



Merri-bek
City Council

Sustainable Buildings Policy

Policy ID No	DP&ED 7 - CEO
Date Authorised by Chief Executive Officer:	21 May 2024
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Policy Owner	Sustainability and Climate
Responsible Department	Capital Works and Project Delivery

This policy has been authorised.

Cathy Henderson
Chief Executive Officer

1 Introduction

Merri-bek City Council owns over 390 community and civic facilities with an estimated replacement value of \$365 million (Merri-bek 10 year Asset Management Plan 2022-2032). These buildings, which include community halls, civic centres, libraries, sport pavilions and aquatic centres, are large consumers of energy, water and other resources, and as custodians of these assets, how we choose to invest in their design and operation plays an important role in demonstrating leadership and achieving Council's vision of a sustainable Merri-bek community.

Ensuring that council-owned buildings and assets are sustainable, efficient and respond to the needs of all users will help deliver on the Community Vision and Council Action Plan objectives to protect the health of people and planet, create safe, inclusive, and connected spaces and embed climate resilience within the community, as well as supporting a range of other Council strategies and policies.

The Sustainable Buildings Policy is the primary mechanism for future proofing Council's building assets by significantly reducing electricity, gas, and water operational costs and adapting to climate change impacts, while providing more comfortable spaces for building users.

2 Purpose

The policy is to be read alongside the Building Asset Management Plan. The Building Asset Management Plan provides the framework for the sustainable management of Council's existing building assets, in support of the Council Plan, Council's Asset Management Policy and Asset Management Strategy.

The purpose of this Sustainable Buildings Policy is to incorporate environmentally sustainable design (ESD), development, and operation into all community infrastructure buildings owned (and leased) by Council. This will be achieved by applying the policy to all new Council building projects as well as upgrades, renovations, and refurbishments of existing buildings where practical.

The policy is to provide clear, industry-understood sustainability requirements for use by project clients (e.g., the services that will be delivered in the buildings), project managers, designers, architects, engineers, and other building contractors at all stages in the project development process. to ensure that adequate funds are included and managed within the budget. The sustainability requirements vary by project scale and in combination with the matrix and technical notes are deliberately specific for direct insertion into tender specification documents.

3 Context

Merri-bek City Council has a proud history of leading the way in sustainable development, representing the community's strong views on sustainability. Key accolades include being a founding member of CASBE, the second council in Victoria to be certified as Carbon Neutral (now Climate Active) in 2012 and being among the first councils to formally declare a climate emergency in 2018.

This Policy compliments the expectations placed on private development through Clause 15.01-2L-05, Environmentally Sustainable Development, Merri-bek Planning Scheme. Our requirements for successful planning permits are among the most stringent and sustainable, ensuring that the community work and play in sustainable, healthy buildings.

The level of requirements placed on council owned and operated buildings is a reflection of community expectations.

First developed in 2018, the policy has led to some high quality, sustainable projects, including the Glenroy Community Hub, a Passive House certified community centre.

The sustainability world moves quickly; the expectation, definition and requirements of Sustainable Buildings have changed drastically since 2018. This revision looks to incorporate industry changes since 2018, including:

- update of technical requirements to align with current technology;
- update of statutory requirements and regulatory requirements such as the National Construction Code and Australian Standards; and
- expansion of the definition of sustainability in the built environment.

3.1 Definition of Sustainability in the Built Environment

Traditionally, sustainable building design has been defined as efficiency; minimising the use of resources consumed by the use and construction of the building. However, the definition of sustainability in the built environment, as interpreted by Council, has broadened and become more diverse, covering four main pillars:

- **Cultural** – The preservation and promotion of cultural values, heritage and identity.
- **Economic** – The responsible management of resources and finances throughout the life of a building
- **Social** – Enhancing the quality of life of people through inclusivity, equity and community wellbeing.
- **Environmental** – Minimising the negative impact of construction and urbanisation on the natural environment.

The built environment plays an important part in each of these pillars. While the scope of the policy remains focused on environmental outcomes, the policy objectives (see section 4) aim to positively contribute to each of the pillars.

The introduction of an ideation stage and early inception meetings to the policy process is intended to support complementary approaches such as Universal Design, Gender Impact Assessments, human rights, gender equity, public art and factors such as flood mitigation and climate impact.

3.2 Alignment

The Policy directly supports and complements a huge range of endorsed strategies and policies. A full list has been provided in Appendix B.

4 Objectives

The objectives of this policy are:

- To reduce building operational costs.
- To continue to demonstrate corporate responsibility, innovation and leadership to the community and local government sector.
- To improve comfort of users, and health, wellbeing and climate resilience outcomes for building users.
- To deliver efficient fossil-fuel free (all-electric) buildings.
- To reduce operational and embodied greenhouse gas emissions.
- To ensure the efficient use of water, reduce potable water use, achieve best practice stormwater quality outcomes and other integrated water management principles.
- To improve materials efficiency and reduce construction and operation waste through reuse, recycling and other circular economy principles.
- To incorporate green infrastructure and support ecological outcomes through Council buildings.
- To consider all stakeholders from project ideation through to handover and maintenance through a collaborative process.

Note: Different projects and building typologies will vary in their ability to incorporate sustainability and meet the objectives of this policy. It is recognised that projects may not need to achieve all of the initiatives outlined in the ESD Matrix to achieve sustainable outcomes.

