

Appendix A: Sustainable Procurement and Contracts Guidance

Purpose

This guidance is intended to steer how sustainability outcomes are integrated into procurement and contracts across the lifecycle stages from business case to end of life and reuse. Reducing carbon emissions and increasing the circularity of material use in transport infrastructure will be enabled by integrating requirements into procurement and contracts. With a significant proportion of the WA State budget allocated to transport infrastructure projects, maintenance and operation, the life cycle impacts and opportunity for energy, materials and water is significant.

The UN has indicated emissions reduction this decade is critical to meet the UN Paris Agreement 2015 target to keep global temperature well below 2oC, which is currently off-track based on current national and international policies. In Australia the Climate Change Act, 2022 commits to a 43% emissions reduction target by 2030 and net zero by 2050. WA has also made a commitment to net zero by 2050 in the State Climate Policy, 2020 and will be setting an interim target for 2035 under the Climate Bill 2023.

Infrastructure is responsible for 79 per cent of all greenhouse gas emissions and 88 per cent of all adaptation costs globally, mostly associated with energy, buildings and transport. It is estimated that the embodied emissions in transport infrastructure currently accounts for approximately 3% of Australia's total emissions. This is expected to increase as a proportion of national emissions as electricity grids are decarbonised.¹

In 2023, the Australian Government released the Infrastructure Policy Statement for nationally significant infrastructure investment which sets out three strategic themes to be used in assessing funding proposals: productivity, liveability and sustainability.² The Australian Government has also worked with state and territories, and Infrastructure Australia, through the Infrastructure and Transport Ministers Meeting (ITMM)³ to develop:

- carbon values for business cases over \$100M
- guidance on measurement of embodied emissions,⁴ and
- contracts and procurements guidance to reduce emissions in infrastructure.

How relevant provisions in tenders are expressed, and contracts are evaluated and weighted, against sustainability requirements is important in selecting the right partners to build our infrastructure and services while achieving our sustainability goals across the Transport Portfolio.

This document should be read in conjunction with:

- The Transport Portfolio Sustainable Infrastructure Policy
- Appendix B: Carbon Hierarchy and Life cycle Assessment Guidance

¹ Infrastructure Victoria, 2023, *Opportunities to reduce greenhouse gas emissions of infrastructure*.

² Australian Government, 2023, Infrastructure Policy Statement: [infrastructure-policy-statement-20231114.pdf](#)

³ Infrastructure Australia, 2024, *Guide to Assessing Greenhouse Gas Emissions – Information Requirements for Submissions to Infrastructure Australia*.








⁴ Infrastructure and Transport Ministers Meeting, 2024, Embodied Carbon Measurement for Infrastructure: [Microsoft Word - Embodied Carbon Measurement for Infrastructure FINAL 20240626.docx](#)

- Appendix C: Sustainability Reporting Requirements.

Optimising decision making early in relation to emissions reduction and circular material use in infrastructure leads to the best outcomes in terms of value for money, reduced cost, and improvements in planning and design. It also enables early budgeting where low carbon or recycled materials may have a higher cost such as low carbon concrete or green/recycled steel.

For larger projects and programs of works it provides an opportunity to build relationships early with suppliers and contractors during planning phases and trial new innovations and products, so they have time to go through approval processes in the Portfolio's agencies before construction procurement begins.

Summary of Sustainable First Procurement Pathway

						
Transport agency Strategic asset Plan & Procurement	Business Case and Options Analysis	Concept Design	Detailed Design	Construction	Operation & Maintenance	End of life
<ul style="list-style-type: none"> • The Transport Portfolio ESG Framework referenced and commitments to material topics emissions reduction and resource efficiency outlined. • State and National carbon and resource efficiency targets referenced. • Transport Portfolio Sustainable Infrastructure Policy and guidance referenced. • Integration into Agency Procurement Strategy, plans, processes and templates 	<ul style="list-style-type: none"> • No build and low build options considered and assessed. • High Level materiality assessment for life cycle (LCA) GHG emissions impacts for energy, material and water for preferred options. • Carbon and resource efficiency strategy developed. • Whole of Life costs, carbon value and budget assigned to life cycle impacts with targets set i.e. State/ Nationally aligned. • Early industry engagement. • IS Planning Rating Tool applied. 	<ul style="list-style-type: none"> • Refinement of the LCA and development of a base case or reference design to measure future targets against. • Tenders for consultant designers weighted, evaluated and assessed against carbon and resource efficiency strategy and plans to meet targets set. • Whole of Life cost and carbon budget refined based on winning tender. • Early industry engagement. • IS Planning Rating Tool applied. 	<ul style="list-style-type: none"> • Detailed LCA against base case and target progress reported. • Contract incentives/ penalties to meet targets set in resource efficiency and carbon plans. • Tenders for consultant designers weighted, evaluated and assessed against carbon and resource efficiency strategy and plans to meet targets set. • Whole of Life costs, carbon values and budget refined based on winning tender. • Early industry engagement. • IS/Green Star Design Rating Tool applied. 	<ul style="list-style-type: none"> • Detailed LCA against base case and target progress reported quarterly. • Contract incentives/ penalties to meet targets set in resource efficiency and carbon plans. • Tenders for contractors weighted, evaluated and assessed against carbon and resource efficiency strategy and plans to meet targets set. • Carbon budget allocated based on winning tender. • IS/Green Star As-built Rating Tool finalised. 	<ul style="list-style-type: none"> • Low carbon, recycled and reuse materials are assessed for material replacement contracts. • Tenders for contractors weighted, evaluated and assessed against sustainability requirements. • Renewable energy contracts for operational emissions to be assessed for contract renewals. • Alternative fuels and electric vehicles to be assessed for fleet renewals. 	<ul style="list-style-type: none"> • Waste hierarchy and circular options are considered for end-of-life materials. • Material exchange and reuse is considered as first option. • Reuse and recycling targets are assessed and weighted in tenders. • Contract incentives/ penalties to meet targets set for reuse and recycling.

