

# Environmentally sustainable development of buildings and subdivisions

A roadmap for Victoria's planning system



## Photo credit

Jells Craig

### Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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# Executive summary

The Victorian Government is committed to improving the environmental performance and resilience of buildings in response to urban growth and a changing climate.

[Plan Melbourne \(2017\)](#) recognises that well designed and resource efficient buildings provide essential building blocks for creating more sustainable, liveable cities and towns.

Improving the energy and water efficiency of new buildings supports affordable living, contributes to reduced greenhouse gas emissions and reduces stormwater pollution of our rivers and bays. Our quality of life is enhanced by building design features that make it easier to recycle, support more sustainable transport options and minimise the intrusion of air pollution and noise.

This roadmap outlines a program to introduce new environmentally sustainable development (ESD) planning policies and standards that will help:

- **Make it easier to recycle:** To support the government's recycling and waste minimisation goals, planning standards for new buildings will be updated to make it easier and more convenient for building occupants to divert materials for reuse or recycling.
- **Cool new developments and our urban environment:** With a changing climate bringing more frequent hot days, practical landscape and design measures to reduce urban heat impacts will be developed.
- **Facilitate active and sustainable transport choices:** To match changing community needs new standards will provide for adequate bicycle parking and facilities and prepare for increased use in low emissions vehicles.
- **Reduce exposure to air and noise pollution:** Siting and design guidance will help minimise exposure to noise and air pollutants for new residences and other sensitive uses located near busy transport routes.
- **Improve building energy efficiency and support the transition to a low emission future:** Ensure buildings are sited and orientated to optimise energy efficiency and encourage use of renewable energy.
- **Enhance the role of planning in stormwater management and efficient water usage:** Planning measures to support sustainable water management were introduced in 2018. Additional measures will focus on supporting ongoing implementation and support for these changes.
- **Strengthen and extend ESD considerations for commercial and industrial developments:** Planning for these land uses does not incorporate many environmental factors, apart from stormwater management. New provisions will be

developed to expand the number of relevant ESD considerations for these forms of development.

Development of an integrated planning system approach to ESD will follow a two-stage process.

Reforms as part of stage one will ensure that ESD is more comprehensively addressed throughout the Planning Policy Framework and provide a clearer policy basis for development of new standards.

Stage two will introduce new and expanded particular provisions across a range of key ESD elements to help achievement of wider urban sustainability goals. These actions will be supported by further guidance materials and tools.

These planning reforms will occur concurrently with a longer-term program to improve the environmental performance of developments through the building system. A staged process of changes and improvements to the energy efficiency standards of the National Construction Code (NCC) commenced in 2019, with further improvements underway.

Consultation with stakeholders on the planning reforms will take place over the coming months and will be finalised over 2021.

# Sustainability in the built environment

For over thirty years planning schemes in Victoria have provided for the protection of natural and human-made resources, the maintenance of ecological processes and genetic diversity, and to secure a pleasant, efficient and safe working, living and recreational environment.

To better manage increasing pressures on our natural resources, higher levels of population growth, and the effects of climate change, we need to improve how environmental sustainability is incorporated into how we plan and design our built environment.

The decisions we make today have a lasting effect. To support Victoria's future growth and development it is estimated that an additional 2.3 million dwellings will be required by 2056<sup>1</sup>.

These new communities will also need to be supported by commercial, industrial and institutional buildings, and estimates suggest that two thirds of the non-residential buildings standing by 2050 will have been developed or refurbished after 2019<sup>2</sup>.

This directions paper provides a roadmap for how the planning system will help ensure that new residential, commercial and industrial developments incorporate environmentally sustainable development (ESD) features to support our current and future needs.

The *Climate Change Act 2017* is driving timely and critical responses across government, with significant implications for future development across Victoria. This Act establishes a long-term target of net zero greenhouse gas emissions by 2050 and requires development of five yearly sector pledges which describe the actions government will take to reduce Victoria's emissions. Planning measures can help support achievement of these targets.

In addition, climate change Adaptation Action Plans must be published every five years for each system of activity across the state, including the built environment, transport and water. Land use planning plays an important role in helping Victoria adapt to climate change and improve our resilience to physical hazards. The first set of these plans will be prepared by 31 October 2021.

## Environmentally sustainable development (ESD)

There are many different existing definitions of ESD, such as the United Nations Brundtland Commission report of 1987 definition:

*'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'*

Australia's National Strategy for Ecologically Sustainable Development 1992 definition:

*'Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.'*

Or the 2003 Victorian Commissioner for Environmental Sustainability Act 2003 (CES Act) definition:

*'Ecologically sustainable development is 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.'*

These definitions broadly match the approach adopted by the objectives of the Planning and Environment Act and inform the approach taken to addressing ESD in this roadmap.

The Minister for Planning will be overseeing preparation of the Built Environment Adaptation Action Plan.

The planning system does not operate in isolation. Concurrent reforms underway in the building system will be integral to ensuring that all new developments include energy efficiency standards and other features fundamental to the sustainable use of buildings. These regulatory systems need to work together and complement each other to ensure effective ESD outcomes for Victoria's built environment. In addition, industry leadership through leading practice and innovation helps establish new approaches suitable for wider adoption over time. This includes certification and rating systems such as [GreenStar](#) (Green Building Council of Australia) and [EnviroDevelopment](#) (Urban Development Institute of Australia).

<sup>1</sup> Based on a projected Victorian population of 11.2 million by 2056. [Victoria in Future 2019 Population Projections 2016 to 2056, July 2019](#)

<sup>2</sup> Commonwealth of Australia 2018, [Trajectory for Low Energy Buildings](#)

Category	Key clauses
ESD	<ul style="list-style-type: none"> <li>15.01 Built environment, 15.02 Energy and resource efficiency, 12 Environmental and landscape values</li> </ul>
Energy	<ul style="list-style-type: none"> <li>15.01-3 Subdivision design, 16.01-2 Location of residential development</li> <li>54.03-5 Energy efficiency protection, 56.04-3 Solar orientation of lots, 58.03-1 Energy efficiency</li> </ul>
Transport	<ul style="list-style-type: none"> <li>18.01-1 Land use and transport planning, 18.02-2 Public Transport, 18.02-1 Sustainable personal transport</li> <li>52.34 Bicycle facilities, 56.06-1 Integrated mobility, 56.06-2 Walking and cycling network</li> </ul>
Water	<ul style="list-style-type: none"> <li>19.03-3 Integrated water management, 53.18 Stormwater Management in Urban Development</li> <li>54.03-4 Permeability objectives, 55.03-4 Permeability and stormwater management objectives, 55.07-5 Integrated water and stormwater management objectives, 56.07 Integrated Water Management, 58.03-8 Integrated water and stormwater management objectives</li> </ul>
Waste	<ul style="list-style-type: none"> <li>19.03-5 Waste and resource recovery, 15.01-3 Subdivision design</li> <li>55.07-11 Waste and recycling, 58.06-3 Waste and recycling, 56.08-1 Site management</li> </ul>
Air and noise	<ul style="list-style-type: none"> <li>13.05-1 Noise abatement, 13.06-1 Air quality management, 15.01-3 Subdivision design</li> <li>55.07-6/58.04-3 Noise impacts objectives</li> </ul>
Climate adaptation	<ul style="list-style-type: none"> <li>13.01-1 Natural hazards and climate change, 19.03-3 Integrated water management, 53.18 Stormwater Management in Urban Development</li> <li>55.03-4 Permeability and stormwater management objectives, 58.03-8 Integrated water and stormwater management objectives, 56.07 Integrated Water Management</li> </ul>
Landscape	<ul style="list-style-type: none"> <li>12.01-1 Protection of biodiversity, 12.01-2 Native vegetation management, 15.01-2 Building design</li> <li>54.03-6 Significant trees, 55.03-8 Landscaping, 55.07-4/58.03-5 Deep soil areas and canopy trees, 56.05-1 Integrated urban landscape</li> </ul>

**Table 1 Summary of key ESD related clauses and standards in VPP**

## Sustainable development and Victoria's planning system

The [Planning and Environment Act 1987](#) (the Act) incorporates sustainable land use and development, the protection of natural resources and the maintenance of ecological processes as key legislated objectives of planning in Victoria<sup>3</sup>.

The Act also specifies that the planning framework includes objectives 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, and
- 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.

Plan Melbourne and the state's Regional Growth Plans provide the strategy and policy direction for land use development at a regional and local level, and all highlight environmental sustainability and climate change resilience as core considerations.

The Victoria Planning Provisions (VPP) and Local Planning Schemes provide the key instruments for implementing these policies and the Act. Sustainable development considerations weave throughout the planning system, through the application of the Planning Policy Framework, and various particular provisions which include objectives and standards applicable to buildings and subdivisions (see Table 1 and Figure 1).

These policies and standards are applied to growth areas and key redevelopment sites across Victoria through precinct structure plans led by the Victorian Planning Authority (VPA), and development planning processes and strategic planning projects led by local councils.

In addition, many local councils have applied local planning policies that encourage performance beyond state planning standards and policies. Since 2014, 20 local councils (25% of all Victorian councils) who form part of the Council Alliance for a Sustainable Built Environment (CASBE) have introduced a largely standardised Environmentally Sustainable Development policy into their planning schemes (see page 9 for further detail).

Other councils have introduced policies that include ESD objectives or address a particular element of ESD that is of importance to their municipality (such as Water Sensitive Urban Design). Sixteen regional and metropolitan councils are also currently undertaking work towards the development of an ESD framework for greenfield residential subdivisions<sup>4</sup>.

### Plan Melbourne

Plan Melbourne 2017-2050 outlines the Government's strategy to guide the growth of Melbourne over the next 35 years. The plan outlines key actions related long-term land use, infrastructure and transport planning.

Plan Melbourne Action 80: 'Review of planning and building systems to support environmentally sustainable development outcomes' is the key driver for the proposed planning system ESD reforms.

In addition, other government priorities under Outcome 6: Melbourne is a sustainable and resilient city address particular ESD themes that are implemented in part through this work, in addition to other activities across government:

- **Air and noise:** Direction 6.6 specifies "air quality and noise impacts should be a fundamental consideration in the design and assessment of all new developments". Action 96 - Improve air quality and Action 97 - Guidelines for noise impact in new developments.
- **Recycling and resource recovery:** Action 101 - Waste collection and resource recovery for medium- and high-density development
- **Water:** Action 89 - Integrated water management planning and Action 94 - Protecting the health of waterways from stormwater run off
- **Urban heat:** Action 91 Whole-of-government approach to cooling and greening Melbourne<sup>5</sup>.
- At a metropolitan scale, Land-use Framework Plans (Action 1) will provide further details on how sustainability considerations will be applied across Melbourne's six regions.

A range of other government policies and strategies complement Plan Melbourne to support sustainable development. Key documents are highlighted in Table 2 on the following page.

<sup>3</sup> Section 4 objectives

<sup>4</sup> Led by City of Woodonga, this project aims to develop a Sustainable Design Assessment in the Planning Process (SDAPP) framework specific for subdivisions. Partner councils include Ballarat City Council, Baw Baw Shire Council, East Gippsland Shire Council, Greater Bendigo City Council, Greater Geelong City Council, Greater Shepparton City Council, Hume City Council, Latrobe City Council, Macedon Ranges Shire Council, Melton City Council, Mitchell Shire Council, Moorabool Shire Council, Wangaratta Rural City Council, Warnambool City Council and Whittlesea City Council. A total of 29 councils are participating in an 18 month trial of the [Sustainable Subdivisions Framework](#).