5 Policy details

Project Classification

The scope of the policy is determined by the project type – which is a combination of the Gold, Silver, Bronze (GSB) Status Assessment & Weighting Criteria, the project budget, and whether the project triggers a planning permit as per clause. 52.31-1.

The project type shall be determined by the project manager and Sustainable Buildings Officer, using the following Merri-bek endorsed guidelines:

- **Small (Bronze and Silver) Project** – A capital works project (either new construction/refurbishment of a building or infrastructure project) that is less than \$500,000.
- **Medium (Gold) Project** – A capital works project (either new construction/refurbishment of a building or infrastructure project) that exceeds \$500,000 but less than \$2,000,000.
- **Large (Gold) Project** – A capital works project (either new construction/major refurbishment of a building or infrastructure project) that exceeds an estimated construction budget of \$2,000,000.

- **Major (Gold) Project** – A capital works project (either new construction/major refurbishment of a building or infrastructure project) that exceeds an estimated construction budget of \$10,000.000 and requires a planning permit as per Clause 52.31-1. *Note: Small, medium and large projects may also trigger planning permit requirements as per Clause 52.31-1 – and will be reviewed on a case-by-case basis.*

Following determination of the project type, the below ESD requirements can be addressed.

5.1 Use of the ESD Matrix

The minimum ESD requirements for each project type are outlined in the Merri-bek ESD Matrix – a purpose-built project management tool which aims to integrate with existing Capital Works project workflows and the Merri-bek Project Management Framework to:

- Inform cost planning and budget nomination process undertaken by service areas.
- Clearly scope project ESD requirements from project ideation to project inception.
- Track compliance with ESD requirements by project architects and consultants.
- Incorporate critical hold points for detailed review of design documentation and specifications and sign-off.

Following final review and acceptance of tender documentation, the project specific Merri-bek ESD Matrix is to form part of the contract documentation package to enable contractors to understand and incorporate all ESD requirements in their tender responses.

Upon commencement of construction, the Contractor is to take ownership of Merri-bek ESD Matrix and demonstrate compliance with all requirements by submitting a completed Matrix to Council including any supplementary documentation required by specific targets.

Additionally, all capital works and building maintenance project works must also comply with the National Construction Code (NCC) 2022 and the Merri-bek Planning Scheme if triggered. As per Clause 52.31-1 of the Merri-bek Planning Scheme, a planning permit is required for Local Government Projects where:

- a development exceeds \$10 million;
- a development is in the Urban Floodway Zone (unless the development is carried out to the satisfaction of the relevant floodplain management authority);
- a development is associated with the Urban Floodway Zone unless the development is carried out to the satisfaction of the relevant floodplain management authority;
- a development requires the provision of an environment effects statement under the Environment Effects Act 1978; OR
- a development in which the Minister for Planning has decided that an assessment through an environment effects statement under the Environment Effects Act 1978 is not required if the Minister's decision is subject to conditions.

In these cases, as per Clause 15.01-2L-05 (the Environmentally Sustainable Development policy) a Sustainable Design Assessment or Sustainability Management Plan with an accompanying BESS and STORM/MUSIC report is required. Additional supporting documents, such as a Green Travel Plan or Waste Management Plan, may also be required based on the development typology and scale.

The Merri-bek ESD Matrix and minimum requirements can be found at: D24/16154.

A diagram of the above process is included in Appendix C (diagram 1).

6 Policy Implementation

The inclusion of ESD within projects should begin at project ideation by the service delivery unit or 'client' (i.e., Sports and Recreation) to ensure the budget can deliver sustainable outcomes along with other project requirements. At this point, the Sustainable Buildings Officer can be engaged by the service delivery unit to assist with understanding the ESD opportunities and drafting an ESD Matrix.

Once the project is handed over to the Building Projects Unit (BPU), the Project Manager is accountable for overseeing the successful implementation of the Sustainable Buildings Policy on Council projects, including management of the ESD Matrix through all project stages.

The process for implementing the Sustainable Buildings Policy is as follows:

Stage 1: Project Ideation

1. ESD brief and discussion between the Sustainable Built Environment team (SBO or other agreed member of the team) and the Property, Place & Design or the service delivery unit (or 'client') to understand ESD opportunities and process.

Stage 2: Project Initiation

2. An inception meeting is held between the service delivery unit (or 'client'), evaluates the opportunity for, and budget implications of, ESD within the Project Management (PM) specific project with assistance from the Building Projects Unit (BPU) and the Sustainable Buildings Officer (SBO) (or agreed representative from the Sustainable Built Environment (SBE) if needed).
3. The service delivery unit (or 'client'), to discuss and document ESD opportunities within the project *Business Case* – including the budget, client requirements, ESD and timeline for delivery, prior to submission to BPU.
4. The assigned project manager from BPU determines the project type based on the budget and GSB Status Assessment and completes a *Project Initiation Document* (PID).
5. Sustainable Built Environment representative provides preliminary ESD advice to the client and PM as required.
6. PM submits an enquiry to the Planning Unit to determine whether a planning permit is required.
7. Planning Unit is to provide advice regarding the need for a planning permit and required documentation.
8. The PM and the SBO finalise a project-specific *ESD Matrix*, with a project hold point until the approach to ESD is agreed upon.

Stage 3: Scoping & Detailed Design

9. SBO develops a project specific *ESD Matrix* and confirms with the PM.
10. PM engages an architect and other consultants as required to develop a concept design.
11. The *ESD Matrix* is issued by the PM as a part of the *Request for Proposal* and included in the *Consultant Agreement*.
12. Consultant/s take custody of the *ESD Matrix* and confirm their design and/or works comply with the requirements.
13. Consultant/s to liaise with external authorities as required (e.g., the energy retailer to confirm solar feed-in tariff).