Through implementation of the Pathway, environmental sustainability requirements are set in increasing detail. Procurement's role is to ensure delivery of requirements.

Figure 1: Adapted from APCC Pathway to Green Construction Procurement, 2023

1. Agency Strategic Asset Plan & Procurement

Under the WA Treasury Strategic Asset Management Framework (SAMF) all State Government agencies need to have a Strategic Asset Plan which provides an overview of current assets managed and future asset investment plans over the next decade. The Transport Portfolio owns and manages a significant number of assets, and a large proportion of the State Government budget is joint funded Federally to build new transport infrastructure.

Sustainability and environmental, social and governance (ESG) criteria are critical to ensuring impacts and opportunities are integrated into all phases of asset management, investment and planning. It provides social licence and ensures benefits are maximised for the communities and businesses that transport services are provided, and infrastructure built for. The earlier sustainability and ESG criteria are embedded into investment planning and decisions, the stronger the potential outcomes particularly for GHG emissions and material reduction.

The Transport Portfolio ESG Framework (the Framework) and Transport Portfolio Sustainable Infrastructure Policy (the Policy) and Guidance must be referenced in the Strategic Asset Plan with a list of the material topics that need to be considered during decision making. WA’s climate commitments and emissions reduction targets should also be referenced and aligned to as part of infrastructure planning and investment.

The Framework and Policy should also be referenced and integrated into the agency procurement strategy, plan, processes, and templates where applicable. Agencies should also consider developing a Sustainable Procurement Strategy and Plan which incorporates the Framework material topics and Policy and Guidance.

1.1. Sustainability in procurement

The Australian Government has a step-by-step guide on how to integrate sustainability into procurement and supporting tools, which Figure 2 below summarises. This guidance has been adapted for integration of sustainability into transport agency procurement practices, and the following sections from business case and options analysis stage focus on integration into infrastructure investment, operations, maintenance and end of life following the procurement pathway summary in Figure 1.

1.2. Step 1 - Plan the procurement

The need should be identified for any new products, materials or assets. The carbon hierarchy principles of avoid, switch and improve should then be applied based on the PAS2080 carbon management standard.



Avoid	Switch	Improve
Can demand management options mitigate the need?	Can reused or recycled products/material be incorporated?	Is there an opportunity to reduce life cycle impacts of the product/material /asset?
Can existing assets be reused or re-purposed to extend their life?	Are there zero/low carbon options available?	Is the product/material/ asset easily recyclable/reusable and can the life be extended?
	Ability to reduce whole life carbon	

Table 1: Adapted from PAS2080 carbon hierarchy - avoid, switch and improve.

If the new product/material or asset exceeds the materiality thresholds and answers to the questions are 'yes' in Table 2 considerations should be given to:

- Assessing sustainability risks and opportunities related to different options
- Undertaking market research and engagement on different options



Figure 2: Australian Government, 2021, Sustainable Procurement Guide—A practical guide for Commonwealth entities

Materiality threshold for spend \$5M and over	
Resource Consumption	
What is the project construction material cost as a percentage of capital value?	Low <10% Medium 10-50% High >50%
Does the project require significant material resource use?	More than 1% of total GHG life cycle emissions
Is resource efficiency a significant focus for the project and key stakeholders?	Yes/No
Energy consumption	
Does construction require the use of diesel plant and equipment?	Yes/No
Is the diesel consumption during construction expected to be high?	More than 1% of total GHG life cycle emissions
Are the operational annual energy requirements from fuel and electricity expected to be high?	More than 1% of total GHG life cycle emissions
Water consumption	
Does the project have high water requirements during construction and operations?	Yes/No
Is water efficiency a significant focus for the project and key stakeholders?	Yes/No

Table 2: Materiality threshold for spend \$5M and over

For projects/programs contracts with spend over \$5M, materiality of carbon impacts across energy, materials and water can be defined as:

an emissions source that constitutes one per cent or more of the total carbon emissions (capital and operational) is considered 'material'. In applying the one per cent materiality threshold across all emissions sources, the total amount of emissions excluded must not exceed five per cent of the total footprint.⁵

If the thresholds in Table 2 are met or the answers to the questions are positive, then consideration should be given to incorporating sustainability requirements into contracts. The scale and scope of a contract will determine the appropriate contract requirements and tender evaluation criteria set. Some examples are provided in the table below.

