



Transport
for NSW

Sustainable Design Guidelines

Version 4.0





Foreword

Public transport is an essential service and an environmentally attractive transport option that supports the living standards and economic competitiveness of Sydney and the NSW people. It is an inherently sustainable form of transport which can significantly reduce traffic congestion, noise, air pollution and greenhouse gas emissions by encouraging mode shift away from private vehicle use.

The Sustainable Design Guidelines have been a key tool in helping to realise sustainable public transport outcomes. They have been continuously updated since their inception in 2009 to ensure they are relevant and in line with current best practice. The Guidelines are well understood and utilised by our internal and external stakeholders and have also been acknowledged through the receipt of various industry awards over the years.

This version of the Guidelines (Version 4.0) accounts for:

- Developments in industry standard and best practice.
- Whole of life cost assessment.
- Changes in sustainability policy direction.
- Sustainability initiatives that demonstrate equal or reduced (from business as usual) operational and maintenance costs as a measure of their effectiveness.
- Lessons learned from application of previous versions of the Guidelines.

We will continue to monitor and update the Guidelines in line with changes in policy direction, technology and innovation.

Cover images Top: TfNSW worked in collaboration with local artists and council to paint the Lambert Park Art Wall as part of the Inner West Light Rail project. Centre: North Strathfield Rail Underpass project used 18000 tonnes of processed recycled ballast from Chullora Recycling Centre for structural layer and access roads, resulting in a cost saving of \$15/tonne when compared with using virgin material DGS40. Bottom: 12 kW Photovoltaic installation on Glenfield Transport interchange.

Wynyard Walk – artist's impression of
Napoleon Plaza looking south



Contents

| | |
|---|-----------|
| 1. Introduction | 3 |
| 1.1 Aim of the guidelines | 4 |
| 1.2 Structure of the guidelines | 4 |
| 1.3 Why do we need the guidelines? | 5 |
| 1.3.1 Sustainability drivers | 5 |
| 1.3.2 Corporate drivers | 5 |
| 1.3.3 Key TfNSW sustainability policy documents | 7 |
| 1.4 Who will use the guidelines? | 8 |
| 1.5 What do the guidelines cover? | 8 |
| 1.6 The context of these guidelines | 9 |
| 1.7 Principles applied to version 4.0 | 9 |
| 1.8 Summary of changes from version 3.0 | 10 |
| 2. How the guidelines work | 11 |
| 2.1 Sustainability initiatives and their value | 12 |
| 2.2 How to use the guidelines | 13 |
| 2.2.1 Determining the sustainable design guidelines pathway | 14 |
| 2.2.2 Setting a target rating | 16 |
| 2.2.3 Applicability Test | 17 |

| | | |
|-----------|--|-----------|
| 2.2.4 | Selecting supporting initiatives | 18 |
| 2.2.5 | Implementation and tracking | 18 |
| 2.2.6 | Determining your project rating | 19 |
| 3. | Reporting | 20 |
| 3.1 | Reporting timeframes | 21 |
| 3.2 | Supporting documentation and evidence | 21 |
| 3.2.1 | Naming convention for supporting documentation and evidence | 22 |
| 3.3 | Online tool | 22 |
| 3.3.1 | Excel based checklist | 22 |
| 4. | Compulsory Sustainability Requirements | 23 |
| 4.1 | Requirements throughout project delivery | 24 |
| 4.2 | Thresholds for compulsory requirements | 25 |
| 4.3 | Compulsory requirements | 26 |
| 4.3.1 | Compulsory Requirement 1 – Construction GHG emissions | 27 |
| 4.3.2 | Compulsory Requirement 2 – Operational energy | 28 |
| 4.3.3 | Compulsory Requirement 2A – Energy efficient appliances | 31 |
| 4.3.4 | Compulsory Requirement 3 – Climate change risk | 32 |
| 4.3.5 | Compulsory Requirement 4 – Waste diversion | 32 |
| 4.3.6 | Compulsory Requirement 5 – Beneficial spoil reuse | 34 |
| 4.3.7 | Compulsory Requirement 6 – Water sensitive urban design | 35 |
| 4.3.8 | Compulsory Requirement 7 – Construction water | 36 |
| 4.3.9 | Compulsory Requirement 8 – Operational water | 38 |
| 4.3.10 | Compulsory Requirement 8A – Water efficient appliances | 39 |
| 4.3.11 | Compulsory Requirement 9 – Low VOC surface coatings | 39 |
| 4.3.12 | Compulsory Requirement 10 – Mobile non-road diesel plant emissions reporting | 40 |
| 4.3.13 | Compulsory Requirement 11 – Vegetation offsets | 41 |
| 4.3.14 | Compulsory Requirement 12 – Sustainable procurement | 42 |
| 4.3.15 | Compulsory Requirement 13 – Urban design | 44 |
| 4.3.16 | Compulsory Requirement 14 – Innovation and project legacy | 46 |
| 5. | Review of the Sustainable Design Guidelines | 49 |
| 6. | Glossary of terms | 51 |

1. Introduction



The Gosford Passing Loops project installed a glow path comprising a non-toxic photoluminescent material. This is an Australian first and aims to increase the feeling of safety within the community. The initiative received compliments from the community and Council is looking to apply the initiative elsewhere within the area.

These guidelines reinforce Transport for NSW's (TfNSW) ongoing commitment to sustainability; supporting project solutions that deliver environmental and social benefits while reducing life cycle costs.

1.1 Aim of the guidelines

The Sustainable Design Guidelines (the guidelines) seek to deliver sustainable development practices by embedding sustainability initiatives into the planning, design, construction, operations and maintenance of transport infrastructure projects.

