specific mechanisms for considering assessment tools such as STEPS / SDS or other ‘green tools’.

Chapter 5 includes consideration of the legislative opportunities for how parts of the VPPs can be used to address sustainability assessment in the planning process.
3.5 Amendment of planning schemes

Changes to the VPPs and local planning schemes are required to have an application lodged with the Minister for Planning to authorisation. The process of amending a planning scheme generally follows a set procedure as follows:

- Request to amend the planning scheme is lodged with the planning authority (usually the local Council).
- Before an amendment can be prepared it must be authorised by the Minister for Planning, this is commonly referred to as *pre-authorisation* of an amendment.
- The amendment is prepared by the planning authority (usually the local Council) and sets out the specifics of the amendment and the strategic justification for the amendment.
- Public exhibition of the amendment is then usually held for one month.
- Submissions can be made to the Minister for Planning by stakeholders and interested parties.
- If submissions cannot be resolved by the planning authority then the Minister for Planning appoints an independent panel to consider the matter.
- The panel considers written and verbal submissions and prepares a report.
- The planning authority must either adopt or abandon the amendment based on the panel report. The planning authority can revise the amendment prior to adoption.
- The amendment is then submitted to the Minister for Planning for consideration and a decision. The Minister for Planning can make changes prior to finalising their decision.

The planning scheme amendment process provides the Minister for Planning with the ability to control whether an amendment is publicly exhibited and hence goes through the process above. As detailed in the DSE Advisory Note *Changes to the Planning Scheme Amendment Process (May 2005)* there are three potential outcomes from the request for authorisation:

- *The proposed amendment is inconsistent with State policy or interests and will not be authorised to proceed.*
- *The proposed amendment may have an impact on State policy or interests but is authorised to proceed.*
- *The proposed amendment is of local significance only and is authorised to proceed.*

The Minister also makes the final decision on the approval/refusal of an amendment. Anecdotally it is uncommon for an amendment request to go through the full process and then be refused by the Minister, particularly now that the pre-authorisation process is in place.

The implication of this process on local government taking ownership with their own local sustainability policies is that pre-authorisation of any amendment to their scheme will be required by the Minister for Planning. As such, it can be problematic to progress if the Minister refuses pre-authorisation or requires changes to policies.

The following section of the report reviews three planning scheme amendments addressing sustainability policy and outlines the relevant findings of the panel reports in two cases. The review of the Melbourne C60, Manningham C33 and Bayside C44 inform how other Councils are seeking to address the gaps in policy relating to practical implementation of sustainability assessment. The panel reports outline discussion and detailed consideration of the draft policies and provide key lessons on how the policy framework can be used most effectively and what are some of the issues or problems being faced in the pursuit of sustainability assessment policy. In the three case studies the LPPF is the planning scheme mechanism used for introducing policy which addresses sustainable office buildings in the Melbourne municipality, sustainability management plans in Doncaster Hill precinct and stormwater quality across the Bayside municipality. (Refer Chapters 3.5.1, 3.5.2 and 3.5.3 below.)
However, in addition to the three case studies outlined in this chapter, local government, including Moreland, Darebin and Port Phillip have experienced a number of challenges in regards to the submission of planning scheme amendments. Some of the more recent challenges faced by Councils include:

- Deletion of sustainability requirements from draft policies at pre-authorisation on the basis that policy provisions may only relate to those matters currently dealt with in the VPPs.
- Deletion of sustainable building design provisions from the draft MSS because it is inappropriate to include them whilst State Government is developing sustainability performance standards.
- The Minister for Planning approving amendments with changes without consulting the relevant Council regarding the nature of the changes, examples include:
  - modifying and deleting permit conditions which had been agreed between the proponent, submitters and Council Officers; and
  - deleting references to specific ESD matters including natural ventilation, cooling, air quality and renewable energy from adopted local policy and/or schedules to overlays.

The Minister for Planning / DSE officers have formally advised a number of Councils (since 2005) that they support local governments commitment to environmental sustainability objectives, however have recommended that certain objectives are removed from amendments whilst the State Government develops sustainability performance standards and an implementation tool (including an ‘impending trial of VicBEST’). The challenge faced by Councils is that over a number of years progressive local work using available mechanisms (e.g. amendments) is being stalled and watered down on the expectation that progress will be made on these matters by the State Government. The State Government has not yet issued their sustainability performance standards or an implementation tool for planning.

### 3.5.1 Melbourne City Council – Amendment C60

Melbourne City Council Amendment C60 sought to replace the MSS and introduce a range of local planning policies including Clause 22.19 (Environmentally Sustainable Office Buildings – gazetted) and Clause 22.20 (Bicycle Facilities – not gazetted). The MSS and LPP changes aimed to emphasise sustainable building design and clarify the strategic role of precincts (i.e. their contribution to Melbourne’s capital city function), urban change, heritage, land use and built form considerations and residential amenity. In particular the greater emphasis on sustainable building design was to establish Council’s expectations in terms of energy use and greenhouse issues, together with building design responses to them. The focus of this review is Clause 22.19 policy.

In relation to sustainability issues, key recommendations of the Panel in relation to the environmentally sustainable office buildings (exhibited as the Ecologically Sustainable Buildings policy) suggested that:

- The policy be altered to adopt the ABGR four star base building rating as a single standard for office development.
- The overshadowing policy statement be removed from the CBD and activity centres and other locations in which Design and Development Overlay (DDO) schedules anticipate a significant level of change from the current built form.

The Property Council of Australia (PCA) submission raised the concern that the application of a formal performance standard at the planning permit application stage, as opposed to the building permit stage, would require the early preparation of detailed design plans and associated costs. A ‘proof of concept’ process should be an acceptable
alternative at the planning stage to the preparation of detailed designs necessary for energy / ABGR rating purposes. (PPV, October 2003, p82).

Key questions addressed by the Panel in relation to sustainable buildings included the following:

Is ‘regulation’ appropriate and should this be in the planning system?

City of Melbourne (CoM) took the view that the ‘planning system was the most appropriate regulatory tool, because the adoption and effectiveness of particular building design strategies could often be conditioned by land use questions. Secondly and more pragmatically, the tool of planning regulation was most amenable to immediate change by the planning authority’ (PPV, October 2003, p84). The panel supported this view and recognised the need for a combination of reward and regulation to improve current building design practice.

The Panel further stated that ‘it is legitimate for local government to lead the field’, by developing policies that may become the established practice for the future. The Panel accepted that the planning system is, on balance, an appropriate location for such policies – particularly whilst it can be argued that the building system does not fully encompass the relevant requirements’ (PPV, October 2003, p 84). Furthermore the Panel acknowledged that ‘it is only really at the planning stage where discretion is exercised in relation to use as well as development where such consideration can take place’ (PPV, October 2003, p85). Finally, the planning authority needs to keep abreast of changes that impact upon the field of operation of the policy, and ensure they are swiftly responsive where duplication of or conflicting regulations emerge.

The appropriate performance standards to be met in a ‘sustainable building’

The Panel noted that there was general agreement that the established ‘First Rate’ scheme should be used for residential development (although it is noted that no residential provisions were included in the gazetted version of Clause 22.19).

Questions were raised by submitters as to the appropriateness of using rating tools reliant on detailed design during the planning process as opposed to during the design process. The implication being that applicants would need to provide more detailed drawings for planning assessment purposes, which would in the submitter’s view increase planning compliance costs and reduce the capacity for flexible design adaptations. The exhibited policy included requirements to use the Green Building Council’s Green Star Rating Tool (GSR) for new office buildings (or buildings being converted to offices) whilst Australian Building Greenhouse Rating System (ABGR) was to be used for existing office space which is to be re-furbished. Two issues emerged from this: firstly, the unnecessary use of two tools can lead to confusion and over-complication; and secondly the GSR was a new tool at the time which had not yet been fully developed. By using the GSR ‘…the planning authority makes its own policy hostage to the fortunes of the GSR review process’ (PPV, October 2003, p 87).

The means by which the achievement of standards can be assessed and enforced

In balancing the need for some form of environmental assessment at the stage at which detailed design takes place, the Panel considered the use of Section 173 Agreements as a means of deferring assessment until detailed design. Its view was that the ‘critical test would be the willingness of the developer to bind themselves (and successors in title) to the design and ongoing performance of a building to achieve the relevant rating’ (PPV, October 2003, p 87).

Once detailed design was underway steps could be taken to meet the obligations set out in a Section 173 Agreement with audits after construction. The Panel’s view was that this approach ‘would leave considerable flexibility in the hands of the developer, designer, owner and manager as to the means whereby the standard could be met’ (PPV, October 2003, p 87).
The key issue with this was the continued compliance when management of the building changes through sale / purchase of the property and leasing. The Panel was given advice that the S173 Agreement in conjunction with appropriate lease covenants would ensure that the owner / developer can transfer liability for the cost of maintenance of particular measures and practices to their tenants. No other options for enforcing the policy outcomes were addressed.

The capacity for ‘trade-off’ within the policy

The key question raised was whether it was appropriate to trade-off different aspects of environmental performance. Submitters suggested that ‘the greatest benefits would be obtained from a policy that prevented environmental performance trade-offs, or at least sought to obtain a measure of acceptable performance against the widest range of measures’ (PPV, October 2003, p 87). Thus, ‘to trade stormwater, grey water and recycling technology against a poor greenhouse / energy efficiency performance is to a large degree a spurious exercise and runs the risk of hiding the continuation of poor practice under a cloak of green respectability’ (PPV, October 2003, p 88).

The Panel made the point that the sustainable buildings policy was at the frontier and that a cultural shift needed to occur, and whilst such a shift occurs decision making should not limit the degree to which ‘credit’ can be given for any aspect of environmental performance which is better than typical current practice. Thus, a gentle approach was necessary in introducing the policy and the Panel took the view that to completely eliminate tradability may run the risk of exposing the policy to a higher level of conflict and challenge than is warranted when the policy is introduced. The Panel emphasised the need for ‘ramped implementation and review’. Thus, as rating and assessment tools advanced and the industry becomes familiar with the concept and applicability of the sustainable buildings policy, there should be regular review and monitoring. Hence, in the beginning some discretion and trade-offs may be appropriate, but over time the policy needs to adapt to ensure best environmental practice is undertaken.

The appropriateness of protecting or safeguarding active solar devices and passive solar design on adjacent buildings

The Panel considered the need for balanced decision making which recognised both the macro and micro environmental benefits of development, particularly in relation to safeguarding existing passive solar design and solar collecting devices. The Panel stated that ‘it needs to be made completely clear that the immediate benefits to be obtained from existing passive solar design and active solar devices used on a building that is significantly smaller than the optimum size envisaged in a precinct of substantial urban form change, cannot be used as a means of justifying a halt to change’ (PPV, October 2003, p 91). The exception being where it can be demonstrated that the net energy benefit of the existing development outweighs the proposed and currently there are no assessment tools available that enable easy and cost effective means of doing such an assessment.

The Panel’s recommendations in relation to sustainable buildings and provision of such a local policy were:

- A local policy entitled ‘Ecologically Sustainable Development’ should be approved.
- Except as provided to the contrary in this recommendation the form, language and expression of that policy should follow the ‘Lester Townsend draft’.
- The ABGR four star base building rating should be adopted in ‘Table 1: Sustainable Development Outcomes’ as the single performance standard to be met by all office development of at least 2,500 square metres gross floor area. References to ‘approximate’ performance should be deleted.
- It should not be necessary for an applicant to produce detailed design drawings for energy rating assessment at the time of planning permit application. To this extent, the policy should refer to the use of Section 173 agreements to tie future design and performance to the ABGR four star standards.
- The policy is a new and transitional tool. In its early stages, it is appropriate to maximise the degree to which it operates through encouragement, incentive and practice development. It is appropriate to retain a high degree
of tradability between environmental technologies that offer benefits over and above current typical practice, whilst not necessarily serving the same environmental objective. The precision of tradability mechanisms can be improved in subsequent incarnations of the policy.

- The proposed ‘overshadowing’ policy should be expressed not as applying to the CBD, activity centres and other locations in which DDO schedules anticipate a significant level of change from the current built form. This position may be reviewed once it is clear that energy-rating tools of sufficient power and sophistication exist to assess the effect of buildings in their precinct, infrastructure and transport contexts.

- The MSS monitoring framework should be changed to provide for the policy to monitored to obtain information about:
  - The environmental benefits obtained through policy compliance.
  - Compliance cost for proponents.
  - Compliance mechanisms including the role and content of Section 173 agreements, the means by which management obligations are translated to later occupiers of buildings, audit mechanisms to ensure ongoing compliance and any requirements for enforcement action.
  - The planning authority should also commit itself to monitoring the policy context and be prepared to take rapid action to review the policy to prevent duplication or reiteration of its subject matter with emerging State planning policies or provisions or building system requirements. (PPV, October 2003, p92-93).

- The ‘Bicycle Facilities’ policy should be approved as exhibited. (PPV, October 2003, p98)

There were notable changes in content between the draft Ecologically Sustainable Buildings policy exhibited and the approved Environmentally Sustainable Offices Buildings policy gazetted into the Melbourne Planning Scheme. These included:

- the policy was re-drafted after public exhibition to establish clearer performance targets, including reference to the ABGR and GSR assessment tools;
- no reference to Section 173 agreements in the policy (although it is noted that this did not exist in the original draft policy publicly exhibited);
- use of both ABGR and GSR (as proposed), however applied in different circumstances: ABGR for office building of 2,500-5,000sqm and GSR for offices of more than 5,000sqm (gross floor area), noting that larger buildings are required to meet a base building rating under ABGR as part of the Green Star assessment;
- objectives for waste management that include provision of areas for recyclable waste and for innovative use of technology, design and process in all developments;
- references to residential development deleted; and
- the policy only applies to office buildings.

The consideration of issues provided in the panel report has the following implications on sustainability assessment and planning:

- The planning framework should be used to ensure sustainable environmental outcomes are achieved in building design. It is the only point where discretion is exercised, and the use and development is considered together.
- Planning policy should not duplicate or contradict provisions in the Building Code.
- Incremental change in policy requirements is needed initially allowing some trade-offs of environmental outcomes, however this should be reviewed and limited after a period of monitoring and review of the policies success.
- A commitment needs to be made to revise local policies incorporating use of assessment tools as technologies and assessment tools advance.
- Enforcing compliance with assessment tool star ratings may require use of a Section 173 Agreement. However, other avenues were not explored by the Panel.
- Safeguarding existing passive solar design of buildings needs to be considered on both a macro and micro level. There are limitations with the existing assessment tools which prevent a comparison between net environmental benefits of an existing building and a proposed building to determine which has the greater net benefit.
- Assessment tools adopted in local planning policy should match the level of information and detail known and expected at planning application stage.
- The amendment was approved by the Minister for Planning in December 2005 after the introduction of Clause 52.34 Bicycle Facilities particular provisions.

The gazetted Melbourne Sustainable Office Buildings policy

The Sustainable Office Buildings local planning policy authorised by the Minister for Planning is contained at Clause 22.19 of the Melbourne Planning Scheme. The policy aims to cover a number of aspects of sustainable buildings. Its key objectives are to minimise greenhouse gas emissions, improving water efficiency, manage waste, encourage innovation and minimise the impact of new buildings on active solar devices or passive solar design.

The policy is ambiguous in relation to its applicability. It is inferred that the policy applies only to office buildings through its title and requirements of Table 1 of the policy (being the requirement for sustainable offices to meet ABGR requirements), however there are a subsequent number of policy requirements that build on the policy objectives and refer to ‘all development’.

The policy is flexible and provides discretion in decision making, however the sustainable office requirements at Table 1 of the policy are definite and would require a planning scheme amendment if they were to be varied. As noted in Chapter 3.4.2, local planning policies by their nature cannot be mandatory and only come into effect when a permit is triggered under other provisions such as the zone and/or overlays. The requirements of the policy are set out in the following table.

<table>
<thead>
<tr>
<th>Type of Development</th>
<th>Performance Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of an office building or change of use of a building to an office use, with a gross floor area of more than 5,000 square metres</td>
<td>A 4 star rating under the Green Building Council of Australia’s Green Star Rating Tool or equivalent. To achieve the Performance Outcome, the following criteria must be met:</td>
</tr>
<tr>
<td></td>
<td>1. A minimum 4.5 star base building rating under the Australian Buildings Greenhouse Rating Scheme.</td>
</tr>
<tr>
<td></td>
<td>2. A maximum water consumption of 30 litres / day / person using the Green Star Water Calculator</td>
</tr>
<tr>
<td>Development of an office building, or change of use of a building to an office use, with a gross floor area of 2,500 to 5,000 square metres</td>
<td>A 4.5 star base building rating under the Australian Buildings Greenhouse Rating Scheme using the ABGR rating calculator, administered by the Sustainable Energy Authority of Victoria</td>
</tr>
</tbody>
</table>

Implications of the policy and key lessons

The planning policy is applied to office buildings across the whole municipality. Whilst the policy is specific about the expected performance outcomes for office buildings, it only applies where a planning permit is required for use of land for an office, or development for the purposes of an office. There are zones where office uses are as-of-right, although usually approval is required for construction of buildings and works. It should be noted that a local planning policy should not seek to impose mandatory requirements, therefore performance outcomes are interpreted as discretionary.
The shortcoming of specifying particular rating tools is that the assessment tools themselves are not broad enough. The majority of office building applications should be able to achieve the above requirements. However there have been recent development proposals that have highlighted that strata office design is not easily assessed according to ABGR, because the tool’s methodology is based on office designs comprising open floor plates and centralised systems rather than individually controlled systems. This raises questions of the net environmental benefit of requiring non-conforming office buildings to meet ABGR requirements, where a different system may be necessary to achieve best environmental performance.

There are implications for using ‘best practice’ tools such as the Green Star Rating Tool in a regulatory framework. These include frequent updates and version changes in comparison to regulatory tools, the potential for pressure from regulatory stakeholders to hold the evolution of the tool below best practice standards and potential devaluation of the tools credibility if rating commitments are not implemented post planning approval. For example, the Green Star official accreditation process requires that documentation be reviewed by a panel of independent experts, if this process or similar quality control processes are not required to be followed, the desired outcomes of the requirement are not guaranteed.

By requiring the commitment to a best practice tool rating at town planning, there is also an implicit risk on the design team making the commitment with the information typically available at town planning. The positive aspect of this is that by requiring all applicants to address a best practice tool early in the development process, i.e. at planning application stage, a level of detailed design with input from a range of specialists and engineers is encouraged before getting the certainty of a planning permit. Thus, balance needs to be struck between getting the most gains in sustainability outcomes, achieving a consistent approach and ensuring the system is fair.

Use of best practice tools alone in planning policy does not address what the middle and lower end of the market should be doing. If the intent is that all development is to meet a best practice standard, the full requirements of a tool or scheme should be committed to and allowance made for the fact that tool and standards will change more rapidly than typical regulations.

There are few applications that have been completed under this policy and at this stage it is understood that no projects have been constructed. It is understood that the policy adopted by Council included a requirement for Section 173 agreement. However, the gazetted policy does not include this requirement. Therefore Council in the application of the policy can only consider the upfront design aspects rather than following through with requiring proof of accreditation and the like via a Section 173 Agreement.

There are costs and responsibilities associated with the use of Section 173 and to ensure the planning process remains streamlined. They are typically used where permit conditions or endorsed documentation associated with a permit cannot achieve the outcome sought. Amending a Section 173 agreement requires the approval of the Minister for Planning. The underlying matter attempting to be addressed by use of Section 173 is ensuring follow through on applicant’s commitments made in the sustainability assessment. There may be complications that can arise from imposing requirements for Section 173 agreements.

The deletion of reference to Section 173 agreements from the policy may weaken the effectiveness of the policy outcomes if permit applications/developers are not required to follow through with their commitments. However, there are greater implications by using Section 173 agreements to fill the gap in policy and legislative frameworks which include much greater burdens on Council resources. The policy still requires developments to demonstrate achievement of the ABGR requirements and that appropriate details of sustainability commitments as relevant to planning approval should be made on application drawings which are to be endorsed as part of a planning permit.

Further implications of the Melbourne Environmentally Sustainable Office Buildings policy that have emerged are that there is no ‘sunset clause’ in the policy that details its expiry date. In addition the policy does not specify which version of the ABGR and Green Star rating tools are to be used in the assessment (noting that these tools are updated and amended every 2 years or so). As the tools are revised periodically the meaning of the star rating under one version...
can mean different things under revised versions of the tool. It is noted that the policy will be subject to the periodic review requirements set out in the LPPF, in particular under Clause 21.09-4 of Melbourne Planning Scheme. However, Council’s typical cycle of review may need to be varied so that the policy is immediately responsive to changes in the rating tools referenced in the policy.

3.5.2 Manningham – Amendment C33

Manningham Council has a Sustainable Design Taskforce which adopts an integrated design team approach as part of its assessment process for dealing with applications in the Doncaster Hill Activity Centre (more on this is detailed in the Doncaster Hill Strategy). Council has committed substantial resources to implementing sustainability initiatives and has established a Sustainable Design Taskforce whose terms of reference include:

- To provide guidance to prospective developers and design teams about what can be done with a site in which they are interested.
- To advise on the consideration of development proposals through the statutory process.
- To advise on and ensure the implementation of ecologically sustainable building design and construction practices.
- To provide expert views on urban design, sustainability, accessibility and other related issues.

The taskforce members are appointed by Council and comprise Council representatives and external, independent advisors with expertise in architecture, urban design and ESD. It is an advisory body that makes recommendations to the Council and meets regularly to consider development proposals. The key objective is to ensure that ESD principles and best practice are embodied in the design from the beginning, to reduce changes or conditions of permit during the planning process (PPV, September 2003, p25).

Amendment C33 to the Manningham Planning Scheme sought to give effect to the Doncaster Hill Strategy through a range of statutory planning controls including a Development Contribution Plan Overlay, Public Acquisition Overlays, incorporating a Parking Precinct Plan, changes to the MSS and the introduction of Clause 22.13 Doncaster Hill Activity Centre Policy.

The Panel made comments on the appropriateness of local policies stating that:

Local planning policy should be used to provide guidance in exercising discretion under the other provisions of the planning scheme...it is not a substitute for the MSS but is an aid to decision making in order to implement the MSS. Thus local planning policy should not be used as a source of higher order policy direction.

The proposed new local planning policy at Clause 22.13 in Amendment C33 suffers from confusion regarding its purposes. It is a mix of higher order policy, which should be included in the MSS, specific guidance about the way in which individual precincts should be development and requirements for Sustainability Management Plans. (PPV, September 2003, p 54)

In terms of the content of the draft local policy the Panel determined that most of the policy, bar the ecologically sustainable design provisions, should form part of the MSS and that the local policy should focus on the requirements
for a Sustainability Management Plan and ESD. Thus, the policy was amended and is now gazetted within the scheme as the *Doncaster Hill Activity Centre Sustainability Management Plan Policy*.

All new development within the defined Doncaster Hill Activity Centre is required to prepare a Sustainability Management Plan. Some of the elements that need to be addressed include:

- Building energy management – energy efficiency, energy saving and alternative energy sources.
- Water sensitive urban design – integrated water management, conservation, wastewater reduction, stormwater runoff.
- Construction materials – minimal ecological or health impact, durability, recyclables, locally produced materials, use of pre-fabricated to reduce waste.
- Indoor environment quality – airflow, daylight, lighting, toxicity of materials, noise.
- Waste management – reduce landfill waste, maximise recycling and provision of space for waste
- Public realm design – access and mobility.
- Transport – after trip facilities.
- Demolition / construction – vegetation retention, hazardous waste, contaminated land, environmental awareness training.
- Compliance with documented sustainability performance standards from Government and other authorities.
- Application of current best practice principles, use of emerging technologies and a commitment to ‘beyond compliance’ throughout construction and building occupation.
- Responsibilities for implementation and monitoring.

The Panel report highlighted the distinction between sustainability principles that form the basis of broader planning versus sustainability principles relating to the design and construction of individual buildings. As such, through the activity centre strategy the broader sustainability principles are established, with a local policy ensuring that the sustainability principles are carried through into the individual development of land parcels.

The changes to the policy after exhibition and consideration by the Panel, largely related to consolidating the local policy, focussing on the sustainability requirements and incorporating more of the overarching activity centre objectives within the MSS. The Panel made important comments about the policy keeping pace with advances in research and practice and that success of the policy should be based on the following principles:

- *It should clearly communicate its purpose and the outcomes it seeks to achieve.*
- *It should contain sufficient rigour to stand up to challenge with respect to its technical and statutory basis.*
- *It should at a minimum ensure statutory obligations are met and support the implementation of standards established by government, research institutions and the like.*
- *It should deliver equitable solutions across different land uses and development sites while allowing for flexibility in site and building design.*
- *It should be capable of comparing ‘apples with oranges’ so that the value of different solutions, including innovative practices and technologies, can be evaluated for effectiveness in achieving broad ESD objectives and specific standards or performance targets.*
- *It should be capable of independent verification.*
- *It should be able to sustain the constructed or operational elements that justified the original approval of the proposal.*
- *It should identify responsibilities and the schedule for implementation of agreed outcomes.*
It should ensure that the agreed outcomes occur.

It should enable the Council to monitor the effectiveness of its planning framework over time. (PPV, 2003, p 91)

The above points raise the issue of ongoing compliance after a permit is issued, and ensuring that the commitments made at the planning approval stage are carried through the construction and operational phases of the development.

Key implications:

- The core of the Doncaster Hill sustainability policy seeks employment of current best practice, use of emerging technologies and ‘beyond compliance’.
- It is appropriate for the local policy to contain detailed requirements for a Sustainability Management Plan, however the strategic basis must be established in the MSS. Higher order sustainability objectives should be contained in the MSS with more detailed ‘implementation’ requirements best contained in a local policy.
- Successful planning policies on sustainability in part rely on development commitments to be followed through from planning to construction and operation phases. As such there are implications on responsible authorities checking that developments met anticipated targets.
- The need to ensure sustainability commitments are carried through from design to occupation of a building can be achieved via planning permit conditions, legal agreements or via supported planning and building legislative frameworks that ensure consistency, or the establishment of new legislation that specifically deals with the ongoing commitment to sustainability by building owners and occupiers.

3.5.3 Bayside Amendment C44

The Bayside Planning Scheme Amendment C44 seeks to introduce additions to the MSS to strengthen the strategic basis for introducing stormwater quality requirements for new developments through a new local planning policy titled ‘Water Sensitive Urban Design (Stormwater Management)’ (draft Clause 22.07). The amendment also seeks to incorporate the following three technical documents into the Bayside Planning Scheme:

- Australian Runoff Quality (draft 2003), Institution of Engineers, Australia, 2003

The policy would establish statutory requirements for new development where 100% overall and 65% minimum compliance with the MUSIC assessment tool (or equivalent) is required to determine compliance with overarching strategic objectives for WSUD. Applications that do not meet the minimum 65% on-site requirements would be refused.

This policy would set a high standard for water sustainability considerations in new development. The provisions provide flexibility in their wording. In particular it is policy that the responsible authority would:

- Assess applications for development using software accepted by the responsible authority.
- Accept third party assessment or certification of the development’s post construction phase performance for suspended solids, total phosphorus, total nitrogen and flows to the satisfaction of the responsible authority.
Assess the design and performance of water sensitive urban design elements using established industry technical guidelines, standards or design manuals relevant to Victoria.

Accept compliance with the best practice performance objectives (post construction phase) in lieu of compliance with the requirement contained in clause 54.03-4 or clause 55.03-4 (site coverage objectives).

Require the owner of the land to maintain on-site water sensitive urban design elements in certain circumstances.

Use a local law or planning permit conditions to ensure effective site management during the construction phase.

Coordinate the stormwater performance of development with the local and regional drainage system. (exhibited draft Clause 22.07 Water Sensitive Urban Design [Stormwater Management])

The policy would give Council greater powers in assessing applications and in imposing conditions on planning permits for the management of stormwater during construction, and gives more weight to considering stormwater runoff in practical and measurable terms.

In terms of the amendment’s status, it is awaiting consideration by the Minister for Planning. There was no Panel appointed to consider the amendment.

Implications

- No single assessment tool is specified rather it leaves it open to Council’s discretion in how it applies the policy. Thus if new and better assessment tools become available there is not a need to amend the planning scheme.
- The Bayside policies are different from other municipalities in that they are limited to consideration of water sensitive urban design principles and do not address ecologically sustainable building design, except in relation to developments needing to ‘design in’ stormwater reduction targets.
- The policy has not yet been considered by the Minister for Planning. Public exhibition of the amendment took place up until 22 April 2005. It was adopted by Council on 27 June 2005 and submitted to the former DSE (now DPCD) on 18 July 2005. Such delays in implementing policy can result in lost opportunities due to ongoing processing of planning applications whilst the amendment is being considered.

3.6 Commonwealth Games Village Advisory Committee Report

A Planning Advisory Committee was set up to inform the Minister for the Commonwealth Games on a range of matters relating to the proposed Games Village development in Parkville. The Commonwealth Games Planning Advisory Committee (CGPAC) considered the development proposal against a range of planning considerations which included a range of ESD elements. The report noted the following:

The Advisory Committee considers the high profile of the Games Village makes it an ideal development to showcase the Government’s TravelSmart program, to actively promote the health benefits, cost savings and environmental benefits of using public transport, and to demonstrate that changes in community attitude can be achieved.

Finally, there is the stated intention that the Games Village is to set new benchmarks for inner urban residential development in its environmental characteristics. The Government’s Environment Strategy is for the Commonwealth Games to be carbon neutral, low waste and water wise. The Village in Games mode is required to contribute to these objectives. (CGPAC, June 2003, p 4 {Overview})

It is noted that a key term of reference for the advisory committee which was set up to advise the Minister for the Commonwealth Games was consideration of the commitment to $15.6million towards environmental initiatives for the
project, including $5 million towards the City of Melbourne’s wetlands project. In particular the Committee was required to consider the appropriateness of environmental measures proposed and additional cost-effective environmental measures within budget parameters that might be appropriate to demonstrate the practical application of new environmental features in the inner urban context. It should be noted that environmental considerations were part of a much broader set of considerations which included siting and design, traffic and transport, water management, landscape, heritage, finance and construction.

The Committee acknowledged that there was indicative support for environmental initiatives in the proposal but ‘...in the absence of clearly defined environmental objectives and strategies the Committee finds it difficult to be definitive about their appropriateness’. (CGPAC, June 2003, p 160) Thus, the Committee set out the principles upon which they determined their advice:

▪ Statutory requirements applying or foreshadowed at the time of building approval should be complied with as a minimum.
▪ Assessment of initiatives should include consideration of life cycle impact where practicable.
▪ Assessment of initiatives should consider Government environment and ESD policies and priorities where appropriate.
▪ The potential for initiatives to influence attitudes in urban design and promote community awareness should be considered.
▪ Initiatives should be practicable, affordable and compatible with the overall objectives of the Games and ongoing development and operation of the Village. (CGPAC, June 2003, p 160)

Table 10 of the CGPAC report set out the design objectives and performance for environmental outcomes which addressed core sustainability elements including integrated transport, carbon neutrality, waste, water, air quality, embodied energy in construction, energy use and supply, and improved biodiversity. The design objectives represent an integrated consideration of sustainability for the Games Village.

There was little discussion of the principles behind using assessment tools, rather the CGPAC recognised that DSE was preparing its own assessment tool and that should be used to assess the proposed Games Village development. To date the State Government sustainability assessment tool has not been released (this is further addressed in Chapter 6.4.2).

However, the CGPAC recommended that houses achieve a six star energy efficiency rating whilst apartments should achieve a higher energy efficiency rating than the minimum prescribed at the time of construction. Thus, more than minimum compliance was sought for the Games Village.

The CGPAC recommended the use of a sustainability covenant applicable to the Village Park Consortium, Office of Commonwealth Games Coordination, Major Projects Victoria and Melbourne City Council which would take effect under Section 49AA of the Environment Protection Act 1970. They would provide a statutory mechanism by which a party may agree to deliver environmentally sustainable outcomes subject to specified conditions including conditions to be met by other parties to the Covenant (CGPAC, June 2003, p 169). Essentially the covenant would ensure delivery of the environmental commitments for the Games Village during the Games and in occupation beyond the Commonwealth Games which were held in April 2006.

The Covenant was to address the conditions governing delivery of sustainable development (including timing), identification of relative reduction in ecological impact relating to commitments, Key Reporting Indicators which provide a system for monitoring and review, auditing and reporting.

A sustainability covenant could be seen as overly complex and onerous in a typical planning application, but the Games Village provided the circumstances where it was necessary because of the number of organisations involved in
designing, constructing and managing the Games Village. This was further complicated by the two key phases of occupation during the Games as the athletes’ village and post-Games as a mix of public and private housing.

The CGPAC perceived that the covenant should be relatively straightforward ‘…due to the lack of specificity in the conditions required to be met, providing there is clarity about outcomes’ (CGPAC, June 2003, p 169).

To also address the post-Games occupation the Committee recommended that a Neighbourhood Environment Improvement Program (NEIP) be established to place more responsibility for future environmental outcomes with the local communities. In effect the NEIP would provide neighbourhood laws (which are to be consistent with other existing laws and regulations) which can set out environmental objectives, timelines and define constraints that apply to the neighbourhood covered by the NEIP. It is important to note that ‘…the relevant local Councils have a veto on NEIPs and the EPA must approve them and in doing so ensure that all relevant stakeholders in the neighbourhood have had opportunity to participate in its formulation.’ (CGPAC, June 2003, p 170). A schedule within the NEIP could detail the environmental measures to be maintained in the realisation of the Games Village Concept.

These mechanisms were to be supported by an Environmental Management Strategy which the Committee recommended be developed at an early stage and address the following:

- stormwater management system
- landscaping maintenance and management
- integrated water management system
- demolition
- construction
- various aspects of Games mode operations

This would be an ‘umbrella’ strategy under which supportive Environmental Management Plans would be generated for different aspects of the development.

**Implications**

Covenants and neighbourhood agreements between parties are an effective way of delivering on sustainability outcomes' however the performance targets and realm within which they operate needs to be clear. The Games Village is an unusual master planned development, however the lessons in relation to ensuring early co-ordination of ESD within the design process as well as ensuring delivery of commitments. Environmental Management Strategies and Plans are a necessity on large sites and/or complex developments.

The Games Village development and associated planning process demonstrated a high level of commitment to delivering an ESD project that was beyond minimum compliance, however the Committee highlighted the problems with not having clearly defined environmental objectives upon which an assessment could be made.

**3.7 VCAT decisions**

Applications brought to the Victorian Civil and Administrative Tribunal for review of a decision give VCAT the power to affirm, vary or set aside any decision being reviewed.