⁵ IS v2.1 TECHNICAL MANUAL PLANNING RATING, 2023 [IS v2.1 Planning Technical Manual Document FINAL.pdf \(iscouncil.org\)](#)

Contract Value	Contract Description	Materiality
\$10M	Renewal of IT services and equipment. Includes data centre services and procurement of 200 new laptops and 20 new printers. Some existing IT equipment will need to be disposed of.	Materiality indicates that material and energy are more than 1% of the contract GHG life cycle emissions. High level LCA to be undertaken for energy and materials across the asset life. Options for recycling/reuse of the IT disposal, and contract requirements and tender evaluation for energy efficiency data centres and equipment explored early with industry.
\$5M	Maintenance vehicle fleet replacement. New vehicles and sale of existing fleet.	Materiality indicates energy is more than 1% of the contract GHG life cycle emissions. High level LCA to be undertaken for energy across the asset life. Options to explore low and zero carbon fleet vehicles such as electric vehicle and charging infrastructure with industry. Zero/low carbon options included in contract requirements and tender evaluations to replace existing fleet.
\$50M	Road resurfacing in regional area. Replacement of 10km asphalt wearing course.	Materiality indicates that material demand is more than 1% of the contract GHG life cycle emissions. High level LCA to be undertaken for materials across the asset life. Options for RAP and other low carbon asphalt products explored early with industry. Contract requirements and tender evaluation includes targets for reducing life cycle impacts from asphalt replacement.
\$7M	Maintenance contract for rail safety auditing.	Materiality assessment indicates there are no significant impacts on energy, materials or water. No requirement for further assessment.

Table 3: Examples of materiality for contract values over \$5M

1.3 Step 2 – Approach the Market

Setting sustainability requirements in tenders and contracts ensures that risks and opportunities identified for material impacts are aligned with intended outcomes such as a target reduction, for example.

The table below provides some example requirements and targets that could be incorporated depending on the materiality impact assessment.

Example sustainability requirements and targets

Reduction from baseline footprint XX% in life cycle GHG emissions from energy, materials and water.

Recycled content target or Material Circularity Index (MCI) of XX.

XX% of inert and non-hazardous waste generated during demolition and construction reused, recycled or repurposed.

XX% of waste generated from office activities diverted from landfill.

X% of products used (by cost) must have a valid Environmental Product Declaration complying to EN 15804 Sustainability of Construction Works.

Product certification such as Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification (PEFC), energy and water star ratings, and Green Tag labels.

Compliance with international standards such as PAS2080 on carbon management, ISO 59010/20 Circular economy, 2024 — Measuring and assessing circularity performance, and the International Standard ISO 20400:2017 Sustainable Procurement – Guidance.

Infrastructure Rating (IS V2.1 Planning/Design/As-built Rating) Minimum Requirement XX/100 (For example Platinum XX/100)

Green Star (Climate Positive Pathway) Minimum Requirement XX/100 (For example Green Star 5 or 6)

Table 4: Example sustainability requirements and targets

Once tender and contract requirements have been set, evidence will need to be collected and evaluated with KPIs and targets tracked throughout the contract. Sustainability reporting requirements are detailed in separate guidance under the Policy.

Engaging the market in the planning stages of the procurement can encourage market innovation or help to identify potential suppliers. Industry briefings can provide potential suppliers with enough time and information to develop a new product or service that meets specification requirements, procurement need and uses recycled/reuse or low carbon content.

1.4 Step 3 – Evaluate and Engage

Tender responses should be evaluated and weighted based on the materiality of impacts and ability to meet the set targets and requirements. Price is not the sole factor when assessing value for money. Whole-of-life costs take into consideration the total cost of a product over its lifetime, including acquisition, maintenance, operation and disposal costs. Tenders and contracts should include a 10% weighting for their response to the sustainability, carbon and material requirements.

There are several tools that can be used to help assess whole-of-life costs of the procurement. Two commonly used tools are the Life Cycle Cost (LCC)⁶ model and the Materials Circularity Indicator (MCI)⁷. The LCC model calculates the long-term costs for goods or a service, beyond the initial price for the procurement. It helps put a monetary value (where possible) to sustainability outcomes, such as carbon emissions, electricity, resource use, disposal or local air pollutants.

The MCI tool calculates how well the product is using recyclable material instead of virgin material, how much of the product can be reused or recycled, and how much waste will need to be sent landfill.

