Environmentally Sustainable Design Policy for Council Buildings and Infrastructure

Whitehorse City Council

Contents

Policy Control Schedule

Policy Number:	Directorate:	City Development
Approval by:	Responsible Officer:	Miho Portelli
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1. Introduction

The aim of Whitehorse City Council's *Environmental Sustainable Design (ESD) Policy for Council Buildings and Infrastructure* is to incorporate and embed ESD principles into all of its buildings and infrastructure (assets) that are designed, constructed and maintained for Council's operational and community use. This will be achieved by applying this Policy to all new, renewal and extension of Council building and infrastructure projects, and maintenance works.

1.1. Purpose

The purpose of the Policy is to:

- Establish a consistent approach for achieving best practice Environmentally Sustainable Design (ESD) outcomes in the design, construction, and operation of Council buildings and infrastructure.
- Drive innovation and sustainability leadership in through Council processes and practices.
- Enable Council to achieve its targets within its *Sustainability Strategy 2016-2022,* actions in the *Interim Climate Response Plan 2020-2022,* and draft *Urban Forest Strategy 2021-2031* (pending endorsement).

1.2. Context

Council recognises that best practice ESD outcomes may incur additional upfront cost. However, this is significantly outweighed by the financial savings and other co-benefits secured over the asset's lifecycle.

Other co-benefits may include, but are not limited to:

- Reducing the operational and utility costs in running the asset, including improving its energy and water usage and minimising reliance on non-renewable energy sources.
- Delivering assets that are resilient to the impacts of climate change.
- Enhancing the wellbeing of facility users by connecting the natural and built environment and improving indoor environments for buildings.
- Securing ongoing operational efficiencies, through improved asset management and less intensive maintenance regimes.
- Demonstrating leadership to the community by adopting and promoting ESD integration, and encouraging the wider community to same.
- Driving the uptake of low impact construction materials and stimulating local markets for recycled products.
- Reducing reliance on emissions intensive transport modes and facilitating active transport options.
- Addressing gaps and the absence of minimum requirements in the National Construction Code (NCC) and relevant legislation.

1.3. Scope

This Policy applies to:

- The design, construction and operation of all substantial renewals, renovations, upgrades to Council buildings.
- The design and construction of Council infrastructure including but not limited to carparks, footpaths, roads and drainage.
- Council staff and all external designers, engineers, contractors and stakeholders involved in Capital Works projects and programs.

2. Objectives

The following objectives set out Council's commitment for the delivery of ESD outcomes.

For all relevant projects and programs, applicable objectives are to be identified. Depending on the building and infrastructure type and size, additional objectives can be identified as documented in the *ESD Guideline for Council Buildings and Infrastructure* (Guideline). Refer to **Section 5** – Implementation of Policy for further information on how to use the Guideline.

Council will develop **a Sustainability Management Plan (SMP)** that documents how all identified ESD objectives, targets and standards will be met, and how the performance outcomes will be achieved for each project and program. The SMP must also provide a schedule for implementation, ongoing management, maintenance and monitoring and how the ESD elements and practices can be maintained over time. The SMP should be used to survey available sustainable technologies and innovative approaches, and to resolve any questions around feasibility of applying ESD initiatives to the project or program. For a program of works, one regularly updated SMP will generally meet requirements.

Objective	**Buildings**	**Infrastructure**
Greenhouse gas emissions		
All building services are electric (no fossil fuels) using efficient heating, cooling and hot water.	✓	✓
Use 100% renewable energy, either through onsite generation and storage or offsite renewable energy (e.g. GreenPower, PPA) via retailing arrangements, where feasible.	✓	✓
Procurement of materials and choice of construction methods must reduce embedded carbon emissions wherever feasible – target materials cause less emissions in their production (i.e. target an 80% reduction in embedded carbon).	✓	✓
Adaptation and Resilience		
Where appropriate, design for at least a 100-year asset life to greatly reduce lifecycle cost. Design for long term resilience, adaptability and flexibility.	✓	✓