<sup>5</sup> [Details of the wider Action 91 Cooling and Greening Melbourne program.](#)

Energy	Transport
<ul style="list-style-type: none"> <li>Victorian Renewable Energy Roadmap - 2015</li> </ul>	<ul style="list-style-type: none"> <li>Victorian Cycling Strategy – 2018</li> </ul>
<ul style="list-style-type: none"> <li>Renewable Energy Action Plan (REAP) - 2017</li> </ul>	<ul style="list-style-type: none"> <li>Growing our Rail Network 2018 - 2025</li> </ul>
<ul style="list-style-type: none"> <li>Victorian Renewable Energy Targets</li> </ul>	<ul style="list-style-type: none"> <li>Victorian Infrastructure Plan – 2017</li> </ul>
<ul style="list-style-type: none"> <li>Victoria’s Climate Change Framework – 2016</li> </ul>	<ul style="list-style-type: none"> <li>Regional Network Development Plan – 2016</li> </ul>
<ul style="list-style-type: none"> <li>Climate Change Adaptation Plan – 2016</li> </ul>	<b>Waste and recycling</b>
<ul style="list-style-type: none"> <li>Victorian Energy Efficiency and Productivity Strategy - 2017</li> </ul>	<ul style="list-style-type: none"> <li>State-wide Waste and Resource Recovery Infrastructure Plan (SWRRIP) – 2018</li> </ul>
<b>Natural environment</b>	<ul style="list-style-type: none"> <li>Recycling Victoria: A new economy - 2020</li> </ul>
<ul style="list-style-type: none"> <li>Protecting Victoria’s Environment – Biodiversity 2037 – 2017</li> </ul>	<b>Water</b>
<ul style="list-style-type: none"> <li>Victorian Memorandum for Health and Nature</li> </ul>	
<b>Air &amp; Noise</b>	<ul style="list-style-type: none"> <li>Yarra River Action Plan – 2017</li> </ul>
<ul style="list-style-type: none"> <li>Victorian Air Quality Statement</li> </ul>	<ul style="list-style-type: none"> <li>Water for Victoria - 2016</li> </ul>
<ul style="list-style-type: none"> <li>State Environment Protection Policy (Air Quality Management)</li> </ul>	<ul style="list-style-type: none"> <li>Port Phillip Bay Environmental Management Plan – 2017</li> </ul>
<ul style="list-style-type: none"> <li>State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade)</li> </ul>	

**Table 2 Government policies that influence planning objectives to improve ESD performance**

## Council Alliance for a Sustainable Built Environment (CASBE) and Local Planning Policy

In 2007, several councils who had previously developed and applied sustainable design assessment tools, commissioned the development of the [Sustainability Assessment in the Planning Process report](#), which examined opportunities for inclusion of ESD requirements into Victoria's regulatory and legislative frameworks. This report would inform the evolution of the Sustainable Design Assessment in the Planning Process (SDAPP) framework and fact sheets, and the formalisation of the [Council Alliance for a Sustainable Built Environment](#) (CASBE) operating under the auspices of the Municipal Association of Victoria (MAV).

In 2014 a [Planning Panels Victoria Advisory Committee on Environmentally Efficient Design Local Policies](#) was developed. CASBE advocated for a formal local planning policy on ESD, providing a cost-benefit analysis<sup>6</sup> in support of their approach. The committee recommended adoption of local policies into six planning schemes. Since these initial six local planning schemes were amended to include an ESD local planning policy, thirteen more have since followed suit. In addition, the City of Melbourne adopted a comprehensive ESD policy into their planning scheme in 2013.\*

Currently ESD local planning policies are largely standardised (see Table 3). The key differences are the size of development that triggers provision of a Sustainable Design Assessment (SDA) or a Sustainability Management Plan (SMP) to support assessment of a permit application.

ESD local policies are supported by the online [Built Environment Sustainability Scorecard](#) (BESS), which was launched by CASBE councils in 2015 to replace earlier ESD assessment tools such as the Sustainable Design Scorecard Non-residential (SDS) and the Sustainable Tools for Environmental Performance Strategy (STEPS).

BESS incorporates a set of measures that allow applicants and councils to assess the performance of a proposal against the objectives of their ESD local planning policy.

Further information on these local policies, and the councils that have adopted them can be found on the CASBE website.

ESD Local Policy (standardised)*	Tools that support implementation of local policy	
	SDAPP Framework and information sheets	BESS tool elements
Energy performance	Energy efficiency	Energy
Water resources	Water efficiency	Water
Indoor environment quality	Indoor environment quality	Indoor environment quality
Stormwater management	Stormwater management	Stormwater
Transport	Transport	Transport
Waste management	Waste management	Waste
Urban Ecology	Urban Ecology	Urban Ecology
	Construction and building management	Management
	Innovation	Innovation
	Building materials	

**Table 3 ESD local policy elements**

\*The ESD policy adopted by the City of Melbourne takes a different approach. This policy is currently being updated.

6 Pitt & Sherry (2013), Environmentally Efficient Design Planning Policies – Cities of Banyule, Moreland, Port Phillip, Stonnington, Whitehorse and Yarra: Expert Evidence – Benefit Cost Analysis – Phil Harrington

*Working alongside the building system*

The building regulatory system plays an integral role in establishing the energy performance standards of new buildings. The National Construction Code (NCC) is the key instrument that sets standards for new buildings and major renovations, including energy use in relation to thermal performance of the building ‘envelope’ and efficiency of fixed equipment, including heating and cooling equipment, lighting and hot water. The NCC includes both volumes of the Building Code of Australia (BCA) and the Plumbing Code of Australia (PCA). The NCC is adopted by

Victoria through incorporation by reference in the Building Regulations 2018 and Plumbing Regulations 2018.

To support clear and efficient decision making it is important that the planning and building systems work together, and that the right regulatory tool is used.

Figure one provides an overview of the way both the planning and building systems currently address ESD of new buildings, from legislation, through to policy and design standards.

**Figure 1.**  
**Sustainable development in the planning system, and the interaction with the building system**

<p><b>Planning and Environment Act 1987</b></p> <p>Sets the legal framework for the Victorian planning system.</p> <p>Objectives include:</p> <p>(a) provide for the fair, orderly, economic and sustainable use, and development of land;</p> <p>(b) provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity;</p> <p>(e) balance the present and future interests of all Victorians</p>		<p><b>Building Act 1993</b></p> <p>Sets the legal framework for the regulation of building construction, building standards, maintenance of specific safety features and for registration of building and plumbing practitioners in Victoria.</p> <p>Objectives include:</p> <p>(b) to enhance the amenity of buildings;</p> <p>(c) to promote plumbing practices which protect the safety and health of people and the integrity of water supply and waste water systems;</p> <p>(f) to facilitate the construction of environmentally and energy efficient buildings</p>
<p><b>Planning Policy Framework</b></p> <p>Sets the policies to guide land use and development in Victoria.</p> <p>Ecologically sustainable development is established as a key consideration of Clause 12 Environmental and landscape values, which states that planning must implement principles from national and international agreements including the National Strategy for Ecologically Sustainable Development. Clause 15.02-1S Energy and resource efficiency makes a more explicit connection to the ESD of buildings with the objective “To encourage land use and development that is energy and resource efficient, supports a cooler environment and minimises greenhouse gas emissions.”.</p>	<p>State level</p>	<p><b>Building Regulations 2018</b></p> <p>Contains requirements relating to building permits, building inspections, occupancy permits, enforcement, maintenance of buildings.</p> <p><b>Plumbing Regulations 2018</b></p> <p>Contains information on the technical requirements for installing plumbing and drainage systems as well as the relevant performance requirements.</p>

<p><b>Regional Growth Plans</b></p> <p>Provides broad direction for land use and development across regional Victoria.</p> <p><b>Plan Melbourne</b></p> <p>Sets vision and outlines strategy for Melbourne's growth over next 35 years. Principle 4: Environmental resilience and sustainability Outcome 6: Melbourne is a sustainable and resilient city.</p>	<p><b>Regional level</b></p>	
<p><b>Planning Policy Framework (PPF) Local Policy</b></p> <p>20 Local councils have introduced Environmentally Sustainable Development (ESD) policies in to their local planning schemes. These local policies are largely standardised, and cover matters related to Energy performance, Water resources, Indoor environment quality, Stormwater management, Transport, Waste management and Urban Ecology.</p>	<p><b>Municipal level</b></p>	
<p><b>Precinct Structure Plans</b></p> <p>ESD requirements are further considered in the development of strategic plans for new precincts, such as within the Fishermans Bend urban redevelopment. The Fishermans Bend Framework plan is structured around eight sustainability goals that will guide the strategic development of the Fishermans Bend precinct. Buildings in Fishermans Bend will also be required to meet a minimum 4 Star Green Star rating, and buildings over 5,000 sqm must be built to a 5 Star Green Star standard.</p>	<p><b>Neighbourhood level</b></p>	
<p><b>VPP Particular Provisions</b></p> <p>Particular provisions relating to residential land uses such as subdivision, apartment developments, or single dwellings also incorporate elements of ESD within standards regarding site layout and detailed design.</p> <p>The Better Apartments Design Standards, 2017 introduced various requirements related to energy efficiency, waste and recycling, noise impact objectives, and integrated water and stormwater management. In addition, a range of other particular provisions include environmentally focused standards and measures that inform permit responses beyond just residential developments, such as Clause 53.18 Stormwater management in urban development and Clause 52.34 Bicycle facilities.</p>	<p><b>Site and building level</b></p>	<p><b>National Construction Code (Commonwealth)</b></p> <p>All new homes and some renovations, alterations and additions must comply with the energy efficiency requirements of the NCC. Requirements are tailored to building type (eg. different requirements exist for single storey and multi-storey dwellings) and can be met by achieving a Six Star performance rating using a wide range of factors, such as insulation, external glazing, sealing, services and ventilation control. The aim of this standard includes reducing the environmental impacts of energy consumption. In Victoria all new Class 1 dwellings (stand alone or semi-detached houses) are also obliged to install either a rainwater tank for toilet flushing or a solar hot water system. This is set through a Victorian variation to requirements in the NCC, with supporting provisions in the Plumbing Regulations.</p>

# Environmentally sustainable development roadmap

Following the introduction of new environmental performance standards for apartments in 2017, a further update of the planning system is needed to comprehensively embed ESD into planning and decision making for new buildings across residential, commercial and industrial land uses.

Gaps in the response to ESD within the Victoria Planning Provisions were recognised by the Advisory Committee appointed in 2013 to review the proposal to adopt local ESD policies into six local planning schemes. Noting the absence of a comprehensive state-wide approach to ESD at the lot scale, the [Advisory Committee and Panel Report on Environmentally Efficient Design Local Policies](#) (2014) supported adoption of local policies into specific planning schemes until such time as a state-wide approach is developed in the VPP.

Although some of the planning system limitations identified by these processes have been addressed in relation to stormwater management and for apartments, significant additional changes are needed to provide a more comprehensive response to ESD at the state level. Existing state ESD policies and standards do not apply to all land uses, and in some cases are insufficient to address existing and future planning and environmental challenges such as waste management and climate change.

To address these challenges key areas of reform are outlined below. It is intended they will apply to residential, commercial and industrial developments across all planning schemes in Victoria:

- **Make it easier to recycle:** To support the government's recycling and waste minimisation goals, planning standards for new buildings will be updated to make it easier and more convenient for building occupants to divert materials for reuse or recycling. Resolving current challenges over recycling and resource recovery can be assisted with additional planning measures to support the Victorian government's significant cross-sector recycling reforms<sup>7</sup>.
- **Cool and green new developments and our urban environment:** With a changing climate bringing more frequent hot days, practical landscape and design measures to reduce urban heat impacts will be developed. Reducing urban heat is an objective for apartment development landscaping

and is considered as part of responses to integrated water management, but there is no specific urban heat policy and standards for other land uses.

- **Facilitate active and sustainable transport choices:** To match changing community needs new standards will provide for adequate bicycle parking and facilities and prepare for the growth in electric vehicle use.
- **Reduce exposure to air and noise pollution:** Siting and design guidance will help minimise exposure to noise and air pollutants for new residences and other sensitive uses located near busy transport routes.
- **Improve building energy efficiency and support the transition to a low emission future:** Ensure buildings are sited and orientated to optimise energy efficiency and encourage use of renewable energy. These responses will help achievement of greenhouse gas emission abatement objectives set out in the *Climate Change Act 2017*.
- **Enhance the role of planning in stormwater management and efficient water usage:** Planning measures to support sustainable water management were introduced in 2018. Additional measures will focus on ongoing implementation to support these changes.
- **Strengthen and extend ESD considerations for commercial and industrial developments:** Planning for these land uses does not address many environmental factors. Commercial sites account for nearly half of the greenhouse gas emissions from all buildings<sup>8</sup> in Australia, and the commercial and industrial sector produce more than double the amount of waste of Victorian households. New ESD provisions will be developed for these forms of development.