⁶ The International Standard ISO 20400:2017 Sustainable Procurement – Guidance

⁷ [Material Circularity Indicator | Ellen Macarthur Foundation](#)

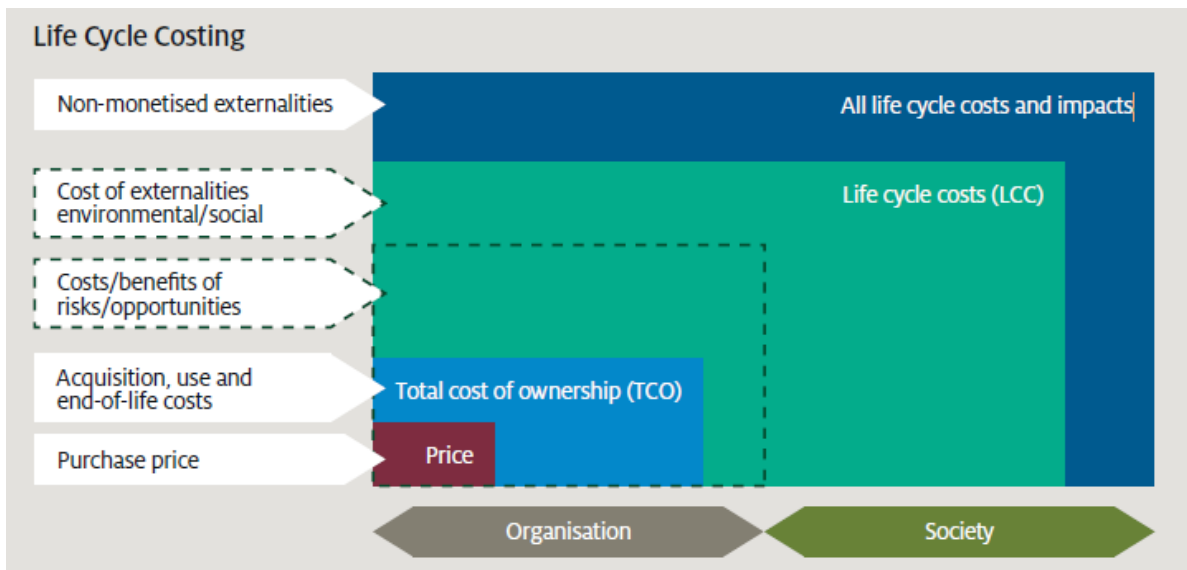


Figure 3: Life Cycle Costing (ISO 20400:2017)

Following an unsuccessful tender response or the award of a contract, debriefings must be made available to all tenderers. This is an opportunity to discuss areas where unsuccessful tenderers did not meet the criteria, including any sustainability criteria. This can help increase knowledge in the marketplace about sustainable procurement and improve future responses to procurement requests. On request, briefings should be provided to successful tenderers.

1.5 Step 4 – Report and Manage

Any standards and specifications, including KPIs and compliance measures, identified must be reflected in the contract and monitored throughout the life of the agreement. The following examples could be used to monitor the compliance of the sustainability requirements within a contract:

- Report on key environmental performance indicators during the term of the contract.
- Perform regular site-visits to monitor the supplier’s performance.
- Schedule ongoing contract meetings, for example on a monthly or quarterly basis, to review performance against KPIs and targets.
- Asking for regular reports tracking improvements in the supply chain or identifying potentially adverse impacts.

These requirements should be outlined in the initial approach to market documentation and included in the final contract.

1.6 Step 5 - Review and Learn

This step is based on ISO20400:2017 International Standard Sustainable Procurement Guidance, which recommends making every effort to measure and communicate the benefits of sustainable procurement.

The contract management process may provide opportunities to work with the supplier to continue to improve sustainability outcomes within the procurement. It provides a mechanism to raise any concerns or suggestions and allows the supplier to share ideas for new innovations, technologies or ways to improve sustainability.

The Transport Portfolio knowledge hub is a tool available across the supply chain to share knowledge, case studies and learnings from applying new low carbon, circular materials in transport infrastructure, operations and maintenance contracts.

Data collected in accordance with the *Sustainability Reporting Requirements* document will enable ongoing performance review across the Transport Portfolio.

2. Business Case and Options Analysis

The business case template for each agency needs to reference the Transport Portfolio ESG Framework and Transport Portfolio Sustainable Infrastructure Policy and Guidance with a list of the material topics that need to be considered during decision making. During business case phase, as different options are assessed and high-level cost/benefit analysis undertaken, no build and low build options should be considered.