14. SBO and PM review the consultant/s work and respond with their submissions, confirming compliance with the *ESD Matrix*.
15. A meeting between the client, the PM, the SBO and end-users (e.g., sports club) is held to confirm the requirements, design, timeline and staging.
16. PM to submit a planning permit application (if required).
17. The PM reviews the consultant/s response.
18. The SBO reviews and signs off the consultant/s response, with a project hold point until any issues with the ESD Matrix are resolved.

Stage 4: Tender

19. The project manager and the SBO present the project design and *ESD Matrix* back to the Service Delivery Unit for review and agreement.
20. The PM issues the *ESD Matrix* along with the *Request for Tender*.
21. *ESD Matrix* is included in the and construction contract.
22. SBO is available to review any changes to design documentation and *ESD Matrix* at this stage (if required).
23. PM responds to any Request for Information (RFI) requests from the Planning Unit (if required).

Stage 5: Construction

24. The appointed contractor takes custody of confirms all works will comply with the *ESD Matrix*.
25. The Consultant/s verify that works will comply through provision of appropriate documentation (e.g., architectural drawings, memos, etc.).
26. The PM reviews Consultant/s response to the *ESD Matrix* throughout the construction stage and any documentation.
27. The contractor provides regular status updates and compliance against SBO reviews and signs off on Consultant/s response to the *ESD Matrix*.
28. Consultant/s to provide 'as built' documentation that aligns with the work being undertaken by the contractor.
29. SBO reviews 'as built' and any documentation and compliance with the *ESD Matrix* (throughout construction stage as required).
30. PM to conduct regular site inspections throughout construction stage and discuss any ESD issues with the SBO.
31. PM to submit a secondary consent application to the Planning Unit to amend the planning permit (if required).

Stage 6: Post-construction

32. Following construction, the PM and SBO conduct a post-construction inspection to ensure the delivery of all ESD items within the *ESD Matrix*.
33. The contractor to provide rectification works (requested if required).
34. The Consultant/s to provide amended documentation to support rectification works (if required).
35. Asset handover and site inspection with the PM, SBO, client and building maintenance team a project hold point until the final built outcome satisfies the PM and SBO.

36. Project close-out and evaluation meeting is held with the client, PM, service delivery unit and SBO to discuss project success and any areas for improvement moving forward.

The process described above is shown diagrammatically across the project stages (project ideation, project initiation, detailed design, tender, construction and post-construction) and stakeholder groups below in Appendix C (diagram 2).

7 Roles and Responsibilities

Roles and responsibilities for implementing this policy are outlined below:

Stakeholder	Role
Manager Sustainability and Climate	<ul style="list-style-type: none"> • Policy owner.
Manager Capital Works and Project Delivery	<ul style="list-style-type: none"> • Responsible for policy implementation.
<p>Service Delivery Unit ('client') Manager developing budget bid</p>	<ul style="list-style-type: none"> • Clearly communicate project requirements to BPU. • Seek advice on cost planning, including ESD requirements to inform budget nomination process. • Consider applicable ESD initiatives for specific project/s with SBE representative and BPU. • Review ESD Matrix and project designs prior to project tender. Attend project close-out and provide evaluation feedback for future improvements. <p>Further</p> <ul style="list-style-type: none"> • Implementation stages to be agreed to by all parties and project inception stage.
<p>Project Manager Building Projects, Building Maintenance or Facilities Management Units</p>	<ul style="list-style-type: none"> • Implement projects, works, and building services that comply with the Sustainable Buildings Policy • Assist Service Delivery Unit stakeholder in cost planning for project as required. • Liaise with Service Delivery Unit stakeholder, or 'client' at project inception and tender stages to identify the ESD scope, any budgetary conflicts, or design challenges. • Seek advice from the SBE representative on the following (as required): <ul style="list-style-type: none"> ○ Merri-bek ESD Matrix implementation. ○ Specifications and technical notes. ○ Design review. ○ Tender document development to include the ESD Matrix requirements. ○ Tender review (for ESD elements). ○ Engagement of Independent Commissioning Agent. ○ Cost planning to ensure ESD elements are included in all stages of review and sign-off. • Liaise with consultants and contractors as required to manage ownership of the ESD Matrix across project stages.