During a number of recent reviews at VCAT, tribunal members have issued decisions that have implications regarding the ability to impose sustainability conditions / requirements through the planning process. These decisions have in a way, addressed the quandary that exists between including sustainability requirements in the planning system versus the building system. A summary of 4 key decisions is outlined below.
3.7.1 Taras Nominees v Yarra City Council (19 December 2003)

This application for review considered the appropriateness of Council’s request for the applicant to provide further information, including a more detailed ESD report.

VCAT considered this to be unnecessary and concluded that environmentally sustainable design is to be dealt with under the building regulation system and not town planning. As in the case of Hasan v Moreland CC (see 3.7.3 below) the reason for this requirement was that all buildings are required to be assessed under the building regulation, therefore if environmentally sustainable design is to be incorporated fully throughout each and every building, it should be dealt with via building regulation.

3.7.2 Golden Ridge Investments v Whitehorse City Council (7 September 2004)

The proposal sought to develop a building comprising two towers of 14 storeys and eight storeys above a three level podium used for shops and a gymnasium.

The Tribunal acknowledged that Clause 15.12-2 of the state section of the planning scheme encouraged energy efficient building design and stated that ‘planning and responsible authorities should promote energy efficient building and design’.

The Tribunal advised in its report that environmentally sustainable principles should be incorporated. However the principal mechanism for incorporating ESD principles should not be via town planning but rather via building regulations, one of the reasons stated was as follows:

‘Environmentally sustainable design often turns to matters of detail, such as the thickness of insulation, the use of drapes and the type of glass windows. This is often unavailable when building design is submitted for planning approval and it would be unreasonable to require it to be available.’

However VCAT decided to place a number of conditions on the permit seeking the applicant to prepare an ESD plan which demonstrated that a 5 star house energy rating would be achieved when measured against First Rate or equivalent tool, including a minimum 4 star rating for each apartment, including energy use and management, methods to encourage separation of garbage from recyclables; methods to encourage water conservation and a method to monitor implementation of the plan.

It is noted that the proposed development was of a significant scale and that it was seen as acceptable that more stringent controls be applied, as the proposed development will contribute to a significant increase in the scale, intensity and population in the immediate area. Furthermore it is important to note that 5 star house energy rating was introduced into the Victorian Building Code in July 2003, two months prior to the decision being issued.

3.7.3 Hasan v Moreland City Council (15 August 2005)

The proposal was for the development of two dwellings on a lot. Council granted a permit for the proposed development subject to a number of conditions. Three of those conditions sought to incorporate sustainable design principles into the proposal.

The conditions required that the developer install a gas boosted solar hot water system, rainwater tank to collect stormwater, and for the proposed development to achieve a minium 5 star house energy rating measured against the Sustainability Energy Authority of Victoria ‘First Rate’ System.
The result of the VCAT decision was that these conditions be deleted as these matters are adequately addressed under building regulations. The decision also highlighted that when ResCode was introduced in 2001 there were specific requirements that sought to achieve a house energy rating of 4 stars. However that requirement was deleted in 1 July 2004, when a 5 star house energy rating was introduced into the Building Regulations.

It was noted that one of the advantages of implementing a 5 star energy rating into the building permit process, is that all dwellings will be assessed against the requirement, as all dwellings require a building permit. In addition, the Tribunal referred to the DSE Sustainability in the Built Environment discussion paper which stated that for the sake of consistency planning should not prescribe operational or detailed sustainability requirements as this is better dealt with via other regulatory bodies.

The Tribunal also commented that:

*As this case was in nature of a test case, we would expect responsible authorities to cease imposing like conditions on planning permits… if a future applicant was forced to incur costs to overturn such condition… the Tribunal may need to make an order that the responsible authority pay such costs.*

In conclusion the Tribunal raised a serious warning to Councils and called for a stop or an end to imposing ESD type conditions on planning permits in Victoria.

3.7.4 Jolin Nominees v Moreland City Council (8 February 2006)

The planning permit in this application for review sought to develop sixteen dwellings comprising a mix of one, two and three storey units.

The tribunal deleted a number of conditions placed on the planning permit which intended to assist in the development of energy efficient buildings. The conditions required the applicant submit an energy rating report measured against SEAV First Rate system and a gas boosted hot water system. The Tribunal amended but retained the condition requesting an ESD Management Plan be prepared prior to development.

The Tribunal highlighted two important cases / panel reports where ESD principles had been incorporated into the design process through the planning system and where the conditions were not just an add-on at the end of the process. The two case studies cited were Manningham C33 Panel Report (Doncaster Hill) and Commonwealth Games Village Planning Authority. These cases contributed to VCAT’s decision in this matter. Out of the four decisions reviewed above, this is the only decision that has formed the view that ESD should play a part in the planning permit stage of a development.

Environmental sustainability principles are an integral part of the planning scheme at all levels. Permit Conditions on this matter should be selective to the nature and scale of the development and should not be applied to all planning applications as a standard condition. Therefore, they should be included on a case by case basis and address matters of relevance to the particular application being approved.

This decision is slightly different to those above as it acknowledges that ESD principles can and should be incorporated within the planning assessment of the proposal. The reason for this is that environmental sustainable design is encouraged throughout the planning scheme at various levels of the policy.

Importantly this is the most recent decision of VCAT of the decisions reviewed. As such it can be taken to indicate the changing attitude of VCAT in relation to the consideration of ESD matters at the planning permit application stage.
3.7.5 VCAT decisions implications

▪ The Tribunal in the past has generally found that the ESD principles are more appropriately dealt with in building permit approvals process.

▪ VCAT has commented that the assessment of ESD requirements is best handled in the building stage of the development as it usually requires assessment of more technical aspects of the proposal which are not available at the planning stage and all buildings require a building permit.

▪ VCAT (which is a planning authority with the power to make planning decisions) has given Councils a warning to stop imposing ESD type conditions on planning permits in Victoria and warned that they could be awarded costs to pay the applicant if they need to remove these conditions.

▪ The most recent VCAT decision review has adopted a slightly different view to previous decisions. In the Jolin Nominees case, the Tribunal has suggested that ESD principles should not be an ‘add-on’ feature at the end of the process, but should have a place in the planning assessment of the proposal at the fore front, as environmentally sustainable principles have been recognised at all levels of planning schemes. However, it is noted that ESD assessment should not apply to all developments, rather they should be encouraged in larger scale developments because of the net gains that can be achieved. Unless there is a standard definition of ‘larger scale developments’ this could cause some confusion, as planners need to consider the nature of the proposal and then decide whether or not it should or should not be assessed under the ESD guidelines. Therefore, greater emphasis needs to be placed on setting up a clear planning policy framework about ESD assessment which needs to be supported by practice notes to achieve practical implementation.

▪ It is apparent throughout the decisions that attitudes have changed over time and there is a greater acceptance of incorporating ESD assessment as a means of address the broad principles within the planning stage of the approvals process. It is necessary to obtain clear advice from VCAT/DPCD about what types of conditions are acceptable because the series of decisions are ambiguous.

3.8 Findings

3.8.1 Federal planning

There is no set policy at the federal level on sustainability requirements for built form development during planning, nor is there a national planning strategy for the development of cities. There are discussion papers on the matter of Sustainable Cities but no national framework is available.

3.8.2 State planning

▪ There are many strategies and principles for sustainable built environment outcomes at the state level, however many are broad statements and their implementation in planning decision making is unclear.

▪ The State Government has undertaken initiatives such as 5 star home ratings (in the building regulations), however there have been no specific initiatives in the planning framework other than an ongoing commitment to Melbourne 2030, which is an overarching strategy that does not address the specifics of sustainable built outcomes.

▪ Victoria’s Strategy, Our Environment, Our Future is a new framework which is continually being expanded with further detail to support the strategic objectives.

▪ Energy standards have been introduced in the building regulations for residential and commercial buildings, with additional minimum standards to be set in the future for healthcare, government and education buildings. Planning policy needs to keep abreast of these changes and the evolution of design tools for more building types.

▪ The State Government’s use of energy rating tools is primarily being implemented through the Building Code.
Our Environment, Our Future acknowledges the role of both planning and building frameworks, the distinction being that in building it is ‘performance standards’ whilst in planning it is ‘design elements’.

The planning system does not explicitly support the use of rating or assessment tools and they are not mentioned in state level strategies, other than where they are applied in the building framework (eg: First Rate).

The State Government’s intentions for supporting and furthering sustainability initiatives is clear and the Sustainability Framework forms a good basis for further more detailed work in both the planning and building industries to take the ‘words’ and put them into practice.

At present there is no methodology or framework for undertaking sustainability assessment in day to day decision making. Such a framework needs to complement the building legislation and can form planning of the VPPs with appropriate policy set out in the SPPF, zones/overlays and particular provisions.

3.8.3 Municipal planning scheme

Analysis of the VPPs structure highlighted the following aspects of planning schemes:

- The VPPs rely on decision makers to balance different policies, which in some circumstances compete.
- There is some attention to sustainability in residential development (where a permit is triggered) and residential subdivisions, but no policy direction in relation to commercial and industrial development (other than Cl.19.03 Design and Built Form).
- There are no specific mechanisms for considering STEPS / SDS or any further ‘green assessment tools’ within any part of the planning scheme.
- There is no reference to the use of sustainability assessment tools in the planning scheme framework other than within practice notes for Clause 56 assessments which reference use of STORM/MUSIC stormwater assessment tools.

The key findings and implications arising from recent planning scheme amendments that addressed sustainability issues, undertaken by Melbourne, Bayside and Manningham council’s, include:

- The City of Melbourne (CoM) Sustainable Office Buildings Local Policy (Clause 22.19 of the Melbourne Planning Scheme) is applicable across the municipality to office buildings. The policy provides flexibility for developments of small and large scale to require compliance with different rating tools (ABGR and GSR) which seek to reduce the more onerous requirements of the Green tool affecting smaller scale developments.
- The CoM policy is specific about the expected performance outcomes for office buildings, however it only applies where a permit is required for use of land for an office or for the construction of buildings and works, which triggers consideration of the local policy.
- CoM does not require planning permit holders to return to Council after construction to verify that the development accords with the rating specified in the planning application. Proposed requirements for Section 173 Agreements were removed from the local policy by the Minister for Planning prior to Clause 22.19 being incorporated into the Melbourne Planning Scheme.
- The limitations of local policies are that they cannot contain mandatory requirements, therefore performance outcomes are discretionary.
- This investigation report acknowledges that there are limitations in applying ABGR in the assessment of strata offices, however this was not addressed by the Panel that considered Amendment C33.
- The Doncaster Hill sustainability policy seeks to employ current best practice, use of emerging technologies and ‘beyond compliance’.
The Panel determined that it is appropriate for a local policy to contain detailed requirements for a Sustainability Management Plan, however the strategic basis must be established in the MSS. Higher order sustainability objectives should be contained in the MSS with more detailed ‘implementation’ requirements contained in the local policy.

Successful planning policies on sustainability in part rely on development commitments to be followed through from planning to construction and operation. As such there are implications on responsible authorities checking that developments met the anticipated targets.

The Bayside Council Water Sensitive Urban Design Policy (draft Clause 22.07) does not specify a single assessment tool. Rather it leaves it open to Council’s discretion as to how it applies the policy. Thus if new and better assessment tools become available, there is no need to seek planning scheme amendment to update the policy, which can be a lengthy process.

The policy gives Bayside Council the power to ask applicants to address stormwater issues in a meaningful way as well as adapt easily to changing expectations and industry standards.

The new Bayside policies on stormwater are limited to consideration of water resources and do not address other aspects of ecologically sustainable building design.

The new Bayside local policy and associated changes to the MSS are awaiting a decision by the Minister for Planning.

### 3.8.4 VCAT decisions

In the past the Tribunal generally prefers that specific ESD requirements (e.g. rainwater tanks, energy ratings, etc) are dealt with in building permit approvals.

The view has been expressed that the assessment of ESD requirements is best handled at the building stage of the development, as it usually requires an assessment of more technical aspects of a proposal, the details of which are not normally available at the planning stage. Also all buildings require a building permit.

VCAT has given Councils a warning to stop imposing ESD type conditions on planning permits in Victoria and could be awarded costs to the applicant if they need to remove such conditions.

Despite the result of previous decisions, the Jolin Nominees decision suggests that ESD principles should not be an add-on feature at the end of the process, but should have a place in the planning assessment of a proposal, as environmentally sustainable principles are recognised at all levels of planning schemes. However, it is noted that ESD plans should not apply to all developments. They should be encouraged in large scale developments, rather than in two dwelling developments. This could cause some confusion, as planners need to consider the nature of the proposal and then decide if it should or should not be assessed under ESD guidelines. Council’s need to establish these thresholds.

It is apparent throughout the decisions that the pattern in attitudes have changed and that there is, now a greater acceptance of incorporating ESD principles in the planning stage of the approval process.

In the context of all of the planning findings above, the key points and issues raised are:

- It is appropriate at the state level to set overarching objectives, principles and strategies.
- Local government has a very important role to play in ‘leading the way’. However, a consistent approach across municipalities, particularly in relation to sustainability requirements, should be achieved to provide equity in the planning system and be in line with the spirit of the Victorian Planning Provisions.
- Planning needs to find suitable assessment tools that are relevant to the level of information usually available and expected at the preliminary design/planning phase of a project.
- The legislation currently provides a general ESD and sustainability policy basis.
- The legislative framework does not actively encourage the use of assessment tools as a means of assisting in achieving sustainability objectives.
- The VPPs lack a consolidated statement on sustainability outcomes, however it is a common theme throughout many policies and provisions.
- The majority of development and construction does not require a planning permit. Therefore planning cannot alone impose sustainability principles / requirements on the vast array of smaller development projects within the built environment that do not need a planning permit.
- Within planning, sustainability is often seen as a technical field of expertise that is better placed in the building system. However there are important macro and micro level considerations within planning that ultimately affect sustainability outcomes in new development. Sustainability is also often reduced to energy efficiency, despite the fact that it encompasses a range of elements that are both strategic and technical.
- Any planning scheme amendment initiated by local government has to be authorised by the Minister for Planning before it can be prepared and publicly exhibited. So unless the Minister (and DPCD) supports the approach being taken by Council(s) to introducing sustainability measures, an amendment will not proceed or it may be varied through the planning amendment process.
- The planning scheme amendment process is lengthy and it takes considerable time and resources for Council’s to get an amendment approved and in place.
- There is no currently no clear direction by the Minister for Planning/DPCD about how Council’s should or can address sustainability assessment which creates challenges for Council’s because all local policy is required to be consistent with the SPPF.
- In the absence of clear state policies supporting sustainable building initiatives in the VPPs, Council’s run the risk of expending considerable time and resources in preparing amendments, that may not be supported and put on exhibition by the Minister / DPCD.
4 Building Legislation: The Current 'State Of Play'

As per the previous section, the aims of reviewing current building legislation in relation to sustainability assessments include:

▪ identifying gaps in current legislation and opportunities for sustainability policy implementation, and
▪ identifying potential obstacles to implementing legislation for sustainability requirements, and opportunities for local government to overcome these obstacles.

This chapter addresses the different spheres of government and their policies that result in sustainable building practices, including the legislation and regulation from which they are based in Victoria.

4.1 Federal Building Legislation and Building Strategies

There are at least four existing national policies in place in Australia. These include:

▪ Building Code of Australia
▪ Plumbing Code of Australia
▪ Energy Labelling and Minimum Energy Performance Standards (MEPS) Scheme
▪ Water Efficiency Labeling and Standards (WELS) Scheme

Both the Building Code of Australia (BCA) and the Plumbing Code of Australia (PCA) have been developed in partnership with the Australian Government and industry bodies: the Australian Building Codes Board and the National Plumbing Regulators Forum (http://www.lgp.qld.gov.au/?id=26), respectively. Both Codes provide a consistent podium for resolving environmental issues relating to energy and water in the building sector across the Country.

4.1.1 Building Code of Australia

The BCA is developed and maintained by the Australian Building Codes Board on behalf of the Australian, State and Territory Governments. The BCA is brought into operation by enabling building regulatory legislation in each State and Territory. This legislation prescribes the BCA to:

‘Fulfil any technical requirements which have to be satisfied in order to gain approval of a building proposal. Each State's and Territory's building regulatory legislation consists of an Act of Parliament and subordinate legislation which empowers the regulation of certain aspects of the building process, and contains the administrative provisions necessary to give effect to the legislation’. (http://www.abcb.gov.au/index.cfm?fuseaction=DocumentView&DocumentID=86).

The Code was first amended in 2003 to include energy efficiency measures for some buildings and has since been amended in 2005 and 2006 to apply to all building classifications - that is, BCA Classes 1 to 10.

The BCA contains technical provisions for the design and construction of buildings and other structures covering such matters as structure, fire resistance, ingress and egress, services and equipment, and certain aspects of health and amenity. The Code applies to all phases of a building project including design, construction and post occupancy.

The BCA 2006 housing (Class 1 and 10) energy efficiency provisions include Deemed-to-Satisfy Provisions and Verification Methods covering the following:
The ability of the roof, walls and floor to resist heat transfer
- The resistance to heat flow and solar radiation of glazing
- The sealing of the house
- The provision of air movement for free cooling, in terms of openings and breeze paths
- The insulation and sealing of air-conditioning ductwork and hot water piping

The Verification Methods allow compliance of the building’s energy efficiency to be determined using a thermal calculation method such as energy rating software like NatHERS and FirstRate. Where compliance is to be demonstrated by the energy rating of the building, the enhanced provisions require a minimum of 5 stars. The Deemed-to-Satisfy Provisions vary depending upon the climate zone in which the building is to be located.

The BCA 2006 (Section J) commercial building energy efficiency provisions for all buildings (Classes 2 to 9) include:

- The ability of the roof, walls and floor to resist heat transfer
- The resistance to heat flow and solar radiation of glazing
- Sealing of the building
- The provision of air movement for free cooling, in terms of openings and breeze paths
- The efficiency and energy saving features of:
  - heating, ventilation and air-conditioning systems
  - hot water supply
- Power allowances for lighting and electric power saving features
- Access to certain energy efficiency equipment for maintenance purposes

The Code is very specific and prevents worst practice. However it is a little too specific in that it does not encourage best practice.

The BCA Section J applies to all building classes - residential (in its various state forms) and commercial. However it addresses one environmental discipline only: energy. The BCA is continually being developed, improved and amended as community expectations change and new technology and research results are made available. The BCA is amended each 12 months and has a date of operation of 1 May each year. It is made available 6 months prior to the date of operation, i.e. 1 November of the previous year.

The policy leads to results on the ground by putting pressure on those involved in the industry to become more skilled in designing energy efficient buildings. It will lead to a significant decrease in greenhouse gas emissions with more buildings having to comply with the code. For practitioners applying the new regulations, practice notes and support tools, such as the glazing calculator, have been invaluable in establishing an industry understanding of the regulations.

www.abcb.gov.au


The Plumbing Code of Australia (2004) (PCA) aims to achieve an acceptable standard of installation in order to provide for public health, safety and amenity, resource and environment conservation, sustainability, and the protection of public and private infrastructure. The requirements of the Code are designed to ensure that
any plumbing and drainage installation is fit for its intended purpose, and do not have an adverse impact on the
environment, and can continue to function as intended without excessive maintenance

The PCA is intended to be adopted by all States and Territories, and in Victoria has been adopted by the Building
Commission and included in the 5 Star Residential Standard Policy (refer to Chapter 7.2.1).

4.1.3 Energy Labelling and MEPS Scheme

The Energy Labelling and Minimum Energy Performance Standards (MEPS) Scheme is an Australian Government
initiative that is regulated by each State and Territory. There are a large number of products that are now regulated for
energy efficiency in Australia. The technical and regulatory requirements are specified in Australian Standards, while
state regulations make the standards mandatory and specify offences and penalties for non-compliance. Australian
Standards therefore provide a one-stop shop for industry and regulators, addressing not only testing and performance
requirements, but also energy labeling and minimum energy performance requirements.

There are currently Australian Standards for regulating the energy labelling for the following types of products:

- AS/NZS 4474: refrigerators and freezers
- AS/NZS 2040: clothes washers
- AS/NZS 2442: clothes dryers
- AS/NZS 2007: dishwashers
- AS/NZS 3823: room air conditioners (single phase)
- AS/NZS 3823: packaged air conditioners (three phase)
- AS 1056: electric water heaters
- AS/NZS 1359: three phase electric motors
- AS/NZS 4783: fluorescent lamp ballasts
- AS/NZS 4782: fluorescent lamps
- AS 2374 & AS 2735: distribution transformers
- AS 1731: commercial refrigeration

In Victoria the regulations for energy labeling and Minimum Energy Performance Standards (MEPS) are included in
the Electricity Safety (Equipment Efficiency) Regulations 1999, regulation No.48/1999 under the Electricity Safety Act
Minimum Energy Performance Standards.

According to the Commonwealth of Australia’s energy rating website (www.energyrating.gov.au), it is currently
mandatory for all of the following electrical products offered for sale in Australia to carry out an approved energy label:

- refrigerators and freezers
- clothes washers
- clothes dryers
- dishwashers
- air conditioners (single phase)
Under MEPS the following products have regulated minimum energy efficiency levels:

- refrigerators and freezers
- mains pressure electric storage water heaters
- small mains pressure electric storage water heaters (<80L) and low pressure and heat exchanger types three phase electric motors
- single phase air conditioners
- three phase air conditioners up to 65kW cooling capacity
- ballasts for linear fluorescent lamps
- linear fluorescent lamps - from 550mm to 1500mm inclusive with a nominal lamp power >16W
- distribution transformers - 11kV and 22kV with a rating from 10kA to 2.5MVA
- commercial refrigeration (self contained and remote systems)

Only the states of NSW, South Australia, Victoria and Queensland are accepting applications for an approved energy label. This may result in limitations to the number of appliances labelled across the country. These particular regulations only apply to energy labelling and no other environmental aim (e.g. water, IEQ, waste). There is a similar regulation for water efficiency labelling of appliances called The Water Efficiency and Standards (WELS) Scheme (see 7.1.4 below).

The regulatory program is constantly being reviewed and upgraded and from time to time there are revised or new MEPS levels for products and occasionally revised energy label requirements. (http://www.energyrating.gov.au/updates.html)

Not all electrical products have an energy label, with the following items proposed for regulation in the future:

- external power supplies
- set top boxes
- televisions
- home entertainment products: (audio and video equipment)
- boiling and chilled water dispensers
- vending machines
- commercial icemakers
- a range of lamp types

Minimum efficiency requirements ensure manufacturers provide consumers with a range of appliances that are energy efficient, thus assisting in reducing greenhouse gas emissions.

### 4.1.4 Water Efficiency and Standards (WELS) Scheme

The Australian Government's Water Efficiency Labeling and Standards Act 2005 provides the legal framework for the WELS Scheme.

The WELS website (http://www.waterrating.gov.au/about/index.html#legislation) summarises the Australian Government’s WELS legislation to cover:
The establishment of the WELS Regulator to administer the Scheme.

Authority for the Australian Minister for the Environment and Heritage to specify the products to be covered by the WELS Scheme, the standards they must meet and other requirements.

Requirements for the registration and labelling of WELS products, including setting the fee to register a product

Monitoring and enforcement measures, including the appointment of WELS inspectors.

Procedures for issuing and paying penalty infringement notices as an alternative to prosecution for offences.

So that there is national coverage for WELS, all States and Territories have enacted or agreed to enact complementary legislation (WA and NT are yet to enact theirs). In Victoria, the enacted legislation is the Water Efficiency Labelling and Standards Act 2005.

The standard that sets out the criteria for rating the water efficiency and/or performance of each WELS product type is the Australian and New Zealand Standard AS/NZS6400:2005 Water-efficient Products—Rating and Labeling. This standard is the basis for the star ratings and water consumption and flow displayed on the WELS label. Not unlike the Energy Labelling and MEPS Scheme, this standard can be reviewed as necessary from time to time. It is the Commonwealth Department of Environment and Heritage’s responsibility to monitor and enforce the Scheme.

Under WELS the following products have regulated minimum water efficiency:

- showers
- tap equipment
- flow controllers (optional)
- toilet (lavatory) equipment
- urinal equipment
- clothes washing machines
- dishwashers

Unfortunately, the Scheme does not apply to second-hand products or products imported into Australia for personal use. Once Western Australia and the Northern Territory have enacted their complementary legislation, the WELS Scheme will be a very powerful regulation, particularly once the DEH commences monitoring and activation of their enforcement powers.

The WELS Scheme is predicted to reduce water consumption by 87,200 mega litres each year, with 25% of water savings from showers and 22% from toilets. A reduction in water and energy costs will ensure users’ continued maintenance.

www.waterrating.gov.au

4.2 State Policies

The current Victorian State Government has several policies for water and energy efficiency for new homes and stormwater management practices on development sites. The Victorian State Government also has policies for its own operations and activities with the publication of the Victorian Government Office Accommodation Guidelines.
4.2.1 5 Star Home Energy Standard

The State Government has a policy commitment to the 5 Star Standards, which is supported by the specific sustainability requirements of the Building Code of Australia and the Plumbing Code of Australia. The Building Commission is working with Sustainability Victoria and the Plumbing Industry Commission to implement the Standard. The plumbing requirements under the 5 Star Standards are outlined in the *Plumbing Regulations 1998*.

Victoria’s 5 Star Standards for new homes came into full effect on 1st July 2005, as a key feature of the Bracks’ Government’s environmental policy. All new houses in Victoria must include a greater range of energy efficiency and water saving features, improving occupant comfort and reducing the cost of energy bills.

In order to be issued with a building permit for new homes, the compulsory 5 Star Standard must be met. This means that all new homes must have:

- 5 Star energy rating for the building fabric, plus
- A rain water tank for toilet flushing, or
- A solar hot water system

The plumbing requirements under the 5 Star Standards specifically require compliance with the following conditions, as outlined in the *Plumbing Regulations 1998*:

- Shower head, basin, kitchen sink and laundry trough tap flow rates cannot be more than 9 l/min or less than 7.5 l/min.
- Maximum outlet pressures within a building where there is a reticulated water supply installed must not exceed 500 kPa static pressure.
- Either a rainwater tank for toilet flushing or an approved solar hot water service.
- The rainwater tank must have a minimum capacity of 2,000 litres and a minimum roof catchment area of 50m². It must be connected to the sanitary flushing system.
- Solar hot water systems must achieve a minimum energy performance of 60% solar gain after 1 July 2005. Where reticulated gas is available, then any solar hot water system incorporating a booster must use reticulated gas as the energy source for boosting. Flow and return pipes for solar water heaters must be insulated to achieve a minimum ‘R’ value of 0.3.

The Standard applies to BCA Class 1, 2 and 4 buildings, whereby apartment buildings need to achieve an average 5 Star average for the whole building and no less than 3 stars for individual apartments. After May 2008, the standard will also apply to renovations.

5 Star houses must be formally certified by a House Energy Rater, who is accredited by Sustainability Victoria. There are two software products used for rating a house: First Rate and AccuRate (refer Chapter 3.2.1).

The ESD target area of the 5 Star Standard as applied in Victoria is limited to water use, heating and cooling energy loads (not appliances) and hot water energy use. The policy goes someway toward addressing reducing greenhouse gas emissions and saving water. It is also said to be having knock-on benefits in the building industry as designers and builders are developing skills and knowledge in environmentally sustainable building and design of houses that can be marketed nationally and internationally (http://www.buildingcommission.com.au/resources/documents/5_Star_Booklet_final_LR.pdf).

The 5 Star Standard is related to the BCA and the PCA, both of which are reviewed regularly. The 5 Star Standard has the potential to be strengthened and require more stringent energy and water saving requirements over time.
5-Star Standard was predicted to benefit the environment in that they have half the heating and cooling loads of current houses, and are 5 degrees warmer in winter and 10 degrees cooler in summer. It was also predicted that houses would use 25% less water and cut annual household energy and water bills by $200 and $50, respectively.

According to the Building Commission (2005), in over five years 5-Star was predicted to save Victoria up to $40 million per annum in energy costs and up to 600,000 tonnes of greenhouse gases. In 20 years time the benefits are expected to extend to increased economic growth in Victoria up to $720 million and 1,800 jobs in the sustainable product manufacturing sector.

A recent study commissioned by the State Government reviews the current 5 Star standard and makes recommendations to improve the approach and reduce greenhouse gas emissions further (George Wilkenfeld and Associates, 2007). Increased floor areas and lighting loads, which are not addressed by the standard, have led to the emissions of new dwellings being 6% higher than existing dwellings despite the introduction of the 5 star standard. A new approach is recommended which incorporates a 5 star house energy rating with appliance choices to meet a greenhouse benchmark (decoupled from a water benchmark), which will allow the users greater flexibility and provide more certainty in the predicted emissions.

This study and others are currently being reviewed by the Victorian Government in order to formulate a policy approach to ‘second generation 5 star’. The revised standard aims to be more flexible for users and address concerns about the existing policy. The policy investigation is focusing on improving energy, water and stormwater outcomes in residential buildings, and may include the use of performance based tools. The intent is for the proposed legislation to be submitted to the Building Codes Board for review in September 2008, where, if accepted, it will be included in the Building Code from May 2009. (Refer to Chapter 6.7 for more details)


4.2.2 Melbourne Water Stormwater Quality Offsets - Victorian Government

The Victorian Government has recently introduced new requirements for stormwater quality management to protect the environment from the impacts of urban development. These requirements are contained in ‘Urban Stormwater: Best Practice Environmental Management Guidelines’ prepared by the Victorian Stormwater Committee (1999). The Guidelines are now a reference document in the State Planning Policy Framework and applied state-wide at the subdivision level through Clause 56.

The Melbourne Water Board has approved the introduction of a Stormwater Quality Offsets Strategy to consistently and equitably apply water quality standards to all urban development (residential, commercial and industrial) inside and outside drainage schemes. It provides a mechanism for developers who cannot meet Stormwater quality standards for their development to pay an offset to Melbourne Water, who will provide water quality treatment elsewhere in the catchment.

The strategy is based on the following principles:

- The Stormwater quality charges comprise a Scheme Stormwater Quality Charge and a General Stormwater Quality Charge and reflect the nitrogen discharged by the scheme relative to the minimum standard.
- The Scheme Stormwater Quality Charge is scheme-specific and recovers the cost of the scheme related Stormwater quality initiatives.
The General Stormwater Quality Charge is equal to the average cost for nitrogen removal as identified by Melbourne Water's regional Stormwater quality improvement program.

Both charges are applied to the mass of nitrogen discharged, relative to the required minimum standard.

Where a development does not meet the minimum standard, Stormwater quality charges will apply.

Where on-site Stormwater treatment is undertaken the developer will receive an offset of up to the full amount of their Stormwater Quality Charges.

Charges for redevelopment schemes and non-scheme area developments will be based on on-site works and the general Stormwater Quality Charge.

In some drainage schemes, where adequate water quality measures have not previously been planned for the scheme, rates will be increased. Rate increases have been capped at 25% or $4000/ha. Outside of greenfield drainage schemes a general area water quality rate will apply. This general area water quality rate will replace corridor charges.

Best practice stormwater quality management objectives are to retain:

- 80% of the suspended solid annual load
- 45% of total phosphorus annual load
- 45% of total nitrogen annual loads

The offset currency used by Melbourne Water is nitrogen and the rate, which is to be reviewed every two years, is currently set is $800/kg. Nitrogen is used because it is typically the limiting pollutant and hence if objectives for nitrogen are met then objectives for phosphorus and suspended solids will usually be met also.

Industrial sites greater than 5 hectares are required to fully achieve best practice objectives within the development, with offsets only available to developments of less than 5 hectares. Subdivisions less than 0.4 hectares are encouraged to treat stormwater but are not required to, and therefore no contributions are required.

A new provision of the Urban Stormwater Best Practice Environmental Management Guidelines: Sustainable Neighbourhoods Provision (Clause 56 of planning schemes), came into effect in October 2006. These provisions apply to applications to subdivide land in a Residential 1 Zone, Residential 2 Zone, Residential 3 Zone, Mixed Use Zone, Township Zone and any Comprehensive Development Zone or Priority Development Zone that provides for residential development. The provisions require residential subdivisions to meet best practice water quality objectives within the development. Offsets are available for developments less than 1 hectare.

The performance based policy is both predictive and based on actual performance post construction. The Urban Stormwater Best Practice Environmental Management Guidelines give advice on stormwater treatment options and the offsets are based on site performance.

The strategy will ensure best practice stormwater treatment is provided to protect Victorian waterways from pollutant loads associated with urban growth. It also aims towards sustainable stormwater management practices and duly rewards developers who provide on-site water quality treatment.

4.2.3 Victorian Government - Office Accommodation Guidelines 2005

The Victorian Government Office Accommodation Guidelines are for use by Victoria Public Service (VPS) Departments, particularly staff and external consultants and contractors who are responsible for the planning, fit-out and management of office accommodation. The Guidelines are designed to help project teams achieve environmentally, socially and economically sustainable workplaces.

The 2005 policy requires the following:

- Base buildings – existing offices: ABGR 4.0 stars
- Base buildings – new offices: ABGR 4.5 stars & Green Star – Office Design 4.0
- Tenancies – new and existing: ABGR 5 stars & Green Star – Office Interiors 4 stars (new only)
- Departments / Agencies to purchase at least 10% green power

It applies to all office accommodation occupied by Victorian Government budget sector agencies, whether managed by the agency or by the Victorian Government Property Group (VGPG). The guidelines do not directly apply to hospitals, schools, police stations or other operational buildings, but are applicable to administration areas within these buildings.

The guidelines are relevant from design and construction of buildings right through to the ongoing occupancy phases. As per the ESD areas covered by ABGR and Green Star Office Design and Office Interiors, the guidelines relate to indoor environment quality, water, materials, emissions and waste, land use and ecology, and excellence and innovation. It is both prescriptive and based on a performance target and offers guidelines for construction and management of office environments. As well as being in alignment with these rating tools, the guidelines are also consistent with specific Government Agency Environmental Management Systems.

The Guidelines are however limited in application to government offices, excluding operational buildings such as hospitals, schools and police stations. In saying this, it does have the potential to be adapted or expanded to include these types of buildings also.

The Guidelines combined with a specific government agency environmental management system, can result in performance improvements in environmental impacts from government offices. Enforcement of policy will ensure sustainability and quality in Victorian government offices. This sets an example for all office environments, public and private.