Some examples of no build and low build options include:

- Travel demand management (see example of UK TDM during the COVID pandemic in Box 1)⁸
- New bus routes and priority bus lanes on existing roads.
- Pop-up cycle lanes to encourage active transport used extensively globally in cities particularly during covid – VicRoads trialled 100km of pop-up cycle lanes in Melbourne achieving measurable benefits.⁹

Box 1: Example no build option - UK Travel Demand Management Toolkit during Covid. Dept for Transport, UK, 2021

In March 2021, The UK Government updated their travel demand management (TDM) Toolkit to deal with the social distancing challenges covid presented and a reduction in public transport use. It defines TDM as:

an umbrella term for the application of strategies and policies to reduce travel demand, or to redistribute this demand in space, mode or in time. An effective TDM plan is based around three key pillars: the creation of capacity, network management and travel behaviour change solutions. When delivered well, TDM plans are proven to be very effective in managing travel demand during periods of additional stress on the network.

Successful examples include:

- 14% of drivers changed their behaviour because of a TDM project supporting the major reconstruction of the A406 in north London.
- The City of Sydney achieved an absolute 11% mode shift from private vehicle movements because of a TDM project that was introduced to mitigate the impacts of long-term redevelopment of the city centre.

There is also an opportunity to optimise the design in this phase to consider low build options, examples include:

- Refurbishing or reusing existing building structure and/or façade rather than demolition and rebuild.

⁸ [Travel Demand Management Toolkit - Managing Network Demand \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

⁹ [Pop-up Bike Lanes Program : VicRoads](#)

- Investment in active transport infrastructure to encourage more cycling and walking reduces pressure to build new roads or increase capacity of the network. This will also reduce user enabled emissions from building new or expanding existing roads.

2.1 Materiality and Life Cycle Assessment

Depending on the value of the business case and impact of carbon and materials, a materiality assessment based on thresholds in Table 2 and a high-level life cycle assessment (LCA) of GHG emissions for energy, material and water should be undertaken for preferred options.

The impacts should cover upfront emissions from construction and transport of materials, operational and user enabled emissions, maintenance and end-of life emissions using the *PAS2080 carbon standard*¹⁰ and *RICS Global harmonisation of whole life carbon assessments*¹¹ as guidance (see *Carbon Hierarchy and Life Cycle Assessment Guidance* under the Policy for more details).

The focus on GHG emissions reduction should be on absolute reductions rather than offsetting. Offsetting at a project/program level beyond what is required under Environmental Planning Approvals (EPA) should be considered as part of broader net zero goals at State level. Planting and landscaping including canopy cover targets within the footprint of the project/program is valuable having multiple benefits beyond offsetting. Agency specifications should be used to guide decision making.

2.2 Whole of Life Costing

Whole of life costing should be assessed for the asset life, taking account of the following:¹²

- Up-front acquisition costs – the initial cost of obtaining the goods (e.g. the purchase price, design, planning, freight, installation and initial training costs) or establishing a new service (e.g. licenses, initial onboarding and staff training, office set-up and fit-out).
- Lifetime operating costs – the costs incurred during the life of the goods (e.g. energy consumption, quality and safety, distribution and logistics) and contract term for the services (e.g. supplier staff wages, transport costs, program materials, automatic cost of living increases and indexation).
- Lifetime maintenance and support costs – the costs incurred in maintaining the dependability of the goods and services during their life (e.g. supplier administration costs, consumables, spare parts, minor repairs or labour, refresher training for staff).
- Disposal costs – the costs of removing or disposing of a good after its economic life has ended (e.g. costs to transfer ownership, trade-in, auction or recycle) or transitioning/closing-out a service.

2.3 Sustainability and Procurement Strategy

For projects with a value over \$100M a high-level Sustainability or ESG strategy should be developed which outlines the key material impacts, risks and opportunities the project or program of works has. Where carbon and material impacts are significant separate sub-plans should be created using information from the LCA:

¹⁰ [PAS 2080:2023 Carbon Management in Infrastructure | BSI \(bsigroup.com\)](#)

¹¹ [WLCA-harmonisation-guide.pdf \(rics.org\)](#)

¹² [Whole-of-Life-Costing-Guideline.pdf \(procurement.sa.gov.au\)](#)

- Carbon or net zero strategy – this should define the scope and boundary, identify key emissions sources across the asset lifecycle initiatives, set high level targets and KPIs aligning with WA climate targets, identify key opportunities and risks.
- Resource Efficiency Strategy – this should identify what the high-level material demand will be for key materials i.e. concrete, steel, aggregates, asphalt etc. It should identify potential sources and location of options for recycled and reuse content with local and early supplier engagement to encourage local supply of potential materials needed. High level targets, risks, opportunities and KPIs should be identified.

The sustainability strategies should be integrated into the project/program procurement strategy. It should detail how the sustainability strategy and sub-plans will be implemented to achieve the environmental and social goals of the project/program. It should also identify early industry engagement, identify key supply chains for sustainable materials, and support development of local industry where needed.

2.4 Carbon Values and Budget

As part of the cost benefit analysis, and once the LCA GHG emissions have been calculated, carbon values must be integrated into the cost/benefit analysis (CBA) using the Infrastructure Australia GHG and carbon values guidance. This applies to projects/programs with a value over \$100M.¹³

An extract of the carbon values in the guidance is shown below. It is recommended that the Transport Portfolio adopt at least the high value for each year since the current ATAP Guidance sits above this carbon value.