Stakeholder	Role
	<ul style="list-style-type: none"> • Attend project close-out and provide evaluation feedback for future improvements.
<p>Sustainable Built Environment (SBE) representative</p>	<ul style="list-style-type: none"> • Support the implementation of projects that comply with the Sustainable Buildings Policy by: <ul style="list-style-type: none"> ○ Availability to participate in tender evaluations. ○ Assisting project managers from BPU to complete a Merri-bek ESD Matrix at the start of projects. ○ Providing indicative cost or design implications of ESD initiatives to both the project manager and Service Delivery Unit stakeholder/s. ○ Providing support implementing Merri-bek ESD Matrix as project progresses and at key project stages. ○ Conducting post-construction inspections to confirm compliance of final built outcomes. • Support the implementation of works that comply with the Sustainable Buildings Policy by advising Panel Contractors on request. • Attend project close-out and provide evaluation feedback for future improvements.
<p>Planning Unit</p>	<ul style="list-style-type: none"> • Provide planning advice as requested, including any requirements relating to the ESD Planning Policy (cl. 15.01-2L-05).
<p>Consultant/s</p>	<ul style="list-style-type: none"> • Assist with the delivery of council projects that adhere to the Sustainable Buildings Policy by: <ul style="list-style-type: none"> ○ Providing advice and services that align with the agreed scope of the ESD Matrix. ○ Completing the consultant section of the ESD Matrix at each project stage as requested. ○ Liaising with other consultants and project stakeholders as required to support the delivery of the initiatives outlined in the ESD Matrix.
<p>Contractor</p>	<ul style="list-style-type: none"> • Assist with the delivery of council projects that adhere to the Sustainable Buildings Policy by: <ul style="list-style-type: none"> ○ Providing construction services that align with the agreed scope of the ESD Matrix ○ Completing the contractor section of the ESD Matrix at each project stage as requested ○ Liaising with other consultants and project stakeholders as required to support the delivery of the initiatives outlined in the ESD Matrix
<p>Other stakeholders</p>	<ul style="list-style-type: none"> • The end-users (e.g., sports clubs) to be available and collaborative throughout the process and attend any meetings and site visits as required by the client and PM. • The maintenance team to be available for an asset handover and site inspection and discuss any issues with the design and delivery of project.

NOTE: If during the course of project, the scope of the project expands then the ESD minimum requirements for Capital Works must be consulted and incorporated to suit the expanded scope of the project.

8 Monitoring, Evaluation and Review

This policy will be monitored regularly to ensure its relevance in terms of community needs and expectations, Council goals, Council targets and statutory requirements.

Monitoring and Evaluation	Lead – SBE Unit Support – Manager Capital Works Planning and Delivery	Annual Executive Group report September
Reporting and Review	Lead – SBE Unit Support – Manager Capital Works Planning and Delivery	Annual Executive Group report September

8.1 Project Close-out and Evaluation

The Project close-out and evaluation phase is critical to celebrate the success of any project and discuss any issues or improvements that could be made moving forward.

For each completed project, a close out and evaluation procedure will be completed. A project close-out and evaluation template is included within the ESD Matrix (D24/16154). The evaluation should be completed by a representative for all three internal stakeholder groups: the 'client' (e.g., Sports and Recreation), the PM from BPU, and the SBO from SBE. Each stakeholder is given the opportunity to provide feedback on project success, with an overall project success score provided within the template.

8.2 Policy Review

The policy will be reviewed against the below performance indicators to measure the success of both its implementation, and sustainable outcomes.

The review will be conducted from July to September to reflect the performance in the previous financial year and presented to the Executive Leadership Team. Performance to use the following or equivalent measures and indicators where possible:

Performance measure	Indicator/s
Amount of building projects undertaken during the financial year that <i>comply with the policy</i> (and submit an ESD Matrix).	Total number, and percentage (%) of total building projects commenced.
Amount of building projects completed during the financial year that have conducted a <i>project close-out and evaluation meeting</i> .	Total number, and percentage (%) of total building projects completed.
<i>Project success score</i> (taken from project close-out and evaluation).	Percentage (%).
Total amount of installed solar PV across building projects undertaken during the financial year.	Total Kilowatts (kW).

Total amount of rainwater storage volume across building projects undertaken during the financial year.	Kilolitres (kL).
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9 Associated Documents

- D24/16154 ESD Matrix Template 2024
- D23/311219 Merri-bek Updated Indoor Thermal Comfort Policy 2023
- D22/511015 Climate Risk Strategy 2022
- D24/15274 Climate Vulnerability Assessments 2023
- Draft Circular Economy Strategy
- Integrated Water Management Strategy 2040

Appendix A - Definitions

Building refurbishment	Refurbishment of an existing building usually involves improving a space without significant structural or design changes. This may include painting, retiling or replacing fittings and fixtures.
Building renovation	A renovation of an existing building usually involves significant changes to its structure and design, such as the addition of new rooms or changing interior materials and finishes.
Building upgrade	A building upgrade often results in an increase in usable floor area - which can involve structural and design changes - as well as new building systems (such as heating and cooling, hot water or cooking appliances) to meet the needs of the building users.
Built environment	The built environment refers to the human-made conditions and spaces, often within an urban context. In contrast, the natural environment are those elements NOT created by humans.
Capital works	Capital works means construction work, or the procurement and installation of capital equipment intended to extend, rehabilitate or replace the facilities.
Carbon neutral	Carbon neutral refers to the process of identifying and measuring, reducing, and then offsetting carbon emissions through certification processes such as Climate Active, which is what Merri-bek City Council has done to be a certified carbon neutral organisation since 2011/12.
CASBE	The Council Alliance for a Sustainable Built Environment (CASBE) is an independent alliance of councils in Victoria, operating under the auspices of the Municipal Association of Victoria. CASBE provides a forum for the exchange of information, and ideas on innovation and best practice in Environmentally Sustainable Development (ESD).
Circular economy	In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources.
Climate emergency	The term climate emergency acknowledges the serious issues that are being caused by climate change and disrupted weather patterns, and the urgent need for action to reduce carbon emissions to meet international reduction targets to keep warming below 1.5 °C. Since 2016, over 2100 local governments across 39 countries have declared a climate emergency in the aim to deliver more profound and immediate actions.
Climate resilience	Climate resilience refers to the capacity of social, economic, and ecological systems to withstand and adapt to the impacts of climate change. In the context of the built environment and this policy there is a particular focus on ensuring council buildings can cope with heavy rainfall, heat, or other climate related weather events.