4.3 Findings

- Current national building legislation focuses on eliminating worst practise, with a minimum standard approach. This is important in driving industry change but it is not aspiring towards best practice.
- National building legislation currently focuses on energy performance for all building types.
- National legislation also has an important role in ensuring the efficiency of appliances used within buildings.
- National building legislation is not consistent in other areas, aside from energy. State and local government policies have individual policies and approaches.
- An inter-government agreement between the Commonwealth and all States and Territories has been signed to address the issues of sustainability through the Building Code consistently across Australia.
- A Joint Working Group has been established to inform the future role of ESD in Planning and Building. The Building Commission represents Victoria on this Group.
The ABCB is currently undertaking research into the areas of water, materials and indoor environmental quality as issues identified for inclusion into the Building Code in addition to energy.

State Government legislation for residential dwellings currently addresses two distinct areas:
- building fabric performance and a choice between reduced energy use or water use for residential buildings.
- Stormwater quality for specified subdivisions.

The State Government acts as a leader in providing guidelines for buildings used by government tenants.

The Stormwater Quality Offsets and the Bicycle Parking provisions give precedence to state-wide policies employed with different mechanisms into the planning scheme.
5 Legislative Opportunities Analysis

Following review of the various planning and building mechanisms, as outlined above, an analysis of the legislative opportunities was carried out to identify strengths and weaknesses of different planning and building legislation mechanisms. This analysis is drawn together and presented in Table 1 below.

Table 1 - Analysis of Legislative Opportunities

<table>
<thead>
<tr>
<th>Legislative Opportunity</th>
<th>Strengths</th>
<th>Weaknesses/Threats</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Code of Australia (National Regulations)</td>
<td>Affects all buildings, Consistency across Australia, Scale / more resources, Clear requirements, Certified professionals</td>
<td>Minimum standards, Slow response to change (3 year review cycle for each group of classes), Only addresses energy at the moment – need to use other legislation for other elements of sustainability</td>
<td>'Deemed to comply' pro forma requirements (prescriptive in some areas). Targets are alternative means (model building and get to the target whichever way)</td>
</tr>
<tr>
<td>Building Code of Australia (Victorian Regulations)</td>
<td>5 star standard for res buildings, Flexibility to include policies that are more stringent than National BCA</td>
<td>Lobby groups, Political support – willingness</td>
<td>Regulatory impact statement (RIS) for any new policies</td>
</tr>
<tr>
<td>Planning &amp; Environment Act (Administered by State)</td>
<td>State can be more proactive and respond faster than National Government, Can develop markets for materials and technologies by encouraging best practice</td>
<td>State based (no national direction), Lobby groups</td>
<td>Framework for Planning schemes is set by the P&amp;E Act.</td>
</tr>
<tr>
<td>Planning Schemes (Administered by Local Gov.)</td>
<td>Performance based – can ask for more than minimum standard, Optional initiatives (builds momentum over time), Comes before building process (design at planning should be prepared for building requirements)</td>
<td>Only affects approximately 10% of all buildings, State based, Exercise of discretion – can result in inconsistent outcomes, Council resources, DSE now has to pre-authorise applications for planning scheme amendment, The way planning balances competing interests in decision making, Ability to understand the planning scheme for non-planners, No one policy for sustainable buildings, Doesn’t consider BCA or its sustainability requirements, Planning practitioners are generalists – understanding of sustainability varies, Decisions made by Councils, DPCD, councillors and / or VCAT</td>
<td>Certification of ESD specialists (Council, applicant) may be necessary</td>
</tr>
<tr>
<td>State Planning Policy Framework</td>
<td>Applies to all councils – vehicle for something that is applicable</td>
<td>Difficulty in getting state wide acceptance of new policies / standards</td>
<td>Environmental targets could be referenced in planning scheme</td>
</tr>
<tr>
<td>Legislative Opportunity</td>
<td>Strengths</td>
<td>Weaknesses/Threats</td>
<td>Comment</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Minister for Planning has power to change the SPPF</td>
<td>Clause 19.03 Design &amp; Built Form currently includes broad provision for consideration of energy efficiency</td>
<td>Minister for Planning’s willingness to address sustainability issues</td>
<td>Resource implications in terms of increased work load in assessment the sustainability of buildings at the planning permit application stage</td>
</tr>
<tr>
<td>Ministry for Planning’s willingness to address sustainability issues</td>
<td>Policies are broad due to state wide application</td>
<td>No clear directions for sustainable non-residential development (residential development subject to ResCode provisions and BCA requirements – No reference to ‘Our Environment, Our Future’)</td>
<td></td>
</tr>
<tr>
<td>Opportunity to establish consistent statewide sustainability framework objectives</td>
<td>Does not explicitly state environmental targets to be achieved</td>
<td>A number of different policies in different parts of the SPPF</td>
<td></td>
</tr>
<tr>
<td>Minster for Planning’s willingness to address sustainability issues</td>
<td>Policies are broad due to state wide application</td>
<td>No clear directions for sustainable non-residential development (residential development subject to ResCode provisions and BCA requirements – No reference to ‘Our Environment, Our Future’)</td>
<td></td>
</tr>
<tr>
<td>Power to reflect local attitudes where community support / push for sustainable buildings</td>
<td>Depends on the attitude of an individual Council to sustainability. Also depends on local constituent support for such initiatives</td>
<td>Resource implications in terms of increased work load in assessment the sustainability of buildings at the planning permit application stage</td>
<td></td>
</tr>
<tr>
<td>Local government can take the lead in new policies / standards</td>
<td>Subject to the energy, knowledge and passion of individual councillors or staff members in driving change</td>
<td>Local government can act as lobby group – role for MAV</td>
<td></td>
</tr>
<tr>
<td>Discretionary</td>
<td>Cannot be mandatory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can drive change at a local level</td>
<td>Restricted by DPCD or planning minister in terms of authorising planning scheme amendments or changing policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Planning Policy Framework (Municipal Strategic Statement and local planning policies)</td>
<td>Power to reflect local attitudes where community support / push for sustainable buildings</td>
<td>Resource implications in terms of increased work load in assessment the sustainability of buildings at the planning permit application stage</td>
<td></td>
</tr>
<tr>
<td>Local government can take the lead in new policies / standards</td>
<td>Depend on the attitude of an individual Council to sustainability. Also depends on local constituent support for such initiatives</td>
<td>Resource implications in terms of increased work load in assessment the sustainability of buildings at the planning permit application stage</td>
<td></td>
</tr>
<tr>
<td>Discretionary</td>
<td>Subject to the energy, knowledge and passion of individual councillors or staff members in driving change</td>
<td>Local government can act as lobby group – role for MAV</td>
<td></td>
</tr>
<tr>
<td>Can drive change at a local level</td>
<td>Cannot be mandatory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited ability to vary the schedule</td>
<td>Restricted by DPCD or planning minister in terms of authorising planning scheme amendments or changing policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Use Zones</td>
<td>Enables permit requirements for land use buildings and works and subdivision</td>
<td>Requires permits across the board – implication equity</td>
<td></td>
</tr>
<tr>
<td>Enables permit requirements for land use buildings and works and subdivision</td>
<td>Schedules and decisions requirements contained within zone provisions are not written to provide local government with an opportunity to impose ‘sustainable building’ requirements</td>
<td>Requires permits across the board – implication equity</td>
<td></td>
</tr>
<tr>
<td>Schedules and decisions requirements contained within zone provisions are not written to provide local government with an opportunity to impose ‘sustainable building’ requirements</td>
<td>No ‘sustainable building’ overlay in the suite of VPPs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State control suite of zones available</td>
<td>Subject to the energy, knowledge and passion of individual councillors or staff members in driving change</td>
<td>Local government can act as lobby group – role for MAV</td>
<td></td>
</tr>
<tr>
<td>Overlays</td>
<td>Can include mandatory requirements subject to strategic basis</td>
<td>In general sustainability principles should not be applied to specific areas, but should be applied equally to all new development</td>
<td></td>
</tr>
<tr>
<td>DDO Schedules can specify sustainability requirements</td>
<td>No ‘sustainable building’ overlay in the suite of VPPs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPO and DPO can be used in a limited capacity to achieve sustainable outcomes (but not trigger the need for a permit)</td>
<td>Area specific</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particular Provisions</td>
<td>State wide – can be relevant to certain building types or subdivision design</td>
<td>No policy on sustainable buildings/sustainability assessment</td>
<td>Bicycle provisions / car parking requirements</td>
</tr>
<tr>
<td>Potential for a new policy specifically addressing or titled ‘Sustainable buildings’ which would be standardised across Victoria. Certain standards could be specified which are to be met by all buildings, if met then no permit required; otherwise permit required and performance measures</td>
<td>Area specific</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State wide – can be relevant to certain building types or subdivision design</td>
<td>No policy on sustainable buildings/sustainability assessment</td>
<td>Bicycle provisions / car parking requirements</td>
<td></td>
</tr>
<tr>
<td>Balancing different policies</td>
<td>No policy on sustainable buildings/sustainability assessment</td>
<td>Bicycle provisions / car parking requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Balancing different policies</td>
<td>Bicycle provisions / car parking requirements</td>
<td></td>
</tr>
<tr>
<td>Legislative Opportunity</td>
<td>Strengths</td>
<td>Weaknesses/Threats</td>
<td>Comment</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Section 173 Agreements</td>
<td>Legal agreement on title usually imposed as a permit condition requirement. It can ensure that implementation of sustainability commitments are followed through to construction. Cost is usually born by the applicant so Council’s do not wear the initial set up costs. Although Council’s legal expert would review a S173 agreement prepared by applicant’s lawyer.</td>
<td>Rigid and written in legal terms. Changing an agreement requires approval by the Minister for Planning under the Planning and Environment Act. There are resource implications for Council in enforcing Section 173 if they are not complied with. It is an onerous requirement and cost is usually born by the applicant.</td>
<td>A S173 Agreement should not enforce matters which can be better dealt with as a permit condition or as a policy matter within the planning scheme. There are implications for imposing S173 agreements in conjunction with ratings assessment tools which are not designed to be used in a regulatory framework (i.e. where they are best practice assessment tools).</td>
</tr>
<tr>
<td>Planning permit conditions</td>
<td>Tool for following through commitments made by applicant in their proposal</td>
<td>End of the planning process Conditions need to relate to consideration of matters triggered by the planning provisions Recent VCAT decisions warn Councils not to impose ESD type conditions. DPCD do not support Councils requiring compliance with more stringent sustainable design requirements.</td>
<td>Need strategic justification in the planning scheme and guidelines to justify imposition of conditions, and need to ensure that conditions are applied consistently to all planning permits.</td>
</tr>
<tr>
<td>Energy Efficiency Opportunities Act (national)</td>
<td>The EEOA is backed up by federal Department of Environment &amp; Heritage which has a lot of funding for energy efficiency (formerly Australian Greenhouse Office). It will drive change in energy efficiency with a lot of supportive research. Authority to direct parts of implementation to appropriate authority – eg: buildings dealt with by ABCB Recognised agenda to increase energy efficiency at federal level</td>
<td>Slow – has to pass through parliament. High level government officer committee that meets 4 times a year. Don’t ultimately take control of the policy Not responsible for implementation, therefore implementation is subject to resources of the other authorities (eg: ABCB)</td>
<td>Committee – high level officers from govt groups Objective: improve energy efficiency: ▪ minimum standards ▪ power stations/power grid ▪ buildings (implemented by ABCB) ▪ local and state policies should link into the EEOA policies</td>
</tr>
<tr>
<td>SDS/STEPS Tools</td>
<td>Reviewed annually Constantly being updated Local govt choosing to use Relative ease and low costs for training / use compared with other assessment tools (eg: AGR)</td>
<td>Access to data and baseline information Reliance on applicant’s willingness to participate in use of tools No legislative requirement for their use Resource constraints – council staff Does not consider broader strategic planning objectives – proximity to public transport, capping car parking where sites are well serviced by public transport New tools by all different groups – can confuse practitioners Confusion between prescriptive measures and targets BCA recognises different targets for different types of buildings / uses. SDS does not</td>
<td>Targets are based on information publicly available. Needs more resources Need to be flexible to refer to upcoming policy changes</td>
</tr>
</tbody>
</table>
The key actions to enable effective ESD outcomes via legislation change should be prioritised as follows:

- Joint project between DPCD and local Councils for an agreed state sustainability framework. This needs to address day to day decision making for sustainable built environment outcomes including the planning scheme mechanisms associated with the following parts of the VPPs:
  - Facilitating use of appropriate assessment tools within state policy
  - Review overlays and identify new overlay opportunities for sustainable development and to address matters relating to climate change.
  - Review the decision guidelines within zones regarding the need to include a consistent statement about consideration of sustainable built outcomes.
  - Review particular provisions and the need to address design guidance for industrial and commercial subdivisions, sustainable residential buildings and sustainable non-residential buildings. Such a review should consider the relationship with car parking, bicycle parking and integrated public transport planning provisions.
- Consult with VCAT and DPCD about appropriate use of planning permit conditions to address sustainability commitments.
- Seek direction from DPCD about the appropriate use of Section 173 agreements on planning permits and the potential for a model Section 173 agreement.
6 Sustainable Assessment Tools Comparison

This section of the report reviews all of the tools currently mandated for the evaluation of ESD at planning or buildings stages by National, State or local government agencies in Australia.

Internationally, the standard for Green Building Tools has been set by the Building Research Establishment Environmental Assessment Method (BREEAM) which was introduced in 1990 in the UK and the US Green Building Council’s 69-point rating system, LEED, introduced in 2000.

6.1 Overall ESD

6.1.1 STEPS

Moreland STEPS was developed by Moreland City Council to assess the environmental impact of residential dwellings and to promote early integration of sustainable design initiatives. The web-based tool (refer figure 3) is available for the public to use and assesses the areas of energy, peak demand, water, stormwater and materials on a scale of percentage improvement above the average residential development. Targets are set for each component. Training and briefing sessions are available for users, but no accreditation is required.

Moreland STEPS also refers to NatHERS tools and STORM.

Moreland STEPS has now been adopted by eight Victorian local governments as the preferred method of sustainability assessment for residential planning applications: Moreland, Port Phillip, Darebin, Yarra, Maribyrnong, Knox, Nillumbik and Hobsons Bay. Several other Councils accept the use of the tool to support submissions.

The Moreland STEPS tool has been successful in its uptake due to its simplicity and accessibility:

‘Although Moreland STEPS is primarily aimed at designers of new dwellings, it will also assist in educating the community generally, enabling people to assess the sustainability performance of their existing homes and identify ways they could improve them.’

Council resources to maintain the on-line tools are minor in comparison to similar tools e.g. BASIX.


www.morelandsteps.com.au
6.1.2 SDS

The City of Port Phillip and Moreland City Council have developed the Sustainable Design Scorecard (SDS) Non-Residential to assess non-residential planning applications. The excel spreadsheet (refer figure 4) is downloadable from the Moreland STEPS website. Minimum point scores must be achieved in seven ESD categories to provide a comprehensive environmental rating. Elective training is available in conjunction with Moreland STEPS training.

The SDS also refers to STORM and provides credit for the use of ABGR and Green Star amongst other tools.

The SDS has also been adopted by the above seven Victorian Councils as the preferred method of sustainability assessment for non-residential building applications.

The SDS is consistent with existing legislation and is a one-stop shop for all non-residential buildings, which are commonly assessed by usage type. The tool has been designed for use at planning stages and project teams often require support to implement the adopted initiatives. The tool is upgraded annually.

SDS is available from each Council’s website that has formally adopted the use of the two assessment tools.

www.morelandsteps.com.au
### 6.1.3 Green Star

The Green Star suite of tools have been developed by a not for profit organisation, the Green Building Council. There are currently Green Star tools for the assessment of office design, office interiors and offices as built. Pilot tools exist for health care and supermarkets and tools for education and multi-unit residences are under development. All tools assess a range of environment issues and were originally based on BREEAM and LEED. The office design tool requires an ABGR base building design assessment. Certified ratings are between 4 stars (best practice) and 6 stars (world leadership) and are aimed at the top 25% of the industry. Certified assessments and accreditation are costly in comparison to other tools.

A Green Star Office Design 4 stars rating has been referenced in several policies including: the Victorian Government Property Group Accommodation Policy, Property Council of Australia’s A grade classification and Defence Environmental Policy. Melbourne City Council’s planning code now requires a minimum 4 star Green Star Office Design rating for buildings over 5000m² and the Brisbane City Council offers grants for projects that receive Green Star As Built Certification. Overall, it is the most widely referenced tool for office buildings.
Whilst Green Star has gained more and more recognition in the industry, documentation time, inconsistency of panel comments and costs of completing projects are quoted as weaknesses of the scheme. The Green Building Council employs technical officers to aid in the training and use of the tools. Panels and committees of volunteers are formed to review the tools on a regular basis.

www.gbcaus.org

6.1.4 BASIX

The NSW Department of Planning developed BASIX, the Building Sustainability Index, to assess the environmental impact of residential buildings. This state-funded web-based tool currently assesses energy, water and thermal comfort. Other indices were proposed when BASIX was first launched, however they have not been formally announced as NSW government policy. The tool requires buildings to achieve a reduction of up to 40% in water and greenhouse gas emissions (varies across the state) in comparison to a statewide benchmark. Training is available but not required to complete the assessment and access to the tool is free.

To work the BASIX tool, the user first enters details relating to the house or unit design (e.g. location, size, building materials etc). It will then analyse this data and determines how it scores against the Thermal Comfort, Energy and Water targets. The design has to pass specific targets (which vary according to location and building type) before the user can print the BASIX Certificate which summarises the design features that the user committed to in order to achieve the targets. The user prints the certificate and submits it with the development application to Council.

Councils are provided with supporting information to assess the application. The process is summarised by:

The plans and specifications must also identify the BASIX commitments which will be checked by a professional building certifier during construction. Where submitted plans or specifications are inconsistent with the relevant BASIX Certificate, Council should require applicants to submit consistent applications before progressing the assessment process, either by amending plans / specifications or by submitting a new BASIX Certificate with commitments that match the rest of the application. (DPI, 2007)

Since July 2006 Principal Certifying Authorities (private certifiers and NSW councils), are required to notify the Department each time an Occupation Certificate has been issued for a BASIX-compliant home and provide them with a copy of the BASIX Completion Receipt, which will allow for monitoring of as installed results in partnership with energy and water utilities.

A completed BASIX rating is mandatory across NSW for all dwellings and alterations to dwellings that require planning approval. Measures relating to installation of insulation, building sealing and building services to complement BASIX are included in the Building Code of Australia under NSW additions. The ACT refers to the BASIX tool as a means of meeting ACT water targets. Refer to Table 2.

The tool has recently been criticised as the thermal comfort DIY tool, seen as complicating the compliance routes but adding as additional standard outside the 5 star NatHERS standard now required in the BCA in most other states. The new generation of NatHERS tools has now been accepted by all other states as the recognised methodology, NSW is conducting a pilot of new generation tools and is expected to formally incorporate them into BASIX in early 2008. It should also be noted that in terms of overall energy savings, the BASIX tool achieves greater savings in comparison to those states that only require improvements to the building fabric through NatHERS (see Chapter 6.7 for further discussion.)

The NSW State Government has allocated resources to ensure that BASIX is appropriately maintained, is responsive to new technologies and designs and is supported via a helpline and email service. Data from the Australian Bureau
of Statistics, state agencies and utilities was provided and researched prior to adoption of the tool. Online support material and a help line are also available.


6.1.5 Docklands ESD Guide

VicUrban developed the Melbourne Dockland’s ESD Guide in 2002 to set ‘a minimum level of ESD performance required for development plan approval while encouraging endeavour towards world’s best practice.’ The ESD performance based guide assesses residential and office buildings across a range of environmental issues. The tool and online help is available on the web and has a points scoring system with minimum and mandatory requirements in nominated sections. There is no accreditation required to use the tool, as it refers to the ABGR and other detailed knowledge. The use of an ESD consultant is necessary.

The Docklands scorecard has primarily been applied to the Dockland’s precinct in Melbourne. Whilst sections of the tool methodology have been adapted and used in other tools, the tool has not been directly referenced in other policy documents.

Support for projects submitting applications using the ESD Guide is limited and response times are slow (reports of approval taking over six months have been made.) As the tool is comprehensive, the documentation requirements are comparable to Green Star. As the tool was developed for use during the redevelopment of the Docklands site, it is designed for use over a fixed period of time.

www.docklands.com/docklands/about/publications/esd/index.html

6.1.6 Doncaster Hill Sustainability Guidelines

Manningham City Council introduced guidelines for the precinct of Doncaster Hill in 2002 (refer also to chapter 3.6.2). The guidelines include a requirement to provide a Sustainability Management Plan as part of the development application process. The guidelines contain mandatory and recommended elements that must be addressed. There is a checklist of areas that must be addressed and the Guidelines are a mix of performance and prescriptive elements.

The Guidelines have only been used in the Doncaster Hill precinct and have not been referenced elsewhere. Each application is supported by a Sustainable Design Taskforce council officer.

In comparison to the other tools listed above, the Guidelines are less exact and can require the project team to do research to establish their own targets and benchmarks. The guidelines required developments to go beyond existing building regulations at the time of writing, for example a 5 star FirstRate rating was required for all apartments.

www.doncasterhill.com.au

6.1.7 Environmental Performance Guide for Buildings (EPGB): NSW

NSW Government Agencies are now required to use the Environmental Performance Guide for Buildings in their asset strategies and project delivery briefs. The tool addresses all stages of a construction project from planning through to operation. The tool allocates scores in five environmental areas: Resource Consumption, Environmental Loadings, Quality of Internal Environment, Functionality, and Wider Planning Issues. No official accreditation or training is required to use the tool.

The EPGB is currently used for NSW government buildings only. It refers to other tools such as ABGR.
6.1.8 Sustainability Scorecard – Armadale, Western Australia

Developed by the Armadale Redevelopment Authority (ARA) the Sustainability Scorecard incorporates elements of Western Australia’s Sustainability Strategy and integrates a number of existing tools for applicants. A FirstRate rating of 5 stars is mandatory. The online tool is designed as a self assessment process which allocates point scores to performance based requirements. The tool clearly identifies opportunities to go beyond minimum practice.

The resultant Sustainability Certificate is a statutory document required by the Armadale Redevelopment Regulations 2003. The tool has not been applied or referenced elsewhere.

Online guidelines are available for every credit point and the requirements of each component are clearly stated. No training is advertised for applicants. The tool integrates a number of existing standards for both the Armadale Redevelopment Zone, state and nation-wide standards for the full range of buildings types. The tool was last upgraded in May 2006.

6.2 Energy

6.2.1 NatHERS

The Nationwide House Energy Rating Scheme (NatHERS) family of software includes FirstRate, Accurate and BERS. The scheme is administered by the Federal Government and the tools engine was developed by the CSIRO. In Victoria, FirstRate is administered and owned by Sustainability Victoria. The tools are used to assess residential (Class 1 and 2) building fabric performance and its potential to reduce heating and cooling loads. The predicted reduction in energy use is measured on a scale of 0 to 6 stars. Training and accreditation fees are required before being certified to use the tools.

It is now mandatory to achieve a 5 star NatHERS rating in Victoria, ACT, South Australia and Western Australia. New South Wales, Tasmania, Queensland and the Northern Territory have alternative targets but all allow the use of the tools to show compliance.

The tools have been criticised for focusing on a single issue and not addressing the impact of appliances. In the last year, new versions of the tools have improved usability and introduced improved algorithms. Turn around for tool upgrades and bug fixes are slow, and the resources allocated to user assistance are well below what is required. In Victoria, the scheme is also criticised for its lack of auditing.


www.nathers.gov.au

www.absa.net.au

www.sustainability.vic.gov.au
6.2.2 ABGR

The Australian Building Greenhouse Rating (ABGR) Scheme was developed and is administered by the Australian Government. The ABGR tool ultimately assesses energy use in an office building at least one year post-occupancy, but it also sets out protocols for estimating the performance of a building through energy modelling. Predictive energy modelling of a building using the ABGR protocol is called an ABGR base building rating. Ratings are on a scale of 0 to 5 stars, with half stars also awarded. Training and accreditation fees apply.

In combination with Green Star Office Design Ratings a 4.5 ABGR Base Building Rating is quoted in the Victorian Government Property Group Accommodation Policy, Property Council of Australia’s A grade classification and Defence Environmental Policy. Melbourne City Council’s planning code now requires a minimum 4.5 stars for buildings over 5,000m².

The ABGR tool itself is quite simple a tool to download and use for post-occupancy use. However, in the design stage, specialist modelling skills are required to predict building performance. Independent reviews are recommended to establish some consistency amongst models. There are many software tools available on the market capable of modelling in accordance with the protocols, and each of these tools has varying degrees of support and training available to the user.

www.abgr.com.au

6.3 Stormwater

6.3.1 MUSIC

MUSIC, developed by CRC for Catchment Hydrology is designed to simulate urban stormwater systems. Water quality and peak flows can then be assessed against design constraints or requirements. Training is offered to urban stormwater engineers, planners, policy staff and managers in consultancies and state, regional and local government agencies but there are no accreditation fees.

MUSIC has had widespread application around Australia, including:

- Melbourne Water is using MUSIC to plan future and assess land development proposals [under the Stormwater Quality Offset Program], and to design stormwater treatment strategies for new and existing drainage schemes.
- Brisbane City Council uses MUSIC for urban catchment planning, and to design new stormwater treatment measures in Brisbane.
- Engineering consultants around Australia have used MUSIC to design urban development proposal, which meet Water Sensitive Urban Design standards.
- MUSIC provides a user-friendly interface, to allow complex stormwater management scenarios to be quickly and efficiently created, and the results to be viewed using a range of graphical and tabular formats. This reduces the uncertainty surrounding the planning of stormwater management strategies, and may generate substantial cost-savings. (eWater, 2007)

Training courses assume some knowledge of the water sensitive urban design measures and hydraulics. The tool offers a high level of flexibility for experienced users, which has the disadvantage of increased complexity for those new to the area. There is a users group for answering difficult questions not covered by the manual. A MUSIC auditing tool has been developed to assist Melbourne Water and other regulatory bodies assess applications using the tool. www.toolkit.net.au/music
6.3.2 STORM

The STORM tool was developed by Melbourne Water, as a simplified version of MUSIC for smaller sites. A STORM rating of 100% signifies achievement of the stormwater quality performance objectives, which includes a 45% reduction of nitrogen. The tool is web based and accessible for all to use, and training has been offered in conjunction with MUSIC training in Victoria.

The STORM tool may be used for sites of less than 4,000m² to assess land development applications in Victoria. The STEPS and SDS tools have incorporated a target of 75% using the STORM tool as part of the assessment process.

Training courses have only just been offered in the use of the tool, post the introduction of legislation and courses are not advertised on the Melbourne Water website. The tool provides some useful tips for the user on sizing different treatment options. However, there are some usability problems for high density sites that have a large number of occupants. Resources allocated to the project are low / medium.

www.storm.melbournewater.com.au

6.4 Tools Under Development

6.4.1 VicUrban Greenfields Tool

VicUrban has developed a residential Greenfield’s assessment tool that has been used to monitor projects internally. Investigations into a means of releasing this tool as a commercially available voluntary tool are currently taking place.

The tool measures projects under five categories of Commercial Success, Community Well-being, Housing Affordability, Urban Design Excellence, and Environmental Leadership. Each of these objectives has a maximum of one hundred points, hence the highest possible overall score for a project is five hundred points.

VicUrban hopes to work with industry and local government representatives to develop the future program.

www.vicurban.com

6.4.2 VicBest

A pilot tool was initially developed by DSE in 2005 to ‘test’ the concept of using a performance based system to predict environmental building performance. This tool will help inform a way forward for Government, in conjunction with other assessment approaches. www.dse.vic.gov.au

6.4.3 ANZHERS

The Australian Government, in partnership with New Zealand, is currently investigating the development of an assessment tool that builds on the NatHERS thermal engine to assess the total greenhouse impact of all residential dwellings. The tool is to be named ANZHERS and would be used for assessing new dwellings and existing dwellings at point of sale.
6.5 Summary of Tools and Applicability

Table 2 and Figure 5 summarise the ratings tools currently in use and their applicability. Some rating tools are limited to a particular location, while others are limited in the area of sustainability that they address. The more rigorous the tool, i.e. the more formal the training and accreditation requirements and the more stringent the benchmarks, the closer it is listed to the outer ring of each segment. The rating tools as detailed in Figure 5 below are sorted by Building Typology, state applicability, and environmental impact area (working from the outer ring inwards – overall impact, energy, stormwater and life cycle assessment). Tools in Italics relate as used during operation, the remainder are design tools.

Table 2 – Rating Tools and Environmental Impact Areas

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ABGR</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AccuRate, FirstRate, BERS</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BASIX</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Star</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NABERS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Docklands Scorecard</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ARA Scorecard</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>SDS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>STEPS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>MUSIC &amp; STORM</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.6 Tools in Use by State Governments

Australian building and planning legislation varies across the country in how it addresses sustainability. A snapshot of the legislation as it stands (September 2007) is shown below.

In the majority of states the residential section of the Building Code for Energy Efficiency now refers to the Nationwide House Energy Rating Scheme as the preferred method of assessment stating ‘A building must have an energy rating of not less than 5 stars determined using a thermal calculation method that complies with the ABCB Protocol for House Energy Rating Software.’ The only state that differs from this is NSW, which refers to BASIX.
A number of the states using the 5 star standards have introduced additional energy and water requirements (Table 3) for residential dwellings. Queensland, Western Australia and the ACT are the most stringent of these. From 1 September 2007, new homes in Western Australia need to meet the 5 Star Plus standard, which includes:

- 5 star NatHERS rating.
- A solar hot water system, a 5 star gas hot water system, or a high efficiency heat pump hot water system.
- All tap fittings other than bath outlets and garden taps are minimum 4 star WELS rated, and all toilets are a minimum 4 stars WELS rated dual flush.
- Outdoor swimming pool or spa is supplied with a blanket that reduces water evaporation.
- All hot water outlets in new homes need to be located close to the hot water system or a recirculating hot water supply to minimise wastage of energy and water.
- Additionally from 2008, all homes will need to provide appropriate plumbing for water reuse, and those with high water demand will need to install an alternative water supply.

In Queensland, compact fluorescent lighting must be used, an efficient hot water system and a rainwater tank connected to the toilets. In the ACT, target water consumption must be met, and BASIX Water can be used to demonstrate compliance. In comparison to the requirements in these three states, the Victorian 5 star home energy standard allows a trade-off between energy and water use and hence does not deliver the same savings in greenhouse gas emission or potable water.

As NSW is unique in applying a different methodology to the other states to achieving reduced greenhouse gas emissions and potable water use, it will be discussed in some detail here. Compliance with the targets in BASIX is required through the Building Code of Australia for all residential dwellings. A BASIX report is required to be submitted at town-planning stage and then is checked off during further stages of the project (building compliance and construction). Applications can be submitted on-line.
The NatHERS tools can be used to meet compliance with the Thermal Comfort section of the tool, however, the star rating is not used, merely the predicted heating and cooling loads. An alternate Do It Yourself assessment is also available. BASIX addresses all areas of energy use in the building – including shared facilities – and targets a 40% reduction in greenhouse gas emissions. It is more comprehensive in its coverage of issues and sets overall performance targets for energy and water use which allows the applicant more flexibility than those states, such as Victoria, that specify one way of saving energy or water i.e. a solar hot water system or rainwater tank. A centralised planning and building system has facilitated the implementation of the policy, however, this does not mean that similar approaches could not be used elsewhere.

A study conducted by George Wilkenfeld & Associates (2007) compares the Victorian 5 star residential requirements to the NSW BASIX requirements. It concludes that 'the 5 Star requirements appear to be producing somewhat higher rates of solar hot water heaters, similar levels of 3 star showers and taps but a lower rate of rainwater tank installations than BASIX' and that 'it is likely that dwellings meeting BASIX have significantly lower thermal performance standards than 5 AccuRate stars.' The advantages of the BASIX system are more predictable greenhouse gas emissions (as appliances are included) and greater flexibility in meeting the targets.

The study also proposed that the following list of initiatives would achieve the highest greenhouse gas emissions reduction if a prescriptive approach is to support a performance based scheme in the future:

- Minimum 5 star NatHERS rating
- Gas boosted solar water heaters or LPG, solar electric or electric heat water pump in no-gas areas
- Gas or LPG central heating (5 star)
- No refrigerative air-conditioning (evaporative or fans allowed)
- Gas cooktops or LPG in no-gas areas
- No low voltage halogen lighting

None of the current state legislation for residential houses currently requires all of these standards or the equivalent emissions.

Non-residential energy efficiency legislation is consistently applied across the country with the exception of the Northern Territory which has not yet adopted the conditions. The ACT is the only body that also requires all non-residential construction to meet a water use target in addition to the standard requirements.

Victoria, the ACT and Queensland are leading the way in the application of stormwater targets. The Victorian government is the only one that has developed a simpler version of the MUSIC tool (STORM) for use in development applications.

### 6.7 Tools in Use by Local Governments and Precincts

Figure 6 and Table 4 summarise the application of sustainable building tools in local governments across Australia. These local governments are leading the use of best practice tools or developing their own where suitable tools are not available.
Figure 6 - Diagram of local government use of sustainability tools in Metropolitan Melbourne.

Table 4 - Assessment tools used by Local Government

<table>
<thead>
<tr>
<th></th>
<th>Victoria – 7 councils</th>
<th>Victoria - Docklands</th>
<th>Victoria – Doncaster Hill</th>
<th>Victoria – Melbourne City Council</th>
<th>WA - Armadale</th>
<th>Sydney City Council</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residential</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Overall</em></td>
<td>STEPS</td>
<td>ESD Guide</td>
<td>Guidelines</td>
<td>-</td>
<td>Scorecard</td>
<td></td>
</tr>
<tr>
<td><strong>Non-residential</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Overall</em></td>
<td>SDS</td>
<td>ESD Guide</td>
<td>Guidelines</td>
<td>Green Star – 4 Stars</td>
<td>Scorecard</td>
<td></td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>Building Code Plus (ABGR optional)</td>
<td>ABGR – 3.5 stars</td>
<td>Must set own benchmark</td>
<td>ABGR – 4.5 Stars</td>
<td>Building Code (ABGR Optional)</td>
<td>ABGR 4.5 Stars</td>
</tr>
<tr>
<td><strong>All Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stormwater</strong></td>
<td>STORM or MUSIC</td>
<td>STORM or MUSIC</td>
<td>STORM or MUSIC</td>
<td>STORM or MUSIC</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- STEPS and SDS
- Green Star and ABGR
- Doncaster Hill
- Docklands Scorecard
6.8 Findings

▪ Victorian State Government legislation (5 star home energy rating standards) is no longer a leading policy and is now equivalent to or lagging behind other states. The ACT, Qld and NSW all have policies that address the same or a wider breadth of issues (energy, water and stormwater), without a trade-off between environmental areas.

▪ The new WA state regulations have set the stage for a new round of improvements to the BCA.