A carbon budget in terms of GHG or CO₂-equivalent should be set using the base case or reference design and the program/project target reduction. Cost estimates should be included for meeting GHG reduction targets by identifying key initiatives in the carbon management plan.

Carbon budgets are submitted by National Governments to the UN as 'Nationally Determined Contributions' to meet the Paris Agreement, 2015, 1.5C target. The idea of a program or project level carbon budget is to align life cycle GHG emissions with WA's net zero by 2050 on a 2005 baseline target and interim targets.

2.5 Early industry engagement

Early industry engagement should be undertaken during business case phase to explore the opportunity for low carbon and recycled products. This should include timeframes for going through type approval, understanding material demand and encouraging local supply of key materials not currently available in the location of the project/program of works.

¹³ <https://www.infrastructureaustralia.gov.au/publications/valuing-emissions-economic-analysis>

Year	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032
Low	44	56	62	69	76	87	107	124	144
Central	56	66	76	88	104	123	148	171	192
High	66	77	95	107	132	152	180	210	227

Year	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040	FY2041
Low	159	166	172	184	191	193	206	210	212
Central	209	222	234	244	254	264	273	282	291
High	258	262	280	293	308	319	329	340	351

Year	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048	FY2049	FY2050
Low	215	228	246	267	272	274	276	284	287
Central	300	309	318	326	335	344	354	363	377
High	361	370	375	380	403	421	429	437	469

Figure 4: Infrastructure Australia carbon values 2024-2050 - low, central, high

2.6 IS Planning Rating Tool

Based on the materiality assessment and impacts identified for infrastructure business cases over \$100M, the Infrastructure Sustainability Council (ISC) IS Planning Rating tool (Strategic and Detailed Planning) should be considered to ensure early positive outcomes can be achieved.

3. Concept Design

Once the preferred option has been selected and business case approved the reference design will be developed to inform the detailed design and construction. Consultant designers are typically engaged to develop the technical aspects of engineering design, and planning, with sustainability experts engagement to provide sustainability advice to inform this reference design phase.

3.1 Sustainability tender weighting and evaluation

Tenders and contracts should include a 10% weighting for their response to the sustainability, carbon and material requirements developed during business case phase or established at this stage including the carbon and resource efficiency strategy, carbon values and budget.

The tender response should be evaluated against the sustainability, carbon and materials criteria to deliver outcomes set in the ESG/sustainability, carbon and resource efficiency strategies developed at business case phase. If these actions have not been developed yet this detail will need to occur at concept design stage. The tenderer should outline their experience and ability to undertake an LCA, develop and implement the sustainability management plan, carbon and resource efficiency plans including meeting targets and tracking KPIs.

3.2 LCA base case or reference design

At this stage the LCA undertaken at business case phase should be further refined. An LCA base case or reference design should be developed which will then inform future target reductions during detailed design following PAS2080 and RICS whole of life guidance.

The focus should be on reducing GHG emissions from energy, materials and water in the design of the infrastructure. This includes reducing embodied emissions by optimising design to build less, reducing requirements for concrete, steel, aggregates, and asphalt. The following are some examples but not intended to be exhaustive:

- Modular and pre-cast elements to reduce concrete waste on site.
- Reusing rail ballast and steel for realignments or new track.
- Using recycled fibres for reinforced concrete, Recycled Asphalt (RAP), recycled or green steel and low carbon concrete from portland cement replacement.
- Recycled plastic noise walls and recycled plastic drainage pipes.

3.3 Whole of life costing and carbon budget

Once options have been explored in more detail whole of life costing should be refined from business case. Carbon budgets should be applied in terms of:

- GHG emissions cap from the base case and target GHG budget based on emissions reduction targets set, and
- cost estimates for carbon and material reduction initiatives.

These should be assigned to preferred options to ensure sustainability opportunities and costs are factored into contracts early.

As infrastructure base case and reference designs are usually determined by benchmarks set by previous projects, the target will be based on what is currently accepted as business as usual and what is beyond this is terms of emissions reduction initiatives.

3.4 Early industry engagement

Early industry engagement should be undertaken during concept design to explore the opportunity for low carbon and recycled products. This should include timeframes for going through type approval or encouraging local supply of key materials not currently available in the location of the project/program of works.

3.5 Sustainability rating tools

The IS Planning Rating tool should be revisited at this stage for projects/programs over \$100M based on materiality and scope of the contract. For new buildings over \$100M a Green Star rating should be targeted at design and as-built stages and be net zero GHG emissions aligned.

4. Detailed Design

As the project moves from concept to detailed design, the granularity of information should be further refined and developed.

4.1 Sustainability tender weighting and evaluation

Tenders for contractors and consultants should include a 10% weighting for their response to the sustainability, carbon and material requirements developed during concept design including the carbon and resource efficiency plans, whole of life costing and carbon budget.