Corporate social responsibility	Corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable to itself, its stakeholders, and the public. By practicing corporate social responsibility, also called corporate citizenship, companies can be conscious of the kind of impact they are having on all aspects of society, including economic, social, and environmental
Council Action Plan (CAP)	The Council Action Plan (CAP) sets out the strategic objectives towards achieving the community vision and highlights specific initiatives or priorities to achieve this. All local governments within Victoria develop a CAP every 4-5 years to guide operation. The current CAP for Merri-bek is the Council Plan 2021-2025.
Embodied carbon emissions	Embodied carbon is all the CO2 emitted in the production of the building. This includes the extraction and production of materials used during construction and their transportation in addition to the carbon released by plants and machinery throughout the building process itself.
Environmental design	Environmental design is the process of addressing surrounding environmental parameters when devising plans, programs, policies, buildings, or products. It seeks to create spaces that will enhance the natural, social, cultural, and physical environment of particular areas.
Environmentally Sustainable Design (ESD)	Environmentally Sustainable Design (ESD) is a broad term that refers to design, or development, that reduces environmental impacts while improving internal amenity. ESD promotes the reduction of energy and water consumption through thermal performance and energy efficiency measures, while reducing waste through procurement and management practices.
External fixed shading	External fixed shading devices are those that cannot be controlled or moved - and are preferred for all north-facing glazing. They can vary from eaves, to shrouds and other solutions - and in Victoria the rule of thumb is that a fixed shading device should be 25% of the distance from the bottom of the glazing to the shading device (e.g., a 1-metre-high window with an eave immediately above it would require a 250mm deep shading device).
External operable shading	External operable shading are devices that can be controlled or moved - and are preferred for east and west-facing glazing to control morning and afternoon heat gain. They can vary from retractable awnings and blinds to louvres and sliding shade panels.
FOGO	FOGO refers to 'food organics and garden organics', or composting. Victoria has recently moved to a 4-stream waste system with general rubbish, mixed recycling, glass recycling and FOGO. In Merri-bek, collected FOGO waste goes to the Veolia organics processing facility in Bulla, Victoria, where it takes only six to ten days to be turned into soil conditioner and compost for use in farms, parks and gardens.
Green Factor Tool	Green Factor is a green infrastructure assessment tool designed by City of Melbourne and developed to help with designing and constructing new buildings that are environmentally friendly and include green infrastructure. It scores the cumulative provision of

	green infrastructure against a set of strategic priorities (e.g., urban heat island effect reduction, stormwater reduction etc.).
Green infrastructure	Green infrastructure (GI) refers to vegetation or networks of natural landscape assets that provide ecological, economic, and socio-cultural functions within urban environments. GI includes traditional plantings such as canopy cover and shrubs, to more contemporary green facades, green roofs, and other emerging greening solutions.
Green Star	Founded by Green Building Council of Australia in 2003, Green Star is an internationally recognised rating system setting the standard for healthy, resilient, positive buildings and places. Developed for the Australian environment, Green Star has certified thousands of sustainable fit outs, buildings, homes and communities right across the country.
Green Travel Plan (GTP)	A Green Travel Plan is a document which assesses the environmental impact of an organisation's travel patterns and sets out action to encourage more sustainable travel. It can cover both business and employee travel.
Greenhouse gas emissions	Greenhouse gas emissions refers to any gas that has the property of absorbing infrared radiation (net heat energy) emitted from Earth's surface and reradiating it back to Earth's surface, thus contributing to the greenhouse effect. Carbon dioxide, methane, and water vapour are the most important greenhouse gases.
Independent Commissioning Agent (ICA)	An Independent Commissioning Agent (ICA) is suitably qualified person responsible for the commissioning - or the process of ensuring the building systems function as they were intended - of buildings following construction. They are Independent of any consultant, contractor or sub-contractor organisation that has been involved in the design or installation of the nominated systems.
Life Cycle Assessment (LCA)	A Life Cycle Assessment (LCA) measures the environmental impacts of a product – or in this case, a building. It is a systematic review of environmental impacts and embodied carbon across all life-cycle stages, from the extraction of raw materials, refinement and material production to the transportation, installation, operational use, and end-of-life disposal of the building components.
Living Building Challenge	The Living Building Challenge is an international sustainable building certification program created in 2006 by the non-profit International Living Future Institute. It is a philosophy, advocacy tool and certification program that promotes the measurement of sustainability in the built environment. It can be applied to development at all scales, from buildings, to infrastructure, landscapes, neighbourhoods, and both urban and rural communities
MUSIC	A model that predicts the performance of stormwater quality management systems using the licensed MUSIC software available for download at http://www.ewater.com.au/products/music/
Operable windows	Operable windows are windows that can be opened and closed - allowing opportunity for building users to manage natural ventilation and passive heating and cooling of spaces.