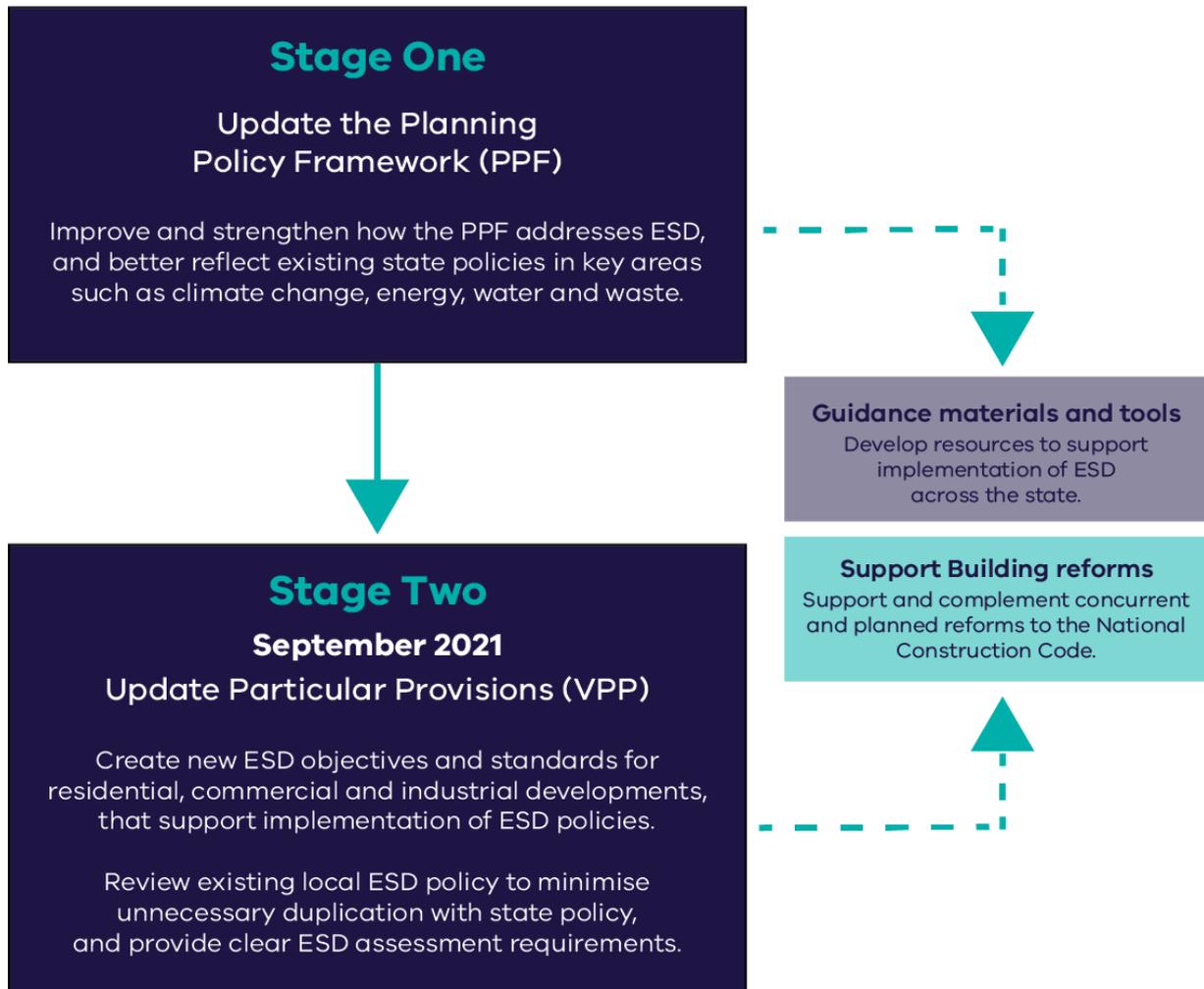
These areas of reform are outlined in more detail in the [ESD planning reform key areas](#) section of this roadmap.

<sup>7</sup> Department of Environment, Land, Water and Planning 2020, [Recycling Victoria: A new economy](#)

<sup>8</sup> Australian Sustainable Built Environment Council (ASBEC), 2016, [Low Carbon, High Performance](#)

## A new approach for sustainable buildings and subdivisions

Development of an integrated planning system approach to ESD will follow a two-stage process. Reforms as part of stage one will ensure that ESD is more comprehensively addressed throughout the Planning Policy Framework (PPF) and provide a clearer policy basis for development of new standards. Stage two will introduce new and expanded particular provisions across a range of key ESD elements to help achievement of wider urban sustainability goals. These reforms will be supported by further guidance materials and tools, and occur alongside concurrent building reforms.



The relationship between state and local planning measures will also be reviewed. Differences between requirements and enforcement of sustainability measures across municipalities can create an uncertain environment for industry. A 2010 Victorian Competition and Efficiency Commission<sup>9</sup> report cautioned that inconsistency between councils over building ESD expectations can place a financial burden on businesses that are required to understand and comply with different standards across the state.

While the state ESD reforms are being finalised, DELWP will work with the local government sector to review how local ESD policies are amended to complement the new state provisions and avoid any repetition or duplication with state objectives.

Local policies on ESD will remain important as they help councils to implement state policy in a way that is relevant to that council area. Local policies can express the local objectives of a municipality and help provide direction where locally specific policy guidance on a particular matter is needed.

<sup>9</sup> Victorian Competition and Efficiency Commission 2010, [Local Government for a Better Victoria: An Inquiry into Streamlining Local Government Regulation](#).

### Stage one: Update the Planning Policy Framework (PPF)

This stage will embed ESD more comprehensively in the PPF adding consideration of ESD at the development scale under each relevant planning policy theme, and inserting consideration of ESD into the purpose of all planning schemes.

Although existing clause 15.02-1S Energy and resource efficiency includes many elements of ESD, it is important to further mainstream sustainability as part of the decision making across the entire PPF, rather than leaving it as a standalone consideration. For this reason, strategies in 15.02-1S Energy and resource efficiency will be relocated under the relevant policy themes.

The focus and content of ESD local planning policies will need to change with the introduction of new state ESD policy (stage one) and standards (stage two).

As part of stage one reforms, there will be no implications for councils with existing ESD local policies, except for those where the planning scheme is being translated to the new PPF format as part of the Smart Planning reforms. In this case the standardised DELWP format for ESD local policies will be applied, and these policies nested under PPF clause 15.01-2S Building Design.

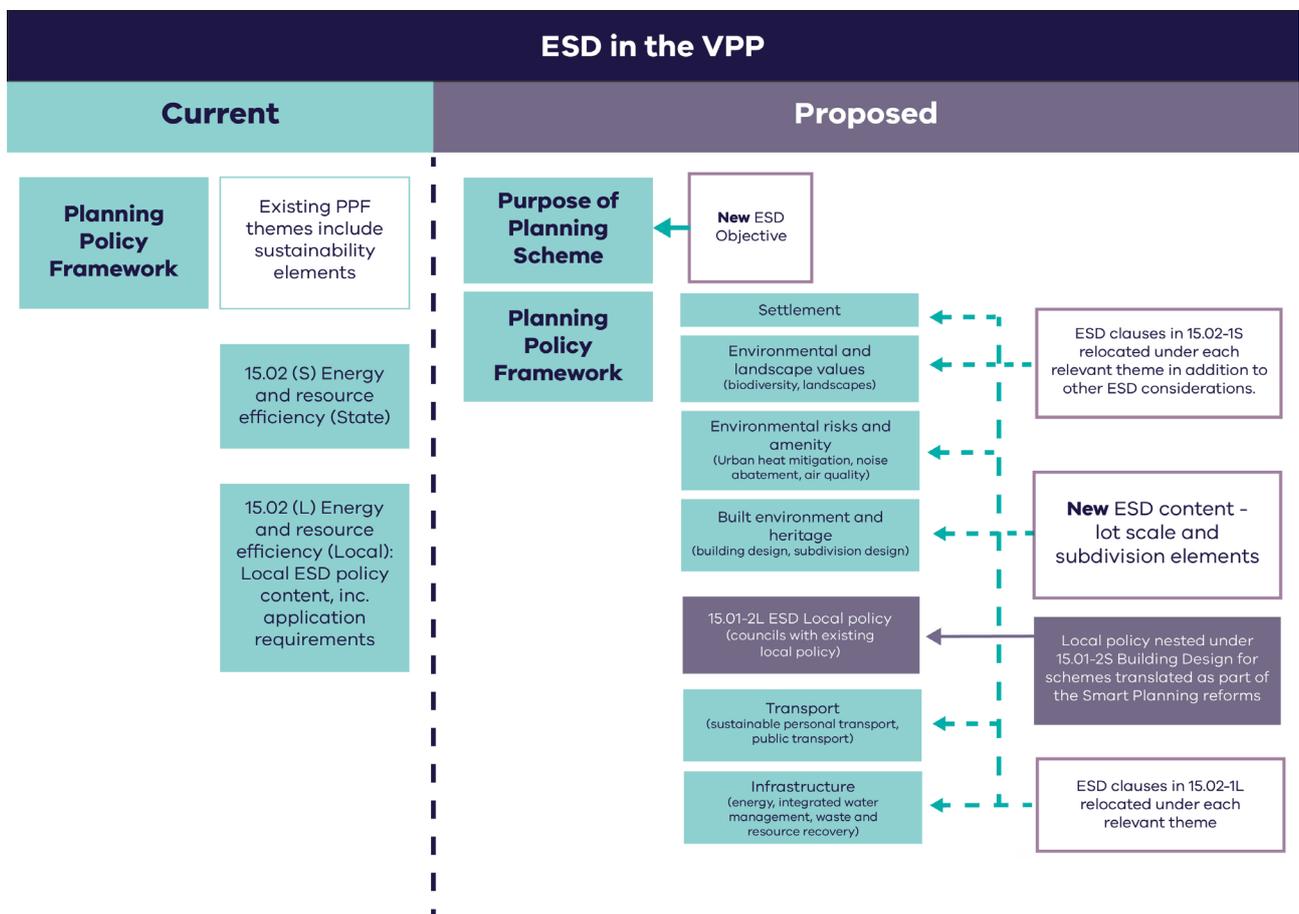


Figure 2 Proposed update of the Planning Policy Framework

## Stage two: Update particular provisions

This stage will include development of specific planning objectives and standards that help achieve ESD policy goals.

Expanded and new particular provisions will be incorporated into planning schemes to help ensure ESD design and development responses with clear performance standards are consistently applied across the state.

ESD objectives and standards will continue to be applied throughout residential particular provisions under clauses 54, 55, 55.07, 56 and 58, which already include many existing ESD considerations. For commercial and industrial developments, a new particular provision will be developed that provides ESD objectives and standards appropriate for these development types, building on existing clause 53.18 *Stormwater management in urban development*.

Providing new provisions relevant to new commercial and industrial developments is pivotal and part of improving ESD performance across all the built environment. Every development type has an important role to play in supporting sustainability. There is no fundamental reason ESD considerations should apply to a development in a residential zone, but not to a building in a commercial zone.

Existing particular provisions that address a specific ESD theme, such as 52.34 *Bicycle Facilities*, will also be reviewed as part of this process.

Further review of ESD local policy will be undertaken as part of the Stage Two reforms, in order to minimise any duplication with state policy and explore how state provisions and local ESD policies can best operate to support policy implementation and the permit assessment process.

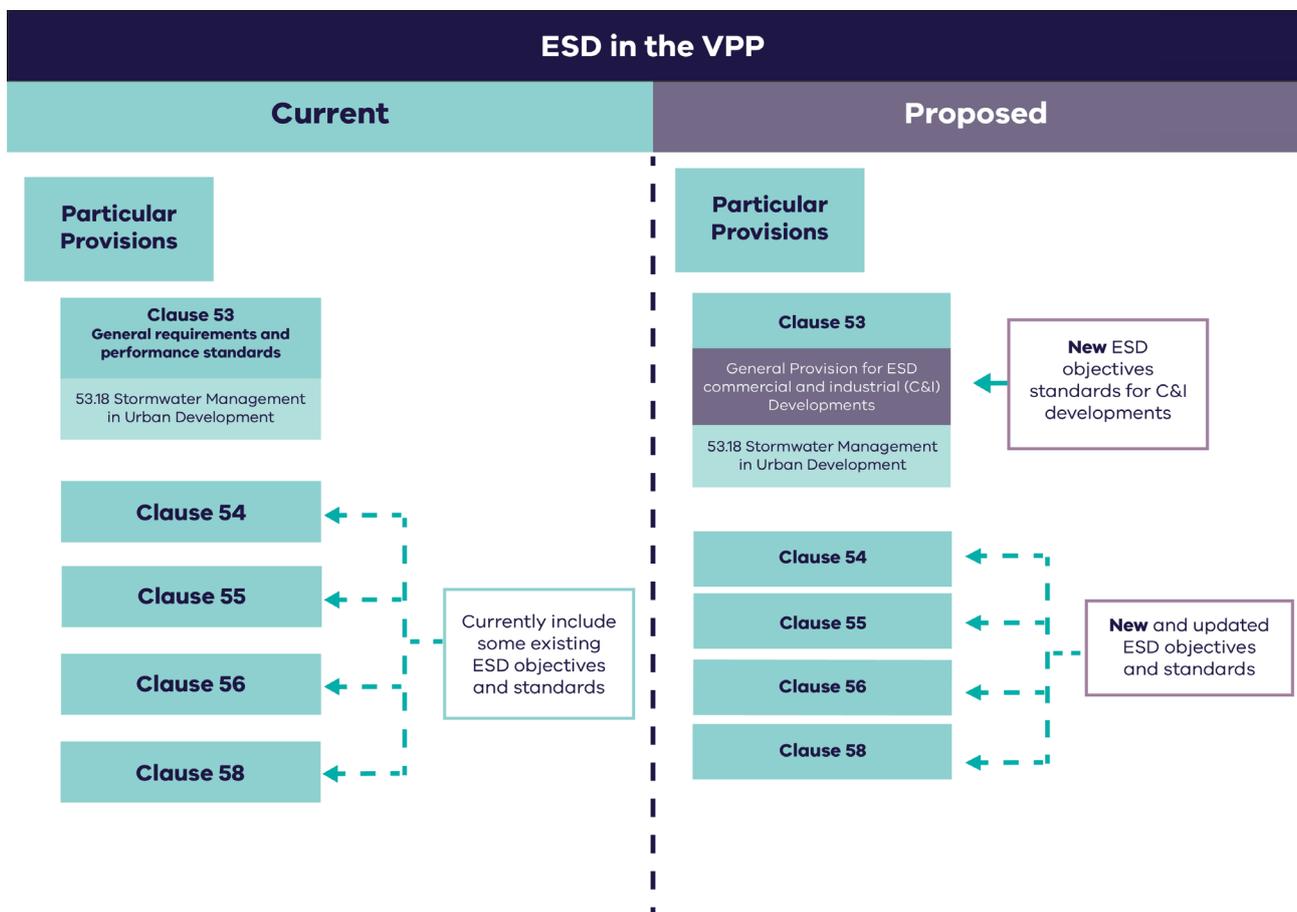


Figure 3 Proposed update of particular provisions

## Further assessment, guidance and tools to support delivery of ESD

Implementing ESD across all local government areas will require approaches that recognise the different circumstances between a small rural town and a metropolitan centre. It is also important to make clear the performance outcomes that should be delivered from new developments, wherever someone lives. To assist with these challenges, additional resources such as practice notes and guidelines will be prepared.