The development of the guidelines has been influenced by the TfNSW Environment and Sustainability Policy and TfNSW Long Term Transport Master Plan. The guidelines incorporate the following key aims:

- Minimising impacts on the environment, whether through transport operations, infrastructure delivery or maintenance.
- Procuring, delivering and promoting sustainable transport options that achieve value for money and reduced life cycle costs.
- Developing, expanding and managing the transport network that is sustainable and climate resilient.

1.2 Structure of the guidelines

These guidelines are in five parts with appendices as follows:

- **Part 1**
Introduction outlines the sustainability and corporate drivers, scope and principles of the guidelines.
- **Part 2**
How to use the guidelines outlines a six step process starting from determining a guidelines pathway all the way through to obtaining a project rating under the guidelines.
- **Part 3**
Reporting describes the reporting requirements including timeframes, evidence requirements and accompanying tools.
- **Part 4**
Compulsory sustainability requirements provides full detail of each compulsory requirement to comply with the guidelines.
- **Part 5**
Review of the sustainable design guidelines outlines when and how the guidelines will be reviewed.
- **Supporting document** – includes:
 - Appendix A – further detail on how the scoring system works.
 - Appendix B – a step by step guide on how to use the electronic checklist to monitor a project rating under the guidelines.

- Appendix C – a library of supporting initiatives that projects can choose to utilise in order to meet compulsory requirements.
- Appendix D – supporting templates and forms.
- Appendix E – whole of life costing process to be utilised when selecting supporting initiatives.
- Appendix F – deemed to satisfy process for compulsory requirement 2.
- Appendix G – detail of the steel and timber requirements associated with compulsory requirement 12.

1.3 Why do we need the guidelines?

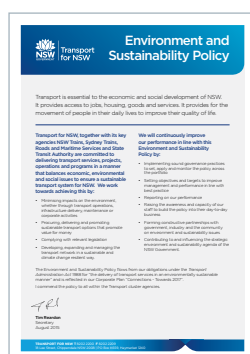
1.3.1 Sustainability drivers

Public transport delivers many social, economic and environmental benefits including:

- Fast, efficient, safe and affordable transport for passengers at peak and non-peak times.
- Connecting places and communities and enhancing social inclusion and local economic development.
- Enhancing economic opportunities in a range of activity centres across NSW.
- Encouraging people to transition from using cars which can significantly reduce traffic congestion and negative externalities such as noise, air pollution and greenhouse gas emissions.

There is, however, scope to continuously improve the sustainability performance of public transport and related infrastructure in a financially sustainable manner that delivers value for money through the life of the project.

1.3.2 Corporate drivers



The TfNSW Environment and Sustainability Policy outlines our commitment to delivering transport services, projects, operations and programs in a manner that balances economic, environmental and social issues to ensure a sustainable transport system for NSW.

One of the eight key objectives for the NSW transport system, set out within the NSW Long Term Transport Master Plan is to:

- **Improve Sustainability** – by maintaining and optimising the use of the transport network, easing congestion, growing the proportion of travel by sustainable modes such as public transport, walking and cycling, and becoming more energy efficient.

The Master Plan sets clear objectives and actions around sustainability to meet statewide issues and take up new opportunities, including setting:

- **Initiatives to manage and minimise the environmental impacts of our transport system**, including a coordinated approach to addressing environmental issues at all levels of transport planning, sustainable design guidelines for transport projects and better ways to assess the environmental and social benefits of projects.

The NSW Government Resource Efficiency Policy (GREP) sets a vision *for a resource productive public sector that provides better services to the NSW community with less impact on the environment*, establishing targets and goals for the NSW public sector to meet.

The **Transport Outcomes Framework** is an overarching framework for TfNSW that articulates how we contribute to bigger picture economic and social outcomes in NSW. The framework is partially comprised of a hierarchy of outcomes that TfNSW is working towards over the long term. The framework includes three levels of outcomes:

- Level one (L1) are the highest outcomes that Transport delivers for NSW aligned with the legislative objectives for Transport agencies (*Transport Administration Act 1988*).
- Level two (L2) are the intermediate outcomes required to deliver L1 outcomes and are therefore more specific.
- Level three (L3) are a further breakdown of the building blocks required to deliver the L2 outcomes.

Figure 1 provides a snapshot of the L1 and L2 outcomes that the Transport cluster is working towards. It includes L1 and L2 outcomes directly related to Environment and Sustainable transport delivery respectively. Figure 1 highlights the outcomes that the sustainable design guidelines support.