Objective	Buildings	Infrastructure
Ensure that climate change impacts and adaptation has been addressed to improve resilience to extreme weather events.	✓	✓
Waste		
Divert a minimum of 70% of the demolition and construction waste to recycling.	✓	✓
Specify recycled content construction materials. This is to help generate and support markets for recycled materials.	✓	✓
Urban Ecology and Biodiversity		
Protect and conserve existing remnant indigenous vegetation.	✓	✓
Ensure that landscaping and plant selection is in line with the draft Whitehorse Urban Forest Strategy 2021-2031 to: • improve connectivity and enhance biodiversity; and/or • reduce the urban heat island effect. This can be demonstrated using the Green Factor tool or similar.	✓	✓
Achieve 30% canopy cover by primarily maintaining existing trees and/or planting new trees. Investigate opportunities for a high canopy cover of 40% or more, where applicable.	✓	✓
Transport		
Infrastructure must support all forms of active transport and provide safe environments for pedestrian and bicycle users.	✓	✓
Buildings must have suitable end of trip facilities including secure bicycle parking, shower and change room numbers use Green Star standards.	✓	✓
Provision of electric vehicle charging infrastructure, charging and cabling wherever feasible.	✓	✓
Stormwater		
Water Sensitive Urban Design (WSUD) elements should be included in drainage design to contribute to landscape design and urban cooling. This can be demonstrated using the Water Sensitive Cities Scenario Tool (Urban Heat Island Module) or similar.	✓	✓
Achieve 100% of BPEM stormwater targets (a 45% reduction in nitrogen runoff) through harvesting, infiltrating and WSUD treatments.	✓	✓
Use permeable materials and infiltrate stormwater, where possible to reduce runoff volumes. Target 40% reduction in average annual runoff volumes pre and post development.	✓	✓
Materials		
Specify (where feasible) reused / recycled / eco-certified content in building and infrastructure construction materials (e.g. roads, framing, slabs, footpaths, shared paths, kerb and channel) e.g. Minimum 20-30% reclaimed asphalt pavement.	✓	✓
Optimise the size, shape and layout of buildings to reduce costs and materials use.	✓	

Objective	Buildings	Infrastructure
Timber requirements: must be responsibly sourced and FSC or PEFC certified[1].	✓	✓
Concrete requirements: Use of low embedded carbon (Geopolymer / E-Crete) concrete, or substitute 30% of Portland cement with supplementary extenders. Specify that at least 40% of coarse aggregate or 25% of fine aggregate (sand) is a recycled material[2].	✓	✓
Energy and water efficiency		
Minimum 40% efficiency improvement over existing National Construction Code (NCC) for both water and energy use. The project's Sustainability Management Plan will detail how this can be achieved.	✓	✓
Outdoor lighting to be **high efficiency LED** warm white colour with daylight controls and a CRI>80. No up lighting is permitted.	✓	✓
Management		
A project / program specific Construction Environmental Management Plan (CEMP) should be completed by the main construction contractor and approved by Council.	✓	✓

3. Requirements

It is Council policy that all new Council buildings and infrastructure adhere to the following **requirements,** and **additional requirements** (where applicable and feasible). For all relevant projects and programs, applicable requirements are to be identified.

Requirement	Project Stage
Demonstrate at business case stage how project can contribute towards achieving Council's sustainability targets.	Bidding and planning
Ensure that the business case includes budget for items required to meet sustainability principles and that respective teams are consulted at business case stage. This is to include an understanding of ongoing maintenance requirements, budget implications and/or alterations to current operational processes. A minimum ESD budget allowance of 10% as an appropriate allocation.	Bidding and planning
Include ESD principles into the project brief at inception, concept design, detailed design, and in tender documents.	Bidding and planning Design

[1] See Green Star Design and As-Built v1.2 Materials credits for more details
[2] See Green Star Design and As-Built v1.2 Materials credits for more details

Requirement	Project Stage
Seek specialist ESD technical advice for larger projects (See below 'project specific requirements' for guidance) from project inception to delivery. See the below additional requirements list for requirements for different sized projects.	Bidding and planning Design Delivery
Generate a SMP and refer this to Council's ESD Advisor (internal) for review prior to tendering.	Design
Document at schematic design stage a Sustainability Management Plan (SMP) of how the project or program will meet sustainability targets.	Design
Building SMP reports must clearly summarise the project specific sustainable design requirements and be supported by an appropriate ESD tool.	Design
Infrastructure SMP reports must consider; sustainable construction materials procurement, construction environmental management, biodiversity enhancement opportunities, and integrated water management.	Design
Use the SMP report to consult with other internal stakeholders as necessary. This includes ESD, WSUD engineering, transport and biodiversity officers.	Design
Use lifecycle costing in procurement and contracting. Target the best long-term value to Council, rather than the cheapest up-front cost. Value management must protect ESD and recognise the value of community and environmental goals.	Procurement Tendering Delivery
Ensure that ESD objectives are included within the deliverables for tendered work.	Procurement Tendering Delivery
Ensure that commissioning, building tuning and handover is undertaken in a comprehensive way and that it includes the management of sustainable design initiatives.	Delivery Occupancy
Report to Council annually as part of the Capital Works program delivery report on the key achievements of this ESD Policy for Council Buildings and Infrastructure.	Delivery