Economic factors must also be assessed – improved sustainability standards can reduce the operational costs of a building and improve whole of community outcomes, but care is needed to ensure new performance standards are cost effective and do not impose unreasonable costs. All new ESD standards will be subject to economic assessment and stakeholder feedback.

To support an efficient and thorough assessment process for applicants and planning authorities, ESD assessment tools can play a valuable role. These can consist of checklists and practice notes, through to more sophisticated online rating systems. The latter organise all the standards into one place and provide users with a scoring system to assess the overall design of the development in regard to ESD.

Examples of this include [Green Star](#) developed by the Green Building Council of Australia (GBCA), [EnviroDevelopment](#) developed by the Urban Development Institute of Australia (UDIA), and [BESS](#) developed by CASBE.

The Victorian government ESD project will review opportunities to incorporate use of an ESD assessment tool at a state level to support the assessment of planning applications in reference to policies, objectives and standards set out in the VPP.

## Concurrent building reform processes

The new state-wide approach to ESD in planning must also include consideration of the concurrent reforms underway in the building system. Developing an environmentally sustainable building requires action from the pre-development stage through to measures to support sustainability during the operational stage of a development.

Addressing elements of ESD in planning that would be more effective if addressed through another regulatory system can risk unwarranted duplication of processes and add to costs. There are clear building system functions where there is limited value in applying planning measures in addition to what is already required under the building code (e.g. insulation standards). There are however, certain design elements where early consideration at the planning stage will provide more optimal sustainable design outcomes (e.g. orientation of the building on the lot to improve energy efficiency)<sup>10</sup>.

The 2014 Advisory Committee and Panel Report on Environmentally Efficient Design Local Policies suggested that *“Planning is best suited to dealing with the ‘big picture’ upfront issues, whereas building is best suited to managing the detailed impacts.”*

Victoria’s building standards are primarily set by reference to national standards in the National Construction Code (NCC). Although there is opportunity for Victorian variations to these standards, the scope of what the NCC covers is largely decided at a national level.

The NCC is currently undergoing reforms intended to progressively increase standards as part of improving energy performance, reducing greenhouse gas emissions and responding to climate change hazards. This will be informed by the [Trajectory for Low Energy Buildings](#) (the Trajectory), released by the then [COAG Energy Council](#) in 2019, which outlines a pathway towards zero energy (and carbon) ready buildings.

<sup>10</sup> In 2009, VCAT case Polizzi v Darebin CC (VCAT 1573) determined that there was an argument for pursuing sustainable design through planning permits, as there were certain design elements that it is too late to address in the building stage. The tribunal recognised *“...that there can be limits to the sustainability gains at the subsequent building permit stage if the planning approval constitutes a poor sustainability outcome i.e. the horse may have already half bolted. For example, the sustainability requirements at the building permit stage will always be very compromised if a new dwelling is sited on its lot so as to have very poor solar orientation.”*

That pathway included commercial and residential buildings and was focused on new buildings, with a recent addendum to the trajectory that focuses on existing buildings (noting the increase to commercial energy performance standards applied through the 2019 update to the NCC).

Research undertaken by the federal Department of the Environment and Energy at the time determined that changes to the NCC for commercial buildings could achieve energy savings of up 53 per cent, and 18 per cent for residential buildings.

Energy efficiency changes planned for the 2022 NCC update will relate to residential buildings. This may include enhanced energy efficiency provisions for residential buildings, including a possible increase in the level of thermal comfort and a whole-of-house-energy use budget.

Some of the changes under consideration for the NCC 2022 update include:

- Expand the energy efficiency objective.
- Introduction of an energy (and carbon) usage budget for residential buildings that includes appliances already covered by the NCC (hot water, pool pumps and lighting); adds a new requirement for space conditioning; increases thermal energy efficiency requirements and allows for additional energy performance through on-site renewable energy.
- Introduction of “whole-of-home tools” (considering fixed appliances), and an alternative elemental pathway, to verify compliance with the energy usage budget.
- Ensuring residential buildings are ‘ready’ to accommodate on-site renewable energy generation, storage and electric vehicles, by considering infrastructure (such as electrical conduit) and ensuring adequate roof space, pitch and orientation is available for future placement of infrastructure (such as solar PV).
- Ensure commercial buildings are ‘ready’ to accommodate on-site renewable energy generation, storage and electric vehicles, by considering infrastructure (such as electrical conduit) and ensuring adequate roof space, pitch and orientation is available for future placement of infrastructure (such as solar PV).

## *National Energy Productivity Plan*

The [National Energy Productivity Plan](#) (NEPP) was released in 2015 by the former ‘Council of Australian Governments (COAG) Energy Council’ of energy ministers. Key objectives included helping Australian consumers and business manage their energy costs, supporting innovation and competition, and better integrating energy and climate policy.

The NEPP outlined measures to improve Australia’s energy productivity by 40% between 2015 and 2030. Measure 31 of the NEPP states that “Energy efficiency requirements in building codes for both residential and commercial buildings are out of date with recent technologies”.

In 2018 Energy Ministers released the [Trajectory for Low Energy Buildings](#) which proposed substantial, staged improvements to the energy provisions in the National Construction Code (NCC). To support this process Energy Ministers requested that the Building Ministers’ Forum (BMF) update the NCC energy efficiency provisions in light of the Trajectory.

As the update to the NCC in 2019 focussed on improving the energy efficiency provisions for commercial buildings, the BMF directed the [Australian Building Codes Board](#) to investigate possible NCC changes for residential buildings for 2022. For commercial buildings, initial investigations will be carried out to support additional future changes in NCC 2025, that may involve the same approach used for residential buildings.

# ESD planning reforms: key areas

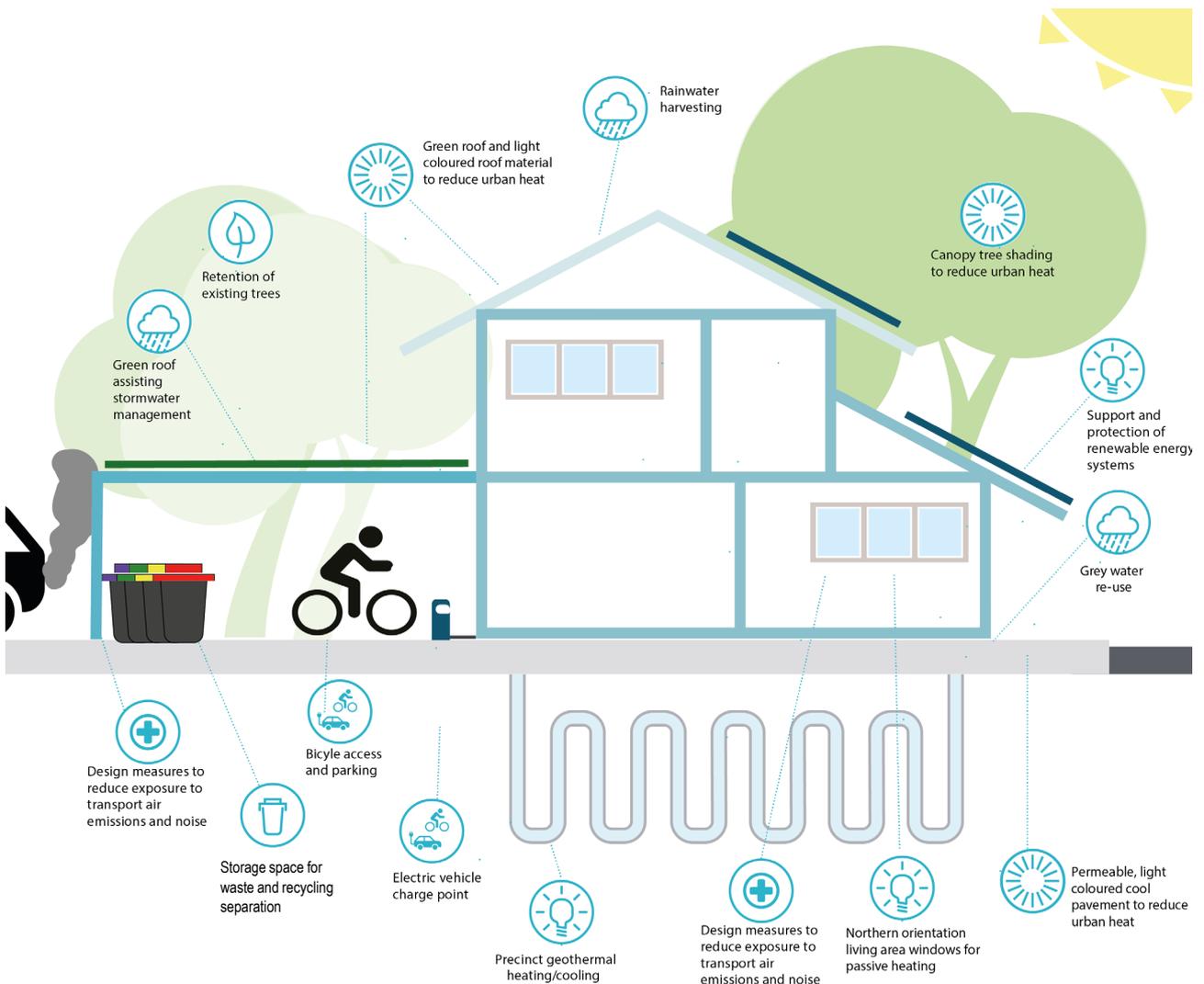
Specific policy objectives that are supported by measurable performance standards are an essential part of achieving clear and tangible improvements in the implementation of ESD goals in the planning system. This section sets out the key issues and opportunities being considered in preparation of new and updated planning policy and particular provisions.

As part of these changes, the Planning Policy Framework (PPF) in all planning schemes is being refreshed to better reflect government policy on ESD. Appendix A provides a draft of all proposed PPF updates to be undertaken as part of the Stage One reforms.

Each theme includes a table which summarises the relevant planning policy update and an outline of the new standards under development over 2021 to support improvements in the ESD performance of new buildings through siting and design measures.

Although each ESD element below is listed separately, an integrated approach to ESD will be supported through proposed changes to the particular provisions of all planning schemes (including consolidated application requirements) and through supporting guidance materials and tools. This recognises many measures to address ESD complement one another - for example, siting and design responses that respond to urban heat amelioration may also contribute to the stormwater management of a development.

**Figure 4 Example of ESD planning responses for new buildings**



## Energy

**Buildings are responsible for close to a quarter of Australia's national greenhouse gas emissions<sup>11</sup>. Reducing their energy consumption is key to reaching Victoria's goal of net zero emissions by 2050.**

Considerable work to achieve this goal is being undertaken through the building regulatory system, but the planning system can reduce building energy consumption through siting and design, and support deployment of renewable energy systems.

### *Energy efficiency*

More than 40% of the energy used in commercial and residential buildings is consumed by heating, ventilation and air conditioning (HVAC) systems<sup>12</sup>. Building regulations on the type of insulation, glazing and air tightness contributes to the thermal performance of buildings; as does siting, layout and design at the planning stage.