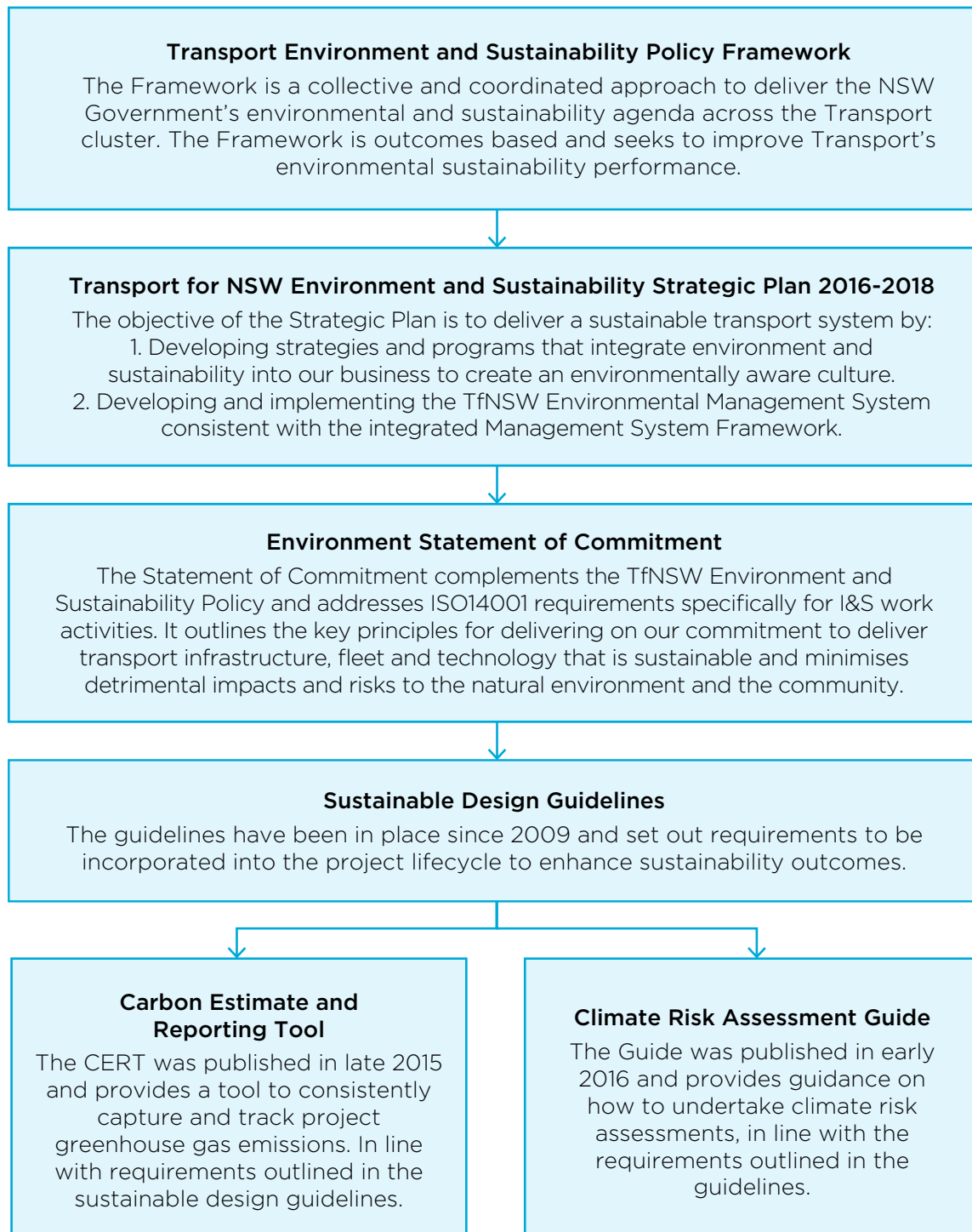
Figure 1: Snapshot of L1 and L2 outcomes identified in the Transport Outcomes Framework



1.3.3 Key TfNSW sustainability policy documents

TfNSW have a number of other key sustainability related policy documents that respond to the key drivers outlined in section 1.3.2. Figure 2 below highlights some of these documents and how they fit within the organisation.

Figure 2: TfNSW Sustainability Policy Context



There are also a number of policy drivers that relate to specific compulsory requirements in the guidelines. These are outlined in section 4.3.

1.4 Who will use the guidelines?

The guidelines are aimed primarily at planning, design, construction, operations and maintenance professionals involved in projects being delivered by Infrastructure and Services Division (I&S) of TfNSW. They will be of particular interest to:

- project managers
- asset managers
- investment managers
- planners
- architects
- landscape architects
- engineers
- design managers
- cost planners
- environmental managers
- construction managers
- maintenance staff
- asset operators and maintainers
- procurement and contract managers
- community consultation managers
- sustainability managers
- staff involved in project business case development

1.5 What do the guidelines cover?

The guidelines apply to all infrastructure projects delivered by I&S Division of TfNSW and cover the following sustainability themes:



Energy and greenhouse



Pollution control



Climate resilience



Biodiversity



Materials and waste



Community benefit

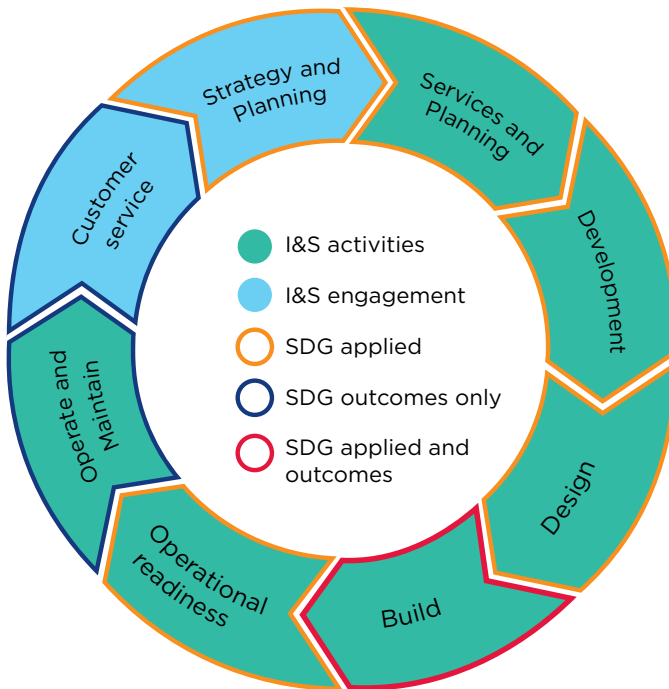


Water

The guidelines apply to the whole asset lifecycle and include compulsory requirements which address the following project lifecycle stages: feasibility, design, construction, operations, maintenance and disposal.

Figure 3 below highlights where within the I&S value chain the guidelines are applied.