The tender response should be evaluated against the sustainability, carbon and materials criteria to deliver outcomes set in the ESG/sustainability, carbon and resource efficiency plans developed at concept design phase. The tenderer should outline their experience and ability to write the sustainability management plan, carbon and resource efficiency plans including meeting targets and

tracking KPIs. Best practice examples of balanced scorecard and tender evaluation is provided in box 2 below.¹⁴

Box 2 - Tender Evaluation: Balanced Scorecard Approach

Several governments including the UK, Victoria, New South Wales and Queensland evaluate and weight tenders for infrastructure against multiple criteria in addition to cost and value. For example, the *Recycled First Policy* in Victoria requires responses on incorporating recycled materials into the design and construction of new assets and these are evaluated and weighted by the Victorian EcologiQ program team.

The UK Government *Procuring Growth Balanced Scorecard, 2016* recognises that value for money is more than cost and a balanced scorecard approach enables assessment of more complex social and environmental considerations. A scorecard approach has already been used successfully across government for key projects including by the Olympic Delivery Authority and the HS2 programme.

For all construction, infrastructure and capital investment procurements with a value over £10m, Central Government Departments, their Executive Agencies and Non-Departmental Public Bodies, must adopt the balanced scorecard approach. This incorporates seven strategic themes: quality, cost, supply chain, employment and skills, environmental sustainability, health and safety, and outcome benefits.

To ensure targets committed to are met during the construction phase, sustainability targets should be built into the incentive model within the contract where possible to share risk and reward. The scope of works technical criteria (SWTC) must reference this Policy and guidance, with actions completed in accordance with the contract at each design gate.

4.2 Detailed Life Cycle Assessment

During detailed design the life cycle assessment should be refined for GHG related energy, water and materials emissions to reflect what is planned to be built. Identifying hotspots and opportunities to reduce emissions and incorporate circular material use against the base case should be explored in more detail with whole of life costing and carbon budgets allocated to key initiatives.

4.3 Sustainability Management Plan

The consultant/contractor must submit a Sustainability Management plan and Carbon and Resource Efficiency sub-plans which detail how the strategies developed in the business case phases up to and including concept design will be delivered:

- Carbon or net zero plan – this should define the scope and boundary, identify key emissions sources across the asset lifecycle initiatives, set SMART targets and KPIs aligning with national and state targets, identify key opportunities and risks.

¹⁴ UK Government Crown Commercial Service, *Procuring Growth Balanced Scorecard, 2016* [Microsoft Word - 230916 - Balanced Scorecard paper - Final for publication.docx \(publishing.service.gov.uk\)](#)

- Resource Efficiency Plan – this should identify what the high-level material demand will be for key materials i.e. concrete, steel, aggregates, asphalt etc. It should identify potential sources and location of options for recycled and reuse content both local and early supplier engagement to encourage local supply of potential materials needed. SMART targets, risks, opportunities and KPIs must be identified for key priority materials.

The sustainability plans must be integrated into the project/program sustainable procurement plans. It should detail how the sustainability management plan and sub-plans will be implemented to achieve the environmental and social goals of the project/program. It should also identify early industry engagement, identify key supply chains for sustainable materials, and support development of local industry where needed.

4.4 Sustainability Reporting Requirements

Progress against the base case LCA should be submitted at each design gate to track performance against targets set in concept design. This should include Environmental Product Declarations (EPDs) for materials where available if they have been specified.

4.5 Early Industry Engagement

Engagement with suppliers and support for local industries should continue during detailed design supporting new suppliers where needed with agency process to adopt and where necessary update specifications to allow for their use.

4.6 Sustainability rating tools

The IS Design and As-Built Rating tool should be considered at this stage for projects/programs over \$100M based on materiality and scope of the contract. For new buildings over \$100M a Green Star rating should be targeted at design and as-built stages and be net zero GHG emissions aligned.

5. Construction

During construction phase, the contractor must submit their LCA progress against base case with quarterly sustainability KPI reporting. Key opportunities and initiatives tracking must also be submitted each month or quarter depending on contract requirements as part of sustainability reporting.

Incentive models should be built into contracts to meet targets set in sustainability, resource efficiency and carbon plans to reward and share risk.

Tenders should be weighted between 10-15% for their sustainability capability and responses and assessed against their carbon and resource efficiency plans and opportunities to meet targets set.

The successful tenderer must submit a sustainability management plan and carbon, resource efficiency, and procurement sub-plans developed at detailed design stage. Action plans which detail how the plans will be implemented should be discussed at regular leadership meetings and progress reporting on actions submitted with data KPI tracking. Carbon budgets for implementing key opportunities and initiatives should be allocated and integrated into construction programmes.

ISC and Green Star as-built ratings should be finalised and submitted as part of the handover process before project completion.