▪ NSW and QLD are the only states that have a consistent approach to sustainable building regulation that begins at the planning stage.

▪ There are a number of assessment tools being used by various local government groups in other states.

▪ The only mandated mechanism that is consistently used across Australia is that in the NatHERS suite of tools.

▪ The MUSIC and STORM tools have similarly been adopted in a number of states and could potentially be used across Australia.

▪ The tools can be split into two groups: those designed for regulation compliance and voluntary tools.

▪ There are cases where voluntary tools are being used for regulation eg Melbourne City Council’s use of Green Star and ABGR.

▪ Green Star and ABGR are the only tools that are aimed at best practise and the ‘top end’ of the market.

▪ All tools are designed for use at a specific stage during the design process, with details being refined during design development.

▪ BASIX, STORM, STEPS and the ARA Scorecard are all online scoring tools, with the greatest accessibility to the public.

▪ The targets set by BASIX in water and greenhouse gas reduction are the most stringent.

▪ The two tools that cover the largest breadth of issues for use at planning stage are the Docklands ESD Scorecard and the ARA Scorecard. Both tools also use a points based system that allows users to reach graded targets (minimum, commendable and best practice). Both allow trade-offs between non-mandatory categories.

▪ All of the tools that are used at the planning stage address issues that are typically outside of traditional planning considerations (e.g. appliance types, lighting types, specific materials choices etc).

▪ There are other tools available that assess the sustainability of buildings but are not currently required at the planning and / or buildings stages. These include NABERS (operational tool), Eco-footprint, and LCAid or LISA.

▪ There is precedence for environmental assessment tools being referred to in both building and planning legislation.

▪ When tools are referenced by either building or planning based policies, the greatest flexibility is given by referring to an external standard for an acceptable tool such as that used in the Building Code of Australia. This approach allows for upgrades, tool changes and competition between software providers.
7 Current Sustainability Decision Making Processes

At present, eight local governments have adopted the use of STEPS and the SDS tools as their preferred method of sustainability assessment. This program has the potential to impact 25% of the metropolitan planning applications (Table 5).

This section reviews the Council processes in three of these Councils, Moreland City Council, the City of Port Phillip and Darebin City Council.

Table 5 – Total planning applications in Councils that have adopted STEPS/SDS.

<table>
<thead>
<tr>
<th>Council</th>
<th>2003 /04*</th>
<th>2004 / 05*</th>
<th>2005 / 06*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Phillip</td>
<td>1,689</td>
<td>1,619</td>
<td>1,461</td>
</tr>
<tr>
<td>Moreland</td>
<td>1,157</td>
<td>1,031</td>
<td>1,051</td>
</tr>
<tr>
<td>Darebin</td>
<td>809</td>
<td>947</td>
<td>961</td>
</tr>
<tr>
<td>Yarra</td>
<td>1,526</td>
<td>1,401</td>
<td>1,379</td>
</tr>
<tr>
<td>Maribynong</td>
<td>751</td>
<td>621</td>
<td>693</td>
</tr>
<tr>
<td>Knox</td>
<td>709</td>
<td>858</td>
<td>890</td>
</tr>
<tr>
<td>Nillumbik</td>
<td>708</td>
<td>826</td>
<td>705</td>
</tr>
<tr>
<td>Hobsons Bay</td>
<td>993</td>
<td>863</td>
<td>845</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8,342</td>
<td>8,166</td>
<td>7,985</td>
</tr>
<tr>
<td>Victoria</td>
<td>54,788</td>
<td>53,260</td>
<td>50,667</td>
</tr>
<tr>
<td>Metro</td>
<td>33,531</td>
<td>33,271</td>
<td>32,117</td>
</tr>
<tr>
<td>Percent</td>
<td>24.9%</td>
<td>24.5%</td>
<td>24.9%</td>
</tr>
</tbody>
</table>

*Source: DSE Planning Permit Activity in Victoria 2005-06

7.1 Moreland

7.1.1 Moreland MSS

Within the Moreland Municipal Strategic Statement (MSS), Council states that they have clear direction towards fostering the creation of an environmentally sustainable municipality. Clause 21.01-1- Sustainability and the Four Pillars states that:

> The four pillars require decisions and actions to be considered from social, economic, environmental and governance perspectives. They reflect a guiding philosophy of sustainability that underpins all Council’s activities from planning to reporting.

Through this policy and many others throughout the MSS, such as Clause 21.03-1- Achieving Sustainability and Clause 21.03-9- Reducing Environment Impact, Council provides a clear strategic basis for the consideration of ESD principles, but do not provide any policies which ultimately deal holistically with aspects sustainability assessment. We note however, that Council maintains internal planning application processes which seek to utilise sustainability tools in the decision making of planning applications.
The Moreland MSS and its internal procedures do illustrate a commitment to ensuring that developments within the municipality are based on sustainability principles. There are no specific local policies within the planning scheme which refer to or enforce the use of STEPS/SDS by developers in the initial stages of concept plans, thus the tool usage is voluntary. It is noted that recent draft policies have sought to address such matters but have not gained pre-authorisation from the Minister for Planning for a planning scheme amendment. The Council processes are addressed in more detail below.

7.1.2 Structure

Moreland’s City Development Department is involved in the application of sustainable buildings policies. The City Development department includes the following branches:

- Urban Planning
- Activity Centres Team
- Building Services
- Sustainable Development
- ESD Unit
- Strategic Planning

The ESD team and dedicated ESD Engineer are part of the Sustainable Development Branch, and statutory planning officers are part of the Urban Planning Branch.

The ESD Team develops and implements environmental policies for Council and the Urban Planning Branch provides general expertise in the management of development, land use, built form and heritage issues, and is the first point of contact for development applicants.

Moreland City Council is responsible for the development and maintenance of the web based tool, Moreland STEPS for residential dwellings. This tool was developed in 2004 and implementation began in 2005.

7.1.3 Process

The Moreland City Council strongly encourages the use of the STEPS and SDS tools to measure environmental performance for planning permit applications that consist of 10 or more dwellings, major subdivisions (broadly sites of 4 hectares), and for Council’s own developments. Other applications are considered at the discretion of the Urban Planning Branch. Use of the tools is encouraged from the pre-application phase through to after lodgement of an application.

All development applications matching the above criteria are referred to the ESD Engineer at the pre-application stage or the first point of contact with Council. The ESD Engineer attends key meetings with the applicant and provides advice to the Urban Planner.

Referrals to the ESD Engineer generally take 2 hours to complete and written advice is returned to the Urban Planning Branch within 10 working days.

If further information is required, the Urban Planning officer will include queries in a formal 'Request for Information' to the applicant.

The desired objective is that all applications referred to the ESD Engineer will meet the targets of the STEPS and/or SDS tools and address any other noted issues in relation to landscape, accessibility or heritage. If complete, the
STEPS and SDS documentation will be endorsed as part of the planning application. The following condition will be selectively included on planning permits:

“All works must be undertaken in accordance with the STEPS assessment to the satisfaction of the responsible authority. No alterations to the STEPS report may occur without written consent of the Responsible Authority.’

Should the applicant fail to meet the objectives following a request for information, a permit condition requiring the objective to be complied with is not normally applied as compared to Port Phillip and Darebin Councils. VCAT decisions over the past few years have strongly discouraged the use of inappropriate ESD related permit conditions by Councils. As a result Moreland is still determining the best approach to this issue.

7.1.4 Incentives

Council does not offer any incentives for development applications that meet the sustainability objectives of STEPS or SDS.

7.1.5 Costs

Moreland City Council estimates the following cost to Council to implement the STEPS and SDS programs. Note the Moreland City Council also administers the upgrade of STEPS.

Table 6 - Moreland Sustainability Assessment Costs

<table>
<thead>
<tr>
<th></th>
<th>Start-up Costs ($ GST Exclusive)</th>
<th>On-going Costs ($/ year GST exclusive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Development (STEPS)</td>
<td>$91,250</td>
<td>$16,300</td>
</tr>
<tr>
<td>Staff Training</td>
<td>$16,000</td>
<td>$1,120</td>
</tr>
<tr>
<td>Administration Costs</td>
<td>$500/ year for 2005-6</td>
<td>$5,500</td>
</tr>
<tr>
<td>Staff Resources</td>
<td>$65,520</td>
<td>$127,360</td>
</tr>
<tr>
<td>Total</td>
<td>$173,770</td>
<td>$150,280</td>
</tr>
</tbody>
</table>

NB: It is assumed that staff cost to council is $35 per hour where unspecified

7.2 Port Phillip

7.2.1 Port Phillip MSS

The Port Phillip Municipal Strategic Statement highlights that planning and development, and the protection and maintenance of the environment, are major issues for the community. With regard to setting achievable goals associated with these issues, the community has identified that integrated planning and development processes should directly respond to the environmental values of the Port Phillip area.

More specifically, Clause 21.02-2- The Municipality states that:

‘Protecting the flora and fauna, reducing waste, preserving water and air quality, minimising energy consumption and promoting ecologically sustainable development are important objectives of the Port Phillip Community and its Council.’
This provides some commitment to supporting the principles of ESD, however there is minimal reference to sustainable development and built form throughout the remainder of the MSS. Clause 21.05-1 Residential Development provides the only further reference in noting that as a primary objective Council will:

‘Encourage energy efficient housing design, construction materials and techniques that minimise environmental impacts and landscape design that reduces water consumption and maximises biodiversity.’

It is considered that this indicates a level of accountability on behalf of Council to consider sustainable building measures, however there is no strategic policy that addresses integrated sustainability or sustainable buildings specifically.

It is noted that Council’s urban design local planning policies at Clause 22.05 Urban Design for New Residential Development and Clause 22.06 Urban Design Policy for Non-Residential Development and Multi-Unit Residential Development include provisions relating to energy efficiency. In particular Clause 22.06 lists techniques encouraged to achieve energy efficiency. These policies also reference Council’s Sustainable Environment Strategy 2000 which addresses strategic themes for sustainability including Council operations, resource conservation, pollution reduction, catchment and coastal management, sustainable transport, urban design, biodiversity and community action.

The ‘layering’ of strategies and policies within the MSS and Local Planning Policies of the Port Phillip planning scheme are important to implementing Council’s directions in day to day planning decisions. Important policy directions need to be included within planning schemes so that planning authorities (including VCAT, Minister for Planning and DPCD) making planning decisions on applications have regard to Council’s approach.

7.2.2 Structure

The City Development Department of the City of Port Phillip has a Statutory Planning Unit that is responsible for the implementation of the Sustainability Assessment Program. A Sustainable Design Architect is employed for two days per week to manage the project working alongside Council’s statutory planners.

The City of Port Phillip developed the Sustainable Design Scorecard for Non-residential buildings in partnership with Moreland City Council. As lead councils on the project, each Council now maintains one tool. The City of Port Phillip maintains the SDS.

The City of Port Phillip has used Sustainable Design Scorecards to assess applications on a voluntary basis since 2000. These scorecards were updated and replaced with the STEPS and SDS tools which began implementation in 2005.

7.2.3 Process

The City of Port Phillip also has a Sustainable Design Policy approved by Council, which outlines its approach to sustainability assessment. The City of Port Phillip requests that all development applications over 50m² use the STEPS and/or SDS tools and summarise commitments made in a ‘sustainability statement.’

When an application of this type is submitted to the statutory planning group, they send an explanatory email asking applicants to complete an assessment. Council offers support to applicants in completing the tool (either through the statutory planner of Sustainable Design Architect). Once the tool is completed applicants are asked to submit a print out of the tool and a proforma ‘sustainability statement.’

The Sustainable Design Architect is sent a referral package for each project, which is acted upon (either by contacting the applicant or returning a written report to the planner) within 10 working days. Each referral takes approximately 2
hours to complete. It was noted by the Sustainable Design Architect that the position is being revised to be a full time position as the demands for ESD assessment support have been high.

When an applicant has not completed an assessment as part of their application, the applicant is again asked in the request for further information letter. The submission of a sustainability statement will not ‘stop the clock’ and a planning permit will still to be issued if all other issues are addressed.

The City of Port Phillip has guidelines for its statutory planners that allow them some discretion when assessing applications. In the past the following condition has been used selectively in planning approvals where a sustainability statement has not been provided:

‘Before the development commences a sustainable design statement must be submitted to and approved by the Responsible Authority. The sustainable design statement must outline proposed sustainable design initiatives. When approved, the statement will be endorsed and will then form part of the permit.’

If a statement has been submitted and the applicant is deemed to have made some improvements the following condition may be included as a condition on the permit:

‘The project must incorporate the sustainable design initiatives listed in the endorsed sustainability statement.’

7.2.4 Incentives

The City of Port Phillip provides incentives in the form of:

- $100 rebate for applicants that use FirstRate when not required to under the 5 star standard
- Design Development Awards which are used to show case good examples of sustainable design, providing an incentive by rewarding the efforts made by applicants.

7.2.5 Costs

The City of Port Phillip estimates the following costs to Council to implement the STEPS and SDS programs. Note that the City of Port Phillip administered the upgrade of the SDS tool.

Table 7 - Port Phillip Sustainability Assessment Costs

<table>
<thead>
<tr>
<th></th>
<th>Start-up Costs ($ GST Exclusive)</th>
<th>On-going Costs ($/ year GST exclusive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Development (SDS)</td>
<td>$26,840</td>
<td>$13,150</td>
</tr>
<tr>
<td>Staff Training</td>
<td>$3,125</td>
<td>$875</td>
</tr>
<tr>
<td>Administration Costs</td>
<td>$1,000</td>
<td>$1000</td>
</tr>
<tr>
<td>Staff Resources</td>
<td>$54,600</td>
<td>$107,214</td>
</tr>
<tr>
<td>Total</td>
<td>$85,565</td>
<td>$122,239</td>
</tr>
</tbody>
</table>

NB: It is assumed that staff cost to council is $35 per hour where unspecified
7.3 Darebin

7.3.1 Darebin MSS

The Darebin Municipal Strategic Statement makes a point of recognising deficiencies within Victorian Planning Policies, stating that while Melbourne 2030 provides clear direction for sustainable planning and development practices, it does not adequately consider more detailed aspects such as housing. In recognising this deficiency, the MSS has been designed to directly respond to the absence of direction in ESD principles, with a set of key land use elements requiring further objectives, strategies and implementation guides - these are found within Clause 21.05-Objectives-Strategies-Implementation, with one specific element (Clause 21.05-1) based on sustainability. It is within this element that Council states it will:

Encourage the use of ecologically sustainable technologies and equipment such as passive solar design, increased cross ventilation, clothes lines, water tanks, solar hot water systems, and photovoltaic panels in the design of new development and redevelopment of existing buildings.

This is an important commitment to sustainability and the practical outcomes for the design and development of new buildings. Furthermore, in indicating further strategic work that needs to be undertaken it is stated that:

In the absence of a State wide ESD policy and standards, develop a local policy and assessment tool to achieve ESD within Darebin.

In stating this, Darebin recognises that there is a lack of government direction in ESD principles and that it is necessary to create processes and tools at the local level in order to adequately implement the Council’s strategic directions for ESD. However, as yet, no stand alone local policy based on enforcing ESD assessment tools for development applications has been incorporated into the Darebin Planning Scheme.

7.3.2 Structure

The ESD Officer responsible for the Sustainable Design Project sits within the Statutory Planning Branch of the Urban Development Department.

In May 2006 Darebin City Council endorsed the use of the STEPS and SDS tools.

7.3.3 Process

The City of Darebin has mimicked the approach used by the City of Port Phillip, and the ESD officer reports on similar timeframes for returning and processing referrals.

The ESD officer also notes that they often spend time with the statutory planners during the early phases of a project, to educate them on potential design changes that could lead to improved outcomes.
7.3.4  Incentives

To aid in the adoption of the tools, Darebin City Council offers free training in the use of the STEPS and SDS tools to applicants and gives recognition in the local newspaper to those applicants that have the environmental objectives of the program.

7.3.5  Costs

The City of Darebin estimates the following cost to Council to implement the STEPS and SDS program.

Table 8 - Darebin Sustainability Assessment Costs

<table>
<thead>
<tr>
<th></th>
<th>Start-up Costs ($ GST Exclusive)</th>
<th>On-going Costs ($/year GST exclusive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Development</td>
<td>$N/A</td>
<td>$600</td>
</tr>
<tr>
<td>Staff Training</td>
<td>$15,340</td>
<td>$800-$6,400</td>
</tr>
<tr>
<td>Administration Costs</td>
<td>$1,080</td>
<td>$6,400</td>
</tr>
<tr>
<td>Staff Resources</td>
<td>$19,575</td>
<td>$79,600</td>
</tr>
<tr>
<td>Total</td>
<td>$35,995</td>
<td>$87,400-$93,000</td>
</tr>
</tbody>
</table>

NB: It is assumed that staff cost to council is $35 per hour where unspecified.

7.4  Findings

- Moreland City Council is responsible for the administration of the online Moreland STEPS tool and the City of Port Phillip is responsible for the administration of the Sustainable Design Scorecard.
- All three councils have adopted these tools as their preferred method of sustainable design assessment.
- Darebin City Council has entered into a Memorandum of Understanding with Moreland and the City of Port Phillip which outlines their shared use of the tools. The tools are available free of charge.
- To date five other councils have adopted the tools and signed similar agreements (Yarra, Maribyrnong, Knox, Hobsons Bay and Nillumbik).
- The three councils have identified upfront cost implications of between $35,600 and $101,800 and on-going cost implications of $31,000 to $79,500 per annum. All councils employ an ESD officer to implement the programs.
- Moreland City Council’s approach to assessment of planning applications varies as the ESD officer sits within a separate branch of Council. Port Phillip and Darebin appear to have better success in streamlining processes due to the ESD Officer sitting within the Urban Planning Branch.
- The three councils encourage the use of the tools on planning applications that meet the following criteria:
  - 10 or more dwellings, major subdivisions or Council developments (Moreland)
  - All applications over 50m² (Port Phillip and Darebin)
- Council applications that meet those criteria are referred to the ESD Officer, whose comments will either result in a request for further information or a permit condition.
- Permit conditions either endorse the commitments made by an applicant or request a statement of commitments (called a Sustainability Statement) be provided.
- Survey responses from planning staff indicated that they do not have a good understanding of this process or the tools themselves (particularly the SDS tool where only 23% knew what kind of development the tool is used for). This is despite all Council planning staff attending training in the use of the tools.
- Planners spend an average of 2 hours per week each on ESD referrals.
- The effectiveness of current council processes is subject to VCAT, communication between the ESD officer, the planner and the applicant and the voluntary nature of the program.
- Darebin and the City of Port Phillip offer incentives in the form of rebates for FirstRate assessments when not required by building legislation, free training and awards.
- Comments from case study interviewees often focused on Council processes – two requested more consistency in applying the assessment tools (within the Councils and across the state), two were highly appreciative of Council support, and another wanted the Council to be more receptive to feedback when undertaking a voluntary process.
- Whilst all Councils claimed to inform applicants of the ESD program upon first contact with the planning department, surveys and interviews indicate that the tools are not often explained until later in the process.
8 Council Planners Survey

A survey of Council planners was undertaken to ascertain the level of knowledge and understanding that planners working at Darebin, Moreland and Port Phillip have of the sustainability assessment tools and processes within their municipality. A summary of the results is contained in Appendix 2. Planners from all three Councils were asked to complete the online survey with a total of 13 responses received across the three project Councils, the majority of the responses (60%) being from Moreland. Some of the key questions sought quantitative feedback which is the focus of this chapter.

The respondents were asked to rate the difficulty of using the STEPS and SDS tools when reviewing the ESD components of a planning permit. It was clear that SDS was on average more difficult to use for the planners.

Respondents were asked ‘what sort of projects would you require completion of a STEPS report?’ Most respondents correctly indicated it was applicable to residential development, although some anomalies in responses included:

- Reviewing new developments.
- Large projects to determine appropriate requirements from an Engineering perspective, mainly drainage.
- Any large project, say 5 or more units etc.

The same question was asked in relation to when an SDS report is required. Most responses accurately identified that SDS is used for non-residential projects, although a number identified specifically mixed use, commercial or industrial proposals. There were some respondents who may not understand what SDS is applicable to, as illustrated by the following responses:

- Residential.
- Never required one before.
- Not really sure what SDS is.
- Generally these have been supplied with residential extensions or mixed use developments...
- Non residential developments - commercial/residential, industrial.
- Non residential and mixed use.

Planners were asked to identify at what stage in the planning process they introduce applicants to STEPS and SDS. The following responses indicate a general trend for introducing applicants to the tools at pre-application stage or at first contact with applicants:

- Pre-application wherever possible, otherwise as early as possible.
- When I am advising the developer of their Legal Point of Discharge.
- RFI (Request for Further Information).
- At pre-application if possible. Sometimes at further information, but this is difficult as it is not a ‘requirement’ of the planning scheme.
- Beginning of application - I normally make reference to it when I request further information.
- Either at pre-application stage or at request of further information stage.
- The first time we meet them.
- Pre-application onwards.
- When requiring further information or design changes. Or at pre-application stage.
- Pre-application and RFI.
To ensure the success of using the tools and planning for any design requirements resulting from the tool assessment, it is better for the planners to introduce applicants to them up front as the proposed design is evolving. Thus Council’s should place an emphasis on pre-application consultation within their internal processes.

Planners were also asked about the average number of hours they spent on: a) informing the applicants about STEPS/SDS; b) educating applicants on how to use STEPS/SDS; and c) referring and interpreting information form ESD officer. Generally planners spent from 10 minutes to 1 hour informing the applicant about the tools. Whilst minimal time was spent educating the applicant it was noted that planners felt that was the job of the ESD officer. An average of 30 minutes hour was spent refereeing and interpreting the information.

The survey also identified that on average more then 50% of applicants who were asked to provide STEPS / SDS information needed further assistance from Council, and more than 50% did not meet Council’s sustainability requirements when they fist submitted the application. The ‘other’ referred to First Rate energy report.

The following graph indicates a high level of understanding by planners about the required information. Although it should be noted that, all STPS/SDS assessments should produce a sustainability statement.

Various responses were given by planners when asked to identify what documentation they required to endorse a STEPS/SDS report. Some correctly identified that it is the sustainability statement and any relevant details on the plans. The responses are summarised as follows:

- Report and detailed plans.
- STEPS / SDS report and any comments / further requirements from ESD Engineer.
- STEPS report and sustainability statement and any relevant details (i.e. water tank) to be shown on the plans.
- Not my job to endorse the report.
- A completed STEPS / SDS report linked to details on plans.
Methods shown on plan.
- Reports and plans reflecting information in reports.
- I would package the summary report or sustainability statement accompanied by the STEPS / SDS report and other relevant docs such as the First Rate report.
- Not sure.
- An appropriately detailed STEPS report with all of the relevant objectives met, along with a schedule of features on the plans / elevations.
- Have not done one.
- Report, details on plans, waste minimisation plans etc.
- Plans, first rate report, STEPS / SDS reports, sustainability statement.

Out of 13 responses only 1 planner identified that they did not refer STEPS/SDS reports to the Council’s ESD officer. The following chart indicates the planners’ perceptions of their responsibilities versus the ESD officers’ responsibility. A focus of training staff on the use of the tools should focus on ensuring clarity regarding who should be providing initial information and who should be approving sustainability reports.

Key Findings of the planner’s survey:
- Planners had greater difficulty using SDS tool compared to STEPS.
- Planners are the first contact point for developers and they are the key instigators of the tools at the pre-application stage, whilst ESD officers have a stronger role in educating applicants how to use the tool and inform design strategies.
- Some planners thought that it was not their responsibility to assess applications against the tool therefore they required no formal training.
Recommendations:

- Provide ongoing education and training, this is required for planners to understand and effectively apply both the SDS and STEPS tools, and ESD concepts in general.
- Encourage and foster champions/leaders in the statutory planning area to enhance and refine the process e.g. steering groups for the establishment of documentation and promotions, etc. and recognise these roles in work plans, professional development schemes or via incentives.
- Ensure planners are knowledgeable and can provide accurate information to developers on relevant ESD tools, as they are the first contact point in the process.
9 Planning Applicants and Developers Survey

The aim of surveying planning permit applicants was to ascertain the accessibility and performance of the tools in the planning process, specifically to highlight the level of difficulty or easiness in relation to how a planning permit applicant accesses, uses and approaches the tools. Out of approximately 500 people invited to participate there were 54 responses. The survey invitees were based on a database on a database of users of STEPS and SDS. Details of results are contained in Appendix 3 with a summary of key results outlined below.

Whilst relatively low, the overall response rate of 10.8% provides a valid data set which can inform this project. The conclusions from these surveys and the case studies reviewed in Chapter 10 contribute to an understanding of how the performance of STEPS and SDS assessment tools as decision making tools within the planning process.

9.1 Summary of results

To put the survey in context it is important to note that 76% of respondents used STEPS as their choice of assessment tool. It is noted that STEPS is a tool used to assess the environmental impacts of residential dwellings. Most permit applicants were from the three inner city councils. Out of 62 responses, 31 used the tool for the assessment of proposals located within the City of Port Phillip, 17 within Moreland City Council and 7 of the respondents that used the tool in Darebin City Council and 7 within other Councils. This indicates that some had used the tools in more than one place.

A significant number (80%) of the respondents used the ESD assessment tools as part of Council’s requirement, whilst 13% specified they used the tools due to the Building Code requirements.

It is important to note that without Council’s encouragement for the use of these tools applicants might otherwise not seek to improve their current design practice, as well as adopt and apply tools which would result in developments that are of innovative and sustainable design. This should send a strong message to the State Government that local councils are willing to participate in sustainable development and design, and that the next step would be for these policies to be recognised and adopted formally.

It was also indicated by 63% of the respondents that Council supported them to use the ESD assessment tools. Most of the applicants rated Council’s help to be between 3-5 on a scale of 1-5 (where 5 is very helpful). For over half of the respondents (52%) this was the first time they have used STEPS and SDS tools.

Most of the respondents used the tools in the Schematic Design (planning process) or Design Development (building process). This is a positive response as the applicants are not leaving the assessment to the end of the project timeline.

Respondents were also asked if they attended a session provided by Council, to which 74% of respondents answered ‘no’. Of those that attended Council sessions, 57% indicated that it was effective.

44% of the respondents indicated there were design elements that could not be dealt with by the assessment tools. Some of the design elements that they believed could not be dealt with by the tool included:

1. Solar hot water, WSUD treatment of car parks and additional rainwater tank storage.
2. Grey water equipment and grey water system instead of rain water collection, or in addition to Hydraulic Engineering Fees - Storm water. Toilet flushing material selections.
3. Include an explanation of how the values are calculated so that it is easier to reach the 'minimum requirements' without trial and error. Whilst this is perhaps against the principle of the tool, for an engineer told to get their client the cheapest solution to pass the STEPS or SDS tool, it would save the engineer a lot of time and therefore save the design company money.

4. Alternate forms of building materials and construction techniques or more concise schedule of materials for finishes. Applicants felt the options were too generic for their projects.

5. Compatibility with 5 star home energy ratings and eco selector.

6. I found that if you had large planted areas this was a disadvantage? Seems to be a major problem with the software. As a result I didn’t submit the results and ignored to tool. Our buildings will have large planted areas for biodiversity and amenity reasons, regardless of any piece of computer software.

Most of the respondents (71%) considered the tool to be a valuable design process tool, whilst 67% considered it to be a valuable planning tool. 71% of respondents considered the scoring system of the tool to be fair.

Planning permit applicants were asked to provide comments or suggestions relating to the STEPS / SDS tools, the comments are as follows:

7. Could a summary of the base line data e.g. how to reach GHG emissions target be explained or matched to existing State/Federal Government targets. Water is clear- but a summary to give to Builders/Developers would be great.

8. The program is lagging behind in terms of the planning requirements to address articulation and finish and needs to be clearer in terms of building materials.

9. I found the tool was geared at new developments and did not take into account renovations… ideally this should be covered in the guidelines/selected options.

10. My main concern is that there is no apparent compulsion about applying the tests or reaction by the relevant Council department if the tests are not applied. Overall it’s a very hit and miss situation and I seriously doubt if many or even any of my colleagues use it on a regular basis

11. STEPS: more flexible when using it for multiple townhouses as usually townhouses on the one site are different, therefore there is only really an option to do one townhouse, and this usually interferes with the site area and issues like that (obviously for assessment each townhouse can be put in independently, but for planning requirements it is more difficult to get an accurate reading.

12. Overall it was fairly user friendly, although the repetitive trial and error to meet minimum requirements was a little tedious.

13. Shouldn’t the tool assess how many cars the Council is demanding of the Applicant?

14. I feel it should only be used as a guide and overall assessment should include other factors that the particular project may have associated with it. Also in planning, it would help if a number of options were given as a means of achieving the rating. For example, the inclusion of a rain water tank, or the installation of a grey water recycling system, it is often difficult to commit to everything at the town planning stage.

15. I actually do an assessment for as many projects as possible as part of the standard suite of assessments for the design process and point it out to my clients so that they can see what the likely ratings would be. It’s hard to take people with you on the specialist recycled products needed. The recycled products need to be more mainstream.

16. Part J volume 1 of BCA seems to have made steps legally binding and hence has more effect.

17. Proposals must address sustainability as a core issue. Sign off for compliance should however be a condition of the planning permit or included in the building permit. Making final decisions about a myriad of building design selections at planning application stage is premature and incurs unnecessary costs. Amending and fine tuning proposals through the design development and documentation phases can cause the need for re-rating the project. Applicants need to embrace objectives through all phases of design so that they do not address sustainability as an afterthought, but rating signoff should not be at planning application stage.
18. Not at this time we would prefer to wait until the projects have been completed and assess against costs and the performance of the buildings.

19. Hasn’t had enough user experience with the software to comment on development improvements at this stage. However it would be good to gain credits in one area of the assessment when it is difficult to achieve the benchmark in another area of the assessment.

20. Very simple tools - suitable for high level assessment, can be completed without employing ESD consultants.

21. There are no ‘not applicable’ boxes where things are not relevant or compliance is not required (e.g.: bicycle parking).

22. STEPS should be replaced by Eco selector so there is a universal assessment. A system promoted by 2-3 municipalities is wasteful of time and money.

23. I think it may have helped to have better information about the use of the tools. Unfortunately due to fees being so tight there is little opportunity to spend vast amounts of time learning new tools and systems for each project. Having said that it is a worthwhile objective to encourage better environmentally responsible design however, it should be universal across the state and country not just at local levels.

24. In regards to the STEPS tool I found it relatively easy to use plugging known information into the report. However, to improve performances on that information I didn’t know what to do so then went to a consultant. There was no way I knew how to calculate the First Rate scores. The MJ per m² for heating, cooling, conditioning or star ratings.

9.2 Discussion of Results

Planning permit applicants were asked to provide comments or suggestions in relation to the tools used. Some of the respondents indicated issues which need to be addressed in the tools to make them more effective and easier to apply to different projects.

A number of common themes emerged from the responses provided in relation to the tool, such as compulsory application of the tools, inconsistency, inflexibility of the tool and ease of use.

Responses 16 and 17 (listed above) said that the tools are an ineffective exercise unless they are to be applied to all projects and are made compulsory. In addition some of the respondents noted that it would be more effective to apply a tool that is consistent and used throughout all of the councils and all levels of government (refer 22 and 23 in the above list). These responses reinforce the need for a consistent state-wide framework to make the planning system cost effective and fair for all stakeholders.

It was also raised in response 6 that the tool negatively assesses large areas of landscaping. It is correct that the tool associates large area of landscaping negatively as it is seen to require lots of watering. The tool is not able to link recycled water if used on site as a means of watering large areas of landscaping. The tool further does not consider whether the planting will be indigenous or water tolerant which would minimise watering requirements. This section of the tools needs to be reviewed and updated as appropriate.

Responses 1, 2, 4 and 6 indicated that some of the design elements the tool could not deal with include solar hot water and grey water issues. It is considered that the respondents missed the question or did not fully understand as these issues are dealt with by the tool.

While it is true that STEPS can not be applied as a measure of sustainability for all townhouses within one development complex (refer to response 1), it is noted that STEPS assessment could be completed for one or two dwellings separately and each can then be used as benchmarks for other dwellings within the development. In relation to apartments STEPS will use the value of the whole building to determine a range of requirements.
Positive comments were made which identify that the tool is simple to use (refer to responses 12, 20, 24). Furthermore it was identified in response 21 that the tool does not contain a ‘not applicable’ box. Both of these points are valuable and should be considered when reviewing or upgrading the policy. It is however noted that the ‘not applicable’ box should only be included where relevant to ensure that it is not misused by applicants.

The responses of the planning applicants / developers survey should be used in the periodic review of the SDS and STEPS assessment tools, particularly where information cannot be accurately entered into the tools or where better integration between the tools and relevant planning considerations are suggested.

Recommendations

It is noted that there are detailed recommendations for the tools outlined in Chapters 10.7 and 11.5 of this report, however it is recommended that in the periodic review of the SDS and STEPS tools, the survey respondents comments are reviewed and addressed within the tools as appropriate.

- Make the tool more flexible by introducing a ‘non applicable’ box, this will allow for all questions to be answered without loss of points.
- Update the tool to recognise landscaping and permeable surfaces as a positive outcome, based on the use of recycled water or other water conservation techniques.
- Update the tool to take into account type of landscaping proposed. Provide incentives to use native and local species as well as drought tolerant plants.
- Provide an opportunity to assess a number of town houses within the same development site at the same time.
- Continue reviewing the tools to ensure they are up to date and incorporate new technologies.
- Ensure that the tool remains user friendly.
- Advocate for the tool to become a mandatory assessment in all Councils, to ensure consistency in the rules and regulations.
10 Development Case Studies

Six development applications were selected from the three project Council’s participation in the STEPS and SDS program and reviewed through interviews with the applicant in order to formulate the following Case Studies. A range of development types were chosen.

10.1 Lincoln Mills

10.1.1 Project Outline

<table>
<thead>
<tr>
<th>Project Details</th>
<th>Lincoln Mills Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Name</td>
<td>Lincoln Mills Site</td>
</tr>
<tr>
<td>Building address</td>
<td>64-74 Gaffney Street, Coburg</td>
</tr>
<tr>
<td>Client</td>
<td>Stenat Investments Pty Ltd</td>
</tr>
<tr>
<td>Architect</td>
<td>The Buchan Group</td>
</tr>
<tr>
<td>ESD Engineer</td>
<td>Ark Resources</td>
</tr>
<tr>
<td>ESD Assessment Undertaken</td>
<td>Sustainable Development Scorecard</td>
</tr>
<tr>
<td>Date of ESD Assessment</td>
<td>8/6/2006</td>
</tr>
<tr>
<td>Consultant Fee</td>
<td>$5,000</td>
</tr>
<tr>
<td>Cost of applying required strategies</td>
<td>$780,000 (4% of overall project budget)</td>
</tr>
<tr>
<td>Building Type</td>
<td>Mixed-use Retail</td>
</tr>
<tr>
<td>Area</td>
<td>24,251 m²</td>
</tr>
</tbody>
</table>

Site Description

This development consists of retail shops, trade suppliers and food and drink outlets. It is anticipated that there will be partial demolition of the existing buildings and alteration of road access.