Operational carbon emissions	Operational carbon is the carbon released from the ongoing operation of the building. Sources will include lighting, power, heating, ventilation, air conditioning, and other infrastructure, such as lifts and automatic doors.
Passive House	Passive House is a set of building performance criteria defined by the Passive House Institute, which was originally introduced as a concept in 1996. It aims to prioritise passive influences in a building such as sunshine, shading, and natural ventilation to reduce the reliance on mechanical systems, making it possible to use up to 90% less energy than a typical building.
Planning permit	Planning permits are legal documents that regulate the use and development of land in Victoria. They are required by local planning schemes to ensure that land uses are appropriately located and do not conflict with each other or the character of an area.
Return on investment (ROI)	Return on investment (ROI) is a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of several different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost.
Solar PV	Solar PV is the rooftop solar you see on homes and businesses - it produces electricity from solar energy directly. Solar thermal technologies use the sun's energy to generate heat, and electricity is generated from that.
Sustainable Buildings Officer (SBO)	The SBO is a dedicated resource that sits between the SBE and BPU teams to monitor and support the inclusion of ESD in building projects and manage the use of the ESD Matrix. This role can also be performed by a member of the SBE team in their absence.
STORM	An assessment of stormwater runoff and on-site treatment against best practice targets, using the free STORM calculator, available online at http://storm.melbournewater.com.au/
Stormwater quality	Stormwater quality refers to the amount and type of pollutants that are carried by stormwater runoff into surrounding waterways. In Victoria the State Environment Protection Policies (SEPPs) require stormwater quality treatment to be undertaken to meet the targets outlined in the Best Practice Environmental Management Guidelines (BPEMG) for Urban Stormwater.
Tender specification documents	Tender specifications highlight the specific conditions, technical requirements, appendices, site information and other targets or context pertaining to the work in which tenderers are required to submit their offer.
Waste Management Plan (WMP)	A Waste Management Plan (WMP) is a document that outlines how waste will be generated, managed, and disposed of during the operation phase of a building. It considers the expected number of building occupants, the use (e.g., office or hospitality) and the spatial allocation and facilities on-site to store and manage the waste, as well as collection frequency and type.
Working group	A group of stakeholders who meet throughout all stages of a project development to provide different perspectives into the project outcomes.

Appendix B - Associated Endorsed Policies

- Council Plan 2021 - 2025
- 10 Year Asset Plan 2022-2032
- Community Infrastructure Plan
- Climate Emergency Action Plan 2020-21 – 2024-2025
- Urban Heat Island Action Plan
- Urban Forest Strategy 2017-2027
- Integrated Water Management Strategy 2040
- Integrated Transport Strategy 2019
- Carbon Offsets Policy 2020-2024
- Merri-bek Planning Scheme Environmentally Sustainable Development (ESD) Policy, Clause 15.01-2L-05
- Open Space Strategy
- Landscape Guidelines and Technical Notes
- Nature Plan
- Park Close to Home
- Drainage Asset Management Strategy
- Waste and Little Strategy
- Merri-bek Planning Scheme – Clause 22.08 - Environmentally Sustainable Design
- Corporate Carbon Reduction Plan 2020-2025
- Procurement Policy 2021-2025
- Indoor Thermal Comfort Policy 2023
- National Construction Code (NCC) 2022, Building Code of Australia Class 2 to Class 9 Buildings
- Climate Risk Foundational Action Plan 2023-2025
- Climate Risk Strategy 2022
- Zero Carbon 2040 Framework
- Building Asset Management Plan
- Asset Management Policy 2023

Appendix C - Process Flow Diagrams

Diagram 1 – Project Determination Process:

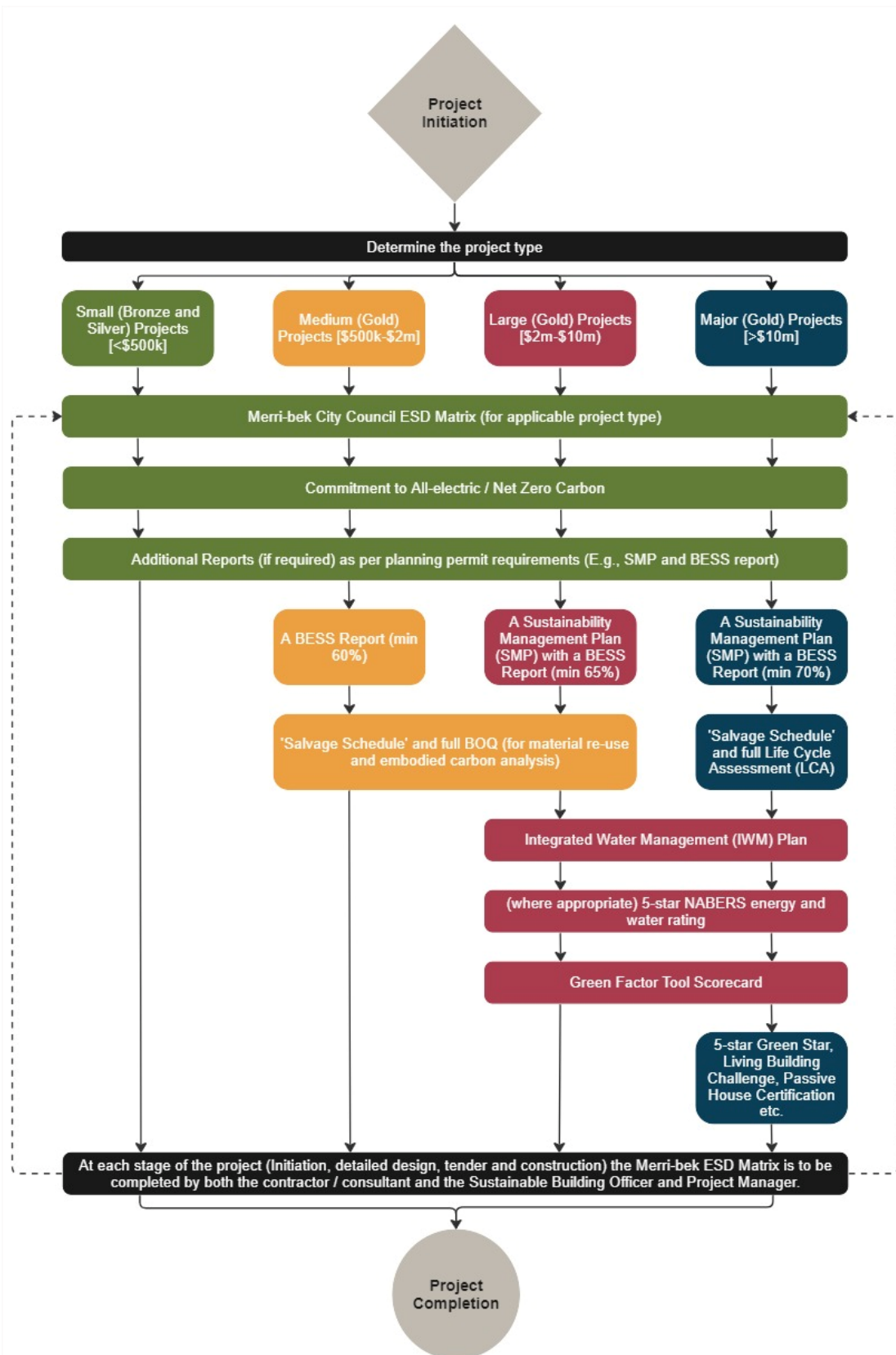
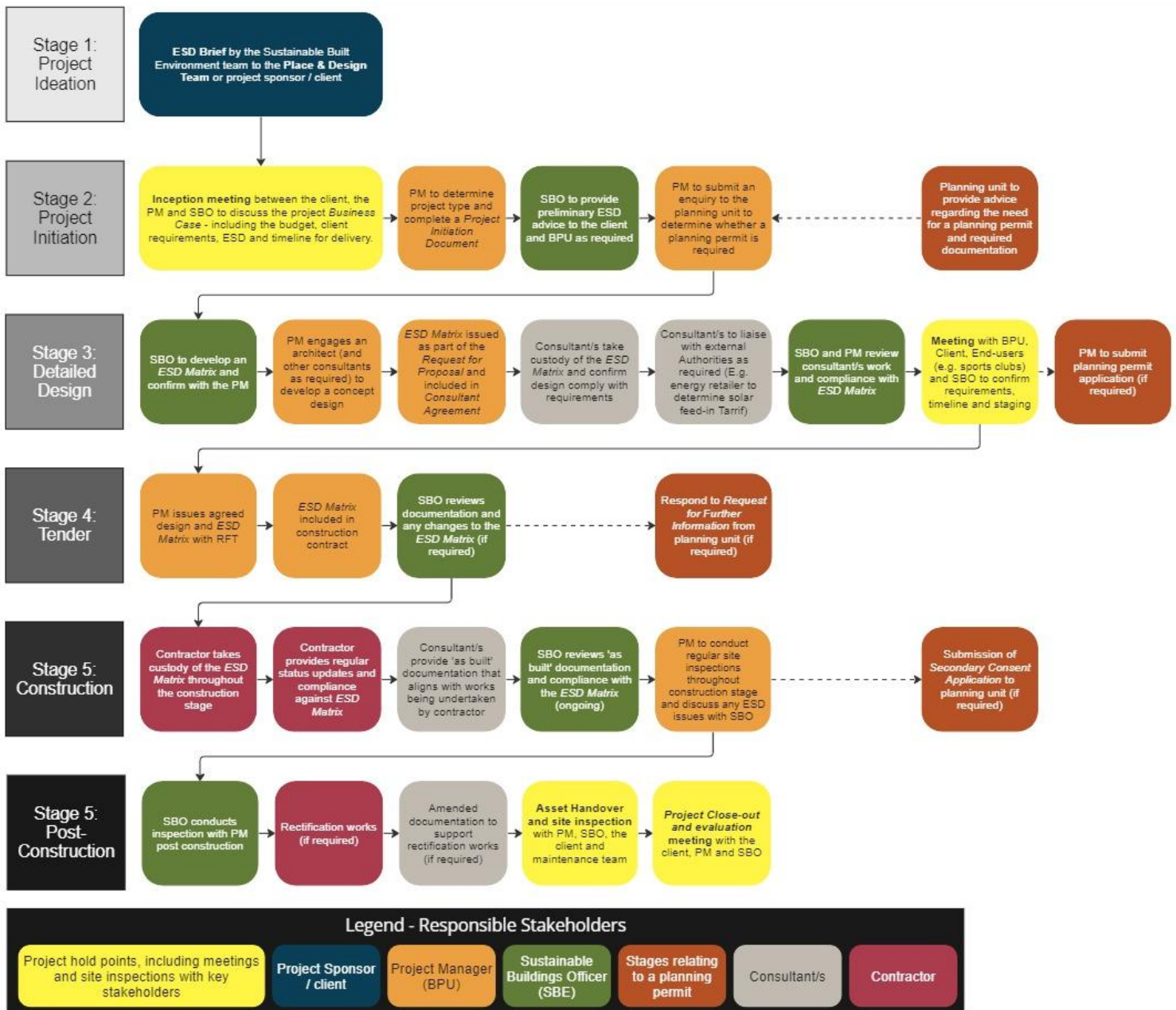


Diagram 2 – Project Stages according to Matrix



Appendix D – Supporting information - Research

9.1 Emerging trends

The viability and acceptance of sustainable building features is highly dependent on improvements in technology and market forces to make products and materials more easily available, cost effective and reliable.