Figure 3: SDG implementation versus outcomes within the I&S value chain



1.6 The context of these guidelines

These guidelines should be used in conjunction with other guidelines relevant to infrastructure delivery and operations. Any statutory or legislative requirements (including codes, regulations or standards) take precedence over any of the outcomes or initiatives within this document.

1.7 Principles applied to version 4.0

This updated version of the guidelines are underpinned by a number of key principles, including:

1. Compulsory requirements are **quantifiable** where practicable.
2. The guidelines are **scalable** to different sized projects.
3. Allows projects to focus on **material issues** to achieve value for money outcomes.
4. Alignment with the **Infrastructure Sustainability Council of Australia (ISCA) tool** is considered.
5. **Innovation and positive legacy** initiatives are considered.
6. Relevant requirements under the **NSW Government Resource Efficiency Policy (GREP)** are incorporated.
7. Implement a **whole of life process** to ensure optimisation of the asset whole of life cycle including feasibility, design, construction, operations, maintenance and disposal.
8. **Reduction of operational and maintenance costs** are achieved.
9. **Ease of reporting** through accompanying online tool (to be developed) is realised.
10. Evaluation of **benefits realisation**.

1.8 Summary of changes from version 3.0

Table 1 below summarises the key changes made between version 3.0 of the Sustainable Design Guidelines and this version.

Table 1: Summary of Changes from Sustainable Design Guidelines version 3.0

| Sustainable Design Guidelines version 3.0 | Sustainable Design Guidelines version 4.0 |
|--|--|
| 23 compulsory initiatives. | 14 compulsory requirements and 2 sub requirements. |
| 8 asset types. | There are no asset types. The requirements are not asset type specific. |
| Included discretionary initiatives. | Discretionary initiatives are now referred to as supporting initiatives. |
| The discretionary initiatives had an assigned importance score out of 10. | There is no importance score on the supporting initiatives. |
| A given percentage of the discretionary initiatives needed to be met in order to comply with the guidelines. | Supporting initiatives are options for projects to meet the compulsory requirements. Project teams are not restricted to using the initiatives in this list. |
| More prescriptive. | Performance based approach to allow more flexibility for projects to select appropriate initiatives to meet their applicable compulsory requirements. |
| Excel based checklist. | Excel based checklist. Online system to be developed. |
| Life cycle costing considered as an initiative. | Life cycle costing of sustainability initiatives mandatory. |
| Primarily focused on design and construction aspects of public transport. | Recognition of integrated transport solution over the asset life cycle. |



The Gosford Passing Loops project team worked with East Gosford Scouts to revegetate an area on site to allow the scouts to earn their World Scout Environment Badge. The scouts helped plant 200 native grasses.

2. How the guidelines work



Barangaroo Ferry Hub construction site.

These guidelines are to be used by the project team at each project deliverable stage e.g. – feasibility/definition design, preliminary design etc. The application of the guidelines is a collaborative process requiring multidisciplinary discussion within a project team when identifying the initiatives that are applicable to a project. Infrastructure and Services (I&S) Sustainability and Systems team is able to assist with project team workshops on the guidelines and provide specialist support, however the process must be led by the technical and project managers and embedded into the project methodology.

2.1 Sustainability initiatives and their value

There are **14 compulsory requirements and 2 sub requirements** that project teams are required to implement when there is confirmation that these individual initiatives are applicable to the project.

Each compulsory requirement has an associated list of **supporting initiatives**. Project teams can utilise one or more supporting initiatives to help meet the compulsory requirements.

Note: projects are not restricted to using only the supporting initiatives listed. Table 2 below provides more explanation on the types of sustainability requirements.

Table 2: Types of sustainability requirements

| Importance | Definition |
|------------------------|--|
| Compulsory requirement | <p>These requirements may relate to one of I&S' organisational priorities or are considered fundamental to the delivery of sustainable transport infrastructure. If a requirement is considered applicable, then a project must meet it. Refer to section 2.2.3 for further detail on determining applicability.</p> <p><i>Note: That there are two sub requirements that assist in meeting two of the compulsory requirements. These are listed as compulsory requirement 2A and 8A.</i></p> |
| Supporting initiative | <p>Project teams may choose to utilise supporting initiatives (see Appendix C) to meet a particular compulsory requirement or use initiatives beyond the scope of those listed. This allows project teams the flexibility to choose appropriate initiatives to meet their compulsory requirements in line with specifications and standards. When submitting evidence against a project's compulsory requirements the supporting initiatives utilised must be specified. Refer to section 3.2 for further detail on evidence requirements.</p> |

Each compulsory requirement has between 1 and 5 **performance levels (P1 – P5)** with the minimum P1 level reflected in the wording of the compulsory requirement. The P1 levels are what are deemed to be required at a minimum to meet TfNSW's sustainability agenda. The technical and financial feasibility (and benefits) of meeting the P1 levels have been tested through both consultation and financial evaluation.

Table 3: Example of requirement with multiple performance levels (5)

| Compulsory requirement 1 | All projects with a CapEx > \$15 million to reduce construction related GHG emissions by a minimum 5% from the project baseline GHG footprint established using the Carbon Estimate and Reporting Tool (CERT). | | | | |
|-------------------------------|--|-------|-------|-------|-------|
| | P1 | P2 | P3 | P4 | P5 |
| Performance levels for rating | ≥ 5% | ≥ 10% | ≥ 15% | ≥ 20% | ≥ 25% |

Some requirements include only a single performance levels e.g. – compulsory requirement 2A.