Background

The SDS tool was consulted during the Design Development stage on the advice on council at the preliminary design meeting. Later the tool was used to meet permit conditions for the project.

A minimum overall score of 100 points was achieved using the SDS methodology, achieving compliance with 5 of 7 categories.
## 10.1.2 Sustainable Design Approach

### ESD Analysis – Project Response to Scorecard

The scorecard for this site was as follows:

<table>
<thead>
<tr>
<th>COPP Scorecard V 3.2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY EFFICIENCY</strong></td>
<td>Target: 30 points</td>
</tr>
<tr>
<td>Energy saving building lighting 6-12 watts/m²</td>
<td>6 points</td>
</tr>
<tr>
<td>Natural ventilation to the warehouse</td>
<td>6 points</td>
</tr>
<tr>
<td>Commercial HVAC cooling system</td>
<td>6 points</td>
</tr>
<tr>
<td>Commercial HVAC heating system</td>
<td>6 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>24 points achieved</td>
</tr>
<tr>
<td><strong>TRANSPORT</strong></td>
<td>Target: 10 points</td>
</tr>
<tr>
<td>Bicycle parking provided</td>
<td>5 points</td>
</tr>
<tr>
<td>Trip change facilities provided (shower and change rooms)</td>
<td>5 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>10 points achieved</td>
</tr>
<tr>
<td><strong>WATER</strong></td>
<td>Target: 20 points</td>
</tr>
<tr>
<td>STORMWATER runoff quality – Mandatory</td>
<td>11 points</td>
</tr>
<tr>
<td>WATER AAA shower heads used AA basin tap sets used 6/3 dual flush toilets used Water efficient garden 150m² garden area * note the AAA rating scheme has now been replaced by the Water Efficiency Labelling and Standards (WELS) Star Rating scheme</td>
<td>12 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>23 points achieved</td>
</tr>
<tr>
<td><strong>WASTE</strong></td>
<td>Target: 12 points</td>
</tr>
<tr>
<td>Operational recycling</td>
<td>5 points</td>
</tr>
<tr>
<td>Commitment to prepare a Waste management plan</td>
<td>5 points</td>
</tr>
<tr>
<td>Recycling targets</td>
<td>2 points</td>
</tr>
<tr>
<td>Pre Manufacturing</td>
<td>2 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>14 points achieved</td>
</tr>
<tr>
<td><strong>MATERIALS</strong></td>
<td>Target: 12 points</td>
</tr>
<tr>
<td>Unsustainable timber imports excluded</td>
<td>4 points</td>
</tr>
<tr>
<td>Sustainable timber</td>
<td>4 points</td>
</tr>
<tr>
<td>In situ Concrete: Supplementary Extender Content</td>
<td>4 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>12 points achieved</td>
</tr>
<tr>
<td><strong>INDOOR ENVIRONMENT QUALITY</strong></td>
<td>Target: 8 points</td>
</tr>
<tr>
<td>Effective air</td>
<td>3 points</td>
</tr>
<tr>
<td>Low emission particle board</td>
<td>0 points</td>
</tr>
<tr>
<td>Low VOC paints</td>
<td>3 points</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>6 points achieved</td>
</tr>
</tbody>
</table>
Category Notes & Comments

- **Energy Efficiency**
  - The minimum score for this category was not met
  - Energy efficient car park lighting comprising T5 fluorescent lamps and electronic ballasts
  - Easy to achieve but with extra cost of $150,000 for car park lighting

- **Transport**
  - A total of 42 employee spaces and 48 customer spaces are provided
  - 2 shower/change rooms located within the Bunnings store
  - 3 shower/change rooms located within public amenities
  - Easy to achieve but with extra cost of $30,000 for showers and $95,000 in lost space

- **Water**
  - A total of 412m² of bio-retention zones throughout car park
  - Bunnings store will have a rainwater harvesting system comprising a 40kL rainwater tank with re-use for toilet flushing and plant nursery irrigation.
  - Other tenancies will have individual rainwater harvesting systems comprising a total of 16kL of rainwater storage with re-use for toilet flushing.
  - MUSIC stormwater modelling was used to establish the above results
  - AAA water efficient fittings are used for showers, basin taps and (6L/3L) toilets
  - Easy to achieve but extra cost of $400,000
▪ Waste
  - There will be sufficient area for storage of multiple garbage bins for general waste and recyclables within each tenancy
  - Ensured ease of access for commercial recycling contractors
  - Must comply with Eco Recycle Waste Minimisation Plan
  - There will be recycling of all demolition and construction materials by the Contractor where practicable.
  - Easy to apply with no significant extra cost

▪ Materials
  - No imported rainforest timber will be specified
  - Preference will be given to specifying plantation grown Australian timber.
  - All old growth timber will be re-used from existing structures on site or from recycled stock
  - Medium difficulty with extra cost of $85,000 to reuse bricks

▪ Indoor Environment Quality (IEQ)
  - The minimum score for this category was not met
  - A CO₂ monitoring system will be installed to control ventilation rates to all office spaces
  - All internal surfaces will be painted with low VOC paint such as Wattyl ID or Dulux Breathe Easy
  - Medium difficulty to achieve with extra cost of $10-20,000 for CO₂ monitoring

▪ Innovation - ESD Excellence
  - Retention and recycling of bricks results in an embodied energy saving equivalent of 180 tonnes of CO₂ as calculated by Ark Resources
  - Electrical sub-meters will be installed to each tenancy
  - Easy application with marginal costs for sub metering and paints etc

10.1.3 Key Outcomes

Reduced Environmental Impacts

Through the sustainable design strategies employed, the following environmental outcomes are expected:

▪ Reduced greenhouse gas emission from improved energy efficiency characteristics of the building envelope and HVAC (heating, ventilation, and air-conditioning) systems.
▪ Improved quality of stormwater leaving site through the provision of an onsite bioremediation system.
▪ Reduced potable water use through the use of water efficient fixtures and drought resistant plant species.
▪ Reduced waste to landfill through the waste management plan incorporated during construction (estimated waste recycled approx. 367m³), and through the provision of recycling facilities within the building.
▪ Long building life through the selection of durable and low maintenance materials.

Improved Indoor Environment Quality

Expected outcomes from some of the sustainable design initiatives incorporated into the building include improved health of building users due to:

▪ significant levels of daylighting in office areas;
▪ the use of low VOC (Volatile Organic Compounds) particleboard and paints; and
▪ the ability for building users to open windows in office areas to more directly control their immediate thermal environment.
Economic Outcomes

While the perceived extra/over cost of 4% to the project budget that has been identified is directly linked to the ESD strategies outlined in this review, it is important to note that the ‘real’ cost of these measures must include the expected increase in building occupant contentment and productivity. It also bears mentioning that expected increases in energy and water costs, both economic and environmental, are not accounted for here and that through these measures these ESD strategies will effectively ‘future proof’ the building against significant changes to ongoing operational expenses.

Industry Education

Whilst the contractor did not attend any STEPS Training or briefing sessions, the engaged ESD consultant provided good advice on how the points system worked, strength/weaknesses of the project, suitability and costs. It was noted that recommendations were not easy to apply to the industrial project however they would apply the same or similar design features in future projects.

The SDS tool was considered valuable during the design development process, as it provided a simple framework with good tips for improvement, particularly in relation to commercial buildings. Some changes were recommended for improving the tool for industrial type projects. Overall the tool provided incentive for the team (and others) to create a better quality product which meets environmental aims.

Developer Feedback

The contractor’s perception of using the tool was that it was not that easy for this particular type of development but it bears noting that this was the first time for the contractor using the tool and it was believed that no training was available. The contractor allowed that the SDS methodology was effective in helping to create a better quality product that meets environmental aims but that it could be more effective if linked to Section J requirements. A summary breakdown of contractor feedback follows:

- Ease of finding tool: NA
- Using the tool: Not easy for this particular type of development
- Time factor: Extra weeks were spent as design was complicated
- Design elements not addressed by this tool: The shed type nature of the development made it hard to meet targets that seemed to be commercially based.
- Perception of the fairness of scores: Not to this particular building type
- Lessons Learnt: None – other tools have been used before

Recommendations/Comments from the contractor:

- Tool should link with Section J where targets are amended for different types of buildings, more flexibility required
- It should be said up-front and explained that it is not mandatory
- Education of developers will lead to this becoming standard practise
- ABGR project is 12% over standard budget
- Council not as helpful on feedback given on different types of buildings
10.2 French Avenue Apartments

10.2.1 Project Outline

Project Details

<table>
<thead>
<tr>
<th>Building Name</th>
<th>French Avenue Apartments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building address</td>
<td>22 French Ave, Brunswick East, VIC 3057</td>
</tr>
<tr>
<td>Client</td>
<td>Jolin Holding Pty Ltd</td>
</tr>
<tr>
<td>Architect</td>
<td>Peter Sgourakis Architect Pty Ltd</td>
</tr>
<tr>
<td>ESD Engineer</td>
<td>N/A</td>
</tr>
<tr>
<td>ESD Assessment Undertaken</td>
<td>STEPS</td>
</tr>
<tr>
<td>Date of ESD Assessment</td>
<td>23/5/2007</td>
</tr>
<tr>
<td>Consultant Fee</td>
<td>≈ $2,500</td>
</tr>
<tr>
<td>Cost of applying required strategies</td>
<td>2.5% of total project budget</td>
</tr>
<tr>
<td>Design and Construct Contractor</td>
<td>Jolin Holding Pty Ltd</td>
</tr>
<tr>
<td>Building Type</td>
<td>Apartment (32 Bedroom/16 Apt)</td>
</tr>
<tr>
<td>Area</td>
<td>1,782 m²</td>
</tr>
</tbody>
</table>

Site Description

This development consists of 16 apartments with 32 bedrooms in total.

Background

The site was previously an industrial site that was rezoned, hence it is heavily contaminated. Permit conditions related to the site were appealed by the applicant at VCAT. One particular condition requested that an ESD Management Plan be developed for the site. VCAT ruled in favour of Moreland City Council, and the permit condition was met by assessing the building using the STEPS program, with the assistance of Council’s ESD Engineer. Each of the targets in STEPS was met and exceeded.

10.2.2 Sustainable Design Approach

ESD Analysis - Project Response to Steps

The STEPS report for this site was as follows:

<table>
<thead>
<tr>
<th>Moreland STEPS</th>
<th>Target: 15% reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>GREENHOUSE EMISSIONS FROM ENERGY USE</td>
<td></td>
</tr>
<tr>
<td>FirstRate energy star rating: 5 stars</td>
<td></td>
</tr>
<tr>
<td>Heating system type: Reverse Cycle heating rating 6 star or more</td>
<td></td>
</tr>
<tr>
<td>Heating system options: Zoned Central Heating</td>
<td></td>
</tr>
<tr>
<td>Cooling system type: Air Conditioning, 6+ stars</td>
<td></td>
</tr>
<tr>
<td>Cooling system options: Zoned Systems</td>
<td></td>
</tr>
<tr>
<td>Water heater type: Electric boosted solar (High Efficiency &gt; 80% boost)</td>
<td></td>
</tr>
<tr>
<td>Lighting in living area: Fluorescent or compact fluorescent</td>
<td>26% reduction achieved</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Clothes-drying facility: Inside fixed drying rack &gt; 0.4m²/bedroom</td>
<td></td>
</tr>
<tr>
<td><strong>PEAK ENERGY USE</strong></td>
<td>Target: 10% reduction</td>
</tr>
<tr>
<td>As per Greenhouse</td>
<td></td>
</tr>
<tr>
<td><strong>MAINS WATER USE</strong></td>
<td>Target: 25% reduction</td>
</tr>
<tr>
<td>Fittings type: AAAAA rating for showers and basins, 6/3L dual flush toilets</td>
<td></td>
</tr>
<tr>
<td>Rainwater collection tank size: 34,000L from 1250 m² of roof using for toilet flushing and irrigation</td>
<td>60% reduction achieved</td>
</tr>
<tr>
<td><strong>STORMWATER</strong></td>
<td>Target: 75% onsite treatment</td>
</tr>
<tr>
<td>In addition to the rainwater tank above 33m² of bio-retention systems were planted to treat stormwater from the remaining hard surface areas.</td>
<td>100% reduction achieved</td>
</tr>
<tr>
<td><strong>MATERIALS</strong></td>
<td>Target: 11% improvement</td>
</tr>
<tr>
<td>Floors: Concrete slab &amp; timber frame</td>
<td></td>
</tr>
<tr>
<td>Walls: Timber frame, brick &amp; tilt slab</td>
<td></td>
</tr>
<tr>
<td>Wall Cladding: FC weatherboard, brick &amp; block</td>
<td></td>
</tr>
<tr>
<td>Windows: Timber – imported, non-greenlist</td>
<td></td>
</tr>
<tr>
<td>Roof: Steel &amp; timber</td>
<td>18% achieved</td>
</tr>
<tr>
<td><strong>WASTE</strong></td>
<td></td>
</tr>
<tr>
<td>Waste Management – Recyclables</td>
<td>12 m²</td>
</tr>
<tr>
<td>Waste Management – Rubbish</td>
<td>4 m²</td>
</tr>
<tr>
<td>Waste Management - Green Waste</td>
<td>0.25 m²</td>
</tr>
<tr>
<td>Waste Management – TOTAL</td>
<td>16 m³</td>
</tr>
<tr>
<td><strong>TRANSPORT</strong></td>
<td></td>
</tr>
<tr>
<td>Transport – Secure Bicycle Parks Required</td>
<td>20</td>
</tr>
<tr>
<td><strong>TOTAL STEPS Score</strong></td>
<td>246 points achieved</td>
</tr>
</tbody>
</table>
Project Sustainability Score: 246/500

Category Notes & Comments

- **Energy**
  - Medium difficulty, had to remove roof lights and move windows, no extra cost.

- **Water**
  - Difficult to apply with cost of $45,000 for tanks (had noted 5 star showerheads thinking they were available).

- **Stormwater**
  - Easy application as they choose to treat on-site as opposed to paying for standard connection. $60,000 for systems but $25,000 saving versus standard connection.

- **Materials**
  - Easy application with no extra costs.

10.2.3 Key Outcomes

Reduced Environmental Impacts

Through the sustainable design strategies employed, the following environmental outcomes are expected:

- Reduced greenhouse gas emission from improved energy efficiency characteristics of the building envelope and HVAC (heating, ventilation, and air-conditioning) systems.
- Improved quality of stormwater leaving site through the provision of an onsite retention/reuse system.
- Reduced potable water use through the use of water efficient fixtures and drought resistant plant species.
- Long building life through the selection of durable and low maintenance materials.
- Improved waste facilities to maximize the potential for recycling.
- Bicycle riding encouraged for both visitors and occupiers.

Economic Outcomes

While the perceived extra/over cost of 2.5% to the project budget that has been identified is directly linked to the ESD strategies outlined in this review, it was noted that the increased cost led to marketing value for the developer. The main costs were attributable to the rainwater collection and recycling system and stormwater treatment system.
Industry Education

The contractor attended a STEPS training course and was also assisted in the application of the tool by Council’s ESD Engineer. Through the use of the tool, the contractor agreed that they now had a better understanding of how the building fabric, in particular glazing, affects the energy use and comfort of a dwelling. The lessons learnt during this project will be applied to future projects as the contractor believes that all projects will be required to integrate these types of sustainability elements in the future.

Developer Feedback

The contractor’s perception of the tool was that it was easy to access and use the STEPS tool. The initial engagement of a consultant that was not helpful in assisting the learning process was countered by the assistance provided by Council. The contractor would like to see a consistent approach across all Councils.

A summary breakdown of contractor feedback follows:

- Ease of finding tool: Yes
- Using the tool: Easy
- Advice from Consultants: Consultant was appointed but not helpful
- Time factor: No interference
- Design Elements not dealt with by tool: Did not review
- Perception of the fairness of scores: Fair
- Value of tool in construction process: No - would the builder understand documentation?
- Lessons Learnt: Understanding of openings orientation & roof penetrations

Recommendations/Comments:

- Worked with Council to come up with stormwater solutions
- Gives a heads up to good framework.
- Documentation straight forward but doubts the builder would understand it
- ESD engineer support and advice was extremely helpful.
- Would like similar support across all councils
- Should be consistent approach across all councils

10.3 St Michael’s Grammar

10.3.1 Project Outline

<table>
<thead>
<tr>
<th>Building Name</th>
<th>St Michael’s Grammar Junior School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building address</td>
<td>8 Marlton Crescent, St Kilda, VIC 3182</td>
</tr>
<tr>
<td>Client</td>
<td>St Michael’s Grammar Junior School</td>
</tr>
<tr>
<td>Architect</td>
<td>Architectus</td>
</tr>
<tr>
<td>ESD Engineer</td>
<td>Irwin Consult</td>
</tr>
<tr>
<td>ESD Assessment Undertaken</td>
<td>Sustainable Development Scorecard</td>
</tr>
<tr>
<td>Date of ESD Assessment</td>
<td>15/9/2006</td>
</tr>
</tbody>
</table>
Consultant Fee  ≈$8,000 ($5,000 Town Planning - $3,000 Design Fee)
Cost of applying required strategies  ≈$1% of overall project budget
Building Type  Community / Public Building
Area  2,107 m²

Site Description

This project consists of the demolition of part of the ‘Scholastica Wing’ at the St Michael’s Grammar Junior School and development of a new two storey building.

Background

The SDS tool was consulted during the Project Briefing stage after the early appointment, and on the advice of Irwin Consult. An overall score of 115 points was achieved using the SDS methodology with compliance in 7 out of 7 categories.

10.3.2 Sustainable Design Approach

ESD Analysis - Project Response To Scorecard

The scorecard for this site was as follows:

<table>
<thead>
<tr>
<th>COPP Scorecard V 3.2</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY EFFICIENCY</strong></td>
<td>30 points</td>
</tr>
<tr>
<td>Efficiency of Hot Water System – Gas Instantaneous</td>
<td>4 points</td>
</tr>
<tr>
<td>Maximum Insulation / Minimum Air Leakage</td>
<td>6 points</td>
</tr>
<tr>
<td>High Performance Glazing – 100% of Building</td>
<td>4 points</td>
</tr>
<tr>
<td>Efficient Cooling System – Reverse Cycle</td>
<td>8 points</td>
</tr>
<tr>
<td>Efficient Heating System – Reverse Cycle</td>
<td>4 points</td>
</tr>
<tr>
<td>Energy Saving Building Lighting – T5 Fluorescent</td>
<td>4 points</td>
</tr>
<tr>
<td>Car Park Ventilation – CO Sensor</td>
<td>2 points</td>
</tr>
<tr>
<td><strong>TRANSPORT</strong></td>
<td>10 points</td>
</tr>
<tr>
<td>Bicycle Parking Provided</td>
<td>5 points</td>
</tr>
<tr>
<td>Trip Change Facilities Provided (Shower and Change Rooms)</td>
<td>5 points</td>
</tr>
<tr>
<td><strong>WATER</strong></td>
<td>20 points</td>
</tr>
<tr>
<td>Water efficient features / Grey Water-Storm Water Collection</td>
<td>10 points</td>
</tr>
<tr>
<td>Storm Water Runoff Quality</td>
<td>10 points</td>
</tr>
<tr>
<td><strong>WASTE</strong></td>
<td>12 points</td>
</tr>
<tr>
<td>Operational Recycling</td>
<td>3 points</td>
</tr>
</tbody>
</table>

32 points achieved

10 points achieved

20 points achieved
<table>
<thead>
<tr>
<th>Commitment to Prepare a Waste Management Plan</th>
<th>5 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling Targets</td>
<td>2 points</td>
</tr>
<tr>
<td>Adaptable Design</td>
<td>2 points</td>
</tr>
<tr>
<td>Pre Manufacturing</td>
<td>1 point</td>
</tr>
<tr>
<td>Design Allows for Efficient Fitout Upgrade</td>
<td>1 point</td>
</tr>
<tr>
<td></td>
<td><strong>14 points achieved</strong></td>
</tr>
</tbody>
</table>

**MATERIALS**

| Unsustainable Timber Imports Excluded       | 4 points |
| Sustainable Timber                          | 4 points |
| Non-toxic Materials                         | 2 points |
| Durable Materials                           | 2 points |
| Wall Cladding Materials Specified from Greenlist | 1 point |
| Roof Cladding Materials Specified from Greenlist | 1 point |
|                                             | **14 points achieved** |

**INDOOR ENVIRONMENT QUALITY**

| Mixed Mode HVAC                              | 2 points |
| Low emission particle board – EO Specified   | 4 points |
| Low VOC paints                               | 3 points |
|                                             | **9 points achieved** |

**ESD EXCELLENCE**

| Efficient Lifts Specified                    | 2 points |
| Electrical sub-metering                      | 1 point |
| Daylight Maximized                           | 3 points |
| Water sub metering - Separate check metering for water will be provided to minimize un-noticed leaks | 2 points |
| Black Water or Storm Water Harvesting and Reuse | 4 points |
| Thermal Mass Used for Temperature Moderation | 4 points |
|                                             | **16 points achieved** |

**TOTAL SDS Score**

|                                             | **115 points achieved** |
Overall Score: 115 points

Category Notes & Comments

- **Energy Efficiency**
  - Energy efficient lighting comprising of T5 fluorescent lamps and electronic ballasts
  - 5 star reverse-cycle heating/cooling system
  - Easy application

- **Transport**
  - A total of 1 bicycle space per 20 employees and 1 space per 5 pupils (over year 4)
  - Shower/change rooms located within the disabled shower/toilet area
  - Easy application

- **Water**
  - AAA water efficient fittings are used for showers, basin taps and (6L/3L) toilets
  - 65 m³ rainwater tank permanently connected to the toilet flushing system.
  - 930 m² rainwater collection area.
  - Difficult application and $70,000 tank was hard to justify to school

- **Waste**
  - Participation in the Waste Wise Schools program
  - Ensured ease of access in Redan Street for Visy paper recycling pickup.
  - Walls and trusses to be pre-fabricated off-site, reducing off cut waste
  - There will be recycling of at least 30% of demolition and construction materials
  - Easy application

- **Materials**
  - Built without the use of unsustainable timber, e.g. Merbau
  - 100% plantation or recycled timber will be used
  - Easy application
  - Indoor Environment Quality (IEQ)
  - Natural ventilation such as openable windows and a thermal chimney will be installed
  - All internal and external surfaces will be painted with low VOC paint
  - Easy application as it was a strong feature in original design

- **ESD Excellence**
  - Counterweighted electric lift will be specified to minimise energy usage
  - Thermo mass walls will provide thermal mass to the building
  - Easy application, lifts were already specified by consultant
10.3.3 Key Outcomes

Reduced Environmental Impacts

Through the sustainable design strategies employed, the following environmental outcomes are expected:

▪ Reduced greenhouse gas emission from improved energy efficiency characteristics of the building envelope, lighting, lifts and HVAC (heating, ventilation, and air-conditioning) systems.
▪ Improved quality of stormwater leaving site through the provision of an onsite bioremediation system.
▪ Reduced potable water use through the use of water efficient fixtures and drought resistant plant species.
▪ Reduced use of unsustainable timbers.
▪ Reduced waste to landfill through the waste management plan incorporated during construction, and through the provision of recycling facilities within the building.
▪ Long building life through the selection of durable and low maintenance materials.
▪ Increased use of sustainable transport options.

Improved Indoor Environment Quality

Expected outcomes from some of the sustainable design initiatives incorporated into the building include improved health of building users due to:

▪ natural ventilation to the classrooms;
▪ the use of low VOC (Volatile Organic Compounds) paints; and
▪ daylighting maximized to the classrooms.

Economic Outcomes

While the perceived extra/over cost of 1% to the project budget, the majority attributed to the cost of the rainwater harvesting system, is directly linked to the ESD strategies outlined in this review, it is important to note that the ‘real’ cost of these measures must include the expected increase in building occupant contentment and productivity. It also bears mentioning that expected increases in energy and water costs, both economic and environmental, are not accounted for here and that through these measures these ESD strategies will effectively ‘future proof’ the building against significant changes to ongoing operational expenses.

Industry Education

The contractor engaged Irwin Consultant who aided in the use of the tool by providing a framework for the school to make decisions. Generally, the recommendations were considered easy to apply and the design features will be considered for use in future projects. The contractor commented that he learnt a lot about new technologies throughout the project.

Developer Feedback

The contractor's perception of using the tool was that it was useful as a framework for weighing and making ESD decisions. The contractor noted that the SDS methodology was effective but sometimes too blunt of a tool. It does not take into account passive solar design but overall it has been useful to all stakeholders in the process.
A summary breakdown of contractor feedback follows:

- Ease of finding tool: NA
- Using the tool: NA
- Advice from Consultants: Gave the school a framework to make decisions on ESD decisions
  Needed to have more in regard to budget implications
  Recommendations were easily applied
- Time factor: No, minor interference
- Design Elements not dealt with tool: Passive solar design
- Value of tool in design development: Interesting to use and report is useful to argue decisions and implications.
- Value of tool in construction process: Useful to construction
- Perception of the fairness of scores: Fair on most aspects
- Lessons Learnt: New technologies from a prior mechanical services engineer

Recommendations/Comments:

- Tool was too blunt and did not consider passive solar design
- School now uses SDS report to market itself
- The fact that the points system weighs up good solar design versus waste management indicates that regulation is required. (Ed: note that the tool does not allow trade offs).
- Concerned about follow through on initiatives after planning
- Process improvements needed at councils

### 10.4 Northcote Townhouses

#### 10.4.1 Project Outline

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Northcote Street Townhouses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building address</td>
<td>2 Northcote Street, Northcote VIC 3070</td>
</tr>
<tr>
<td>Architect</td>
<td>Walker – Yerondais Pty Ltd</td>
</tr>
<tr>
<td>ESD Engineer</td>
<td>NA</td>
</tr>
<tr>
<td>ESD Assessment Undertaken</td>
<td>STEPS</td>
</tr>
<tr>
<td>Date of ESD Assessment</td>
<td>4/5/2007</td>
</tr>
<tr>
<td>Consultant Fee</td>
<td>NA</td>
</tr>
<tr>
<td>Cost of applying required strategies</td>
<td>0% of total project budget (Major cost of solar panels and water tanks already included)</td>
</tr>
<tr>
<td>Building Type</td>
<td>Townhouses</td>
</tr>
<tr>
<td>Area</td>
<td>605 m²</td>
</tr>
</tbody>
</table>
Site Description

The current site accommodates a single story weatherboard dwelling with a tile roof. The applicant seeks to replace the existing dwelling with four (4) dwellings.

Background

The STEPS tool was used during Design Development after an application was made to Council and the use of the tool recommended by Council. All targets were met and exceeded.

10.4.2 Sustainable Design Approach

ESD Analysis - Project Response to STEPS

The STEPS report for this site was as follows:

<table>
<thead>
<tr>
<th>Moreland STEPS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GREENHOUSE EMISSIONS FROM ENERGY USE</strong></td>
<td>Target: 15% reduction</td>
</tr>
<tr>
<td>FirstRate energy star rating: 4.5 stars</td>
<td></td>
</tr>
<tr>
<td>Heating system type: Solar Boosted Gas Hydronic Heating</td>
<td></td>
</tr>
<tr>
<td>Heating system options: Zoned Central Heating</td>
<td></td>
</tr>
<tr>
<td>Cooling system type: Evaporative Cooling</td>
<td></td>
</tr>
<tr>
<td>Cooling system options: Zoned Systems</td>
<td></td>
</tr>
<tr>
<td>Water heater type: Gas boosted solar (High Efficiency &gt; 80% boost)</td>
<td></td>
</tr>
<tr>
<td>Lighting in living area: Low voltage halogen</td>
<td></td>
</tr>
<tr>
<td>Clothes-drying facility: Outside Clothes line provided</td>
<td></td>
</tr>
<tr>
<td></td>
<td>61% reduction achieved</td>
</tr>
<tr>
<td><strong>PEAK ENERGY USE</strong></td>
<td>Target: 10% reduction</td>
</tr>
<tr>
<td>As per Greenhouse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100% reduction achieved</td>
</tr>
<tr>
<td><strong>MAINS WATER USE</strong></td>
<td>Target: 25% reduction</td>
</tr>
<tr>
<td>Fittings type: AAA rating for showers and basins, 9/4.5L dual flush toilets</td>
<td></td>
</tr>
<tr>
<td>Rainwater collection tank size: 21,000L from 306m² of roof using for toilet flushing and irrigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>57% reduction achieved</td>
</tr>
<tr>
<td><strong>STORMWATER</strong></td>
<td>Target: 75% onsite treatment</td>
</tr>
<tr>
<td>Bio-retention systems in addition to the rainwater tank as above.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80% reduction achieved</td>
</tr>
<tr>
<td><strong>MATERIALS</strong></td>
<td>Target: 11% improvement</td>
</tr>
<tr>
<td>Floors: Concrete slab &amp; timber frame</td>
<td></td>
</tr>
<tr>
<td>Walls: Timber frame</td>
<td></td>
</tr>
</tbody>
</table>
Wall Cladding: FC weatherboard, brick
Windows: Timber – greenlist
Roof: Steel

23% achieved

WASTE
Waste Management – Recyclables 0.75 m²
Waste Management – Rubbish 0.25 m²
Waste Management - Green Waste 0.25 m²
Waste Management – TOTAL 1.25 m²

TRANSPORT
Transport – Secure Bicycle Parks Required 3

TOTAL STEPS Score 321 points achieved

Project Sustainability Score: 321/500

Category Notes & Comments

- Energy
  - Easy application
- Water
  - Easy application, but still accessing potential and best water uses for tanks
- Stormwater
  - Medium difficulty, investigating suitable filtration system, approximate cost of $5,000
- Materials
  - Easy application, Greenlist contains standard materials they already use
10.4.3 Key Outcomes

Reduced Environmental Impacts

Through the sustainable design strategies employed, the following environmental outcomes are expected:

- Reduced greenhouse gas emission from improved energy efficiency characteristics of the building envelope, hot water and HVAC (heating, ventilation, and air-conditioning) systems.
- Improved quality of stormwater leaving site through the provision of an onsite retention/reuse system.
- Reduced potable water use through the use of water efficient fixtures and drought resistant plant species.
- Long building life through the selection of durable and low maintenance materials.
- Improved waste management and bicycle storage facility.

Economic Outcomes

There is no extra/over cost to the project budget that has been identified is directly linked to the ESD strategies outlined in this review.

Industry Education

The contractor did not attend a STEPS training session, but still found the STEPS tool easy to access and use. The design features used on this project will be applied to future projects when clients request ESD initiatives. In particular, the contractor expanded their knowledge of water retention systems through this project.

Developer Feedback

In this case, the designer uses a number of the ESD principles as standard practice, and hence found the tool easy to use and understand. Their perception of the tool was that it was too simplistic and could be made more stringent in the future.

A summary breakdown of contractor feedback follows:

- Reasons for consulting tool: Advice from council
- Ease of finding tool: Yes
- Using the tool: Easy to use as sustainability statement already encompassed all the initiatives entered in tool
- Advice from Consultants: NA
- Time factor: 1 week for first time use of tool
- Design Elements not dealt with tool: Too brief and simple, no in-depth analysis of design aspects
- Value of tool in design development: None, as designer was already applying similar principles
- Value of tool in construction process: None
- Perception of the fairness of scores: Fair
- Lessons Learnt: Research on types of water retention systems and tanks

Recommendations/Comments:

- Note to increase stringency later on
- some clients are sceptical about environmental issues.
10.5 Longmore Street Dwellings

10.5.1 Project Outline

Project Details

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Dwellings at 5 Longmore Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building address</td>
<td>5 Longmore Street, St. Kilda VIC 3182</td>
</tr>
<tr>
<td>Architect</td>
<td>Leon Moulton Pty Ltd Architecture &amp; Interiors</td>
</tr>
<tr>
<td>ESD Engineer</td>
<td>N/A</td>
</tr>
<tr>
<td>ESD Assessment Undertaken</td>
<td>STEPS</td>
</tr>
<tr>
<td>Date of ESD Assessment</td>
<td>30/5/2007</td>
</tr>
<tr>
<td>Consultant Fee</td>
<td>NA</td>
</tr>
<tr>
<td>Cost of applying required strategies</td>
<td>0% of total project budget (Major cost of solar panels and water tanks already included)</td>
</tr>
<tr>
<td>Building Type</td>
<td>Townhouses</td>
</tr>
<tr>
<td>Area</td>
<td>605 m²</td>
</tr>
</tbody>
</table>

Site Description

The existing site accommodated a single story weatherboard dwelling with a tile roof. The project is to replace the existing dwelling with four dwellings reusing some of the existing structure.

Background

The consultant used the STEPS tool from the initial design stages upon Council’s recommendation.

10.5.2 Sustainable Design Approach

ESD Analysis - Project Response to STEPS

The STEPS report for this site was as follows:

<table>
<thead>
<tr>
<th>Moreland STEPS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GREENHOUSE EMISSIONS FROM ENERGY USE</strong></td>
</tr>
<tr>
<td>FirstRate energy star rating: 5 stars</td>
</tr>
<tr>
<td>Heating system type: 5 star gas ducted</td>
</tr>
<tr>
<td>Heating system options: Zoned Central Heating</td>
</tr>
<tr>
<td>Cooling system type: Air Conditioning, 5 stars</td>
</tr>
<tr>
<td>Cooling system options: Zoned Systems</td>
</tr>
<tr>
<td>Water heater type: Electric boosted solar (High Efficiency &gt; 80% boost)</td>
</tr>
<tr>
<td>Lighting in living area: Low voltage halogen</td>
</tr>
<tr>
<td>Clothes-drying facility: Outside Clothes line provided</td>
</tr>
</tbody>
</table>

26% reduction achieved
### PEAK ENERGY USE
**Target:** 10% reduction  
As per Greenhouse

36% reduction achieved

### MAINS WATER USE
**Target:** 25% reduction  
Fittings type: AAAA rating for showers and basins, 4.5/3L dual flush toilets  
Rainwater collection tank size: 2,000L to each dwelling for toilet flushing and irrigation

60% reduction achieved

### STORMWATER
**Target:** 75% onsite treatment  
Rainwater tank as above.

106% reduction achieved

### MATERIALS
**Target:** 11% improvement  
Floors: Concrete slab & reuse of existing  
Walls: Timber frame & reuse of existing  
Wall Cladding: Block & reuse of existing  
Windows: Aluminium  
Roof: Steel

18% achieved

### WASTE
- **Waste Management – Recyclables**  
  1.5 m²  
- **Waste Management – Rubbish**  
  .5 m²  
- **Waste Management - Green Waste**  
  0 m²  
- **Waste Management – TOTAL**  
  2.0 m²

### TRANSPORT
- **Transport – Secure Bicycle Parks Required**  
  Allocated Space

### TOTAL STEPS Score
246 points achieved
Category Notes & Comments

- **Energy**: Easy application with no extra costs, also a client request
- **Water**: Difficulty in finding gravity feed products, however no extra costs involved
- **Stormwater**: Easy application
- **Materials**: Easy application

### 10.5.3 Key Outcomes

#### Reduced Environmental Impacts

Through the sustainable design strategies employed, the following environmental outcomes are expected:

- Reduced greenhouse gas emission from improved energy efficiency characteristics of the building envelope, hot water and HVAC (heating, ventilation, and air-conditioning) systems.
- Improved efficiency of water through the provision of a rainwater collection/reuse system.
- Reduced potable water use through the use of water efficient fixtures.
- Long building life through the selection of durable and low maintenance materials.