This policy is not intended to create a snapshot of what best practice is today, but instead reiterate a project management process that embeds innovation within Council projects now and into the future. To ensure the policy is not static in nature the ESD Matrix should be reviewed periodically, and all stakeholders involved in project delivery should be aware of emerging trends, including:

Gas-free / All-electric

As part of the Zero Carbon Merri-Bek framework and action plan Council is transitioning away from fossil gas to all-electric facilities. It is expected that all new council-owned buildings will be all-electric. While going all-electric is an established concept and not necessarily an emerging trend, its application is reliant on technology improvements and industry knowledge – both of which are continually improving.

The removal or avoidance of gas is already a staple within the ESD Matrix and Merri-bek City Council's approach to asset delivery – however there may be opportunities in the future for improved outcomes where building services are consolidated (e.g., a combined heat pump for space heating and cooling, and hot water), or energy storage systems and bi-directional electric vehicle charging become more readily available.

Climate Adaptation and Resilience

In recent decades climate action has tended to focus more on climate mitigation, or the reduction of carbon emissions through thermal performance and energy efficiency measures, and less so on climate adaptation, or resilience.

Adaptive capacity is a broad term used to describe the ability of a community to prepare for, withstand, and adapt to the impacts of climate change. In the context of Council buildings and assets, climate adaptation can be incorporated into projects to improve our community's adaptive capacity through:

- Reducing exposure to climate events, for example:
 - Increasing canopy cover and urban greening to mitigate the urban heat island (UHI) effect.
 - Avoid locating Council buildings and assets in areas expected to experience fluvial flooding and overland stormwater flows.
- Providing support to vulnerable groups within the community, for example:
 - Delivering 'cool routes' or urban cooling projects near children and elderly populations (e.g. aged care facilities or schools).
 - Increasing provision of shade structures within playgrounds to support outdoor play during heat events.
- Minimising the severity of climate hazards, for example:
 - Increasing water efficiency and stormwater outcomes to improve the health of local waterways.
 - Select plant species based on future climate scenarios (e.g., 2070 RCP8.5) to ensure mature plant health

Currently the ESD Matrix requires lighter external materials across all project types for urban cooling benefits, and the development of Climate Resilient Assessments for major projects over \$10 million – however additional actions to embed climate resilience should be explored on a project-by-project basis.

Green Infrastructure and regenerative architecture

Green infrastructure (GI) refers to vegetation or networks of natural landscape assets that provide ecological, economic, and socio-cultural functions within urban environments. While landscaping outcomes have traditionally focussed on canopy trees and shrubs, green infrastructure extends to green facades, green roofs and other emerging regenerative solutions. The approach to GI should be site specific and consider how systems interact with each other – for example, how façade greening can improve thermal performance and green roofs help cool buildings and improve the efficiency of rooftop solar systems.

Regenerative architecture is the practice of incorporating into the design ways that the building might provide back to nature. Otherwise called a net-positive impact on the environment. This may be in the form of GI but can also be how the building as a whole is designed to take less from the earth in its construction and energy use while also providing ecological improvements and amenity outcomes. This kind of approach can also assist in improving thermal performance and renewable energy generation.

Moving forward, the Green Factor Tool (developed by the City of Melbourne) goes some way to achieving such outcomes and should be voluntarily used to set a baseline for GI provision and identify strategies to improve landscaping and greening outcomes.

Circular Economy and embodied carbon

The construction and operation of buildings poses a significant environmental burden – in 2024 contributing to 40% of global carbon emissions, with 22% directly related to building materials, or embodied carbon. Embodied carbon refers to the carbon emissions associated with the extraction, production, transportation, installation and end-of-life of materials and products.

In Australia, embodied carbon is expected to increase to 65% of national emissions by 2065.

Embodied carbon can be reduced by retaining buildings for retrofit and reducing the amount of knock-down-rebuilds, reusing high-carbon materials such as bricks, using materials with post-consumer content such as bulk and acoustic insulation (e.g., Glasswool, or Durra Panels), replacing concrete and steel elements with natural alternatives such as Cross-Laminated Timber or GluLam, and generally designing around circular economy principles.

Circular economy refers to the transition away from our current linear – take, make, waste – economy to a more circular economy that aims to keep materials and resources in use at their highest value. Emerging solutions in this space include material passports, which are digital documents detailing all the materials within a product to facilitate strategic re-use in supply chain management, and ‘design for disassembly’ which involves designing building components to be reassembled and reused as opposed to demolished and sent to landfill.

Beyond the outcomes within the Circular Economy Strategy, embodied carbon is specifically mentioned in the following strategies and policies:

- Asset Management Policy (2023) – Identifies the need to ‘understand the lifecycle activities and costs of assets’.
- Climate Risk Foundational Action Plan (2023-2025) – Action 2.1.3.22 ‘Review and trail industry standards on climate resilient and sustainable infrastructure and materials’.

- Community Infrastructure Plan (2022-2032) – Strategy 2.2 ‘Reduce the carbon footprint of Council’s community infrastructure’.
- Procurement Policy – Principles include ‘Considering a product’s or asset’s Lifecycle’ and ‘Promoting circular economy participation’.

As a developer of buildings and a large purchaser of materials and products, Council has a significant role to play in the space of embodied carbon and the circular economy – and risks not delivering on its strategic ambitions if it continues to prioritise costs and ease of delivery over the adaptation of existing buildings and assets.