4. Project Specific Requirements

The next table outlines the project and program specific requirements for buildings and infrastructure, based on the total project or program budget.

Building projects that are more than $10M are required to meet specified Green Star Design and As-Built benchmarked. Each project is to be assessed, to determine whether GBCA certification is to be obtained. Strong consideration should be made for flagship projects to be GBCA certified, where Council endorsement will be required if certification is to be pursued.

Project cost	<$1mill	>$1mill	>$10mill	>$20mill
Require Sustainability Management Plan (SMP) for **buildings**	Yes – short form Sustainable Design Assessment (SDA)	Yes	Yes	Yes
SMP objectives and applicable toolkit for **buildings**	Meet sustainability objectives above plus: Council ESD checklists	Meet sustainability objectives above plus: BESS tool targeting Excellence	Meet sustainability objectives above plus: Green Star 4 or 5 Star Design and As-Built benchmarked, as appropriate.	Meet sustainability objectives above plus: Green Star 5 or 6 Star Design and As-Built benchmarked, as appropriate.
Require Sustainability Management Plan (SMP) for **infrastructure (**project or program)	Yes – short form	Yes	Yes	Yes
SMP objectives and applicable toolkit for **infrastructure**	Meet sustainability objectives, where applicable and feasible.	Meet sustainability objectives, where applicable and feasible.	Meet sustainability objectives, where applicable and feasible. Reference Green Star Communities tool Materials Credits.	ISCA's Infrastructure Sustainability (IS v 2) Design and As Built rating tool – Gold rating benchmarked, as appropriate.
Suitably qualified ESD professional appointed to the design team	Only if required to trial innovative approaches	Yes	Yes	Yes

5. Implementation of the Policy

The Policy is to be informed by the *ESD Policy Guideline for Council Buildings and Infrastructure*. This Guideline details the processes in how the Policy is to be implemented, and what is to be considered during each stage of the scoping, design, construction, commissioning and maintenance of an asset.

The Guideline also outlines how the Policy is to be monitored and reported on, including whether the ESD requirements identified are being met and achieved. To ensure that all stakeholders effectively and efficiently apply the Policy, the Guideline is to be reviewed on an annual basis, facilitated by the Sustainability Unit (Engineering and Environmental Services Department).

6. Supporting Documents

The *ESD Policy Guideline for Council Buildings and Infrastructure* document informs the implementation of this Policy. This includes:

- Project Management requirements to ensure selected ESD objectives are actioned at each project stage.
- Roles and Responsibilities of internal stakeholders for key project stages.
- SMP checklist for buildings and infrastructure projects in Appendix.

7. Glossary

BESS: an online sustainability assessment tool developed by the Council Alliance for a Sustainable Built Environment (CASBE), an alliance of Victorian Councils working to improve the sustainability of the built environment, to assess the sustainability of building projects at the design stage.

BPEM: Best Practice Environmental Management Guidelines for Stormwater – administered by EPA Victoria.

CRI: Colour Rendering Index - A numerical scale (0 to 100) used in lighting to indicate how a light source will make a colour of an object appear to eye.

Environmentally Sustainable Design (ESD): Building design that seeks to improve performance, reduce environmental impacts, resource use and waste and create healthy environments for occupants. Also called **Sustainable Development** or **Economic and Environmentally Sustainable Design (EESD)**

Green Star: Developed by the Green Building Council of Australia (GBCA), buildings can be Green Star certified for the environmental sustainability of their construction (Design and As-Built tool); fit outs (Interiors tool) and their operational performance (Performance tool). Buildings are accredited through an assessment by a third party and can achieve between a 4-6 star accreditation.

Green Factor Tool: A tool for (landscape) architects, ESD consultants and other built environment professionals to utilise and measure green infrastructure credentials (current scope of the tool includes vegetation and soil) of a proposed development.