#### Improved Indoor Environment Quality

Expected outcomes from some of the sustainable design initiatives incorporated into the building include improved health of building users due to:

- The use of low VOC (Volatile Organic Compounds) particleboard and paints.
Economic Outcomes

No extra-over cost to the project construction budget that has been identified is directly linked to the ESD strategies outlined in this review. It is expected that the on-going costs of energy and water will be reduced in proportion to the predicted savings over the average dwelling, or 26% improvement on energy and 60% reduction in water consumption.

Industry Education

The use of the STEPS tool on this project has inspired the architect to apply the design concepts to over eight subsequent projects. This is despite having not attended any training courses or employing a consultant. The value of using and applying the tool to this project has contributed to wider industry education as a consequence.

Developer Feedback

The interviewee found the STEPS tool easy to use, despite a desire to know more about the inner workings of the calculations. Generally, all comments related to the tool were positive.

A summary breakdown of contractor feedback follows:

- Ease of finding tool: Yes
- Using the tool: Easy
- Time factor: No interference
- Design Elements not dealt with tool: No
- Value of tool in design development: Helped to refine selections
- Value of tool in construction process: No – more of a design tool
- Perception of the fairness of scores: Not educated enough to judge though
- Lessons Learnt: How to use tool and apply on designs

Recommendations/Comments:

- knows how to use the tool but doesn't know how it works
- using tool on 8 other projects now
- no council assistance during use of tool
- unsure of how the water calculator and bedrooms to toilets section worked, in a large dwelling you would be penalised for not connecting all the toilets.

10.6 Whitten Oval

10.6.1 Project Outline

Project Details

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Whitten Oval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building address</td>
<td>417 Barkly Street, West Footscray</td>
</tr>
<tr>
<td>Client</td>
<td>Maribyrnong City Council</td>
</tr>
<tr>
<td>Architect</td>
<td>Peddle Thorp Architects</td>
</tr>
</tbody>
</table>
Site Description

This project involved the construction of a community and sports facilities in West Footscray.

Background

The SDS tool was consulted during the Design Development stage on the advice of the appointed consultant. Later the tool was used to meet permit conditions for the project.

10.6.2 Sustainable Design Approach

ESD Analysis - Project Response To Scorecard

The scorecard for this site was as follows:

<table>
<thead>
<tr>
<th>Scorecard Category</th>
<th>Target</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENERGY EFFICIENCY</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Efficiency of Hot Water System</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>Maximise Insulation/Minimise Air Leakage</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>High Performance Glazing</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Efficient Cooling System</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Efficient Heating System</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td>Energy Saving Building Lighting</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Car Park Ventilation</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>33</strong></td>
<td></td>
</tr>
<tr>
<td>TRANSPORT</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Bicycle parking provided</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Trip change facilities provided (shower and change rooms)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>10</strong></td>
<td></td>
</tr>
<tr>
<td>WATER</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>STORMWATER runoff quality</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>WATER AAA shower heads used AA basin tap sets used 6/3 dual flush toilets used Water efficient garden 150m2 garden area * note the AAA rating scheme has now been replaced by the Water Efficiency Labelling and Standards (WELS) Star Rating scheme</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>32</strong></td>
<td></td>
</tr>
<tr>
<td>WASTE</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Target Points</td>
<td>Achieved Points</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Operational recycling</td>
<td></td>
<td>3 points</td>
</tr>
<tr>
<td>Commitment to prepare a Waste management plan</td>
<td></td>
<td>5 points</td>
</tr>
<tr>
<td>Adaptable Design</td>
<td></td>
<td>2 points</td>
</tr>
<tr>
<td>Pre Manufacturing</td>
<td></td>
<td>1 point</td>
</tr>
<tr>
<td>Design for Efficient Fitout Upgrade</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Achieved</strong></td>
<td></td>
<td><strong>12 points</strong></td>
</tr>
<tr>
<td><strong>MATERIALS</strong></td>
<td><strong>Target: 12 points</strong></td>
<td></td>
</tr>
<tr>
<td>In-situ Concrete: Supplementary Extender Content</td>
<td>4 points</td>
<td>4 points</td>
</tr>
<tr>
<td>Precast Concrete</td>
<td></td>
<td>4 points</td>
</tr>
<tr>
<td>Non Toxic Materials</td>
<td></td>
<td>2 points</td>
</tr>
<tr>
<td>Durable Materials</td>
<td></td>
<td>2 points</td>
</tr>
<tr>
<td>Environmentally Preferable Roof and Wall Framing</td>
<td>1 point</td>
<td>1 point</td>
</tr>
<tr>
<td>Environmentally Preferable Cladding</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Achieved</strong></td>
<td></td>
<td><strong>14 points</strong></td>
</tr>
<tr>
<td><strong>INDOOR ENVIRONMENT QUALITY</strong></td>
<td><strong>Target: 8 points</strong></td>
<td></td>
</tr>
<tr>
<td>Natural Ventilation Enhanced</td>
<td></td>
<td>2 points</td>
</tr>
<tr>
<td>Low Emission Particle Board</td>
<td></td>
<td>4 points</td>
</tr>
<tr>
<td>Low VOC Sealants and Adhesives</td>
<td></td>
<td>3 points</td>
</tr>
<tr>
<td>Low VOC paints</td>
<td></td>
<td>3 points</td>
</tr>
<tr>
<td><strong>Total Achieved</strong></td>
<td></td>
<td><strong>12 points</strong></td>
</tr>
<tr>
<td><strong>ESD EXCELLENCE</strong></td>
<td><strong>Target: 8 points</strong></td>
<td></td>
</tr>
<tr>
<td>Efficient Vertical Transport</td>
<td></td>
<td>2 points</td>
</tr>
<tr>
<td>Electrical Sub-Metering</td>
<td></td>
<td>1 points</td>
</tr>
<tr>
<td>Variable Speed Drives (VSD) on fans and pumps</td>
<td></td>
<td>2 points</td>
</tr>
<tr>
<td>Daylight Maximised</td>
<td></td>
<td>3 points</td>
</tr>
<tr>
<td>Water sub metering - Separate check metering for water will be provided to minimize un-noticed leaks</td>
<td></td>
<td>2 points</td>
</tr>
<tr>
<td><strong>Total Achieved</strong></td>
<td></td>
<td><strong>10 points</strong></td>
</tr>
<tr>
<td><strong>TOTAL SDS Score</strong></td>
<td></td>
<td><strong>123 points</strong></td>
</tr>
</tbody>
</table>
Category Notes & Comments

- **Energy Efficiency**
  - Windows glazed with high performance or double glazing, and provided with effective shading
  - Maximum Insulation, Minimum Air Building Leakage: Compliant with BCA class 5-9 Section J requirements
  - Lighting: T5 Fluorescent Lighting with Electronic Ballasts
  - Easy application with minor cost for electrical and lighting

- **Transport**
  - A total of 25 undercover bicycle spaces and 20 spaces external
  - Facility change rooms available
  - Easy application, no extra costs

- **Water**
  - AAA water efficient fittings are used for showers, basin taps and (6L/3L) dual flush toilets
  - 30000L rainwater tank permanently connected to the toilet flushing system.
  - 912 m² rainwater collection area.
  - Medium difficulty with $10,000 for two 5000L rainwater tanks & swales and car park redesign

- **Waste**
  - Commitment to develop ‘Waste Minimisation Plan’ for the construction process
  - All materials used will be standard sizes, and chosen for their reusability.
  - Designed for disassembly, deconstruction and high value re-use of materials
  - Medium difficulty with $4,000 for extra consultant to do plan

- **Materials**
  - Built without the use of unsustainable timber, e.g. Merbau
  - Floors and footings materials included on the Moreland Greenlist
  - Wattyl ID low VOC Pint will be used internally where practical.
  - Difficult with cost driven choices made

- **Indoor Environment Quality (IEQ)**
  - Standard Commercial Mechanical HVAC system with filtering
  - All internal and external surfaces will be painted with low VOC paint
  - Easy application with no attributable cost

- **ESD Excellence**
  - Metering of site to effectively monitor water use to ensure immediate detection of leaks
  - Heavy focus on natural daylight in childcare facilities and infill building.
10.6.3 Key Outcomes

Reduced Environmental Impacts

Through the sustainable design strategies employed, the following environmental outcomes are expected:

- Reduced greenhouse gas emission from improved energy efficiency characteristics of the building envelope, lighting and HVAC (heating, ventilation, and air-conditioning) systems.
- Improved quality of stormwater leaving site through the provision of an onsite bioremediation system.
- Reduced potable water use through the use of water efficient fixtures and drought resistant plant species.
- Long building life through the selection of durable and low maintenance materials.
- Reduced waste production during construction and reduced waste to landfill during operation.

Improved Indoor Environment Quality

Expected outcomes from some of the sustainable design initiatives incorporated into the building include improved health of building users due to:

- significant levels of daylighting; and
- the use of low VOC (Volatile Organic Compounds) paints.

Economic Outcomes

While the perceived extra/over cost of 1% to the project budget that has been identified is directly linked to the ESD strategies outlined in this review, it is important to note that the ‘real’ cost of these measures must include the expected increase in building occupant contentment and productivity. It also bears mentioning that expected increases in energy and water costs, both economic and environmental, are not accounted for here and that through these measures these ESD strategies will effectively ‘futureproof’ the building against significant changes to ongoing operational expenses.

Industry Education

The contractor indicated that they would apply the ESD strategies used on this project to future developments cost permitting. A broader understanding of the implications of small decisions on the longevity of the project and on-going costs was reported.

Developer Feedback

The contractor relied on the ESD consultant to use and report back to the design team on initiatives. As such they had no direct use of the tool. It was noted that detailed information earlier in the process would have made the application of initiatives easier.

A summary breakdown of contractor feedback follows:

- Ease of finding tool: NA
- Using the tool: NA
- Advice from Consultants: Insufficient detailed information in early stages
Time factor: No interference
Design Elements not dealt with tool: NA
Value of tool in design development: Helpful
Value of tool in construction process: No – more of a design tool
Perception of the fairness of scores: Yes and No, depends on sections. (Unfair eg. Fly ash in concrete gave large points for little costs)
Lessons Learnt: Broader understanding on implications of small decisions on longevity and on-going costs Need to be clearer with client sooner

Recommendations/Comments:
- Earlier council briefing would have helped eg swales and SHW were added later
- Will consult with Council sooner on future projects to get a better outcome

10.7 Findings and STEPS and SDS Evaluation

The following outlines a summary of the findings resulting from the investigation report, which is detailed in Chapters 7-9. Further discussion follows in Chapter 10. The STEPS and SDS tools have been evaluated against the following criteria

- Breadth of issues covered
- Accessibility
- Ease of use
- Stringency
- Applicability to planning

The key findings in the analysis of these assessment tools are detailed as follows:

- Projects completed using the online STEPS tool had an average overall score of 237 out of a possible 500. Darebin City Council has been tracking the projects submitted to date, with details on the targets met in each category.

Table 9 - SDS & STEPS development performance

<table>
<thead>
<tr>
<th></th>
<th>Target</th>
<th>Darebin City Council Projects</th>
<th>All projects logged on the STEPS website</th>
<th>Equivalent Savings in Comparison to State Regulations per dwelling</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>15%</td>
<td>26%</td>
<td>37%</td>
<td>3,300 kg CO2 per annum*</td>
<td>Target easier to reach for smaller attached dwellings</td>
</tr>
<tr>
<td>Peak Demand</td>
<td>10%</td>
<td>90%</td>
<td>86%</td>
<td>As above</td>
<td>Target appears too easy. Could be a function of large difference in energy use with no cooling and air-conditioning</td>
</tr>
<tr>
<td>Water</td>
<td>25%</td>
<td>33%</td>
<td>31%</td>
<td>32 kJ/year*</td>
<td>Target appears achievable. Often requires a rainwater tank</td>
</tr>
<tr>
<td>Stormwater</td>
<td>75%</td>
<td>55%</td>
<td>35%</td>
<td>35% of onsite treatment (in cases where C56 does not apply)</td>
<td>Large proportion of projects not achieving target. Large difference between those that attempt to address and those that do not</td>
</tr>
</tbody>
</table>
Materials (Variable between 10-15)

<table>
<thead>
<tr>
<th></th>
<th>12%</th>
<th>22%</th>
<th>24%</th>
<th>24 points improvement</th>
<th>Overall target does not mean much as each section must achieve a pass to comply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>137</td>
<td>227</td>
<td>237</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Assumes solar hot water adopted and no rainwater tank. Savings higher in Energy if opposite approach is adopted (3,900kg CO2/year) and in Class 2 buildings. Savings if water tank option followed in Class 1 buildings are 8kL per year.

- Similar analysis of SDS projects could not be achieved as no data collection mechanism exists. Were projects to Pass all of the targets in the SDS the following would be achieved:

<table>
<thead>
<tr>
<th>Target</th>
<th>Equivalent Savings in Comparison to State Regulations per building</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
<td>Improvement on the BCA to be measured. Estimated as 10-20%</td>
</tr>
<tr>
<td>Transport</td>
<td>Compliance with current regulation – no improvement.</td>
</tr>
<tr>
<td>Water</td>
<td>25% reduction versus 3 star fittings alone. Savings vary according to building type.</td>
</tr>
<tr>
<td>Stormwater</td>
<td>75% of onsite treatment (in cases where C56 does not apply or offset is paid)</td>
</tr>
<tr>
<td>Waste</td>
<td>-</td>
</tr>
<tr>
<td>Materials</td>
<td>-</td>
</tr>
<tr>
<td>IEQ</td>
<td>-</td>
</tr>
<tr>
<td>ESD Excellence</td>
<td>-</td>
</tr>
</tbody>
</table>

In the period of May 2006 to May 2007 the percentage of referred projects that met all the targets is shown in Table 10 below.

**Table 10 - Planning Applications Referred to Sustainability Officer**

<table>
<thead>
<tr>
<th></th>
<th>% of completed projects that met all STEPS targets</th>
<th>% of completed projects that met all SDS targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moreland City Council</td>
<td>58%</td>
<td>43%</td>
</tr>
<tr>
<td>City of Port Phillip</td>
<td>33%</td>
<td>0%</td>
</tr>
<tr>
<td>Darebin City Council</td>
<td>37.5%</td>
<td>None complete</td>
</tr>
</tbody>
</table>

Note that the majority of applications that did not meet the targets struggled because they did not meet the stormwater target (set by Melbourne Water in the STORM tool.)

**STEPS assessment tool**

- STEPS covers more issues than all state and national government tools and regulations for residential dwellings.
- STEPS integrates and builds on all Victorian State Government legislation.
▪ Other local government tools (Docklands, ARA) that are already in use cover a wider range of issues than STEPS and are more stringent in some areas.
▪ Areas not covered include: Management, Indoor Environment Quality, Land Use and Ecology and Emissions. ESD Excellence is optional.
▪ STEPS is the only tool that predicts performance based on usage data and evaluates options accordingly.
▪ The Docklands and ARA tools are the only other tools that set targets for each area addressed. However in this case it is a points based system and trade-offs are allowed.
▪ The way the STEPS tool assesses materials is unique, in the adoption of a scoring system that allows direct comparison between material types. All other tools that address materials are prescriptive (e.g. no PVC products).
▪ The STEPS tool is seen as highly accessible by users.
▪ The STEPS tool was rated as easy to use by 79% of respondents. Interviews with developers found that even without attending training courses the tool was easy to use. However, statistically only 64% of respondents that did not go to a training course, indicated they found the tool easy to use.
▪ The tool does not appear to address or reward passive solar design.
▪ There were a number of areas listed by survey respondents that they believed were not addressed by the tool, which are actually addressed by the tool. This indicates that there is a general lack of understanding of what the tool does by developers. Several responses also indicated a lack of understanding about current legislation e.g. Part J volume 1 seems to have made steps legally binding and hence has more effect.
▪ The majority of applications that did not meet the targets struggled because they did not meet the stormwater target (as per the Melbourne Water STORM tool). The majority of developers that answered the online survey regarding the stringency of each area of the tool noted that stormwater targets were of medium difficulty. This was rated the most difficult of all areas.
▪ All other targets in the STEPS tool were met by the projects logged on the website in the majority of cases. The targets for Peak Demand, Energy and Materials appear to be easy to meet.
▪ The average project achieved a 40% reduction in greenhouse gas emissions, 86% reduction in peak demand, 31% reduction in potable water use, 35% on-site stormwater treatment and 24% improvement in materials.
▪ The training sessions were well received by those who attended. However, the information available on the website was not seen as useful.
▪ The majority of users (84%) did not need to hire a consultant to complete the tool and those that did paid less than $600 on average. It is likely that this was to conduct a FirstRate Assessment only.
▪ 78% of respondents found the tools valuable to the design process.
▪ 72% of respondents found the tool valuable to the planning process.
▪ None of the general comments made in the surveys or during the developer interviews indicated reasons for the tools not being valuable to the planning process. On the flip side, the majority of comments requested improved scope, increased stringency, consistency with other local governments and mandating at a state level.
▪ Several respondents commented that there was a benefit in addressing the issues raised by the tool earlier in the design process. Those that had only used the tool once indicated that the next use would be easier.
▪ Cost of using tool: estimated as between 0% and 2.5% by case studies.

Hansen undertook a sample STEPS Assessment of a residential development application in Moreland City Council. Through this process the following was observed:
The tool references the energy assessment of First Rate, which requires additional time and external assistance from an accredited person.

Requires details on internal light and water fittings, which are not normally information provided or necessary for a planning application.

The plans assessed did not have a lot of the required detail. May be useful to have checklists of information that plans should show.

STEPS was easier to use because it did not require knowledge of the BCA, however the First Rate energy rating scores were required. Thus, building designers need to be well versed in additional tools. However BCA, First Rate and Melbourne Water tools could be considered ‘standard’ and therefore most practicing building designers should be familiar with how they operate and their requirements. In addition the assessor needs to understand the bicycle provisions of the planning scheme. Generally Clause 52.34 is clear in its intention and in how to calculate the bicycle and shower / change facility requirements.

The STEPS assessment took approximately 1 hour. However this does not include any time spent calculating First Rate scores.

SDS assessment tool:

The tool covers a wider breadth of issues and covers many more areas than state and national legislation.

Other local government tools are more stringent in some areas, in particular Melbourne City Council’s use of Green Star and ABGR.

SDS is the only tool used at planning that does not allow trade-off between areas.

The SDS tool is unique in that it attempts to address all non-residential buildings within the one scoring system. Comment was made on allowing more flexibility in the tool for non-commercial buildings.

The SDS tool is seen as highly accessible by users.

The SDS tool was rated as easy to use by 50% of respondents. Only 33% of those that did not go to training found the tool easy to use.

Without manual logging of data, Councils have no means of tracking progress towards targets.

The areas of the tool rated as most difficult to achieve were ESD Excellence and Transport, Waste and Indoor Environment Quality (IEQ). However on average these all rated 4 out of 5, with 5 being easy.

The cost break downs for the case study projects suggest that the area which requires the most financial commitment is Water, followed by Energy. The areas that were considered of extra cost were different for each interviewee and in some cases may not have accounted for changes required in building legislation.

The majority of those that answered the online survey (75%) did not need to hire a consultant to complete the tool and those that did paid less than $600. In contrast, the developers interviewed for the Case Studies all hired an ESD consultant at a cost of $5,000.

75% of respondents found the tools valuable to the design process.

75% of respondents found the tool valuable to the planning process.

Cost of using tool: estimated as between 0.1% to 4% of the project budget by case studies.

Requires a lot of technical information – glass thickness, hot water system, air conditioning systems, lighting (which is not information normally provided in planning applications).

Links to other websites and tools eg: Building Code, Melbourne Water is good.

User requires BCA knowledge or at least access to relevant parts of the Building Code (eg: Section J) which limits use of the tool to the building designer (not for a planner, as they do not usually have a working knowledge of the BCA)
Hansen undertook a sample SDS Assessment of a non-residential development application in Moreland City Council. Through this process the following was observed:

- In some circumstances a development is below the threshold to trigger provision of shower and change facilities (under Planning Scheme Clause 52.34), however there is no box to indicate that these are not required to be provided. Thus, the development scores points for not actually having to do something, as the box only requires the user to select whether they have complied with the requirements.
- The user of the tool needs to have knowledge of materials.
- The plans submitted to Council did not have adequate information on them, nor was the ESD report complete. Thus, if a planner were to pick the material up they might not make these observations. Such information should form part of a Section 54 Further Information Request letter.
- It took approximately 1 hour to complete the assessment (however there were sections that could not be completed because inadequate information was provided).
- The Melbourne Water tool which is linked into this assessment was relatively easy to use and understand.

**SDS & STEPS evaluation:**

- None of the general comments made in the surveys or during the developer interviews indicated reasons for the tools not being valuable to the planning process. On the flip side the majority of comments requested improved scope, increased stringency, consistency with other local governments and mandating at a state level.
- Both tools use performance targets without allowing for trade-offs between impact areas. This approach allows the user the most flexibility without compromising improvements in environmental outcomes.
- Both tools are valuable as industry educational tools.
- The training sessions are well received by those who attend. However, the information available on the website was not seen as useful.
- Several respondents commented that there is a benefit in addressing the issues raised by the tool earlier in the design process.
- Those that had only used the tools once indicated that the next use would be easier.
11 Discussion of Key Issues

The following chapter synthesises the research and consultation into a series of key areas of interest and issues relating to establishing a sustainable built environment.

11.1 Setting key objectives and targets

Should sustainability policies introduced into planning scheme contain general objectives regarding sustainable buildings, or should they include measurable targets?

The difficulty of specifying targets in planning policies, is that those targets are likely to become redundant over time as community aspirations and technology changes, and as increasingly higher targets are established for sustainable buildings. This would require ongoing amendments to planning schemes to reflect ‘new’ targets.

Another criticism of specifying targets is that they may stifle innovation and may not actually promote best practice, as widely applicable targets are more likely to relate to what is ‘achievable’ rather than to ‘best practice’.

One of the issues raised by the workshop held as part of this study was the lack of leadership shown at the National and State Government levels in setting overarching objectives for sustainability generally and sustainable buildings in particular, and in setting targets to provide a framework within which other levels of government, the community and the building industry can work.

It is considered that any policies to be included in planning schemes should include aspirational objectives that aim to encourage a significant increase in the sustainability of buildings compared to the existing situation, best practice and innovative approaches to the issue. It is considered that targets are appropriate to use as part of the local policy framework, as they are clear and measurable, and if set sufficiently high can be a useful stepping stone towards best practice. However, generally it is considered more appropriate for targets to be embodied in assessment tools themselves, rather than in planning policy contained in planning schemes. In this way the targets can be continually updated as the tools are updated, thus avoiding ongoing amendments to the planning policies contained in the planning scheme.

The performance targets in use across Australia currently are summarised in Table 11 below.

Table 11 - ESD Performance targets used in Australia

<table>
<thead>
<tr>
<th>Tool/Regulation</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
<td></td>
</tr>
<tr>
<td>- Residential</td>
<td>BASIX</td>
</tr>
<tr>
<td>-</td>
<td>STEPS</td>
</tr>
<tr>
<td>- Non-residential</td>
<td>BCA QLD</td>
</tr>
<tr>
<td>-</td>
<td>Melbourne &amp; Sydney City Councils (ABGR)</td>
</tr>
<tr>
<td></td>
<td>40% reduction in GHG</td>
</tr>
<tr>
<td></td>
<td>15% reduction in GHG</td>
</tr>
<tr>
<td>Water</td>
<td>BASIX</td>
</tr>
<tr>
<td>- Residential</td>
<td>BCA – QLD</td>
</tr>
<tr>
<td>- All</td>
<td>STPS &amp; SDS</td>
</tr>
<tr>
<td>-</td>
<td>DOCKLAND</td>
</tr>
<tr>
<td></td>
<td>40% reduction in potable water use</td>
</tr>
<tr>
<td></td>
<td>36% reduction in potable water use</td>
</tr>
<tr>
<td></td>
<td>25% reduction in potable water use</td>
</tr>
<tr>
<td>Stormwater</td>
<td>STORM/MUSIC (VIC)</td>
</tr>
<tr>
<td></td>
<td>STEPS/SDS</td>
</tr>
<tr>
<td></td>
<td>100% on site treatment or pay offset</td>
</tr>
<tr>
<td></td>
<td>75% on site treatment</td>
</tr>
</tbody>
</table>
The following table highlights the breadth of assessment tools currently in use across the building and planning frameworks.

**Table 12 - Assessment tools in use within planning and building frameworks**

<table>
<thead>
<tr>
<th>Tool/Regulation</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOCKLANDS</td>
<td>70% on site treatment</td>
</tr>
<tr>
<td>Materials</td>
<td>BAMS (CENTRE FOR DESIGN) Being Developed</td>
</tr>
<tr>
<td>Waste</td>
<td>Sydney &amp; Melbourne City Council (Green Star) 60% or 80% construction waste recycled</td>
</tr>
<tr>
<td>IEQ/Management</td>
<td>Sydney &amp; Melbourne City Council (Green Star) Various</td>
</tr>
<tr>
<td>Ecology/biodiversity</td>
<td>VPPs – Native Management Framework Net Gain</td>
</tr>
</tbody>
</table>

11.2 A consistent approach

11.2.1 Defining a consistent approach

The desire and opportunities for achieving consistency affect the following:

- state and local planning legislation
- national and state building legislation
- assessment tools

There is demand within the building and planning industry for a consistent approach towards sustainability assessment and practice across Victorian Councils. In terms of decision making this would be reliant on a State Government initiative to set out what the consistent approach is and this would likely fall on the shoulders of DPCD and the Minister for Planning to do this with the involvement of the Minister for Environment and Climate Change, the Minister for Water and will involve key agencies (e.g. EPA, DSE, Sustainability Victoria, Building Commission, and Plumbing Industry Commission).

The drafting, consultation and legislating associated with setting a state wide approach in Planning is a time consuming process. Such a consistent approach should be addressed through Planning Schemes with baseline policies, objectives and/or targets that apply to all development captured by the planning system. This should be addressed in the SPPF, decision guidelines of zones and overlays and with the potential for other mechanisms such as new particular provisions that specifically deal with sustainable buildings.
Challenges to a consistent approach arises with municipalities that desire a higher level of sustainability than the statewide standard which may be perceived to erode the consistent approach and goes against the intention of the Victorian Planning Provisions. Although at the moment no base approach has been established, the role of local government in ‘pushing the boundaries’ should be encouraged, as this will help to further sustainability as it becomes more accepted.

In light of this, there is a valid role for a ‘bottom up’ approach with local government pushing the boundaries through voluntary programs such as how Moreland, Darebin, Port Phillip and now other Councils are using STEPS and SDS and through their own planning scheme policies. The important gains in achieving a sustainable built environment, albeit limited to their municipalities, by voluntary programs enable immediate action whilst a standard approach is formulated and minimise lost opportunities.

A consistent approach needs to consider the relationship between national, state and local governance. It is important to note that the strength of the national to state relationship of the Building system versus the strong State and Local relationship in the Planning system. These inter-governmental relationships raise difficulties in co-ordinating all levels of government to communicate effectively and across disciplines. This and the slow process of change with policies and regulations is a key challenge for establishing and maintaining a consistent approach.

Use of assessment tools in decision making is relatively new. There is an array of assessment tools available and currently in development. Unless very familiar with the purpose, environmental factors addressed and the overall value (pros and cons) of each tool it can be difficult navigating processes which use different tools for different development types or different municipalities using different tools to another. Over time this may be less of an issue as developers work with tools again and again, however, the lack of consistency is an obstacle which discourages sustainable outcomes. It would be desirable for the number of assessment tools to be refined, however, it is likely that the fair competition objectives of Building Code regulations on 5 star house energy ratings means that different organisations can issue their own version of a star rating tool that can fit the requirements of the Building Code. However, the approach should be consistent.

There are differences between tools in that some seek best practice, some are designed for use in legislation, and some seek to raise the bar of development in terms of energy efficiency. Currently a number of tools have limited applicability, although tools such as Green Star are being expanded to address different building and use types, e.g. residential, office, education, retail. Tools such as STEPS (residential) and SDS (non-residential) are easy to apply and complement each other in purpose and broadly in their content and environmental objectives to be achieved. Navigating the planning and building process which uses different tools can create additional costs and challenges. Ideally, assessment tools in planning should cover planning related aspects of a development as well as building related aspects which influence site layout and building design.

Currently there is no consistent approach in the planning system for how sustainability assessment is undertaken, in all its facets. It makes sense and is preferred for a consistent approach to be established as this will enable the industry to advance towards more sustainable built outcomes. If local government is to take charge a peak body is necessary to co-ordinate a consistent approach. Organisations such as DPCD and the Building Commission already perform such a role, however, these are both state level bodies. The Municipal Association of Victoria (MAV) provides the official ‘voice’ for the local government sector which can assist in co-ordinating Councils to develop a consistent approach. The advocacy role of the MAV gives it strength, particularly in drawing Councils together to share knowledge, practices and ideas, as well as lobbying other agencies or organisations where required.

Councils should work together through the MAV wherever possible, particularly in lobbying other levels of government, and in determining a co-ordinated approach for themselves. The MAV can act as a central point of contact for municipalities to share knowledge about their practices and policies. Councils should seek to establish a consistent framework of preferred assessment tools, standardised planning permit conditions associated with decision making for sustainable outcomes in all development. This should be supplemented by the necessary strategic basis being provided within the Municipal Strategic Statement of each Planning Scheme. In lieu of a state wide approach, local
government should seek to develop similar planning policies that they can incorporate into their local planning policy framework and in their decision making.

The consistency of policies and decision making practices can make it easier for applicants/developers to navigate the planning process, know what to expect and what is reasonable.

11.3 Planning

11.3.1 Is it appropriate for building sustainability issues to be addressed in planning?

It is acknowledged that there is a strong perception of disadvantage when Planning sets out more stringent requirements than the Building system because a large proportion of buildings do not require planning approval. However, the advantages of pursuing sustainable development early during the planning process should outweigh the perceived disadvantages, particularly in terms of achieving sustainable cities and development. Further, it stands that larger or complex developments require planning approval which can advance sustainability objectives, and it is the very role that planning has played to date which has assisted in pushing the boundaries and subsequent acceptance of sustainability policy and practices. We should not lose sight of these factors.

It is also pertinent to acknowledge that detailed building design which typically occurs after the Planning process can change the building design to the extent that amendment of the planning approval already granted, although usually not fundamentally. The current system does not encourage applicants to undertake detailed design at planning stage, nor does it prevent it.

Through consultation during this project, planning applicants have praised the approach of SDS and STEPS assessment tools which have required building designers to consider in detail the energy efficiency and water requirements of the building regulations at the planning stage because they can influence the site layout and building design as relevant to planning. This has further influenced how some design practices operate so that they consider the energy and water requirements at the concept design stage.

11.3.2 What is appropriate to go in planning?

The following table addresses the interactions between planning and building in terms of the key issues and areas of assessment.

Table 13 - Sustainability Elements in Planning And Building

<table>
<thead>
<tr>
<th>Environmental Element</th>
<th>Planning</th>
<th>Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Construction Waste Management Plans</td>
<td>Building management controls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operational waste management plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building Users Guide</td>
</tr>
<tr>
<td>Indoor Environment Quality</td>
<td>Access to natural light</td>
<td>Indoor materials specifications</td>
</tr>
<tr>
<td></td>
<td>Access to external views</td>
<td>Internal layout to maximise views</td>
</tr>
<tr>
<td></td>
<td>Optimise opportunities for natural ventilation of buildings and car parks</td>
<td>Ventilation system design</td>
</tr>
<tr>
<td>Energy</td>
<td>Solar Orientation</td>
<td>Insulation values</td>
</tr>
<tr>
<td></td>
<td>Glazing Size and ‘Look’ – reflectivity, transparency.</td>
<td>Glazing types</td>
</tr>
<tr>
<td></td>
<td>Shading</td>
<td>Building Sealing</td>
</tr>
<tr>
<td></td>
<td>Noise and visual impact of external services</td>
<td></td>
</tr>
<tr>
<td>Environmental Element</td>
<td>Planning</td>
<td>Building</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Services</td>
<td>Space for services</td>
<td>Service design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appliances</td>
</tr>
<tr>
<td>Renewable Power Generation</td>
<td>Space and orientation for on-site renewable energy systems considered</td>
<td>Full design of systems</td>
</tr>
<tr>
<td></td>
<td>(sized on minimum standard appliances)</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>Access to natural light</td>
<td>Light fittings</td>
</tr>
<tr>
<td>Appliances</td>
<td></td>
<td>Appliance specifications</td>
</tr>
<tr>
<td>Transport</td>
<td>Priorities access and movement around site by walking,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provision of bicycle facilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduced and small car parking allowances</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Award locations close to public transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disability Access</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Space for rainwater tanks allocated (sized on minimum standard fittings)</td>
<td>Fittings specifications</td>
</tr>
<tr>
<td></td>
<td>Use of recycled water systems</td>
<td>Full hydraulic service design</td>
</tr>
<tr>
<td>Materials</td>
<td>External material types</td>
<td>Detailed Materials specifications</td>
</tr>
<tr>
<td>Land Use and Ecology</td>
<td>Landscaped areas to be designated</td>
<td>Detailed landscaping plans</td>
</tr>
<tr>
<td></td>
<td>Retention of native vegetation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integration and space for any water sensitive urban design features</td>
<td></td>
</tr>
<tr>
<td>Emissions &amp; Waste</td>
<td>Space and access to full waste collection and storage</td>
<td>Detailed waste management plan</td>
</tr>
<tr>
<td></td>
<td>Construction waste management plan</td>
<td>Detailed hydraulic and landscaping plans</td>
</tr>
<tr>
<td></td>
<td>Stormwater treatment – space for tanks, water sensitive urban design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>landscaping features</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimise light spill</td>
<td></td>
</tr>
<tr>
<td>ESD Excellence and Innovation</td>
<td>Space for services allocated</td>
<td>Detailed design</td>
</tr>
<tr>
<td></td>
<td>Any external impacts noted</td>
<td></td>
</tr>
</tbody>
</table>

Most of the above issues cannot be considered in isolation and early planning decisions will be gradually refined through the design process until a building permit is applied for.