Table 4: Example of requirement with a single performance level

| Compulsory requirement 2A | All new electrical equipment to be at least market average star rating. In categories where no star ratings are available, equipment purchased should be recognised as high efficiency either by being ENERGY STAR accredited, in a high efficiency band under Australian Standards or being above-average efficiency of Greenhouse and Energy Minimum Standards (GEMS) registered products. |
|-------------------------------|--|
| Performance levels for rating | P1/ P2/ P3/ P4/ P5 All new electrical equipment to be at least market average. In categories where no star ratings are available all equipment must be Energy star accredited or above average GEMS registered. |

The policy drivers for each of the compulsory requirements are outlined in section 4.3. The performance levels incrementally increase performance against each requirement to encourage beyond minimum (P1 level) compliance through the use of the rating system. Refer to sections 2.2.5 and 4.3 for further details on the performance levels.

2.2 How to use the guidelines

A key component of the guidelines process is undertaking life cycle costing, this is particularly relevant to selecting supporting initiatives (refer to section 2.2.4).

When selecting supporting sustainability initiatives the following requirements must be applied. The sustainability initiatives must:

- Minimise (or reduce from business as usual) whole of life costs over the life of the project (refer to [Life Cycle Costing Management Standard T MU AM 01001 ST](#) for guidance).
- Demonstrate equal or reduced (from business as usual) operational and maintenance burden/costs as a measure of their effectiveness.

Projects must apply the life cycle costing process and supporting tool described in Appendix E.

There are six key steps to using the guidelines:

- Determining the sustainable design guidelines pathway
- Setting a target rating
- Applicability test
- Selecting supporting initiatives including life cycle assessment and evaluation
- Implementing and tracking
- Determining your project rating

2.2.1 Determining the sustainable design guidelines pathway

There are two potential pathways that can be pursued:

1. **Full checklist process** is required to be completed by the construction contractor. *Note: The preliminary and detailed designers are still required to start incorporating relevant design requirements into design and commence reporting. Refer to section 3 for detail on reporting requirements.*
2. **Specific requirements** are specified in the contract for the construction contractor. *Note: Design requirements must be incorporated into the design and reported on by the preliminary and detailed designers.*

Figure 4 below outlines the process that must be used to determine a projects sustainable design guidelines pathway.