For example, orientating and designing a building to maximise northern solar access to living area windows can reduce winter heating bills by up to 25%, and designing a building with external shading can block up to 80% of summer heat gain through windows<sup>13</sup>.

There is scope for planning policy and standards to better address and design at the planning stage to support energy efficiency goals at the building stage.

### *Renewable energy systems on buildings*

Building design measures that support current and future adoption of renewable energy technologies are increasingly important. Rooftop solar energy systems make an important contribution towards a zero-emission future, and Victoria's [Solar Homes program](#) is supporting the installation of rooftop solar systems on buildings across the state. In 2018, standards were introduced that require new development proposals to consider overshadowing impacts on existing solar energy facilities affixed to adjoining dwellings.

Providing better clarity on what is an unreasonable amount of overshadowing will further support the protection of rooftop solar energy generation.

Other jurisdictions also apply design measures to encourage more solar ready building stock and protect the future potential of new buildings through requiring designers to designate 'solar zones' - rooftop space that is well oriented, free of obstructions and is not shaded. This area serves as a suitable place that solar panels can be installed at a future date. Such ideas will be considered as part of the mix of future reform options.

### *Precinct renewable energy systems*

The Victorian Government's [Renewable Energy Action Plan](#) has allocated significant resources to support renewable energy sector growth, microgrid and battery demonstration projects.

Development of new greenfield and brownfield precincts and suburbs provide an opportunity to assess new approaches to energy management, such as prompting consideration of distributed energy technologies at the planning stage. These new approaches to meeting our energy needs can not only achieve better environmental outcomes, but improve economic and affordable living outcomes as well<sup>14</sup>.

<sup>11</sup> Australian Sustainable Built Environment Council (ASBEC), 2016, [Low Carbon, High Performance](#)

<sup>12</sup> Australian Sustainable Built Environment Council (ASBEC), 2016, [Low Carbon, High Performance](#)

<sup>13</sup> Sustainability Victoria 2018, [Energy Smart Housing Manual](#)

<sup>14</sup> Australian Sustainable Built Environment Council (ASBEC), 2018, [Built to Perform: An industry led pathway to a zero carbon ready building code](#)



**Analysis of VPP ESD responses under consideration - ENERGY**

	<b>Energy efficiency</b>	<b>Precinct renewable energy systems</b>	<b>Renewable energy systems on buildings</b>
→ Planning policy framework (PPF)	→ Planning siting and design measures to support achievement of energy performance standards of NCC	→ Support Victorian GHG emission reduction targets through adoption of renewable and distributed energy technologies	→ Support Victorian GHG emission reduction targets through adoption of renewable and distributed energy technologies
Residential	Improved guidance on passive design including building and subdivision orientation	Support for generation and deployment of renewable and distributed energy systems	Updated development standards to minimise overshadowing  Clearer guidance on assessing 'unreasonable' overshadowing of rooftop solar panels  Investigate measures to support 'solar ready' building design to support future installation of rooftop solar systems
Commercial	Complementary benefits arising from urban heat responses		Support for generation and deployment of renewable and distributed energy systems
Industrial	(see urban heat section below)		

**Water**

As our cities and settlements grow, the extent of hard, impervious surfaces is increasing across our urban areas, leading to more polluted runoff into our waterways and bays.

Population growth and our changing climate also means stewardship of our water resources is ever more important. Analysis by the [Bureau of Meteorology](#) has found that over the past 30 years Victoria has become drier, especially in the cooler months. Decreases in average rainfall and warmer temperatures has implications for [water storage levels across Victoria](#). Despite this trend, we can also expect increases in extreme rainfall events and associated flooding by the end of the century.

### Stormwater management

Increasing the extent of impervious surfaces across our urban areas means that most of the rain that falls in our urban environments is not absorbed into the ground, and instead becomes stormwater runoff which damages and pollutes our urban waterways.

For example, about half of all the nitrogen from the Port Phillip catchment currently entering the bay comes from urban stormwater. To keep Port Phillip Bay healthy, the amount of nitrogen it receives must remain at current levels. Unfortunately, based on current practice, by 2051 the total nitrogen load from urban areas into the bay is projected to be about 40% more than in 2011<sup>15</sup>.

Implementing better stormwater management in new developments reduces stormwater runoff volumes and decreases the amount of pollutants (such as litter, nitrogen, phosphorus and total suspended solids<sup>16</sup>) that are carried into our waterways and bays; and can help reduce localised flooding.

In 2018 the government commissioned the [Improving Stormwater Management Advisory Committee](#) to provide recommendations on how to improve urban stormwater management, including changes to the planning system. This work led to major changes to

planning schemes, extending the coverage of stormwater management standards to a wider range of urban land uses. Single dwellings only need to meet limited stormwater management requirements - options to address this gap through other regulatory systems is under review. Planning responses to support implementation of earlier stormwater reforms are also under consideration.

### Water efficiency/ potable substitution

Planning system changes in 2018 to stormwater management also helped with water efficiency. This is because the standard can be most readily achieved by capturing stormwater and using it on site for uses such as toilet flushing and clothes washing.

In addition, potential changes arising from the review of the Victorian variation to the 6 Star standard to meet the National Construction Code (NCC) can support improved water use efficiency for new residential housing.

There is scope for the planning system to further this work by working with water authorities to extend use of alternative water sources to help conserve drinking water supplies, and to support irrigation to help green our urban environment.



## Analysis of VPP ESD responses under consideration - WATER

	Stormwater management	Water efficiency/ potable substitution
→ Planning policy framework (PPF)	→ (Updated in 2018)	→ Conservation of drinking water supplies through supporting use of alternative water sources
Residential	Enhance planning system guidance to support implementation of the 2018 stormwater reforms	Review measures to support water efficiency/ use of alternative water sources
Commercial	Enhance planning system guidance to support implementation of the 2018 stormwater reforms (e.g. advice on treatment options to meet planning standards)	
Industrial	Review how to support Vic Smart processes to improve assessment of stormwater management	

<sup>15</sup> Department of Environment, Land, Water and Planning 2018, [Improving Stormwater Management Advisory Committee FINAL REPORT 4 September 2018](#)

<sup>16</sup> Department of Environment, Land, Water and Planning 2018, [Improving Stormwater Management Advisory Committee FINAL REPORT 4 September 2018](#)

## Waste and recycling

In 2017-2018, approximately 14.4 million tonnes of waste was generated by Victorians. Sustainability Victoria estimates that approximately 69% of this was recovered, leaving 31% or 4.4 million tonnes sent to landfill<sup>17</sup>.

The amount of waste the state produces will continue to grow unless we change our current approach. Based on current trends it is estimated Victorians will be producing over 20.4 million tonnes of waste annually by 2045, of which 5.7 million tonnes will be sent to landfill<sup>18</sup>.

### Resource recovery

To help divert more waste materials from landfill and support the resource recovery system, planning will review existing standards to ensure new developments incorporate appropriate space allocation and facilities to support segregation, storage and pick up of materials for recycling. Addressing this issue in multi-unit developments was an important conclusion arising from 2019 Victorian Auditor General Office (VAGO) [Recovering and Reprocessing Resources from Waste](#) report.

The government recently released [Recycling Victoria: A new economy](#), a 10 year plan to transform our recycling system, reduce waste, create thousands of jobs and set Victoria up for a more sustainable future. Part of the Recycling Victoria initiative includes the roll out of four colour-coded bins to homes across Victoria, to better sort waste, recyclables and organics. Planning has a role to play in ensuring that new developments have the space required to accommodate these new bins, and ensure ease of access to encourage good waste disposal, separation and collection practices.

Any further relevant policy outcomes arising from [Recycling Victoria: A new economy](#) will also be reflected in planning reforms.



## Analysis of VPP ESD responses under consideration - WASTE

### Resource recovery

→ Planning policy framework (PPF)	→ Development siting and design that facilitates waste minimisation, segregation, storage and collection, and the use of recycled materials
Residential	<p>Update of standards for apartments and developments of two or more dwellings on lot to include key elements from Sustainability Victoria’s <a href="#">Better Practice Guide for Waste Management and Recycling in Multi-unit Developments</a></p> <p>Encourage assessment of opportunities for subdivision infrastructure to facilitate small scale recycling and resource recovery technologies (e.g. reverse vending machines)</p>
Commercial	<p>Adopt minimum requirements to support effective management, separation and storage of waste and recycling</p> <p>Encourage assessment of opportunities for subdivision infrastructure to facilitate small scale recycling and resource recovery technologies (e.g. bio-digestion unit in commercial precinct)</p>
Industrial	

<sup>17</sup> Data captured from [Sustainability Victoria Waste projection model](#).

<sup>18</sup> Data captured from [Sustainability Victoria Waste projection model](#).

## Transport

### Integrated transport and land use planning provides important sustainability outcomes.

A more compact urban form and an integrated transport system that connects people to jobs and services and goods to market, contributes to reducing vehicle air emissions, supports more active transport choices, and helps reduce urban sprawl.

From a climate change perspective, transport contributed to almost 20% of Victoria's total net greenhouse gas emissions in 2017, second only to the electricity generation sector<sup>19</sup>. Road transportation (cars, heavy duty trucks and light commercial vehicles) generate 90% of these emissions<sup>20</sup>.

Despite an increase in public transport use since 1990 levels, cars remain the dominant mode of transport within Melbourne. There is an opportunity to significantly reduce the state's emissions through prioritising walking, cycling, public transport and use of low emission vehicles (e.g. electric vehicles).

Planning has a role in ensuring new developments provide appropriate parking, facilities, infrastructure and design responses to support more sustainable transport choices.

#### *Active transport*

The Victorian Government aims to increase the number, frequency and diversity of people using cycling for transport. Improved building design that makes cycling easier and more attractive for Victorians will help reduce road congestion and transport emissions, and improve population health outcomes.

Planning responses for new buildings and new subdivisions also support the implementation of the [Victorian Cycling Strategy](#) and [development of 20-minute neighbourhoods](#). The Victorian Cycling Strategy specifically identified that changes to the planning system are required to help achieve the strategy's goal of a safer, lower stress, and better connected cycling network in Victoria.

Key planning responses include recognising strategic cycling corridors, ensuring subdivision design supports safe and convenient bicycle routes, and improving cycling infrastructure in new buildings through updating development standards for bicycle parking and end of trip facilities. This would address the shortfall between existing standards and current demand in many locations.

#### *Public transport*

Plan Melbourne supports the role of compact, higher-density neighbourhoods to create demand for more sustainable transport options including public transport, walking and cycling, and to reduce overall travel time (Plan Melbourne Direction 2.1).

To support these positive changes, it is also vital to adequately consider the additional pressure new developments can put on the existing public transport system. By taking actions in the planning and design phase of new developments these effects can be better managed for the benefit of future and current residents.

The [Public Transport Guidelines for Land Use and Development](#) provide guidance on how new development can facilitate walking, cycling and public transport. This document was prepared in 2008 and is a reference document in the VPP.

These guidelines are currently undergoing review by the Department of Transport (DoT) and will provide clearer guidance for how new developments can best interact with the public transport system. The planning system ESD program will make appropriate amendments to the VPP to support these revised guidelines.

#### *Low emission vehicles*

Infrastructure Victoria's [Advice on automated and zero emissions vehicles](#) (2018) report noted that "the transition of the Victorian fleet to zero emissions technologies needs to be balanced with adequate planning for charging". It is estimated in the UK that the majority (around 80%) of all electric car charging happens at home. In its Road to Zero strategy the [UK Government](#) anticipates the need for every new home to have a charge point at the home will be "central to the future charging ecosystem"<sup>21</sup>.

19 Department of Environment, Land, Water and Planning 2019, [Victorian Greenhouse Gas Emissions Report 2019](#)

20 Department of Environment, Land, Water and Planning 2019, [Victorian Greenhouse Gas Emissions Report 2019](#)

21 Department for Transport 2018, [The Road to Zero](#)

The expense and complexity of retrofitting charging infrastructure into multi unit properties is identified as a challenge to Electric Vehicle (EV) uptake<sup>22,23</sup>. 'Future proofing' new residential and commercial (e.g. office and retail) developments by building in cable routes for future electric vehicle charge points, as is proposed in the UK, could achieve long run savings and help prepare our urban areas and residents for future changes in the vehicle fleet<sup>24</sup>.

Providing for daytime office and commercial EV charging is recognised as a potentially important means of stabilising the energy grid, by utilising energy during the day when solar energy generation is most abundant, avoiding a demand at night where there is greater reliance on non-renewable sources<sup>25</sup>.

Preparation for the widespread uptake of electric and low emission vehicles will require development of nationally consistent standards and associated electrical safety/infrastructure and building regulations to help support preparation for this transition.