11.3.3 Does it matter if planning permits are not required for all developments?

It does not matter if planning permits are not required for all developments. The planning system is set up to provide flexibility and avoids requiring approval for every type of building or development. As noted previously, large developments or development in areas with special characteristics (heritage, environmental or design) typically trigger a planning permit. The role of planning seeking to attain optimal outcomes (amongst other objectives) provides an opportunity for development to be rewarded for more than minimum compliance. The opportunity for larger developments to provide exemplary environmental outcomes can provide the economies of scale that make sustainable design more economical and the critical mass of furthering sustainability objectives.

By not incorporating sustainable design objectives and requirements at planning stage, the opportunities to further the practice of sustainable development are reduced or lost, particularly as the building system is based on minimum standards and progress in this regard will be slower. There is significant potential to reduce greenhouse gas emissions and achieve water savings if all Councils applied tools to all applications. On average the 8 councils using...
STEPS and SDS each process 1000 applications which can potentially translate to annual savings of 26,000 tonnes of carbon dioxide and 250,000 kilolitres of water.

It is vital to the building/planning continuum that planning takes hold of the opportunity to challenge and further ESD in the built environment. In Victoria planning first incorporated four star energy rated multi-unit dwellings under Clause 55 (ResCode). This was subsequently incorporated into the Victorian building regulations but increased to a minimum 5 star energy rating for all new dwellings and removed from the planning regulations. This process highlights how the function of planning can influence higher standards across the board.

Whilst the planning process can be complex and challenging, requiring developments to comply with sustainability provisions is a fundamental objective of Planning. Therefore, it is not the policies that are the issue as development is already required to be sustainable but rather the process and assessment requirements that may be the issue. Consistent standards and decision making as well as efficient planning processes should be a core objective. The involvement of Council ESD referral officers in the planning application process does not substantially alter the decision timeframes. Furthermore, the additional cost of incorporating ESD features into a development is estimated at 1-5% of the development cost.

11.3.4 Is there a role for geographic policies?

Geographic policies set out specific requirements for select areas or precincts. For example the Doncaster Hill activity centre has been set aside in the Manningham Planning Scheme as a geographic area expected to undergo significant change and as such a local policy for Sustainability Management Plan requirements has been implemented to guide sustainability in all development.

The recognition and setting aside key areas can achieve gains in one particular area but the strategic basis for defining special areas is required. In reality all development should be sustainable, but the scale of development can make sustainability outcomes more economical. Whilst it is noted that all new development should be seeking to achieve the same targets or outcomes, there is a role for geographic policies to be used where the greatest gains can be achieved.

The strategic planning of Doncaster Hill made it possible to forecast development scope, increased resident and worker population and the needs of the future occupants. Such planning on a large scale, although done by private developers, enable Manningham to further their consolidation objectives and hence sustainable outcomes for one of their primary activity centres. Such planning should be capable of setting the strategic basis for imposing geographic policies.

Planning Schemes deal with a diversity of land use, and built and natural environments. Therefore, the geographic policies can focus on key aspects of a municipality’s complexion where the largest gains can be achieved. The Planning Scheme does need to set out the founding basis for all development requiring a permit to achieve sustainable outcomes via the LPPF. Within the planning scheme geographic policies can take the form of a local planning policy or overlays such as the Design and Development Overlay, Development Plan Overlay or Incorporated Plan Overlay, each of which have their own benefits in terms of gaining the right outcomes. (Refer to Chapter 3.4.2)

Structure planning, which typically addresses geographic areas, logically feeds into these policy mechanisms. There is an identified need for how structure planning should take account of ESD considerations and how these should be translated into planning scheme policies. In particular the implications of use and development on energy requirements, carbon emissions (and how this relates to carbon trading), and strategies for adapting climate change. Currently there is a General Practice Note Structure Planning for Activity Centres (December 2003) which provides a guide to all Councils on how to prepare a structure plan. Clarity needs to be provided by the State Government on how sustainability issues as noted above should be incorporated into structure planning and implemented via planning scheme changes such as local planning policies. This is something that Council’s can and should be involved in because of their experience in undertaking structure planning.
11.3.5 How should sustainability be incorporated into the planning scheme?

The options for incorporating sustainability into the planning system comprise the following:

▪ Incorporating clear definitions in Clause 70 Definitions of Planning Schemes
▪ Individual Municipal Strategic Statements at Clause 21
▪ Local Planning Policies at Clause 22
▪ Planning practice notes issued by the DPCD
▪ Reference documents or incorporated documents
▪ Planning provisions (such as zones, overlays, etc)
▪ Particular Provisions at Clauses 52-56 of Planning schemes.

Incorporating specific requirements in the planning scheme provides more strength to the provisions than important objectives which are contained in a document referenced in the policy. The MSS is the strategic statement of what is intended for the municipality in all facets of planning thus it is broader than the local policies, zones, overlays or particular provisions. Mandatory or specific requirements should be integrated within the zones, overlays and particular provisions as these are more targeted into land use and development type, and can be applied to certain precincts or geographical areas.

The lack of any definitions of what ‘sustainability’ or ‘sustainable development’ mean in the planning scheme context is a key issue which will need to be addressed. This clarification is necessary for a common approach and understanding which can be applied in the day to day decision making of planning applications. Definitions should be set out in conjunction with any policy. Changes to the definitions are required at the state level and cannot be driven by local government other than through lobbying or discussion with State Government. The State Government also is responsible for preparing planning practice notes. The planning practice note can set out what is considered appropriate in relation to provisions within the planning scheme or how an issue is to be addressed in general planning practice. This is part of the communication which supports planning schemes and has a vital function in ensuring a consistent approach across all municipalities, responsible authorities, VCAT and planning practitioners.

In the absence of a State Government direction on the matter the key areas for incorporating sustainability in planning schemes is via Clauses 21 and/or 22. The localised content of these provisions are prepared by Council’s and are subject to the planning scheme amendment process and consideration by the Minister for Planning/DPCD (as discussed in Chapter 3.4.2). All planning scheme amendments need pre-authorisation before public exhibition of an amendment to any part of the planning scheme. A key issue with this is that usually strategic planning work and policies are drafted before a request for amendment is made to the Minister for Planning. Hence, the work may have been done but DPCD/Minister for Planning can refuse to allow an amendment to be publicly exhibited, or may request changes. This has cost implications for Council’s particularly if they are unsuccessful at getting pre-authorisation or the Minister for Planning gazettes the planning scheme changes different to the intent of what Council was trying to achieve.

Changes to the particular provisions within the planning scheme need to be brought about by the Minister for Planning. They are set at a state level and local Councils cannot vary them. There is potential to introduce new particular provisions (as detailed in Chapter 3.4.2) that deal with sustainable buildings. This would need to be part of a State Government driven strategy for amending the VPPs to implement sustainability requirements, performance techniques or additional strategies and principles. It would be necessary for the State Government to review the SPPF, zones, overlays and particular provisions altogether in light of introducing more specific policy on the matter. This would also need to be supported by practice notes, and other tools and processes to ensure that new policy is implemented correctly.
The planning scheme enables ‘external’ strategic documents and policies to be either a reference document or an incorporated document. An incorporated document has the most statutory effect because they carry the same weight as other parts of the scheme. Reference documents on the other hand provide background information which assist in understanding policy provisions within the scheme and cover a wide range of content and information not directly relevant to specific decisions under the planning scheme. Reference documents are listed in the local policy to which they are relevant.

Incorporated documents are usually essential to the function of the planning scheme and decision making. Clause 81 of any planning scheme specifies the incorporated documents. There are a series of Codes of Practice, design guidelines, engineering requirements and plans which have been specified as incorporated documents by the State Government. These can only be amended by the Minister for Planning.

Local planning authorities can incorporate their own documents in the schedule to Clause 81. Common types of local incorporated documents include development guidelines, incorporated plans (under the Incorporated Plan Overlay provisions) or restructure plans. To do so requires a planning scheme amendment to be sought from the Minister for Planning and to follow the amendment process with ultimate authorisation for the amendment provided by the Minister for Planning. Incorporating a document within the planning scheme usually accompanies an amendment to policies within the planning scheme.

Inclusion of incorporated or reference documents supports policies and permit requirements within the planning scheme. They are not considered to be a key means for implementing sustainability policy in the planning framework however there is potential for local government to pursue their inclusion in association with other policy changes detailed above.

11.3.6 What do you do if the Minister for Planning does not authorise a planning scheme amendment?

The pre-authorisation of planning scheme amendments allows the Minister for Planning to exercise discretion on what they think is appropriate or has adequate justification before it is tested through public exhibition and the Planning Panels process (refer also to Chapter 3.5 for further detail about the amendment process). This seeks to limit amendments which are poorly resolved or lack strategic justification, and hence reduce unnecessary drain on resources.

If the Minister for Planning does not authorise a planning scheme amendment for introducing sustainability policies into the LPPF then the options for local government are limited. Voluntary systems such as the STEPS and SDS tool usage at Moreland, Darebin and Port Phillip can be used in decision making. However non-statutory policies which are not incorporated into the scheme are not usually considered by planning authorities such as VCAT or DPCD. As such the power to effect change in the planning system is constrained other than in Council’s own decision making processes and voluntary programs. ESD outcomes can be limited not only at the amendment pre-authorisation stage but also at the end of the amendment process where Ministerial approval is required before the planning scheme changes give effect.

The nature of voluntary programs relies on the willingness of applicants to participate. The experience to date of the three project Councils is that there are mixed responses from applicants in relation to the use of STEPS and SDS, however given the relevance of these tools with the building regulations, they are practical, accessible and useable. The economic benefits and marketability of ‘sustainable development’ provides applicants with the incentive to participate. Councils should continue to encourage applicants to embrace and use STEPS and SDS. The current use of such assessment tools will have significant benefits in terms of environmental outcomes both now and decades into the future.
Recent communication between DPCD and the project Councils indicates that until there is a statewide sustainability framework the Minister for Planning/DPCD will not support planning scheme amendments that address sustainability requirements that go beyond existing policies. Whilst Council’s can work to prepare draft policies that seek to legitimise their sustainability assessment processes, they should only do so if they understand the policies will be voluntary and unlikely to be included in the planning scheme.

11.4 Building

The Australian Buildings Codes Board (ABCB) has introduced minimum performance standards for energy efficiency over the last three years as the first step towards achieving a nationally consistent standard for the sustainability of all new buildings. The ABCB has also identified water, materials and IEQ as the additional key areas that should be addressed in the Building Code. To date, two studies on Materials and Water have been completed by the DEH: Scoping Study to Investigate Measures for Improving Environmental Sustainability of Building Materials (December 2006) and Scoping Study to Investigate Measures for Improving the Water Efficiency of Buildings (December 2006), and one further study on adapting to climate change is currently being completed. These three studies will inform the ABCB technical committees approach to future changes to the Building Code, which will ultimately need to be accepted by the Board before any timeline for implementation will be determined.

At this stage, it is safe to assume that changes to the Building Code will not occur for a minimum of two to three years. This process has an important role in driving industry change where markets fail and ensuring national consistency, but fails in providing immediate guidance to groups that are looking for more immediate change or to provide incentive towards best practice and also does not encourage industry to act on the urgent needs of the current drought or climate change.

In 2006, an inter-government agreement was signed by all states and territories stating that sustainability of buildings as an issue to be addressed alongside other traditional issues and that the Building Code is the appropriate location to address sustainability in the built environment. Following the signing of this agreement, a Joint Building Planning Working Group was formed with representatives from federal and state/territory governments to develop a national implementation model which will define the links between Building and Planning, and ensure that any tool adopted will be consistent. The work of this group is confidential, and hence the opportunity to share resources is limited. However, any local government group wishing to remain on top of the national movements on this issue should report any findings to the Building Commission, as Victoria’s representative on the Group. A further consequence of the inter-government agreement and the formation of a national Working Group is that State Government decisions are stifled until a joint national decision is made. This means that local government groups wishing to respond directly to the issues of water shortages and climate change cannot look to the State Government for immediate direction on the issue.
Prior to the introduction of state and national building regulations, there is a role for local governments in trialling new standards in an effort to define best practice.

The rigour and proliferation of new tools being used to assess the sustainability of buildings will be contested until such time that the following are developed at a national level:

- Clear definitions of the role of planning in establishing integrated design teams and sustainable built environments.
- Australian Standards for the calculation of environmental impacts or their components (be it greenhouse gas emissions, water consumption or lifecycle assessment). These standards must allow for expansion and improvement.
- Australian Standards for establishing baseline consumption figures for any given year.
- Requirements for the development of environmental assessment tools that use these standards as a basis to ensure consistency and rigour. Allowance must be made for tool developers to employ new calculation methods where Australian Standards do not exist.
- Research into performance based targets where current data does not exist.
- Based on these calculation methods, national minimum standards can be set.
- National accreditation and certification for professionals.

In the absence of the above there is a role for local governments to trial and research the following:

- The application of standards not currently covered through building regulation and into the future those outside energy efficiency, water, indoor environment quality and materials.
- To monitor and record the progress of applicants through the application of these standards to inform the future regulation development.
- To establish best practice principles which can then be later filtered through to building legislation.
- To encourage innovation.
- To seek assistance and support from the state and federal government in developing data and rigour behind any tool or calculation method where established methodologies are still being developed, so that these methods can be later be used as a basis for national based standards.

Planning can encourage and trial best practice standards prior to the introduction into the BCA. Over time the quality of developments will improve.
This said it is important to ensure that the balance between the early integrated design is not out-weighed by extra cost to the designer in applying for a planning permit. Where possible a simple, streamlined process should be used prior to planning, with further details to be established during design development.

11.5 Tools

Whilst there is still a question over whether sustainability tools belong in planning at a national level there is precedence for the use of tools in a number of applications. Sustainability Assessment tools have been used in planning in NSW (BASIX), Armadale Redevelopment Authority (ARA Scorecard), Melbourne Docklands (Docklands ESD Scorecard), Melbourne City Council (Green Star and ABGR) and Clause 56 (MUSIC and STORM tools). In addition to this eight local government groups in Victoria are now using STEPS and the SDS on a voluntary basis. In all of these cases tools have been used to educate the public, provide consistency of assessment and encourage the early consideration of ESD principles in building design.

Of the tools currently used during planning the most comprehensive are the Docklands and ARA Scorecard. However, none of the tools currently used assess buildings solely on issues that apply to planning alone. Any tool that is used for assessing planning applications should attempt to address all of the issues outlined in the table above (refer Table 13) without requiring information to be confirmed during prior to application for a building permit. Finally, the linking of initiatives to an ESD occupancy certificate, such as used by BASIX, will ensure the accuracy of the assessment.

The Moreland STEPS tool stands alone in Victoria as it is the only residential tool that goes beyond a simple points scoring system and incorporates a performance based system for each category without allowing a trade-off. In some cases, it also allows the applicant to select default options where information is not available at planning. The tool was also assessed as highly accessible and easy to use by survey respondents. At present, the tool meets the aims of industry education without being overly onerous.

The Sustainable Design Scorecard has a lot of similarities with the VicUrban Docklands tool, with the major difference being that the SDS is applicable to all non-residential buildings. The SDS has also successfully integrated Section J building requirements. A strong partnership should be formed between the two tool developers to ensure efficiency of resources and a consistent approach. Both of the tools are detailed in content and often require the assistance of trained professionals. Smaller and less complicated building types may need simpler, more cost-effective solutions.

The use of assessment tools in planning can assist with decision making, particularly in balancing ESD objectives with other factors. Clause 11 of the VPPs states that in administering the scheme (including preparing policies and making decisions) it is expected that the range of policies and issues will be balanced in favour of net community benefit and sustainable development (Clause 11, VPPs). Planners can make informed decisions about the expected environmental performance of new developments by using tools as they provide a quantifiable output.

Recommendations to improve STEPS and the SDS to make them more applicable to planning are:

- Split each page into Planning and Building Permit issues - the applicant can then use the default building options at planning stage or choose to refine them earlier.
- Incorporate a reporting function which automatically summarises the application status at each stage with a check list for building compliance and occupancy.
- Further refine the building materials page, with reference to studies completed by the AGO, and in consultation with other tool developers (Green Star, VicUrban, Centre for Design).
Increase or decrease the targets where it is noted that the tool is proving too difficult or easy to use.

Continue careful monitoring of completed projects through the use of a Submit button.

Update STEPS with the latest STORM tool and expand to cover the state wide data now available in STORM.

Expand the issues addressed in the tool as per Table 13 where appropriate.

Introduce best practice targets or higher levels of certification to encourage moving beyond the minimum.

Integrate SDS into the same interface as STEPS so that applicants are directed to the non-residential page when the building type is entered.

11.6 Institutionalising the profession

Sustainable building is a young profession and does not have a set training course or qualification. As a consequence, communication between professionals in the industry may be limited to a core discipline (e.g., water or energy) or to a more recognised profession (engineering, architecture or building design). A co-ordinated approach to these issues can be encouraged by Councils by recognising the profession as important by providing jobs and networks.

A peak body of professionals involved in the development of sustainable design tools should be established to ensure that lessons learnt and methodologies developed can be shared amongst peers. This body should be supported nationally and at a state level.

11.7 Organisation structure within Council’s

Of the Council structures reviewed, the City of Port Phillip’s structure, now mimicked by Darebin, appears to have been the most effective in institutionalising change. The provision of Sustainable Design support within the planning group has allowed for easy communication between team members and more consistent application of the Council’s policy.

The City of Port Phillip and Darebin each currently only fund one part-time position to assist with the implementation of the program. At present, knowledge of the tools and how to apply them is limited amongst the planners themselves and the sole responsibility for the program lies predominately on this one person’s shoulders in a short two or three day week. Simplification of the tools and up-skilling selected key planning staff is recommended to ensure the longevity and impact of the program should uptake become higher.

11.8 The role of local government

As highlighted previously the role of local government can include ‘pushing the boundaries’ and being the innovator of new procedures and policies. Local government is adaptable, presides over a set (smaller) geographical area and is immediately connected to its community. Thus, local government is a very important conduit between communities and the State Government.

Across Victoria there are 79 municipalities governed by a local Council. There are no regional authorities, although Victoria does have recognised regions, such as Metropolitan Melbourne but beyond Melbourne these are largely relevant to the provision of regional infrastructure such as water. The fact that there are so many councils with no organised regional groups in planning can detract from the potential influence of local government on the planning system. Although a ground swell of support between different Councils for an integrated sustainability framework, can assist in encouraging the State and National levels of Government to act.

It is necessary that on issues such as sustainability Council’s band together and utilise organisations such as MAV and the Sustainability Accord to advocate as well as assist in co-ordination. An important part of this is knowledge sharing and education between municipalities. The sharing of information and resources can significantly improve the effectiveness of local government as a collective.
In advancing sustainability objectives, particularly where establishing voluntary programs, local council’s need to seriously consider the incentives to encourage involvement by applicants. It may not be sufficient to say that green buildings translate into more dollars for the developer. The concept of the ‘carrot’ or the ‘stick’ in relation to sustainability clearly favours incentives or ‘carrots’ rather than the stick because without planning scheme policy support, voluntary programs are exactly that – voluntary. Incentives such as smoother planning process, faster approval timeframes, local rates rebates or reduced car parking rates are in the realm of local governance. However other incentives such as stamp duty reductions and mandatory disclosure of building sustainability during the sale of a property are governed by the state legislation. The latter two incentives are within the realms of possibility but lobbying of the State Government and relevant industry organisations is necessary.

It is essential that local government contributes to the dialogue about sustainability. Communication between different levels of government, with different parts of the built environment industries as well as with local communities should be a core action of local government.

### 11.9 Things that still need to be resolved

Other issues associated with the planning system that still need to be resolved are the ongoing enforcement of sustainability commitments made during the planning process. Currently lack of resources means that Councils have a limited capacity to follow through and check that development is as sustainable as it was forecast in the initial phase. This could be addressed by permit conditions, for example requiring permit holders to report back to council after occupancy of a building. However, there are a number of other issues that are raised including where the developer completes the development, sells it and moves on – the occupants then become responsible for compliance. ‘Permit churn’ is another example where commitments are agreed to by an applicant but then the land and planning permit are sold to someone else who then seeks to make changes to the plans which then impact the sustainability commitments.

Not only can post occupancy compliance ‘fall through the cracks’ but enforcement and consideration of post-occupancy information requires additional Council resources. The model of accredited building surveyors issuing building permits could be investigated so that accredited professionals can review the post occupancy information and issue a certificate of compliance. Much work would need to be done to advance this option and learnings from the NSW BASIX approach should be used.
12 Recommendations

The following chapter sets out the recommendations that arise from the investigation undertaken. Local councils are keen to embrace planning policies and processes that address improving sustainable built outcomes. At present there are challenges experienced by Councils in seeking planning scheme changes that address sustainability as the State Government is still preparing its framework.

There are a range of actions which can be taken, however the focus for immediate action by local councils is to engage in an open dialogue with the state and federal levels of government. Importantly, state and local government needs to agree on a sustainability framework for Victoria’s planning system so that gaps in planning schemes and processes can be addressed.

Currently the stated position of DPCD is that until the sustainability framework is finalised matters of sustainability within proposed planning scheme amendments will not be granted pre-authorisation. Therefore careful consideration should be given by local councils before progressing with planning scheme amendments which address these matters. In the current climate, the voluntary use of STEPS and SDS in the planning process should continue with ongoing review and updates of these tools also continuing. The development industry is embracing these tools with positive feedback to date.

It is crucial that the range of planning and building government organisations and their agencies, and the industries themselves need to work together. Planning and building should be seen as complementary systems that both need to address legislation for sustainable built outcomes at federal, state and local levels. Thus, the next step in advancing sustainability assessment in the planning process is in part reliant on support for changes to the planning and building legislative framework by the following:

- Department of Sustainability and Environment (DSE)
- Department of Planning and Community Development (DPCD)
- Building Commission (Victoria)

With assistance from the following organisations:

- Victorian Local Sustainability Network (Accord Committee)
- Sustainability Victoria
- Local Government ESD Advocacy Group

Thus, before progressing initiatives for planning scheme or other built environment legislative changes, the process would benefit from taking the actions listed in the following tables. These recommendations have been allocated short, medium and long term priorities which are defined as:

1. Short term actions to be completed within 6 months
2. Medium term actions to be completed within 6 months to 2 years
3. Long term actions to be completed after 2 years.
### 12.1 Building Partnerships – General Industry

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Establish a working group within the ESD Advocacy Group involving Council's and State Government Departments [DSE; DPCD; BC (Vic)] to agree on how to incorporate sustainability assessment into the built environment’s legislative framework.</td>
<td>ESD Advocacy Group</td>
<td>In Planning</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>Establish a joint government initiative for preparing resources that can streamline the process for planners and applicants – eg: education materials, forms, explanatory documents, training and a central knowledge bank.</td>
<td>VLSA; ESD Advocacy Group; DSE; DPCD; Sus Vic; BC (Vic)</td>
<td>In Planning</td>
<td>2</td>
</tr>
<tr>
<td>1.3</td>
<td>The joint council group formed through MAV is to form strategic alliance with stakeholders such as ICLEI, the Building Commission and the Property Council</td>
<td>ESD Advocacy Group</td>
<td>In Operation</td>
<td>1</td>
</tr>
<tr>
<td>1.4</td>
<td>Establish a joint council and industry initiative that will work to establish consistency across throughout the various levels of government in the application and use of assessment tools within Victoria.</td>
<td>VLSA; Sus. Vic; VicUrban; ESD Advocacy Group (Moreland; Port Phillip; Melbourne; Manningham; Darebin); GBCA; DSE;</td>
<td>Requires Action</td>
<td>2</td>
</tr>
</tbody>
</table>

In addition there are a number of other recommendations listed for actions, where local governments can play a role in the implementation in conjunction with other key stakeholders. These recommendations have been provided below and address:

- State Government partnerships
- Opportunities for changes within the planning framework
- Improvements to Council processes
- Use of sustainability assessment tools
- Particular improvements to SDS/STEPS assessment tools
## 12.2 State Government Partnerships

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Establishing a pilot program for use of ESD assessment methodologies including the use of rating tools in select metropolitan and rural municipalities to further identify improvements, lessons learn, develop targets, and clarify if they need to be adapted to better accord with the planning policy and building frameworks.</td>
<td>DSE / DPCD / Sus Vic.</td>
<td>Requires Action</td>
<td>1</td>
</tr>
<tr>
<td>2.2</td>
<td>Establish a pilot program of interim planning scheme controls for the introduction of performance targets through the use of ESD assessment methodologies including the use of rating tools. This is to test practical implementation of such initiatives and assist in development of an appropriate standard and policy for all municipalities in Victoria.</td>
<td>DSE / DPCD / Sus Vic.</td>
<td>Requires Action</td>
<td>1</td>
</tr>
<tr>
<td>2.3</td>
<td>Further research and cost benefit analysis of achieving sustainable buildings, which may utilise the work already undertaken in NSW relating to the BASIX assessment tool.</td>
<td>DSE / DPCD / Sus Vic.</td>
<td>Requires Action</td>
<td>2</td>
</tr>
<tr>
<td>2.4</td>
<td>Using existing educational institutions such as universities, professional institutes and programs such as Clearwater to establish further education courses about achieving sustainable development within the built environment.</td>
<td>Sus. Vic</td>
<td>Requires Action</td>
<td>1</td>
</tr>
<tr>
<td>2.5</td>
<td>State Government to consider an investigation into the resources required to trial the use of a rating tool that identifies requirements as a continuous process between the planning and building frameworks.</td>
<td>DSE / Sus. Vic / DPCD</td>
<td>Requires Action</td>
<td>1</td>
</tr>
<tr>
<td>2.6</td>
<td>Victorian State Government regulations should be reviewed and strengthened to ensure that the state is keeping pace with national and international trends.</td>
<td>DSE / DPCD</td>
<td>Requires Action</td>
<td>1</td>
</tr>
<tr>
<td>2.7</td>
<td>State Government to conduct cost benefit analysis based on data collected through the application of performance based tools at Councils.</td>
<td>DSE / DPCD</td>
<td>In Progress</td>
<td>3 - Ongoing</td>
</tr>
<tr>
<td>2.8</td>
<td>Staff and financial resource allocation to ESD tools used for legislation should not be overlooked – State Government needs to adequately ensure that resources are allocated for the development and implementation of a state based tool.</td>
<td>DSE / Sus. Vic</td>
<td>Requires Action</td>
<td>1</td>
</tr>
</tbody>
</table>
| 2.9 | Forging alliances between stakeholders with common interests to network, share information and experiences. Organisation could include:  
- VLSN, ICLEI, MAV, Property Council, Planning Institute of Australia, Urban Development Institute of Australia, Master Builders Association, Housing Industry Association, RAIA, IEAust, etc. | DSE / DPCD / Sus Vic.      | In Progress             | 2        |
12.3 Planning Framework

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
</table>
| 3.1 | Consider preparing further submissions to DSE/DPCD on the position of local government in relation to sustainability in the planning process. This may include detailed recommendations for strengthening the planning scheme framework / Victorian Planning Provisions in relation to integrated sustainability, such as:  
  - Specific reference in the state section of the scheme about integrated sustainability encompassing a number of elements, and in particular reference to sustainable built outcomes.  
  - Local policies that deal with all aspects of sustainability (it is preferable for all Council’s to be bound by the same requirements. However in the short term this may be the preferred method for moving forward while the State Government develops statewide sustainability provisions.)  
  - New particular provisions addressing sustainable built form or adapting particular provisions to address different building/development types  
  - New particular provisions for land subdivision for industrial and commercial purposes, as well as guidelines or performance measures for sustainable industrial and commercial development.  
  - The need for an established understanding in relation to consideration of sustainability in decision making (eg: a practice note).                                                                                           | ESD Advocacy Group           | Previous submissions have been completed by:  
  - CoPP & MCC (jointly)  
  - DCC                                                                                  | 2                     |
| 3.2 | The above points should be combined with local governments and the DSE/DPCD together establishing a sustainability framework that sets out an agreed approach to balancing sustainability objectives and how they are to be assessed and achieved in the planning process.                                                                                   | MAV / DSE / DPCD            | Required Action                                                                                   | 2         |
| 3.3 | Seek clarity from VCAT regarding their view on the use of ESD related planning permit conditions                                                                                                                                                                                                                                             | CoPP, MCC. DCC              | Requires Action                                                                                   | 2         |

12.4 Council Processes

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Council’s develop practice notes and guidelines, which address Council process for ESD consideration from pre-application to planning decision. This may also address specific matters such as information requirements for applications.</td>
<td>CoPP, MCC and DCC</td>
<td>In Progress</td>
<td>1</td>
</tr>
<tr>
<td>4.2</td>
<td>All councils that adopt the tools should request that standardised information be submitted (only two councils require a Sustainability Statement to establish a consistent framework required.</td>
<td>CoPP, MCC and DCC</td>
<td>In Progress</td>
<td>1</td>
</tr>
<tr>
<td>4.3</td>
<td>All councils that adopt the tools should employ an ESD Officer that sits within the planning department to aid implementation.</td>
<td>STEPS/SDS Councils</td>
<td>Required Action</td>
<td>2 - Ongoing</td>
</tr>
</tbody>
</table>
4.4 Planning staff needs to be trained on the process for assessing sustainability so that consistent information is received from the planners upfront. 

| STEPS/SDS | In Progress | 2 - Ongoing |
| Councils  |             |             |

4.5 Detailed information on the tools and a checklist of what information is required to complete an application should be available from the front desk in each Council.

| STEPS/SDS | In Progress | 1 |
| Councils  |             |   |

4.6 Further investigation on resourcing and tracking of Council’s using assessment tools to set up a unified data collection method so that outcomes can be compared.

| MCC and CoPP | In Planning | 1 |

4.7 A simple record keeping process linked with statutory planning tools is to be established for all offices.

| STEPS/SDS Councils | Required Action | 2 |

4.8 Alternately, or in addition, the tools should be linked to an on-line database where applicants can submit completed projects.

| MCC and CoPP | Required Action | 2 |

12.5 Use of Sustainability Tools

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Consider implementing a tool that links schematic design considerations to building legislation without requiring detailed design as appropriate at the planning stage, and also has benefits in the building framework.</td>
<td>BC (Vic); VLSAC; DPCP; DSE; Local Gov. in consultation with MAV</td>
<td>Requires Action</td>
<td>2</td>
</tr>
<tr>
<td>5.4</td>
<td>Staff and financial resource allocation to ESD tools used for legislation should not be overlooked. Formal software maintenance and help procedures are required to assist users of rating tools and the further development.</td>
<td>MCC / CoPP with support of DSE and Sus. Vic</td>
<td>Requires Action</td>
<td>1</td>
</tr>
<tr>
<td>5.5</td>
<td>Scope the need for a review of accreditation or certification options that might be required in relation to use / application of assessment tools within the planning process.</td>
<td>CoPP / MCC with the support of DSE and Sus. Vic</td>
<td>Requires Action</td>
<td>3</td>
</tr>
<tr>
<td>5.6</td>
<td>Incorporate state research and legislation into the tools – work in partnership with appropriate State Government agencies to share research and work collaboratively. This may also include an initiative to undertake a statewide trial of assessment tools.</td>
<td>ESD Advocacy Group &amp; DSE/SV</td>
<td>In Progress</td>
<td>2</td>
</tr>
</tbody>
</table>

12.5.1 SDS & STEPS assessment tools

In relation to both assessment tools the following recommendations are made:

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Further investigate the potential of the STEPS and SDS tools to be revised to identify the differences between building and</td>
<td>MCC/CoPP in</td>
<td>Requires Action</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.2</strong></td>
<td>All ESD tools must be reviewed on a regular basis and best practise software protocols should be established. Where the legislator cannot provide this, outsourcing should be considered.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC / CoPP with support of DSE</strong></td>
<td><strong>In Progress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1 - Ongoing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.3</strong></td>
<td>Split each page into Planning and Building Permit issues - the applicant can then use the default building options at planning stage or choose to refine them earlier.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>Requires Action</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.4</strong></td>
<td>Incorporate a reporting function, which automatically summarises the application status at each stage with a checklist for building compliance (e.g. a sustainability statement).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>Requires Action</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.5</strong></td>
<td>As information becomes available and resources allow it, further refine the building materials page, with reference to studies completed by the AGO, DEH, ABCB and in consultation with other tool developers (Green Star, VicUrban, Centre for Design).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>In Progress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 - Ongoing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.6</strong></td>
<td>Increase, targets in accordance with best practice standards, or decrease the targets where it is noted that the tool is proving too difficult or easy to use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>Requires Action</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 - Ongoing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.7</strong></td>
<td>Update STEPS with the latest STORM tool and expand to cover the statewide data now available in STORM.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP &amp; Melb Water</strong></td>
<td><strong>In Progress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.8</strong></td>
<td>Consider expanding the issues addressed in the tool as per Table 13 where appropriate.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>In Planning</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 - Ongoing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.9</strong></td>
<td>Introduce best practice targets or higher levels of certification to encourage moving beyond the minimum.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>In Planning</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STEPS Benchmarking – e.g. 1 STEPS to 10 STEPS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1 - Ongoing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.10</strong></td>
<td>Ensure that applicants have a good understanding of what the tools do and achieve. Continuing the training courses and providing rebates for new trainees is recommended. Even when some users have a good grasp of the issues, there are many specialist topics covered within each tool.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>In Progress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1 - Ongoing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.11</strong></td>
<td>An automatic system for logging projects on the web is required so that completed project files and the data within them can be stored automatically.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>In Progress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6.12</strong></td>
<td>It is recommended that Moreland and the City of Port Phillip develop a means of tracking scores of the SDS tool. This could be automated through the use of a submit button on the STEPS website.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCC/CoPP</strong></td>
<td><strong>Requires Action</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.13 Prepare an information sheet / checklists for permit applicants for what information is required to be provided to Councils with applications and at what stage.  
MCC/CoPP | In Progress | 1