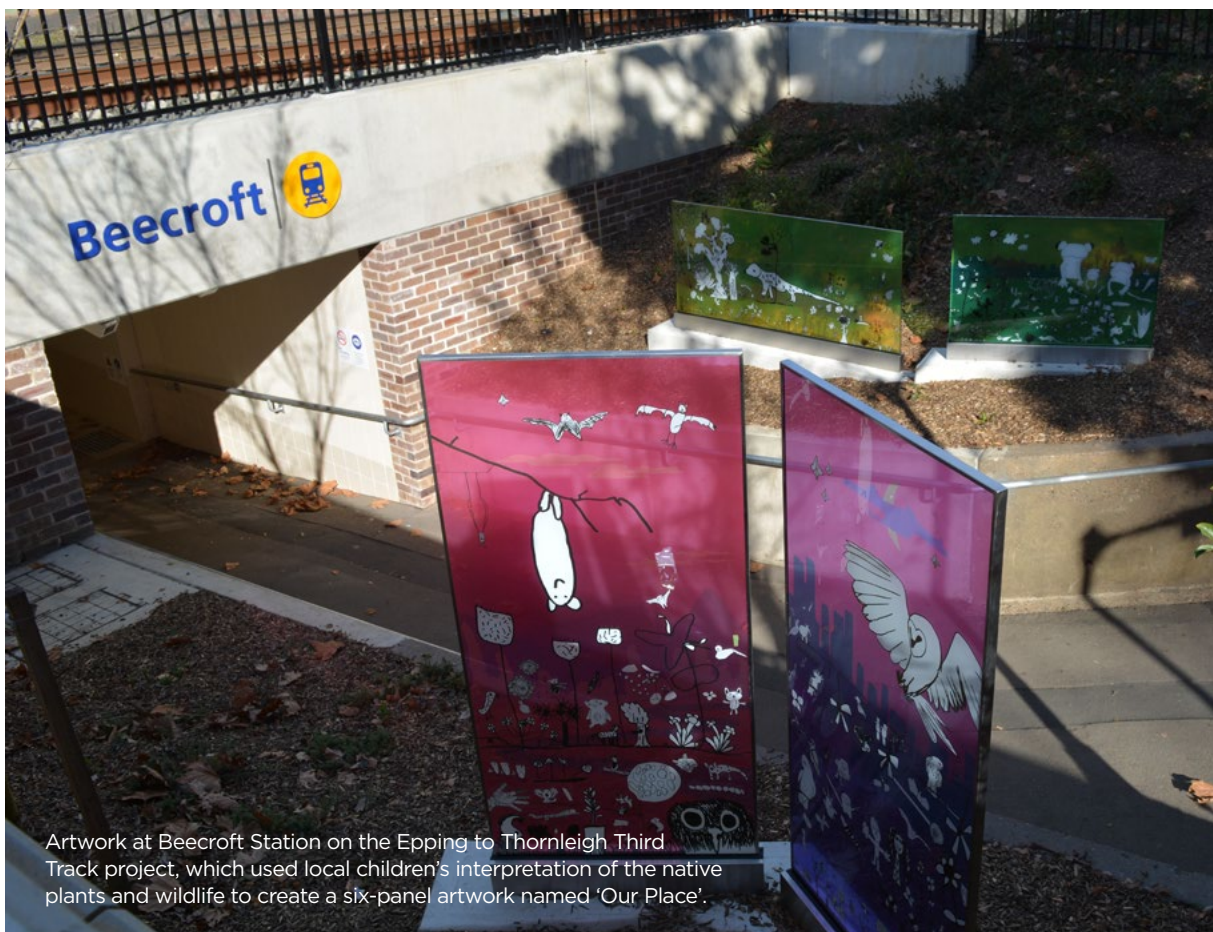
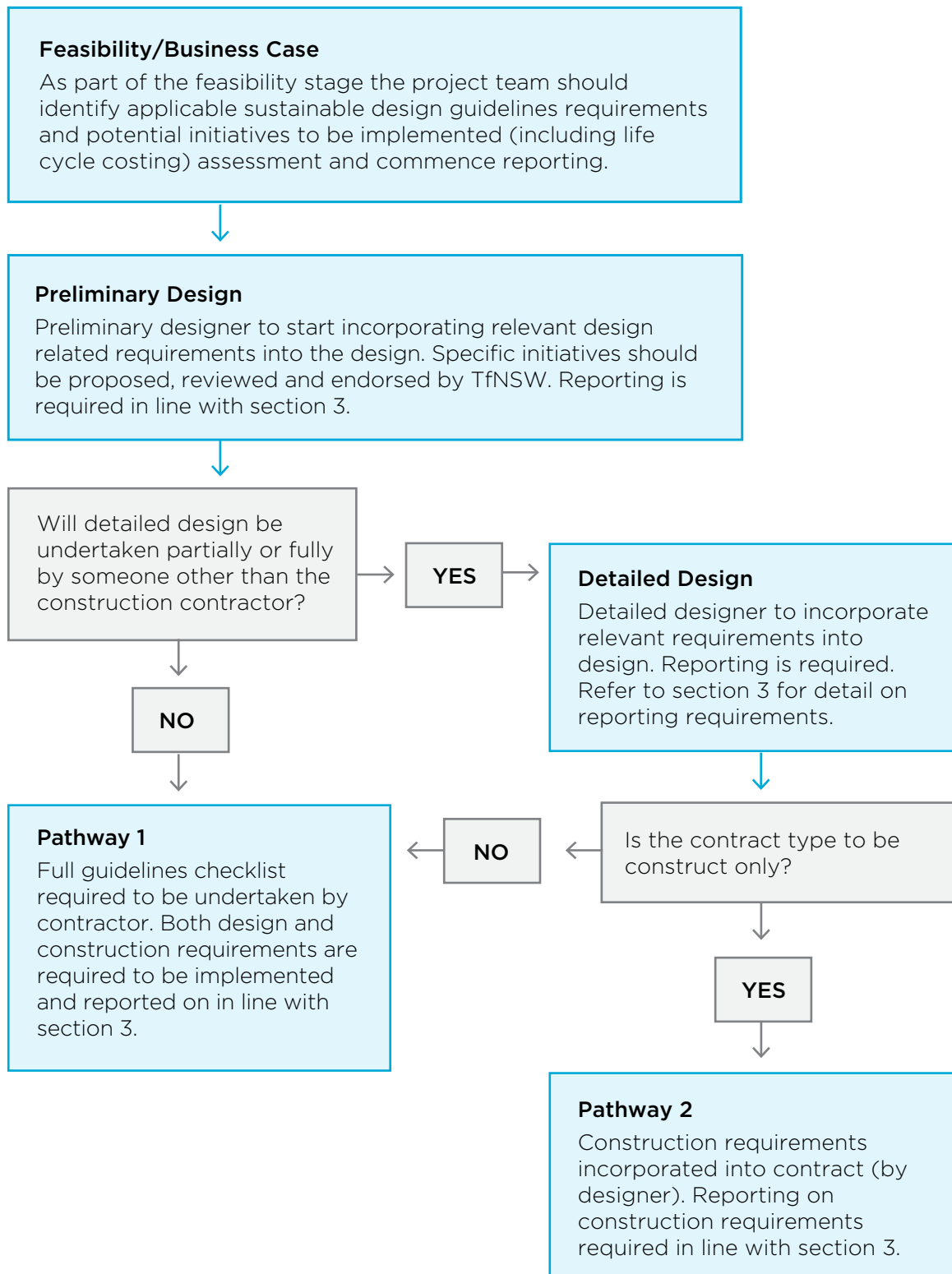