Discussions with electricity distributors will also be necessary to ensure optimal integration of electric vehicles into our energy networks. The Victorian Government is currently preparing a [Zero Emissions Vehicle \(ZEV\) Roadmap](#) to be released in 2020. This will help inform any complementary planning system responses to support ZEV uptake.



### Analysis of VPP ESD responses under consideration - TRANSPORT

	Low emissions vehicles	Active transport	Public transport
→ Planning policy framework (PPF)	→ Provision of infrastructure to support low emission vehicles (inc. electric vehicles)	→ Clearer policy on bike parking and end of trip facilities for commercial and multi-residential development	→ (Comprehensively covered through existing policy)
Residential	Investigate design measures to support new multi-unit developments being EV ready	Review bicycle space allocation requirements and end of trip facility standards of clause 52.34	Review planning policy, tools and guidance to support sustainable and active transport outcomes for land use development
Commercial	Investigate design measures to support new developments being EV ready	Consideration of development interaction with strategic cycling corridors	
Industrial	Investigate measures to support new industrial developments being designed to be EV ready, where appropriate	Review planning policy, tools and guidance to support sustainable and active transport outcomes for land use development	

22 Commonwealth of Australia 2019, [Select Committee on Electric Vehicles report](#)

23 City Futures Research Centre 2019, [ELECTRIC AVENUE: Preparing the NSW planning system for electric vehicles](#)

24 Department for Transport 2019, [Electric Vehicle Charging in Residential and Non-Residential Buildings](#)

25 <https://reneweconomy.com.au/aemo-looks-at-role-of-rooftop-solar-to-help-manage-evs-on-the-grid-48314/>

## Landscaping and biodiversity

### Biodiversity

Victoria’s biodiversity strategy – Protecting Victoria’s Environment – Biodiversity 2037 recognises the crucial ecosystem services of the state’s biodiversity, and makes clear that all Victorians have a role to play helping the state’s biodiversity thrive. The strategy also highlights the human health benefits of contact with nature.

Incorporating green infrastructure in to our urban environments helps to create more liveable and climate-adapted communities. Parks, gardens, trees, backyards, green roofs, green walls and rain gardens help to mitigate urban heat, enhance urban biodiversity values, improve stormwater management, reduce wind speeds, enhance amenity values, and improve the physical and mental health of communities.

### Tree canopy

Planning for the urban forest forms part of Plan Melbourne Implementation Plan Action 91 – A whole-of-government approach to cooling and greening Melbourne. A review of planning standards is a key part of the mix of actions needed to retain existing trees and increase our urban forest. Consultation about how we can strengthen the planning systems contribution to the urban forest is planned for early 2021 through the [Cooling and Greening Melbourne initiative](#).

DELWP has endorsed the [Living Melbourne – our metropolitan urban forest strategy](#) prepared by Resilient Melbourne. This is supported by local governments and other partners such as water authorities, Parks Victoria and catchment management authorities. This strategy will provide an important input to the planning system responses under development.



### Analysis of VPP ESD responses under consideration - LANDSCAPING AND BIODIVERSITY

	Tree canopy	Biodiversity
<b>Planning policy framework (PPF)</b>	→ Enhancing and protecting the urban forest, and supporting urban biodiversity	→ Contribute to protecting and enhancing urban biodiversity values
Residential	Suite of planning measures to support retaining and increasing urban tree cover as further developed through the forthcoming planning response to cooling and greening*	Consideration of measures to support urban biodiversity
Commercial		
Industrial		

\*this would also comprise part of any required design response to urban heat (see Urban heat section)

## Urban heat

By 2050, Victoria is projected to experience a potential doubling of the number of hot days, that is days with a maximum temperature greater than the thresholds of 35°C, 38°C and 40°C for locations across Victoria<sup>26</sup>.

Extreme heat and heatwave events alone cost the Victorian economy an estimated \$87 million dollars every year due to work absenteeism, critical infrastructure damage, and negative effects on regional economies and businesses (especially the construction, agriculture and industrial sectors)<sup>27</sup>.

Higher, sustained temperatures also pose a direct health impact, especially when sustained overnight. Recent analysis<sup>28</sup> of Australian mortality rates between 2006 - 2017 has identified that most deaths related to temperature in Australia are caused by extreme heat, rather than extreme cold. During the 2009 heatwave in Victoria there was a 62% increase in the state's mortality rate<sup>29</sup>.

Note that separate work is underway in DELWP to examine planning responses to the elevated risks posed by climate change from natural hazards such as fire, flood, coastal inundation, erosion and landslides.

### Urban heat amelioration

This increase in hot days and heatwaves is particularly felt in our urban environments. Urban heat islands occur when temperatures in built-up areas are considerably warmer than those of natural areas because of high amounts of impervious surfaces (buildings and paving), lack of vegetation and shade, and the heat released from human activities (e.g. transport, air conditioning). Implementing design measures in new developments such as providing more tree canopy cover, using 'cool' surfaces and materials on buildings (such as light coloured, high albedo pavements and roofs), providing shade devices and installing green roofs and walls, all help to reduce summer temperatures in urban areas and create healthier, more resilient communities.

A focus of these responses include planning and design measures to support a cooler environment around buildings where people congregate –such as residences, shopping centres, community facilities and places of work. These responses can also provide benefits for the energy efficiency of buildings, also reduce health risks during power outages.

Planning system actions responding to urban heat risks will also be informed by consultation to support the Cooling and Greening Melbourne initiative.



### Analysis of VPP ESD responses under consideration - URBAN HEAT

#### Urban heat amelioration

<b>Planning policy framework (PPF)</b>	<ul style="list-style-type: none"> <li>→ Including urban heat reduction as part of responding to climate change impacts</li> <li>→ Supporting the provision and protection of urban tree canopy cover to help reduce urban heat</li> </ul>
Residential	Guidance and new planning standards to reduce urban heat exposure (in addition to tree canopy cover), including cool paving and surfaces, shade devices and water sensitive urban design <sup>^</sup>
Commercial	
Industrial	

<sup>^</sup> Complementing the suite of planning measures to support retaining and increasing urban tree cover as further developed through Action 91 Cooling and Greening project (see Landscaping section)

26 Department of Environment Land Water and Planning 2019, [The economic impact of heatwaves in Victoria](#)

27 Department of Environment Land Water and Planning 2019, [The economic impact of heatwaves in Victoria](#)

28 Longden, T 2019, The impact of temperature on mortality across different climate zones, Climatic change 157, 221-242

29 This was a 62% increase in total all-cause mortality. The total number of deaths was 980, compared to a mean of 606 for the previous 5 years. The greatest number of deaths occurred in those 75 years or older, representing a 64% increase. Department of Human Services 2009, January 2009 Heatwave in Victoria: an Assessment of Health Impacts.

## Air and noise pollution

### Noise pollution exposure from transport corridors

The [Victoria Freight Plan, Delivering the Goods](#) (2018) aims to “Ensure that all new buildings make use of new technologies and infrastructure to minimise freight-related noise and improve the safety and efficiency of deliveries”. This is reflected in [Plan Melbourne](#) Action 97: Guidelines for noise impact in new developments which seeks to ensure a “...focus on ensuring that new developments meet their responsibility of mitigating noise impacts such as those from transport, industry and entertainment”.

Noise exposure response standards have already been developed for apartments (Clauses 55.07-6/58.04-3), but consistent with practice interstate and internationally, there is strong evidence to support the benefits of applying similar requirements to other sensitive land-uses. Improving the glazing, seals and insulation of buildings to reduce sound exposure can also improve building energy efficiency<sup>30</sup>.

The control of noise from commerce, industry and entertainment venues is currently regulated by EPA state environment protection policies and guidelines<sup>31</sup>. Planning measures relating to threshold distances for industrial premises (Clause 53.10 Uses with Adverse Amenity Potential), zone controls, and

the planning provision for live music and entertainment noise (Clause 53.06) complement these controls. None of these mechanisms relate to siting and design responses for new sensitive uses exposed to noise from transport infrastructure.

### Air pollution exposure from transport corridors

Plan Melbourne specifies that “air quality and noise impacts should be a fundamental consideration in the design and assessment of all new developments” (Direction 6.6). In addition, [Victoria’s Air Quality Statement](#) identifies securing high air quality as a priority for the Victorian Government, particularly in locations with vulnerable communities.

The statement specifies “improving guidance on the location and design of sensitive uses (such as education, childcare and aged care facilities) exposed to significant road traffic emissions” as a potential action to be explored. Planning responses will examine suitable guidelines and standards to reduce exposure of new residential developments and other sensitive uses near transport corridors. This work will build on existing standards currently adopted in other states and internationally.



## Analysis of VPP ESD responses under consideration – AIR AND NOISE POLLUTION

### Air and Noise pollution exposure from transport corridors

→ Planning policy framework (PPF)	→ Recognising the impacts on human health from air and noise pollution exposure → Supporting use of siting, layout and design responses to minimise sensitive land use exposure to air and noise pollution from transport corridors
Residential	Extend apartment noise design standards to other residential developments and other noise sensitive land uses Implement siting and design standards to reduce impacts of air and noise pollution from transport corridors on building occupants
Commercial and Institutional	Implement noise and air pollution siting and design standards for sensitive land uses

30 Huybregts N; Morphet, A; McIntosh, J (2013), Noise reduction and energy savings of standard sound insulation packages for the control of road traffic noise, Acoustics 2013 Conference, Victoria Harbour, Australia, 17-20 November 2013

31 From 1 July 2021 the industry noise standards that apply in Victoria - State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1); and Noise from industry in regional Victoria: Recommended maximum noise levels from commerce, industry and trade premises in regional Victoria (NIRV) EPA publication 1411), and State Environment Protection Policy (Control of Music Noise from Public Premises) No. N-2; will be replaced by measures outlined in [EPA Publication 1826](#), ‘Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues’.

## Next steps

This directions paper forms a step on the way to the development and implementation of a state wide ESD response for the planning system.

As these planning reforms are developed, consultation and input from stakeholders will be sought through both public consultation process, and through the development of a stakeholder reference group, to ensure the changes are clear, technically robust, fair and practical.





# Appendix A

## Proposed VPP stage one reforms

### *Planning Policy Framework changes*

The Planning Policy Framework is part of every Victorian planning scheme and comprises general principles for land use and development in Victoria and specific policies reflecting government policy for settlement, environment, housing, economic development, infrastructure, and particular uses and development. Planning authorities and responsible authorities must take account of and give effect to the general principles and the specific policies contained in the PPF.

The intended changes update the PPF to respond to government environmental policy relevant to the siting, design and performance of buildings and subdivisions. The amendments are indicated in [teal](#).

It is proposed that these updates will be included in a subsequent amendment to the Victoria Planning Provisions and all planning schemes, subject to drafting changes.

## **01 PURPOSES OF THIS PLANNING SCHEME**

To provide a clear and consistent framework within which decisions about the use and development of land can be made.

To express state, regional, local and community expectations for areas and land uses.

To provide for the implementation of State, regional and local policies affecting land use and development.

To promote environmentally sustainable development.

## 11 SETTLEMENT

Planning is to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure.

Planning is to recognise the need for, and as far as practicable contribute towards:

- Health, wellbeing and safety.
- Diversity of choice.
- Adaptation in response to changing technology.
- Economic viability.
- A high standard of [environmental sustainability](#), urban design and amenity.
- Energy efficiency [and renewable energy adoption](#).
- Prevention of pollution to land, water and air.
- Protection of environmentally sensitive areas and natural resources.
- Accessibility.
- Land use and transport integration.
- [Waste minimisation, resource recovery and waste management](#).
- [Climate change adaptation and mitigation](#).

Planning is to prevent environmental and amenity problems created by siting incompatible land uses close together.

Planning is to facilitate sustainable development that takes full advantage of existing settlement patterns and investment in transport, utility, social, community and commercial infrastructure and services.

**11.01-1S****Settlement****Objective**

To promote the sustainable growth and development of Victoria and deliver choice and opportunity for all Victorians through a network of settlements.

**Strategies**

Develop sustainable communities through a settlement framework offering convenient access to jobs, services, infrastructure and community facilities.

Focus investment and growth in places of state significance in Metropolitan Melbourne and the major regional cities of Ballarat, Bendigo, Geelong, Horsham, Latrobe City, Mildura, Shepparton, Wangaratta, Warrnambool and Wodonga.

Support sustainable development of the regional centres of Ararat, Bacchus Marsh, Bairnsdale, Benalla, Castlemaine, Colac, Echuca, Gisborne, Hamilton, Kyneton, Leongatha, Maryborough, Portland, Sale, Swan Hill, Warragul/Drouin and Wonthaggi.

Ensure regions and their settlements are planned in accordance with their relevant regional growth plan.