6. Operation and Maintenance

Once the asset has been handed over to the owner operator there is still opportunity to influence sustainable outcomes in carbon and materials. For example, low carbon, recycled and reuse materials should be assessed for material replacement contracts.

Tenders should be weighted against sustainability requirements and assessed based on their capability and ability to deliver initiatives and opportunities that reduce GHG emissions across energy, materials and water use.

Operational energy contracts should include power purchase agreements for renewable energy during contract renewals. As the grid decarbonizes, particularly in the south-west interconnected system (SWIS) with coal coming offline by 2030, the operational emissions will start to decline.

The State Government has set an 80% reduction target against 2020 carbon emissions by 2030 for scope 1 and 2 emissions for all government operations. New contracts for fleet vehicles and electricity must therefore be aligned to this target in addition to the 2050 net zero target at State and National level.

The State Government also has a 50% EV fleet target for passenger vehicles by 2025 in the State EV Strategy and Sectoral emissions Reduction Strategy. Alternative fuels and electric vehicles should be assessed for other fleet renewal contracts within the transport portfolio and aligned to state and national climate targets.

7. End of Life

The waste hierarchy and circular options must be considered first when assets or materials are no longer required. This includes avoiding generating waste and recovering material. An example of this would be using pre-cast elements in construction which avoids excess concrete wastage from on-site pours. Avoiding material waste should be part of the design process in a similar way to the carbon hierarchy.

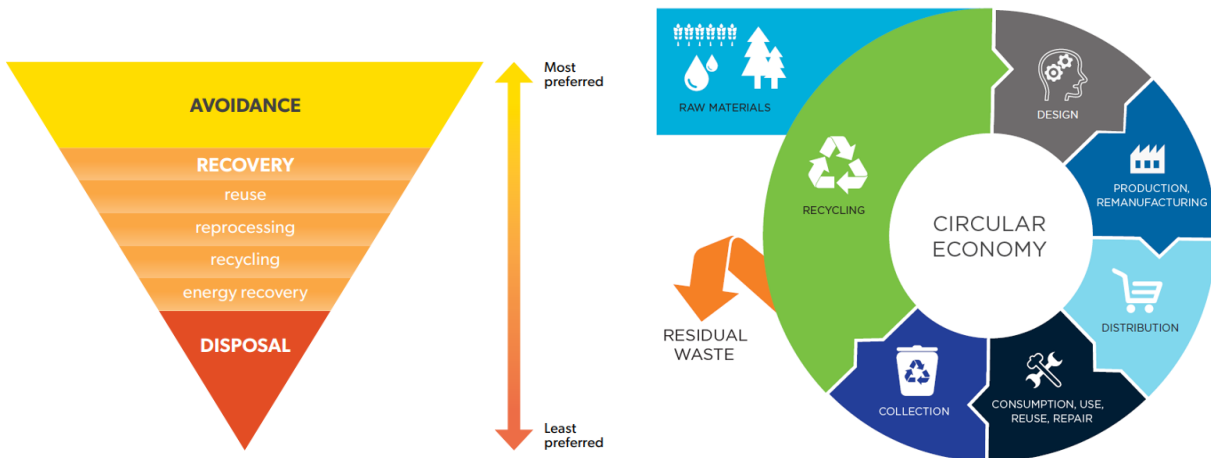


Figure 5: WA Waste Avoidance and Resource Recovery Strategy, waste hierarchy 2019, and CSIRO Circular Economy wheel, 2024

As construction winds down and sites need to be cleared, options for material reuse should be explored. Transport agency procurement processes must be followed and material exchanges must be compliant with state waste regulations. Only inert uncontaminated materials are permissible to use for material exchange.

Western Australia's (WA) Waste avoidance and resource recovery strategy 2030 (waste strategy) contains the following targets for construction and demolition (C&D) waste:

- Avoid - reduce C&D waste generation per capita by 30 per cent
- Recover - increase C&D material recovery to 80 per cent

Reuse and recycling targets should be assessed and weighted in tenders with incentives and penalties for not meeting contract targets.

The Waste Authority Roads to Reuse program suppliers should be prioritised to incorporate recycled products into transport infrastructure and assets.

8. Relevant Policy and Guidance

There is a wealth of national and state guidance on sustainable procurement. Some of the more relevant guidance consulted to produce this guidance is listed below:

Australian Government, Environmentally Sustainable Procurement Policy and ESP Policy Reporting Framework, July 2024.

The Circular Economy Ministerial Advisory Group interim report (April 2024)

ITMM, 2024, National Sustainable Procurement in Infrastructure Guideline.

Australian Government, 2021, Sustainable Procurement Guide: A practical guide for Commonwealth entities.

2017 ISO: 20400 Sustainable Procurement Standard

WA Social Procurement Framework, 2021

WA Environmental Procurement Guide, 2022

Queensland Government, 2018, Integrating sustainability into the procurement process Office of the Chief Advisor – Procurement.

Australasian Procurement and Construction Council (APCC), 2023, Pathway to Green Construction Procurement.