Figure 4: Process to determine a projects Sustainable Design Guidelines pathway

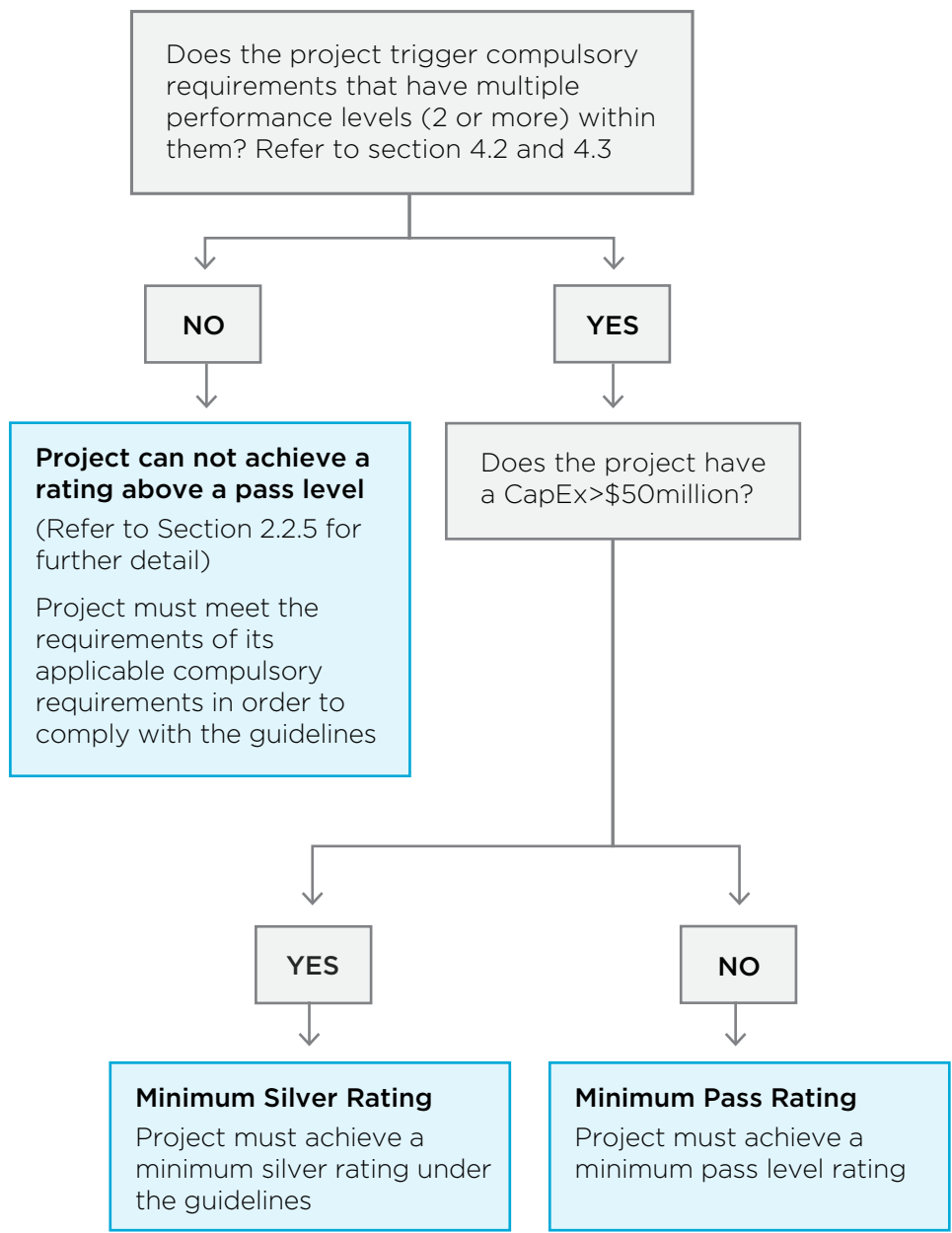


Note: if a project delivery stage is being revisited e.g. – due to a design/scope stage, the sustainable design guidelines pathway must be reviewed as part of this process.

2.2.2 Setting a target rating

A points based system (based on the performance levels) is used to determine the project rating under the guidelines. There are five possible ratings that can be achieved (pass, bronze, silver, gold and platinum). Figure 4 outlines what a project team needs to consider when setting a **minimum target rating**. Refer to section 2.2.5 for further details on how a rating is determined.

Figure 5: Criteria for setting a minimum Sustainable Design Guidelines rating



Project teams can choose to set a **voluntary target rating** which is above the minimum requirements specified in Figure 4. When setting a voluntary target rating project teams should undertake a cross discipline workshop including lifecycle assessment at an early design stage (i.e. – definition or preliminary design) to:

- Establish what performance level is thought to be both achievable on a project and present a value proposition for each applicable compulsory requirement, including based on a life cycle costing exercise.
- Identify any priority areas for the project e.g. – energy reduction.
- Calculate a voluntary target rating for the project. *Note: Projects may choose to set both a base target and stretch target as part of this process.*
- Consider cost implications as well as be clear on benefits and the value proposition for going above minimum requirements. Cost implications shall include details of operations and maintenance components.

Any voluntary target rating should be documented within any subsequent project documentation e.g. – contract documents, project sustainability strategy etc.

2.2.3 Applicability Test

Projects are only required to meet compulsory requirements that are applicable to the project. There are two methods to determine whether a compulsory requirement is not applicable for a project:

1. **Thresholds:** the project does not trigger the threshold specified for the compulsory requirement e.g. – a threshold CapEx of >\$15 million has been set for the requirement but the project has a CapEx of \$10 million. Refer to section 4.2 and 4.3 for specific details on the thresholds set for each of the compulsory requirements.
2. **Outside of scope:** if the project triggers the threshold associated with a given compulsory requirement however the requirement is completely outside of project scope, the project team can rule this requirement to be not applicable, subject to agreement with the I&S Sustainability and Systems team. When ruling out a compulsory requirement where the threshold has been triggered a strong auditable justification must be provided e.g. – the compulsory operational water requirement could be ruled out if there is no operational water use for the project. In order to rule out a compulsory requirement where the threshold is triggered the project team must submit a memo (refer to template provided in Appendix D) to the I&S Sustainability and Systems team for review and approval.

Note: If a project does not trigger any compulsory requirements then the project is not required to comply with the Sustainable Design Guidelines.

2.2.4 Selecting supporting initiatives

Once a project team has determined which compulsory requirements are applicable to the project, the team must select what supporting initiatives they will implement in order to meet their compulsory requirements. *Note: Project teams can choose from the list of supporting initiatives provided in Appendix C however they are not restricted to using only the supporting initiatives listed.*

It is strongly recommended that this selection process be undertaken in a cross discipline workshop or series of smaller workshops. Participants should include but are not limited to:

- sustainability managers
- environment managers
- engineers
- design managers
- procurement and contract managers
- quantity surveyors/ cost planners
- operations and maintenance personnel
- community consultation managers
- asset managers
- investment managers

When selecting supporting sustainability initiatives the following requirements must be applied. The sustainability initiatives must:

- Minimise (or reduce from business as usual) whole of life costs over the life of the project (refer to [Life Cycle Costing Management Standard T MU AM 01001 ST](#) for guidance).
- Demonstrate equal or reduced (from business as usual) operational and maintenance burden/costs as a measure of their effectiveness.