Guide the structure, functioning and character of each settlement taking into account municipal and regional contexts and frameworks.

Create and reinforce settlement boundaries.

Provide for growth in population and development of facilities and services across a regional or sub-regional network.

Plan for development and investment opportunities along existing and planned transport infrastructure.

Promote transport, communications and economic linkages between settlements through the identification of servicing priorities in regional land use plans.

Strengthen transport links on national networks for the movement of commodities.

Deliver networks of high-quality integrated settlements that have a strong identity and sense of place, are prosperous and are sustainable by:

- Building on strengths and capabilities of each region across Victoria to respond sustainably to population growth and changing environments.
- Developing settlements that will support resilient communities and their ability to adapt and change.
- Balancing strategic objectives to achieve improved land use and development outcomes at a regional, catchment and local level.
- Preserving and protecting features of rural land and natural resources and features to enhance their contribution to settlements and landscapes.
- Encouraging an integrated planning response between settlements in regions and in adjoining regions and states in accordance with the relevant regional growth plan.
- Providing for appropriately located supplies of residential, commercial, and industrial land across a region, sufficient to meet community needs in accordance with the relevant regional growth plan.
- Improving transport network connections in and between regional cities, towns and Melbourne.
- **Adopting integrated water management as part of settlement development.**

Encourage a form and density of settlements that supports sustainable transport to reduce greenhouse gas emissions.

Limit urban sprawl and direct growth into existing settlements.

Promote and capitalise on opportunities for urban renewal and infill redevelopment.

Develop compact urban areas that are based around existing or planned activity centres to maximise accessibility to facilities and services.

Ensure retail, office-based employment, community facilities and services are concentrated in central locations.

Ensure land that may be required for future urban expansion is not compromised.

[Plan for regional responses to climate change adaptation and mitigation.](#)

### **Policy documents**

Consider as relevant:

- Central Highlands Regional Growth Plan (Victorian Government, 2014)
- G21 Regional Growth Plan (Geelong Region Alliance, 2013)
- Gippsland Regional Growth Plan (Victorian Government, 2014)
- Great South Coast Regional Growth Plan (Victorian Government, 2014)
- Hume Regional Growth Plan (Victorian Government, 2014)
- Loddon Mallee North Regional Growth Plan (Victorian Government, 2014)
- Loddon Mallee South Regional Growth Plan (Victorian Government, 2014)
- Wimmera Southern Mallee Regional Growth Plan (Victorian Government, 2014)
- Plan Melbourne 2017-2050: Metropolitan Planning Strategy (Department of Environment, Land, Water and Planning, 2017)
- Plan Melbourne 2017-2050: Addendum 2019 (Department of Environment, Land, Water and Planning, 2019)
- [Applicable emission reduction pledges and adaptation action plans \(as specified under Part 5 of the \*Climate Change Act 2017\*\)](#)

## 11.02-2S **Structure planning**

### **Objective**

To facilitate the orderly **and sustainable** development of urban areas.

### **Strategies**

Ensure effective planning and management of the land use and development of an area through the preparation of relevant plans.

Undertake comprehensive planning for new areas as sustainable communities that offer high-quality, frequent and safe local and regional public transport and a range of local activities for living, working and recreation.

Facilitate the preparation of a hierarchy of structure plans or precinct structure plans that:

- Take into account the strategic and physical context of the location.
- Provide the broad planning framework for an area as well as the more detailed planning requirements for neighbourhoods and precincts, where appropriate.
- Provide for the development of sustainable and liveable urban areas in an integrated manner.
- Assist the development of walkable neighbourhoods.
- Facilitate the logical and efficient provision of infrastructure.
- Facilitate the use of existing infrastructure and services.
- **Protect areas of natural or cultural significance.**
- **Respond to the impacts of climate change.**

## 12 ENVIRONMENTAL AND LANDSCAPE VALUES

Planning should help to protect the health of ecological systems and the biodiversity they support (including ecosystems, habitats, species and genetic diversity) and conserve areas with identified environmental and landscape values.

Planning must implement environmental principles for ecologically sustainable development that have been established by international and national agreements. Foremost amongst the national agreements is the Intergovernmental Agreement on the Environment, which sets out key principles for environmental policy in Australia. Other agreements include the National Strategy for Ecologically Sustainable Development, National Greenhouse Strategy, the National Water Quality Management Strategy, [Australia's Strategy for Nature 2019-2030](#), the National Forest Policy Statement and National Environment Protection Measures.

Planning should protect, restore and enhance sites and features of nature conservation, biodiversity, geological or landscape value.

## 12.01-1S Protection of biodiversity

### Objective

To assist the protection and conservation of Victoria's biodiversity.

### Strategies

Use biodiversity information to identify important areas of biodiversity, including key habitat for rare or threatened species and communities, and strategically valuable biodiversity sites.

Strategically plan for the protection and conservation of Victoria's important areas of biodiversity.

Ensure that decision making takes into account the impacts of land use and development on Victoria's biodiversity, including consideration of:

- Cumulative impacts.
- Fragmentation of habitat.
- The spread of pest plants, animals and pathogens into natural ecosystems.

Avoid impacts of land use and development on important areas of biodiversity.

Consider impacts of any change in land use or development that may affect the biodiversity value of national parks and conservation reserves or nationally and internationally significant sites; including wetlands and wetland wildlife habitat designated under the Convention on Wetlands of International Importance (the Ramsar Convention) and sites utilised by species listed under the Japan-Australia Migratory Birds Agreement (JAMBA), the China-Australia Migratory Birds Agreement (CAMBA), or the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Assist in the identification, protection and management of important areas of biodiversity.

Assist in the establishment, protection and re-establishment of links between important areas of biodiversity, including through a network of green spaces and large-scale native vegetation corridor projects.

[Support land use and development that contributes to protecting and enhancing urban biodiversity values.](#)

### Policy guidelines

Consider as relevant:

- State biodiversity information maintained by the Department of Environment, Land, Water and Planning.

### Policy documents

Consider as relevant:

- *Protecting Victoria's Environment – Biodiversity 2037* (Department of Environment, Land, Water and Planning, 2017)
- *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment, Land, Water and Planning, 2017)
- Any applicable biodiversity strategies, including the relevant Regional Catchment Strategy (prepared under Part 4 of the *Catchment and Land Protection Act 1994*)

### **13.01-1S Natural hazards and climate change**

#### **Objective**

To minimise the impacts of natural hazards and adapt to the impacts of climate change.

#### **Strategies**

Consider the risks associated with climate change in planning and management decision making processes.

Identify at risk areas using the best available data and climate change science.

Integrate strategic land use planning with emergency management decision making.

Direct population growth and development to low risk locations.

Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.

Ensure planning controls allow for risk mitigation or risk adaptation strategies to be implemented.

Site and design development to minimise risk to life, [health](#), property, the natural environment and community infrastructure from natural hazards.

**13.01-3S Urban heat mitigation**

**Objective**

To reduce urban heat exposure through land use, built form and design responses.

**Strategies**

Green and cool urban areas, buildings, transport corridors and open spaces through use of vegetation, integrated water management and appropriate materials.

Support tree health and cool the urban environment through water sensitive urban design.

### 13.05-1S **Noise abatement**

#### **Objective**

To assist in the control of noise pollution and minimise its effects on residential developments and other sensitive land uses.

#### **Strategy**

Ensure that human health and community amenity is protected, and that development is not adversely impacted by noise emissions, using a range of building design, urban design and land use separation techniques.

#### **Policy documents**

Consider as relevant:

- *State Environment Protection Policy (Control of Music Noise from Public Premises) No. N-2*
- *State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1* in metropolitan Melbourne
- *Noise from industry in regional Victoria* (Environment Protection Authority 2011)
- *A Guide to the Reduction of Traffic Noise* (VicRoads 2003)

## 13.06-1S Air quality management

### Objective

To assist in the protection and improvement of air quality.

### Strategies

Ensure that land use planning and transport infrastructure provision contribute to improved air quality by:

- Integrating transport and land use planning to improve transport accessibility and connections.
- Limiting air emissions, including dust.
- Locating key developments that generate high volumes of trips in the Central City, Metropolitan Activity Centres and Major Activity Centres.
- Providing infrastructure for public transport, walking and cycling.

Ensure, wherever possible, that there is suitable separation between land uses that pose a health and amenity risk and sensitive uses.

Minimise air pollutant exposure to occupants of residential development and other sensitive uses near transport infrastructure through suitable siting, layout and design responses.

### Policy documents

Consider as relevant:

- *State Environment Protection Policy (Air Quality Management)*
- *Recommended Separation Distances for Industrial Residual Air Emissions – Guideline (Environment Protection Authority, 2013)*

## 15 BUILT ENVIRONMENT AND HERITAGE

Planning is to recognise the role of urban design, building design, heritage and energy and resource efficiency in delivering liveable and sustainable cities, towns and neighbourhoods.

Planning should ensure all land use and development appropriately responds to its surrounding landscape and character, valued built form and cultural context.

Planning should protect places and sites with significant heritage, architectural, aesthetic, scientific and cultural value.

Planning must support the establishment and maintenance of communities by delivering functional, accessible, safe and diverse physical and social environments, through the appropriate location of use and development and through high quality buildings and urban design.

Planning should promote excellence in the built environment and create places that:

- Are enjoyable, engaging and comfortable to be in.
- Accommodate people of all abilities, ages and cultures.
- Contribute positively to local character and sense of place.
- Reflect the particular characteristics and cultural identity of the community.
- Enhance the function, amenity and safety of the public realm.

### **Environmentally sustainable development**

Planning must support development that is environmentally sustainable and:

- Respond to climate change impacts.
- Minimises greenhouse gas emissions.
- Conserves energy and water.
- Minimises waste generation and increases resource recovery.
- Supports human health and community wellbeing.
- Minimises detrimental impacts on the built and natural environment.

**15.01-2S****Building design****Objective**

To achieve building design and siting outcomes that contribute positively to the local context, enhance the public realm and support environmentally sustainable development.

**Strategies**

Ensure a comprehensive site analysis forms the starting point of the design process and provides the basis for the consideration of height, scale and massing of new development.

Ensure development responds and contributes to the strategic and cultural context of its location.

Minimise the detrimental impact of development on neighbouring properties, the public realm and the natural environment.

Ensure the form, scale, and appearance of development enhances the function and amenity of the public realm.

Ensure buildings and their interface with the public realm support personal safety, perceptions of safety and property security.

Ensure development is designed to protect and enhance valued landmarks, views and vistas.

Ensure development provides safe access and egress for pedestrians, cyclists and vehicles.

Encourage retention of existing vegetation and planting of new vegetation as part of new developments.

Ensure development provides landscaping that responds to its site context, enhances the built form and creates safe and attractive spaces.

Ensure the layout and design of the development supports waste and resource recovery and the efficient use of water.

Improve the energy performance of buildings through siting and design measures that support:

- Cost effective compliance with energy performance standards in the National Construction Code.
- Passive design responses that minimise the need for heating and cooling.
- Adoption of renewable energy and storage technologies.

**Policy documents**

Consider as relevant:

- *Urban Design Guidelines for Victoria* (Department of Environment, Land, Water and Planning, 2017)
- *Apartment Design Guidelines for Victoria* (Department of Environment, Land, Water and Planning, 2017)

## 15.01-3S Subdivision design

### Objective

To facilitate subdivisions that achieve attractive, safe, accessible, diverse and sustainable neighbourhoods.

### Strategies

In the development of new residential areas and in the redevelopment of existing areas, subdivision should be designed to create liveable and sustainable communities by:

- Creating compact neighbourhoods that have walkable distances between activities.
- Developing activity centres in appropriate locations with a mix of uses and services and access to public transport.
- Creating neighbourhood centres that include services to meet day to day needs.
- Creating urban places with a strong sense of place that are functional, safe and attractive.
- Providing a range of lot sizes to suit a variety of dwelling and household types to meet the needs and aspirations of different groups of people.
- Creating landscaped streets and a network of open spaces to meet a variety of needs with links to regional parks where possible.
- Protecting and enhancing native habitat.
- Facilitating an urban structure where neighbourhoods are clustered to support larger activity centres served by high quality public transport.
- Reduce car dependency by allowing for:
  - Convenient and safe public transport.
  - Safe and attractive spaces and networks for walking and cycling.
  - Subdivision layouts that allow easy movement within and between neighbourhoods.
  - A convenient and safe road network.
- Being accessible to people with disabilities.
- Creating an urban structure and providing utilities and services that:
  - Responds to climate change hazards and contributes to reduction of greenhouse gas emissions.
  - Support resource conservation.
  - Support energy efficiency through urban layout and lot orientation.
  - Support the uptake of renewable energy technology, including microgrids and batteries.
  - Incorporate integrated water management.
  - Support waste minimisation and increased resource recovery.
  - Minimise exposure of sensitive uses to air and noise pollution.