Independent Commissioning Agent (ICA): A role that can be filled by one or more people who are appointed by, and report directly to, Council. They are independent of any contractor, sub-contractor or consultant who has been involved in the design or installation of the nominated building systems. They are a registered professional engineer or qualified technician with demonstrated knowledge on mechanical, electrical, hydraulic and ESD systems commissioning.

Integrated Water Management (IWM) and Water Sensitive Urban Design (WSUD): A holistic approach to water management that integrates urban design and planning with social and physical sciences in order to deliver water services and protect aquatic environments in an urban setting. A WSUD approach could include the integration of raingardens, infiltration, water harvesting and wetlands in an urban area to manage stormwater.

Infrastructure Sustainability Tool (IS) - IS Rating Scheme is Australia and New Zealand's only comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets. IS evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development. Formal certification is only available for projects over $20 million in value. The framework can be used informally in developing SMP reports for smaller projects.

Lifecycle cost: The total cost of an asset throughout its useful life taking account of the planning, design, construction, acquisition, operational, maintenance, rehabilitation, and disposal costs.

Sustainable Design Assessment (SDA): A simple sustainability assessment for **small** projects that documents how a project will address sustainability objectives, targets and standards.

Sustainable Management Plan (SMP): A detailed sustainability assessment for **larger** projects that documents how a project will address sustainability objectives, targets and standards and how the performance outcomes will be achieved. The SMP must also provide a schedule for implementation, ongoing management, maintenance and monitoring and how the ESD elements and practices can be maintained over time.

Water Sensitive Cities Scenario Tool (Urban Heat Island Module): A tool that displays the spatial variation of different land surface temperatures for a defined geographical area both existing and/or representative of proposed development.

8. Policy and legislation references

Council Plan

- Whitehorse Council Plan 2017-21

Related Council Policies

- Sustainability Strategy 2016-2022
- Interim Climate Response Plan 2020-2022
- Draft Urban Forest Strategy 2021-2031 (pending endorsement)
- Procurement Policy, June 2020

Relevant Legislation

- Local Government Act 1989 – Objectives of a Council (SECT 3C)
- Environment Protection Act 1970
- SEPP (Waters) – State Environmental Protection Policy outlining Council water and stormwater quality responsibilities.

Related State and Local References

- Integrated Water Management Framework for Victoria 2017
- Victorian Planning Provisions (VC154 amendments – Stormwater Management) 2018
- Local Planning Policies – Environmentally Sustainable Development

International Agreements

- This policy has been assessed against and complies with the Charter of Human Rights.
- This policy assists in achieving elements of the UN Sustainable Development Goals

9. References relevant to the Policy

BESS scorecard Municipal Association of Victoria, Built Environment Sustainability Scorecard, http://bess.net.au/

Beyond Zero Emissions (BZE), Buildings Plan: https://bze.org.au/research/energy-efficient-buildings-plan/ and Zero Carbon Cement Plan: https://bze.org.au/research/manufacturing-industrial-processes/rethinking-cement/

Carpet Institute of Australia, Australian Carpet Certification Scheme, www.carpetinstitute.com.au

Ecospecifier, www.ecospecifier.com.au/ building materials and products certification,

Energy Star Labelling www.energyrating.gov.au/ appliance Energy Rating,

Forest Stewardship Council (FSC), Public certificate search, http://info.fsc.org/certificate.php

Global Green Tag, www.globalgreentag.com/ building materials and products certification,

Green Factor Tool https://www.greenfactor.com.au/

Green Star Design and As-Built tool (used for buildings), http://new.gbca.org.au/ Green Building Council of Australia (GBCA)

Green Star Communities tool, http://new.gbca.org.au/ (used for precincts and infrastructure) Green Building Council of Australia (GBCA)

Green Environmental Choice Australia, www.geca.org.au/

ISCA IS Design and As Built rating tool Infrastructure Sustainability Council of Australia www.isca.org.au/
National Construction Code (NCC) https://ncc.abcb.gov.au/ Australian Building Codes Board (ABCB)
WELS Water Rating product labelling: Water Efficiency Labelling and Standards (WELS) Scheme, www.waterrating.gov.au/
Water Sensitive Cities Scenario Tool https://watersensitivecities.org.au/solutions/water-sensitive-cities-scenario-tool/