6.14 Ensure planners understand the role of the tools and the general level of information required to be included. Enlist the help of ESD champions within the planning team of each Council.  
MCC/CoPP | In Progress | 1

### 12.5.2 Recommendations for STEPS

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>Explore the potential for rewarding passive solar design (which is covered by planning).</td>
<td>MCC/CoPP</td>
<td>Requires Action</td>
<td>1</td>
</tr>
<tr>
<td>7.2</td>
<td>Increase the stringency of the targets for energy and peak demand.</td>
<td>MCC/CoPP</td>
<td>In Progress</td>
<td>2</td>
</tr>
<tr>
<td>7.3</td>
<td>Include more information on solar passive design on the energy page under the FirstRate section so there is a direct link.</td>
<td>MCC/CoPP</td>
<td>In Progress</td>
<td>2</td>
</tr>
<tr>
<td>7.4</td>
<td>Investigate opportunities for bonus points for orientation and living areas to the north (see ARA scorecard).</td>
<td>MCC/CoPP</td>
<td>Requires Action</td>
<td>2</td>
</tr>
<tr>
<td>7.5</td>
<td>The content of the web-based help page needs to be upgraded to ensure an understanding of the tool, tool background, solutions for improvement and links to relevant building legislation. Help should be specific to each topic with direct links.</td>
<td>MCC/CoPP</td>
<td>Requires Action</td>
<td>2</td>
</tr>
<tr>
<td>7.6</td>
<td>Establish a pilot program for use of STEPS in select metropolitan and rural municipalities to further identify improvements, lessons learn, develop targets, and clarify if they need to be adapted to better accord with the planning policy and building frameworks</td>
<td>STEP &amp; SDS Council Group</td>
<td>In Progress</td>
<td>2</td>
</tr>
</tbody>
</table>

### 12.5.3 Recommendations for SDS

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>By Whom</th>
<th>Status</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Formalise the tool into an online application like STEPS to make it easier to reference help material and track progress on scores.</td>
<td>MCC/CoPP</td>
<td>Requires Action</td>
<td>3</td>
</tr>
<tr>
<td>8.2</td>
<td>The tool needs to be simplified if the intent is that applicants can complete the tool without specialist assistance.</td>
<td>MCC/CoPP</td>
<td>In Progress</td>
<td>2</td>
</tr>
<tr>
<td>8.3</td>
<td>Scope the options for the establishment a pilot program for use of SDS in select metropolitan and rural municipalities to further identify improvements, lessons learn, develop targets, and clarify if they need to be adapted to better accord with the planning policy and building frameworks</td>
<td>MCC/CoPP/ DPCD / DSE</td>
<td>Requires Action</td>
<td>2</td>
</tr>
</tbody>
</table>
13 Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCB</td>
<td>Australian Building Codes Board</td>
</tr>
<tr>
<td>ABGR</td>
<td>Australian Building Greenhouse Rating</td>
</tr>
<tr>
<td>ARA</td>
<td>Armadale Redevelopment Authority</td>
</tr>
<tr>
<td>BASIX</td>
<td>Building Sustainability Index</td>
</tr>
<tr>
<td>BCA</td>
<td>Building Code of Australia</td>
</tr>
<tr>
<td>BREEAM</td>
<td>Building Research Establishment Environmental Assessment Method</td>
</tr>
<tr>
<td>CEARC</td>
<td>Canadian Environmental Assessment Research Council</td>
</tr>
<tr>
<td>CGPAC</td>
<td>Commonwealth Games Planning Advisory Committee</td>
</tr>
<tr>
<td>CoM</td>
<td>City of Melbourne</td>
</tr>
<tr>
<td>CoPP</td>
<td>City of Port Phillip</td>
</tr>
<tr>
<td>DCC</td>
<td>Darebin City Council</td>
</tr>
<tr>
<td>DE&amp;H</td>
<td>Department of Environment and Heritage</td>
</tr>
<tr>
<td>DSE</td>
<td>Department of Sustainability &amp; Environment</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
</tr>
<tr>
<td>EPGB</td>
<td>Environmental Performance Guide for Buildings</td>
</tr>
<tr>
<td>ESD</td>
<td>Ecologically Sustainable Development</td>
</tr>
<tr>
<td>GSR</td>
<td>Green Star Rating tool</td>
</tr>
<tr>
<td>HRSCEH</td>
<td>House of Representatives Standing Committee for Environment and Heritage</td>
</tr>
<tr>
<td>HVAC</td>
<td>Heating, ventilation and air conditioning</td>
</tr>
<tr>
<td>IEQ</td>
<td>Indoor Environment Quality</td>
</tr>
<tr>
<td>LPPF</td>
<td>Local Planning Policy Framework</td>
</tr>
<tr>
<td>MAV</td>
<td>Municipal Association of Victoria</td>
</tr>
<tr>
<td>MCC</td>
<td>Moreland City Council</td>
</tr>
<tr>
<td>MEPS</td>
<td>Minimum Energy Performance Scheme</td>
</tr>
<tr>
<td>MSS</td>
<td>Municipal Strategic Statement</td>
</tr>
<tr>
<td>MUSIC</td>
<td>Model for Urban Stormwater Improvement Conceptualisation</td>
</tr>
<tr>
<td>NABERS</td>
<td>National Australian Built Environment Rating System</td>
</tr>
<tr>
<td>NatHERS</td>
<td>Nationwide House Energy Rating Scheme</td>
</tr>
<tr>
<td>PCA</td>
<td>Plumbing Code of Australia</td>
</tr>
<tr>
<td>PPV</td>
<td>Planning Panels Victoria</td>
</tr>
<tr>
<td>RIS</td>
<td>Regulatory Impact Statement</td>
</tr>
<tr>
<td>SDS</td>
<td>Sustainable Design Scorecard</td>
</tr>
<tr>
<td>SPPF</td>
<td>State Planning Policy Framework</td>
</tr>
<tr>
<td>STEPS</td>
<td>Sustainable Tools for Environmental Performance Strategy</td>
</tr>
<tr>
<td>STORM</td>
<td>Stormwater Treatment Objective Relative Measure</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>VCAT</td>
<td>Victorian Civil and Administrative Tribunal</td>
</tr>
<tr>
<td>VPPs</td>
<td>Victorian Planning Provisions</td>
</tr>
<tr>
<td>WELS</td>
<td>Water Efficiency Labelling and Standards</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
14 References


11. Australian Building Codes Board, An Agreement between the Governments of the Commonwealth of Australia, the States and the Territories to continue in existence and provide for the operation of the Australian Building Codes Board, April 2006.


23. City of Ballarat, Live Smart Ballarat, 2007
24. City of Bayside, Bayside Planning Scheme Amendment C44 Exhibition Documents (adopted with revisions 27.06.05), 2005
25. City of Port Phillip, Port Philip Planning Scheme, 24 May 2007
27. Commonwealth Games Planning Advisory Committee (CGPAC), Commonwealth Games Planning Advisory Committee Games Village Report, June 2003
28. CSIRO, Environmental Sustainability Issues Analysis for Victoria, June 2004
29. Darebin City Council, Darebin Planning Scheme, 14 May 2007
31. Department of Infrastructure, Planning and Natural Resources NSW, Cost Benefit Study for BASIX, September 2003
37. House of Representatives Standing Committee on Environment and Heritage (HRSCEH), Sustainable Cities, 2005
38. House of Representatives Standing Committee on Environment and Heritage (HRSCEH), Sustainable Cities 2025 Discuss Paper, 2003
40. ICLEI, Local Government Accelerating the Uptake of Sustainable Building, May 2007
44. Logee and Early, Comparison of Web-Based and Disk Based Tools for Residential Energy Analysis, 2002.
68. Shephard, A. & Ortolano, L., *Strategic Environmental Assessment For Sustainable Urban Development*
70. Sustainable Built Environments, *Brief and Design Guides Sustainability Summary*, 2007
73. Victorian Civil & Administrative Tribunal, *Golden Ridge Investments v Whitehorse City Council*, 7 September 2004
74. Victorian Civil & Administrative Tribunal, *Hasan v Moreland City Council*, 15 August 2005
75. Victorian Civil & Administrative Tribunal, *Jolin Nominees v Moreland City Council*, 8 February 2006
81. Victorian Government Department of Sustainability & Environment, Learning to Live Sustainably (draft), September 2005
85. Victorian Government Department of Sustainability and Environment, Our Environment, Our Future: Victoria’s Environmental Sustainability Framework, April 2005
86. Victorian Government Department of Sustainability and Environment, Securing Our Water Future Together: Our Water, Our Future, June 2004
industry stakeholders workshop

The following notes were recorded at the workshop conducted with industry stakeholders conducted on 27 June 2007.

Adequacy of existing legislative system in relation to sustainability:

- Vic years behind WA
- Need to look at planning – strong statement that the rules are changing
- Solar rights – address in planning
- Services decisions –
- Large scale subdivisions – need to establish sustainability at the planning stage
- Process of development and industry consultation prior to introduction/change to building legislation. BCA2008 or 2009 may include second generation sustainability requirements
- Building code – grappling with sustainability and looking to move beyond energy efficiency to include water measures, materials and IEQ
- Harmonise building code with planning –
- ABCB & planning officials group from each state – report to COAG to address sustainability of built environment re: measures in planning / requirements in building
- Stormwater – best practice
- Not all development needs planning permission
- Some building issues should be addressed in planning – stormwater standards
- Co-ordination between government and industry to achieve consistency
- No single Victorian established assessment tool
- Sustainability Action Statement July 2006 commitment to a tool/advancing sustainability objectives
- Now planning scheme amendments need pre-authorisation from DSE before public exhibition
- State leadership is slow on the issue
- Nationally consistent approach may not suit States
- Section J & AGBR/GSR incompatibility – in Melbourne City Council
- Planning Panels see role for sustainability in planning and ‘pushing the envelope

Key objectives for sustainability

- Consistency of compatibility
- Focus on performance
- Following through with commitments
- Spell out repercussions of non compliance
- ‘Carrots’ – promote sustainability initiatives – Incentives (look at international examples)
- Mandatory disclosure - energy ratings reports for property at time of sale (eg: ACT)
- Localisation of tools – eg: BASIX based on Census data
- Simplification –
- Fast tracking, offsetting car parking, loosening up design controls, financial support (free training) – Council internal processes
- Speed of responsiveness to climate change – local can move faster than national.
Obstacles

- Resourcing and training are big obstacles
- Keeping tools up to date
- So many tools to choose from
- Wording of state planning policy framework – concept of sustainability needs to be strengthened.
- Conflict between different policies – sustainability / affordability / cutting red tape. Where conflict arises: sustainability/net community benefit
- VCAT – looks on planning from legal perspective
- Rigour around targets and benchmarking – this is weak
- Clause 56 approach should be applied to all other forms of development covered by VPP
- Need case studies – what works, does not work, costs
- Early planning meetings are necessary – communication with developers
- ‘Bangs for buck’ – educate development community about cost benefit. Developers look for cheapest way of
- Planning does not affect all development
- Clear statement of relevant issues at planning stage: tools need to reflect this

- 3 years to make changes to BCA
- Too many tools
- Number of different players – eg: real estate agents not up to speed on issue
- Need for demand for product – if customer wants that then the market is the driver not necessarily the regulations.
- Education of all – designers, buildings & occupiers/consumers: ads on tv, tv shows
- Role of building – eliminates worst practice
- Political acceptance
- Community driving Councils
- Lack of high level targets / objectives (Aus not signed to Kyoto Protocol)
- Carbon Neutrality can provide the high level target
- Changes at building permit stage would need to go back to planning – planning needs to address building matters such as external fabric and layout
- Cost of running some tools
- Tools at planning – more generalist which do not require
## SOLUTIONS

<table>
<thead>
<tr>
<th>Obstacles</th>
<th>Solutions / Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency -between what/who</td>
<td>* Advocacy from Local Govt – ESD advocacy group</td>
</tr>
<tr>
<td></td>
<td>* Communication between organisations – local govt, vicurban, building commission, interstate, MAV</td>
</tr>
<tr>
<td></td>
<td>* Use of tools designed to be used in regulation</td>
</tr>
<tr>
<td></td>
<td>* Understand impacts</td>
</tr>
<tr>
<td></td>
<td>* Consistency between national – state – local (local targets going beyond state targets)</td>
</tr>
<tr>
<td></td>
<td>Establish peak body / organisation</td>
</tr>
<tr>
<td>High Level Targets</td>
<td>* Set performance outcomes – consistent</td>
</tr>
<tr>
<td></td>
<td>* Some Councils using zero emissions targets – ICLEII</td>
</tr>
<tr>
<td></td>
<td>* Leadership to set targets</td>
</tr>
<tr>
<td></td>
<td>* Councils lead by example with their benchmarks</td>
</tr>
<tr>
<td></td>
<td>* Best practice targets – local govt set their own and put pressure. MAV &amp; ICLEII co-ordinate lobbying role</td>
</tr>
<tr>
<td></td>
<td>Absolute targets – needs higher level leadership</td>
</tr>
<tr>
<td>Limitations of Planning Impact</td>
<td>* Rescode provisions are also checked at building stage where no planning approval required. Extend to non-residential buildings.</td>
</tr>
<tr>
<td></td>
<td>* Local govt lobby state govt to ensure second generation 5 star incorporates desirable outcomes.</td>
</tr>
<tr>
<td></td>
<td>* How useful is the planning system to address issues of climate change? Is it keeping up with the needs in new and existing built form. VPP adaptation / review to plan for future climate challenges / carbon constrained future</td>
</tr>
<tr>
<td></td>
<td>* Use planning to introduce standards until more commonly accepted and translate into building</td>
</tr>
<tr>
<td></td>
<td>* Structure tools - clear planning and building requirements in tools</td>
</tr>
<tr>
<td></td>
<td>* Planning role at design stage</td>
</tr>
<tr>
<td></td>
<td>* Use planning scheme mechanisms – overlays (DDO for major development sites), particular provision on building sustainability</td>
</tr>
<tr>
<td></td>
<td>* Integrated design process by developers</td>
</tr>
<tr>
<td></td>
<td>* Early intervention in design process - require 2 systems speaking to each other.</td>
</tr>
<tr>
<td></td>
<td>* Timing – permit conditions to delay engagement of specialists (this would address issue of outlay costs for no permit )</td>
</tr>
<tr>
<td></td>
<td>* Statements of sustainability – endorsed by council (building surveyor not required to look at STEPS/SDS).</td>
</tr>
<tr>
<td>Education</td>
<td>* Tertiary level education –</td>
</tr>
<tr>
<td></td>
<td>* Leadership</td>
</tr>
<tr>
<td>Resources to run tools</td>
<td>* Strategic alliance – knowledge sharing, lobbying</td>
</tr>
<tr>
<td>Political acceptance</td>
<td>* Top down / bottom up communication</td>
</tr>
<tr>
<td>Incentives</td>
<td>* Stamp duty reductions</td>
</tr>
<tr>
<td></td>
<td>* Section 32 mandatory disclosure of building energy/ESD performance</td>
</tr>
</tbody>
</table>
Attendees List:

- Nick Wimbush  Planning Panels Victoria
- Marisia Hammerton  Darebin Council
- Kylie Long  Darebin Council
- Matt Potter  Melbourne Water
- Rob Enker  Building Commission
- Beverley Smith  DSE
- Peter Lyon  DSE
- Lisel Thomas  MAV
- Usha Iyer-Raniga  Cetre for Design RMIT
- Karen Deegan  VicUrban
- John Noonan  City of Melbourne
- Rina Madden  Szencorp
- Chris Barnett  RAIA / Third Skin
- Martin Williams  VicUrban
- Emma Antonius  VicUrban
- Sue Vujecevic  Moreland City Council
- Natasha Palich  City of Port Phillip
- Ed Cotter  Moreland City Council
- David Barnes (Workshop Facilitator)  Hansen Partnership
- Nicki Taylor (Workshop Facilitator)  SBE
- Emily Hillebrand  Hansen Partnership
appendix 2

council planners survey results summary
Planners Survey – Summary of Findings

1. At which Council are you employed?

The survey was sent to planners of the following three Council’s being Moreland City Council (MCC), Darebin City Council (DCC) and City of Port Phillip (CoPP), with majority of the responses (60%) being from MCC.

![Pie chart showing the distribution of responses by council.]

2. How did you find the tools to use when reviewing the ESD components of a planning permit?

The respondents were asked to rate the difficulty of using the STEPS and SDS tools. The majority rated STEPS as average to easy. It was clear that SDS was on average more difficult to use for the planners.

![Bar chart showing the difficulty ratings for STEPS and SDS tools.]

- STEPS:
  - Easy: 39.10%
  - Average: 52.20%
  - Difficult: 19.00%

- SDS:
  - Easy: 19.00%
  - Average: 8.70%
  - Difficult: 19.00%
3. **What sort of projects would you require completion of a STEPS report?**

The following responses indicated a good understanding of STEPS purpose which is for assessing residential projects.

- Larger scale residential projects
- Reviewing new developments
- Large projects to determine appropriate requirements from an Engineering perspective, mainly drainage.
- Residential
- We encourage all applicants for residential applications complete a STEPS report anything where the increased floor area gets close to 50m sq, although I try and encourage everyone to fill out a sustainability statement.
- Increase in floor area of 50sqm for residential building
- Residential
- Any large project, say 5 or more units etc
- New dwellings and multi-unit proposals
- Those where the applicant is willing to partake in the scheme. Mostly medium density housing applications.
- Significant medium density housing developments
- Medium density housing applications
- Residential Development
- Residential developments are the main application type I have had to deal with STEPS reports.
- Would generally be for large scale multi unit developments.
- Residential development (large scale)
- Residential

4. **What sort of projects would you require completion of a SDS report.**

SDS assessment tool is used for ‘non residential’ projects, the responses provided below reflect a poorer understanding of SDS:

- Mixed use and commercial projects
- NA
- Residential
- We encourage all applicants for larger commercial applications to complete an SDS report
- N/A
- Never required one before
- Commercial
- Similar to the above except non residential
- Commercial, industrial proposal
- Mixed use developments
Commercial parts of new mixed use developments, greenfield industrial development such as factories and warehouses.
Non-residential development
Generally these have been supplied with residential extensions or mixed use developments.
Large industrial developments
Non residential developments - commercial/residential, industrial
Non residential and mixed use

5. What stage of the planning process do you introduce applicants to do STEPS/SDS assessment?

Planners were asked to identify at what stage in the planning process they introduce applicants to STEPS and SDS? Council processes seek to introduce applicants to STEPS/SDS early as possible usually at the pre-application stage and again at the RFI (Request for Further Information) generally this is well understood as demonstrated by the responses below:

- Pre-application where ever possible, otherwise as early as possible.
- When I am advising the developer of their Legal Point of Discharge.
- Request for Further Information
- At pre-application if possible. Sometimes at further information, but this is difficult as it is not a ‘requirement’ of the planning scheme.
- Beginning of application - I normally make reference to it when I request further information
- Either at pre-application stage or at RFI stage.
- the first time we meet them
- Pre-application onwards
- When requiring further information or design changes. Or at pre-application stage.
- Pre-application and RFI
- Either at pre-application meeting stage or if this doesn't happen, I will include the information in a request for further information letter early in the permit application process.
- At the RFI stage and at Pre-Application Meetings
- As early as possible. I generally try and encourage applicants to deal with the STEPS/ESD issues at pre application if I have been involved at that stage.
- Generally only at pre apps
- Pre-app is ideal (I don't tend to deal with complex apps so can't really answer following questions!)
- Pre application or at further information request
6. What is the average number of hours per application spent on?

- Informing applicants about STEPS/SDS
- Educating applicants on how to use STEPS/SDS
- Referring and interpreting information from ESD officer

Generally planners spent from about 10 minutes to 1 hour informing the applicant about the tools, whilst minimal time was spent educating the applicant. Furthermore it was noted that planners felt that this was the job of the ESD officer and not theirs. An average of half an hour was spent referring and interpreting the information for each application.

7. Give an estimate % of the number of applicants that:

- Require further assistance to complete the sustainability components of the application after Council has approved the initial STEPS/SDS information?
- Do not meet the Council’s sustainability requirements when they first submitted their application?

The survey identified that on average more than 50% of applicants who were asked to provide STEPS/SDS information needed further assistance from Council and more than 50% did not meet the Council’s sustainability requirement when they first submitted the application.

8. What document do you look for when assessing a planning application that has used STEPS/SDS?

*‘Other’ in the graph above refers to First Rate energy report.*
There is a variety of documentation that Council requires when assessing a planning application that has used either STEPS or SDS. The most common document is the STEPS/SDS report followed by details on the plans, sustainability statement, ESD report and in some instances a First Rate energy report.

9. **What documentation and sustainability information is required for you to endorse a STEPS/SDS report?**

Typically it is the sustainability statement/ESD report and details on the plans that can be endorsed. The following responses demonstrate a reasonable understanding of this:

- Report and detailed plans
- STEPS/SDS report and any comments/further requirements from ESD Engineer
- STEPS report and sustainability statement and any relevant details (ie water tank) to be shown on the plans
- Not my job to endorse the report
- A completed STEPS/SDS report linked to details on plans
- Methods shown on plan.
- Reports and plans reflecting information in reports
- I would package the summary report or sustainability statement accompanied by the STEPS/SDS report and other relevant docs such as the First Rate report.
- Not sure
- An appropriately detailed STEPS report with all of the relevant objectives met, along with a schedule of features on the plans/elevations.
- Have not done one.
- Report, details on plans, waste minimisation plans etc
- Plans, First Rate Report, STEPS/SDS reports, sustainability statement

10. **Are there any additional factors that may have an impact on whether or not that STEPS/SDS report and planning?**

The following responses were provided:

- None that I am aware of
- The applicant
- A variety of matters would influence whether the planning application is approved. Occasionally requirements to modify the proposal would influence the STEPS/SDS outcomes requiring re-assessment - this can usually be conditioned
- Whether the information can not be shown on plan.
- If a permit is issued with Conditions for amended plans, the applicant would have to check their ESD documentation and make any necessary changes as a result of other changes - I would not expect many to remember or bother about this and Council would need to remember to get the information to endorse.
- I am often reliant on advice from Councils sustainable design officer.
- Comments from other Council departments
11. Are all STEP/SDS reports referred to the ESD officer?

Out of 13 responses only 1 planner stated that they did not refer STEPS/SDS reports to the Council’s ESD officer.

12. Do applicants consult the planner or the ESD officer in regards to initial information, how to use the tool, design strategies, approval of the report?

As can be seen from the chart below the respondents perceive that planners are very important in the initial process of discussion of ESD issues, whilst ESD officers have a stronger role in explaining to the applicant how to use the tool and inform design strategies.

13. In regards to outcomes in the planning process, give a rough % where:

   - applicants have made no effort to address the sustainability requirements and do not comply with STEPS/SDS
   - applicants has made a reasonable effort to comply but do not fulfil all of the sustainability requirements
   - applicants has fulfilled all sustainability requirements using STEPS/SDS
   - applicants have received planning approval with a permit condition that addresses the sustainability requirements

In regards to outcomes in the planning process planners indicated that on average 58% of applicants have made no effort to address the sustainability requirements and do not comply with STEPS/SDS, while on average 25% of the applicants have made a reasonable effort to comply but do not fulfil all of the sustainability requirements. Furthermore, planners indicated that on average as low as 12.53% of applicants have received planning approval with a permit condition that addresses sustainability requirements.
appendix 3
planning applicants survey results summary
Planning Applicants/Developers Survey – Summary of Responses

To put the survey in context it is important to note that 76% of respondents used STEPS as their choice of tool, it is noted that STEPS is a tool used to assess environmental impact of residential dwellings.

Accessing the tool

1. Which tool have you used?

The respondents had an option of using both or one of the assessment tools being STEPS and SDS for their proposals. The results have indicated that three quarters or 77% of respondents use STEPS (which is used to assess the environmental impact of residential dwellings).

![Pie chart showing tool usage](chart.png)

2. In which Council have you used these tools?

Most of the permit applicants were from the three inner city councils, out of 62 responses, 31 used the tool for the assessment of proposals located within the City of Port Phillip, 17 within Moreland City Council, 7 of the respondents that used the tool in Darebin City Council and 7 within other Councils.

3. Why did you use the ESD assessment tool?

A significant number (80%) of the respondents used the ESD assessment tools as part of Councils requirements, whilst only 3% used it due to State requirements. The results indicate that Local Councils are the main driving force for implementation of these tools. The remaining 21% indicated that they used the ESD assessment tool due to Building Code Requirements and voluntarily out of their own interest.
4. Did Council support you through the use of the ESD assessment tool?

63% of the respondents indicated that Council supported them in the use of the ESD assessment tools. Most of the applicants rated Councils help between 3-5 on a scale of 1-5 (where 1 is unhelpful and 5 is very helpful). For over half of the respondents (51.9%) this was the first time they had used STEPS and SDS tools.

5. What is the size of your development?

The average size of the development in relation to number of dwellings for the exercise ranged from 1 dwelling to 300 units. Whilst the square metre measurement of floor space in non-residential dwellings ranged from 95 square metres to 1.5 hectares, which indicates that the tools are applied to a variety of development sizes.

6. At what stage of the project did you consult the tool?

Most of the respondents used the tools in the Schematic Design (planning process) or Design Development (building process). This is a positive response as the applicants are not leaving the assessment to the end of the project timeline, which would effectively be either contract documentation or construction.
7. Did you hire a consultant to complete the tool for the project?

Out of the 49 respondents 37 or 75% did not hire a consultant to complete the assessment tools for the project.

8. Rate the accessibility of the tool

In relation to accessibility of the tools the answers were split between 3 and 4 on a scale of 1-5 (1 being difficult and 5 excellent).

9. Did you attend a training session provided by the Council? If yes, rate the usefulness of the session

Respondents were also asked if they attended a training session provided by Council which 73.5% of the respondents answered ‘no’. Thus, a high proportion did their own assessment without training. Of those that attended a training session 57% indicated that it was effective. However, whilst these sessions rated highly in relation to being useful, the usefulness of the guidelines and explanations provided on the web did not rate as high, as shown in the graph below.
10. Did you find the tool easy to use? How many hours on average are spent completing the STEPS/SDS report and associated information for each application?

70% of the respondents considered the tool easy to use and 78% of the respondents took 1-10 hours to complete the assessment either against STEPS or SDS.

11. If you used a consultant to prepare the STEPS/SDS report, what was the consultant fee?

6 out of the 10 (60%) of those respondents that used a consultant to prepare the STEPS/SDS report paid $500 or less for the consultants fee, only 1 respondent (10%) spent $5000 or more. The amount spent on the assessment most likely will result in greater consultant fees if the application is large or complex in nature.
12. Were the consultant recommendations easy to apply to the (proposed development)?

Furthermore 64.7% of the respondents that used a consultant were able to apply their recommendation easily within the proposed development.

Using the tool

13. Did you have to make changes to your design to meet the targets in the STEPS/SDS tool?

More than half (68.9%), of the respondents needed to make changes to the design to meet the targets in the STEPS/SDS tools.

14. Rate the ease of making required changes for each of the categories within STEPS and SDS?

The results also indicated that it was the most difficult for developers to change the design in relation to “Stormwater Quality Impacts” to meet the STEPS requirements. Whilst, in relation to complying with SDS principles it was the most difficult to implement “ESD Design Excellence/Innovation” category.

15. Were there design elements that could not be dealt with by the tool?

45% of the respondents indicated that there were design elements that could not be dealt with by the assessment tools. Some of the design elements that respondents suggested could not be dealt with by the tool include:

- Solar hot water, WSUD treatment of car parks and additional rainwater tank storage.
- Grey water equipment
- Hydraulic Engineering Fees - Storm water
- I would like included an explanation of how the values are calculated so that it is easier to reach the 'minimum requirements' without trial and error. Whilst this is perhaps against the principle of the tool, for an engineer told to get their client the cheapest solution to pass the STEPS or SDS tool, it would save the engineer a lot of time and therefore save the design company money.
- More concise schedule of material for finishes. Felt the options were a bit too generic for the project I had.
- Grey water system instead of rain water collection, or in addition to.
- Toilet flushing material selections
- Compatibility with 5 star and eco selector
- We found that if you had large planted areas, then this was a disadvantage? Seems to be a major problem with the software. As a result I didn't submit the results and ignored the tool. Our buildings will have large planted areas for biodiversity and amenity reasons, regardless of any piece of computer software.
16. Were there any expected changes to the cost of the project as a result of using the tool?

As a result of using the tools most respondents (42.9%) indicated that there were expected changes to the cost of the project. The additional costs to the project were associated with the following:

- In the general order of $6000.00 per project minimum
- Grey water equipment $1000
- Rainwater tanks & amp; energy efficient taps
- Below ground rain water tank, higher cost of some low water use fixtures
- Hydraulics, mechanical, transport are the most...
- Varies depending on project and standard of initial design
- $4,000
- Had to use gas instead of electric (no existing gas mains)
- The complying concrete materials are unfamiliar to most builders and even engineers as are the purely specialist alternative products. To specify the green list window manufacturer means you'll get an uncertainty factor in pricing where builders feel they have to move away from their standard pricing regimes. Builders are way behind in this whole thing.
- Initial up front costs for plant, materials etc which are expected to be re-couped in life cycle
- Difficult to assess at this early stage of the project
- Night purging with automated clerestorey windows added $31,000.
- Approximately 3% of total Construction Cost
* It's a bit early in our project to say, but I'm assuming the costs of recommended glass types & the extra insulation will add costs to construction. If these things are going to create a more sustainable house then I think it will be worth the money.

### Approach

17. Do you see the tool as valuable to the design process?

Most of the respondents (71.1%) considered the tool as a valuable to the design process.

18. Do you see the tool as valuable to the planning process?

66.7% considered it as a valuable planning tool.

19. Is the scoring system of the tool fair?

70.7% of the respondent considered the scoring system of the tool to be fair.

20. Would you apply the environmental design features in future projects?

The respondents were also asked if they would apply the environmental design features in future project which 67.4% said 'yes', 26.1% 'don't know' and only 6.5% responded 'no'. Furthermore 61% of the respondents indicated that this was the first time they used the ESD assessment tools on their projects.

21. Have you used other ESD assessment tools on the projects? If yes please list other tools used.

15 out of 43 respondents indicated that they had used other tools such as:

* BASIX
First rate
▪ AGBR
▪ Green Star
▪ Independent assessment by accredited ESD specialist

22. What areas of the ESD assessment tools would you recommend alterations for future improvements and development?

In relation to STEPS it was noted that the respondents would recommend alterations for future improvements and development in Water (61.5%) amongst other issues, whilst in highest response in relation to SDS was Materials (77.8%).

23. Do you have any other comments relating to STEPS/SDS assessment tool?

Specific comments for improvements to the STEPS/ESD tools include:

▪ Could a summary of the base line data eg. how to reach GHG emissions target be explained or matched to existing State/Fed Government targets. Water is clear but a summary to give to Builders/Developers would be great.
▪ The program is lagging behind in terms of the planning requirements to address articulation and finish and needs to be clearer in terms of building materials.
▪ I found the tool was geared at new developments and did not take into account renovations. I spoke to the STEPS representation at Moreland council to enquire whether I was supposed to consider the entire house in the assessment or just the renovation component. He commented that it should be just the renovation however after speaking with Natasha Palich at PP council her response was that it should be the entire house. Whilst the permit was to be made by the PP council so I had to comply with their interpretation, I found this very vague/contradictory within the program itself, and ideally this should be covered in the guidelines/selected options. More specifically I found the program is a little grey on the possibility of reusing existing A/C, heating units in renovation work. Similarly storm water was difficult to interpret, with the proposed renovation only an upper level addition and having no bearing on the permeability of the site. There should be an option to retain existing where applicable. Also despite every effort, whenever I saved my report to go in to at a later date using my email and address as a reference it was never there, which was very frustrating, although perhaps this was more a user problem. Despite all the above gripes, I think the program shows good initiative and hope that these teething problems are eventually ironed out.
▪ Found using the back button very slow.
▪ My main concern is that there is no apparent compulsion about applying the tests, or reaction by the relevant Council department if the tests are not applied. Overall it's a very hit and miss situation and I seriously doubt if many or even any of my colleagues use it on a regular basis
▪ STEPS: more flexible when using it for multiple townhouses as usually townhouses on the one site are different, therefore there is only really an option to do one townhouse, and this usually interferes with the site area and issues like that (obviously each townhouse can be put in independently, but for planning requirements it is more difficult to get an accurate reading).
Overall it was fairly user friendly, although the repetitive trial and error to meet minimum requirements was a little tedious.

Shouldn't the tool assess how many cars the Council is demanding of the Applicant?

The tools provide a starting point or guide to how the building will stack up in the given ESD criteria, but I feel it should only be used as a guide and overall assessment should include other factors that the particular project may have associated with it. Also in planning, it would help if a number of options were given as a means of achieving the rating. For example, the inclusion of a rain water tank, or the installation of a grey water recycling system. It is often difficult to commit to everything at the town planning stage.

I actually do an assessment for as many projects as possible as part of the standard suite of assessments for the design process and point it out to my clients so that they can see what the likely ratings would be. It's hard to take people with you on the specialist recycled products needed. The recycled products need to be more mainstream.

Part J Volume 1 seems to have made steps legally binding and hence has more effect

Proposals must address sustainability as a core issue. Sign off for compliance should however be a condition of the planning permit or included in the building permit. Making final decisions about a myriad of building design selections at planning application stage is premature and incurs unnecessary costs. Amending and fine tuning proposals through the design development and documentation phases can cause the need for re-rating the project. Applicants need to embrace objectives through all phases of design so that they do not address sustainability as an afterthought, but rating sign off should not be at planning application stage.

Not at this time we would prefer to wait until the projects have been completed and assess against costs and the performance of the buildings.

It would be good to gain credits in one area of the assessment when it is difficult to achieve the benchmark in another area of the assessment.

Very simple tools - suitable for high level assessment, can be completed without employing ESD consultants.

There are no 'not applicable' boxes where things are not relevant or compliance is not required (eg: bicycle parking).

STEPS should be replaced by Eco selector so there is a universal assessment. A system promoted by 2-3 municipalities is wasteful of time and money.

I think it may have helped to have better information about the use of the tools. Unfortunately due to fees being so tight there is little opportunity to spend vast amounts of time learning new tools and systems for each project. Having said that it is a worthwhile objective to encourage better environmentally responsible design however, it should be universal across the state and country not just at local levels.

I did not use the SDS tools and don't really know what they are. In regards to the STEPS tool I found it relative easy to use plugging known information into the report. However, to improve performances on that information I didn't know what to do so then went to a consultant. There was no way I knew how to calculate the First Rate scores. The MJ per m² for heating, cooling, conditioning or star ratings.