### Policy documents

Consider as relevant:

- *Urban Design Guidelines for Victoria* (Department of Environment, Land, Water and Planning, 2017)

**[DELETED – content relocated or covered in other clauses]**

## **15.02-1S Energy and resource efficiency**

### **Objective**

To encourage land use and development that is energy and resource efficient, supports a cooler environment and minimises greenhouse gas emissions. **[15S, 15.01-2S, 15.01-3S]**

### **Strategies**

Improve the energy, water and waste performance of buildings and subdivisions through environmentally sustainable development. **[19.01-1S, 19.01-2S, 19.03-3S, 19.03-5S]**

Promote consolidation of urban development and integration of land use and transport. **[18S, 18.01-1S]**

Improve efficiency in energy use through greater use of renewable energy technologies and other energy efficiency upgrades. **[19.01-2S, 15.01-2S, 15.01-3S]**

Support low energy forms of transport such as walking and cycling. **[ 18.02-1S, 18.01-1S]**

Reduce the urban heat island effect by greening urban areas, buildings, transport corridors and open spaces with vegetation. **[13.01-3S]**

Encourage retention of existing vegetation and planting of new vegetation as part of development and subdivision proposals. **[15.01-2S, 15.01-3S]**

## **16.01-2S Location of residential development**

### **Objective**

To locate new housing in designated locations that offer good access to jobs, services and transport.

### **Strategies**

Increase the proportion of new housing in designated locations within established urban areas and reduce the share of new dwellings in greenfield and dispersed development areas.

Encourage higher density housing development on sites that are well located in relation to jobs, services and public transport.

Ensure an adequate supply of redevelopment opportunities within established urban areas to reduce the pressure for fringe development.

Ensure residential development is **located to support** cost effective infrastructure provision and use, energy efficiency, water efficiency and public transport use.

Identify opportunities for increased residential densities to help consolidate urban areas.

## 18.01-1S Land use and transport planning

### Objective

To create a safe and sustainable transport system by integrating land use and transport.

### Strategies

Develop integrated and accessible transport networks to connect people to jobs and services and goods to market.

Plan urban development to make jobs and services more accessible by:

- Ensuring equitable access is provided to developments in accordance with forecast demand, taking advantage of all available modes of transport and to minimise adverse impacts on existing transport networks and the amenity of surrounding areas.
- Coordinating improvements to public transport, walking and cycling networks with the ongoing development and redevelopment of urban areas.
- Requiring integrated transport plans to be prepared for all new major residential, commercial and industrial developments.
- Focussing major government and private sector investments in regional cities and centres on major transport corridors, particularly railway lines, in order to maximise the access and mobility of communities

Integrate public transport services and infrastructure into new development.

Improve transport links that strengthen the connections to Melbourne and adjoining regions.

### Policy documents

Consider as relevant:

- *The Victorian Transport Plan* (Victorian Government, 2008)
- *Public Transport Guidelines for Land Use and Development* (Victorian Government, 2008)
- [Victorian Cycling Strategy 2018-28](#) (Department of Economic Development, Jobs, Transport and Resources, 2017)
- *Principal Public Transport Network 2017* (Department of Economic Development, Jobs, Transport and Resources, 2017)

## 18.02-1S Sustainable personal transport

### Objective

To promote and support the use of low-emission forms of personal transport.

### Strategies

Ensure development and the planning for new suburbs, urban renewal precincts, greyfield redevelopment areas and transit-oriented development areas (such as railway stations) provide opportunities to promote more walking and cycling.

Encourage the use of walking and cycling by creating environments that are safe and attractive.

Develop high quality pedestrian environments that are accessible to footpath-bound vehicles such as wheelchairs, prams and scooters.

Ensure cycling routes and infrastructure are constructed early in new developments.

Provide direct and connected pedestrian and bicycle infrastructure to and between key destinations including activity centres, public transport interchanges, employment areas, urban renewal precincts and major attractions.

Ensure cycling infrastructure (on-road bicycle lanes and off-road bicycle paths) is planned to provide the most direct route practical and to separate cyclists from other road users, particularly motor vehicles.

Require the provision of adequate bicycle parking and related end-of-trip facilities to meet demand at commercial buildings, multi-residential developments, education, recreation, transport, shopping and community facilities and other major attractions when issuing planning approvals.

Provide improved facilities, particularly storage, for cyclists at public transport interchanges, rail stations and major attractions.

Encourage building and subdivision layout and design responses that:

- Facilitate low emission forms of transport including walking and cycling.
- Include infrastructure for low emission vehicles (including electric vehicles).

### Policy documents

Consider as relevant:

- *Guide to Road Design, Part 6A: Paths for Walking and Cycling*
- *Victorian Cycling Strategy 2018-28* (Department of Economic Development, Jobs, Transport and Resources, 2017)

## 18.02-2S Public Transport

### Objective

To facilitate greater use of public transport, promote increased development close to high-quality public transport routes and minimise car dependency.

### Strategies

Maintain and strengthen passenger transport networks.

Connect activity centres, job rich areas and outer suburban areas through high-quality public transport.

Improve access to the public transport network by:

- Ensuring integration with walking and cycling networks.
- Providing end-of-trip facilities for pedestrians and cyclists at public transport interchanges.

Plan for bus services to meet the need for local travel.

Ensure development supports the delivery and operation of public transport services.

Plan for and deliver public transport in outer suburban areas that is integrated with land use and development.

Provide for bus routes and stops and public transport interchanges in new development areas.

### Policy documents

Consider as relevant:

- *Public Transport Guidelines for Land Use and Development* (Victorian Government, 2008)
- *The Victorian Transport Plan* (Victorian Government, 2008)

## 19 INFRASTRUCTURE

Planning for development of social and physical infrastructure should enable it to be provided in a way that is efficient, equitable, accessible and timely.

Planning is to recognise social needs by providing land for a range of accessible community resources, such as education, cultural, health and community support (mental health, aged care, disability, youth and family services) facilities.

Planning should ensure that the growth and redevelopment of settlements is planned in a manner that allows for the logical and efficient provision and maintenance of infrastructure, including the setting aside of land for the construction of future transport routes.

Planning should facilitate efficient use of existing infrastructure and human services. Providers of infrastructure, whether public or private bodies, are to be guided by planning policies and should assist strategic land use planning.

Planning should minimise the impact of use and development on the operation of major infrastructure of national, state and regional significance, including communication networks and energy generation and distribution systems.

Planning of infrastructure should avoid or minimise environmental impacts and incorporate resilience to natural hazards, including future climate change risks.

Planning authorities should consider the use of development and infrastructure contributions in the funding of infrastructure.

**19.01-1S Energy supply**

**Objective**

To facilitate appropriate development of energy supply infrastructure.

**Strategies**

Support the development of energy [infrastructure](#) in appropriate locations where it provides benefits to industry and the community [and takes advantage of existing infrastructure](#).

[Support achievement of greenhouse gas emission reduction targets under the \*Climate Change Act 2017\* and the transition to a low-carbon economy by adopting renewable energy and low emission technologies.](#)

Facilitate local energy generation to help diversify the local economy and improve sustainability outcomes.

## 19.01-2S Renewable energy

### Objective

To support the provision and use of renewable energy, and achievement of greenhouse gas emission reduction targets under the *Climate Change Act 2017* in a manner that ensures appropriate siting and design considerations are met.

### Strategies

Facilitate renewable energy development in appropriate locations.

Protect energy infrastructure against competing and incompatible uses.

Develop appropriate infrastructure to meet community demand for energy services.

Set aside suitable land for future energy infrastructure.

Consider the economic and environmental benefits to the broader community of renewable energy generation while also considering the need to minimise the effects of a proposal on the local community and environment.

Recognise that economically viable wind energy facilities are dependent on locations with consistently strong winds over the year.

### Policy documents

Consider as relevant:

- *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria* (Department of Environment, Land, Water and Planning, March 2019)
- *Solar Energy Facilities Design and Development Guideline* (Department of Environment, Land, Water and Planning, August 2019)

## 19.03-3S Integrated water management

### Objective

To sustainably manage water supply, water resources, wastewater, drainage and stormwater through an integrated water management approach.

### Strategies

Plan and coordinate integrated water management, bringing together stormwater, wastewater, drainage, water supply, water treatment and re-use, to:

- Take into account the catchment context.
- Protect downstream environments, waterways and bays.
- Manage and use potable water efficiently.
- Reduce pressure on Victoria's drinking water supplies.
- Minimise drainage, water or wastewater infrastructure and operational costs.
- Minimise flood risks.
- Provide urban environments that are more resilient to the effects of climate change.

Integrate water into the landscape to facilitate cooling, local habitat improvements and provision of attractive and enjoyable spaces for community use.

Facilitate use of alternative water sources such as rainwater, stormwater, recycled water and run-off from irrigated farmland.

Ensure that development protects and improves the health of water bodies including creeks, rivers, wetlands, estuaries and bays by:

- Minimising stormwater quality and quantity related impacts.
- Filtering sediment and waste from stormwater prior to discharge from a site.
- Managing industrial and commercial toxicants in an appropriate way.
- Requiring appropriate measures to mitigate litter, sediment and other discharges from construction sites.

Manage stormwater quality and quantity through a mix of on-site measures and developer contributions at a scale that will provide greatest net community benefit.

Provide for sewerage at the time of subdivision or ensure lots created by the subdivision are capable of adequately treating and retaining all domestic wastewater within the boundaries of each lot.

Ensure land is set aside for water management infrastructure at the subdivision design stage.

Minimise the potential impacts of water, sewerage and drainage assets on the environment.

Protect significant water, sewerage and drainage assets from encroaching sensitive and incompatible uses.

Protect areas with potential to recycle water for forestry, agriculture or other uses that can use treated effluent of an appropriate quality.

[Support development that is water efficient and encourages use of alternative water sources.](#)

### **Policy documents**

Consider as relevant:

- *State Environment Protection Policy (Waters of Victoria)*
- *Water for Victoria - Water Plan* (Victorian Government, 2016)
- *Urban Stormwater Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999)
- *Guidelines for Environmental Management: Code of Practice - Onsite Wastewater Management* (Publication 891.4, Environment Protection Authority, 2016)
- *Planning Permit Applications in Open, Potable Water Supply Catchment Areas* (Department of Sustainability and Environment, 2012)

## 19.03-5S Waste and resource recovery

### Objective

To reduce waste and maximise resource recovery so as to reduce reliance on landfills and minimise environmental, community amenity and public health impacts.

### Strategies

Ensure future waste and resource recovery infrastructure needs are identified and planned for to safely and sustainably manage all waste and maximise opportunities for resource recovery.

Protect waste and resource recovery infrastructure against encroachment from incompatible land uses by ensuring buffer areas are defined, protected and maintained.

Ensure waste and resource recovery facilities are sited, designed, built and operated so as to minimise impacts on surrounding communities and the environment.

Encourage technologies that increase recovery and treatment of resources to produce [high value, marketable end products](#).

Enable waste and resource recovery facilities to [be located in proximity to other related facilities and to materials' end-market destinations](#) to reduce the impacts of waste transportation and improve the economic viability of resource recovery.

Site, design, manage and rehabilitate waste disposal facilities in accordance with the *Waste Management Policy (Siting, Design and Management of Landfills)* (Environment Protection Authority, 2004).

Integrate waste and resource recovery infrastructure planning with land use and transport planning.

[Ensure developments provide for segregation, storage and collection of waste and recyclable materials.](#)

Encourage development that [provides for](#):

- [Systems that support waste minimisation and increase resource recovery.](#)
- [Use of recycled and reusable materials where appropriate.](#)

### Policy guidelines

Consider as relevant:

- Any applicable Regional Waste and Resource Recovery Implementation Plan.

### Policy documents

Consider as relevant:

- *Statewide Waste and Resource Recovery Infrastructure Plan* (Sustainability Victoria, 2015)
- *Metropolitan Waste and Resource Recovery Implementation Plan* (Metropolitan Waste and Resource Recovery Group, 2016)
- *Waste Management Policy (Siting, Design and Management of Landfills)* (Environment Protection Authority, 2004)
- *Environment Protection (Industrial Waste Resource) Regulations 2009*
- *Best Practice Environmental Management Guideline (Siting, Design, Operation and Rehabilitation of Landfills)* (Environment Protection Authority, 2001)
- *Victorian Organics Resource Recovery Strategy* (Sustainability Victoria, 2015)
- *Designing, Constructing and Operating Composting Facilities* (Environment Protection

Authority, 2015)

- *Waste Management and Recycling in Multi-unit Developments* (Sustainability Victoria, 2019)
- *Recycling Victoria A New Economy* (Department of Environment, Land, Water and Planning, 2020)