Projects must apply the life cycle costing process and supporting tool described in Appendix E.

2.2.5 Implementation and tracking

The guidelines apply to the whole asset lifecycle and the earlier they are considered the easier it is to achieve sustainability outcomes and compliance with these guidelines. Table 3 below provides a guide on what needs to be considered/completed at key project stages.

Table 5: Key tasks relevant to each project stage

| Project stage | Key activities |
|---|--|
| Feasibility stage or business case or definition design | <ul style="list-style-type: none"> • Identify what sustainability requirements are relevant to the project. • Identify guidelines pathway including specific initiatives (refer section 2.2.1) • Ensure initiatives are costed (CapEx and life cycle costing), options are reviewed and endorsed as part of project budgeting processes • Identify target rating for the project (refer section 2.2.2) • Ensure target rating and initiatives are integrated into project documents such as business requirements specifications • Reporting to commence (refer to section 3). |
| Preliminary design | <ul style="list-style-type: none"> • Confirm the requirements identified in the feasibility/ business case stage are still relevant • Sustainability requirements and specific initiatives should be reviewed, updated and locked in (where appropriate) e.g. – in the scope of works/works brief at a minimum • Review and update of lifecycle costing process • Reporting required (refer to section 3). |
| Detailed design | <ul style="list-style-type: none"> • Design related requirements to be incorporated into project design • Review and update of lifecycle costing process • Reporting required (refer to section 3). |
| Construction | <ul style="list-style-type: none"> • Sustainability requirements (both design and construction related) to be implemented • Reporting required (refer to section 3). |
| Completion | <ul style="list-style-type: none"> • Final report required to demonstrate compliance with requirements and identify the final project rating. |

Data and evidence submitted will be used as part of TfNSW's evaluation of benefits realisation (refer to section 5).

2.2.6 Determining your project rating

A project's rating will be automatically calculated through the use of the reporting tool that accompanies the guidelines (refer to section 3.3).

Further details on how the scoring system works can be found in Appendix A.

Table 6: Requirements to achieve Sustainable Design Guidelines rating

| Rating | Percentage of points |
|----------|---|
| Pass | All applicable P1 performance level requirements must be met. |
| Bronze | All applicable P1 performance level requirements and minimum 85% of the total applicable points in the P2 column. |
| Silver | All applicable P1 performance level requirements and minimum 85% of the total applicable points in the P3 column. |
| Gold | All applicable P1 performance level requirements and minimum 85% of the total applicable points in the P4 column. |
| Platinum | All applicable P1 performance level requirements and minimum 85% of the total applicable points in the P5 column. |

3. Reporting

Light rail vehicle on the Inner West Light Rail line.



3.1 Reporting timeframes

Reporting against the sustainable design guidelines is required at:

- Feasibility stage/ business case/ definition design
- Preliminary design
- Detailed design (SDR and CDR or equivalent)
- Six monthly during construction
- At project completion.

If a project has multiple design packages/packages of work being undertaken on different timelines, the project must reach agreement with TfNSW Sustainability and Systems team on when they will need to submit documentation for review through a memo process (refer to Appendix D for memo template). There are two options as outlined below:

1. The project identifies all major design packages and selects an appropriate date for submission based on when the majority of design will be at the reporting timeframes listed above (i.e. – detailed design).
2. The project can submit different sustainable design guidelines checklists for different design packages. This option is recommended particularly where large packages of works are being delivered by different designers and/or contractors etc. *Note: if this option is pursued each separate package of work would need to demonstrate that the minimum sustainable design guidelines rating set for the project has been achieved.*

Supporting documentation and evidence should be supplied as it becomes available. All evidence must be submitted at the time of project completion to the I&S Sustainability and Systems team.

3.2 Supporting documentation and evidence

A project will be required to submit supporting documentation and evidence to demonstrate compliance against the applicable compulsory requirements for the project. At a minimum this documentation will need to:

- Demonstrate compliance with the relevant compulsory requirement.
- Outline initiatives implemented in order to meet the compulsory requirements. *Note: This includes supporting initiatives provided in the guidelines as well as any other initiatives.*

The types of supporting documentation and evidence may include:

- Specialist reports (e.g. – climate risk assessment)
- Data tracking sheets (e.g. – waste tracking)
- Existing tools (e.g. – carbon estimate reporting tool (CERT))
- Plans
- Design reports
- Minutes
- Memos
- Life cycle costing spreadsheet noting data sources (refer to Appendix E)

Note: The project can provide evidence outside of the types listed above.

For further detail on the specific evidence requirements for each compulsory requirement refer to the respective compulsory requirement table in section 4.3.

3.2.1 Naming convention for supporting documentation and evidence

The reporting tool (refer to section 3.3) will require supporting documentation and evidence to be referenced. At a minimum, referencing should include the following: document title, version, issue date, and page / section reference.

3.3 Online tool

An accompanying online tool which will provide a platform for projects to report on the guidelines performance is currently under development. An excel based checklist has been provided for projects to utilise for reporting guidelines performance in the interim. The online system will replace the excel based checklist once developed.

3.3.1 Excel based checklist

A step by step guide on how to use the electronic checklist can be found in Appendix B.

4. Compulsory Sustainability Requirements



Bio-retention garden beds (raingardens) at Leppington Station car park which remove pollutants from stormwater before it enters local waterways.

There are 14 compulsory requirements and 2 sub requirements that project teams must consider when delivering a project. In order to achieve a rating the P1 performance level for all applicable compulsory requirements must be met at a minimum. Section 4.1 and 4.2 provide a snap shot of when each compulsory requirement should be met, including the thresholds for applying them. Section 4.3 provides the full details of each compulsory requirement.

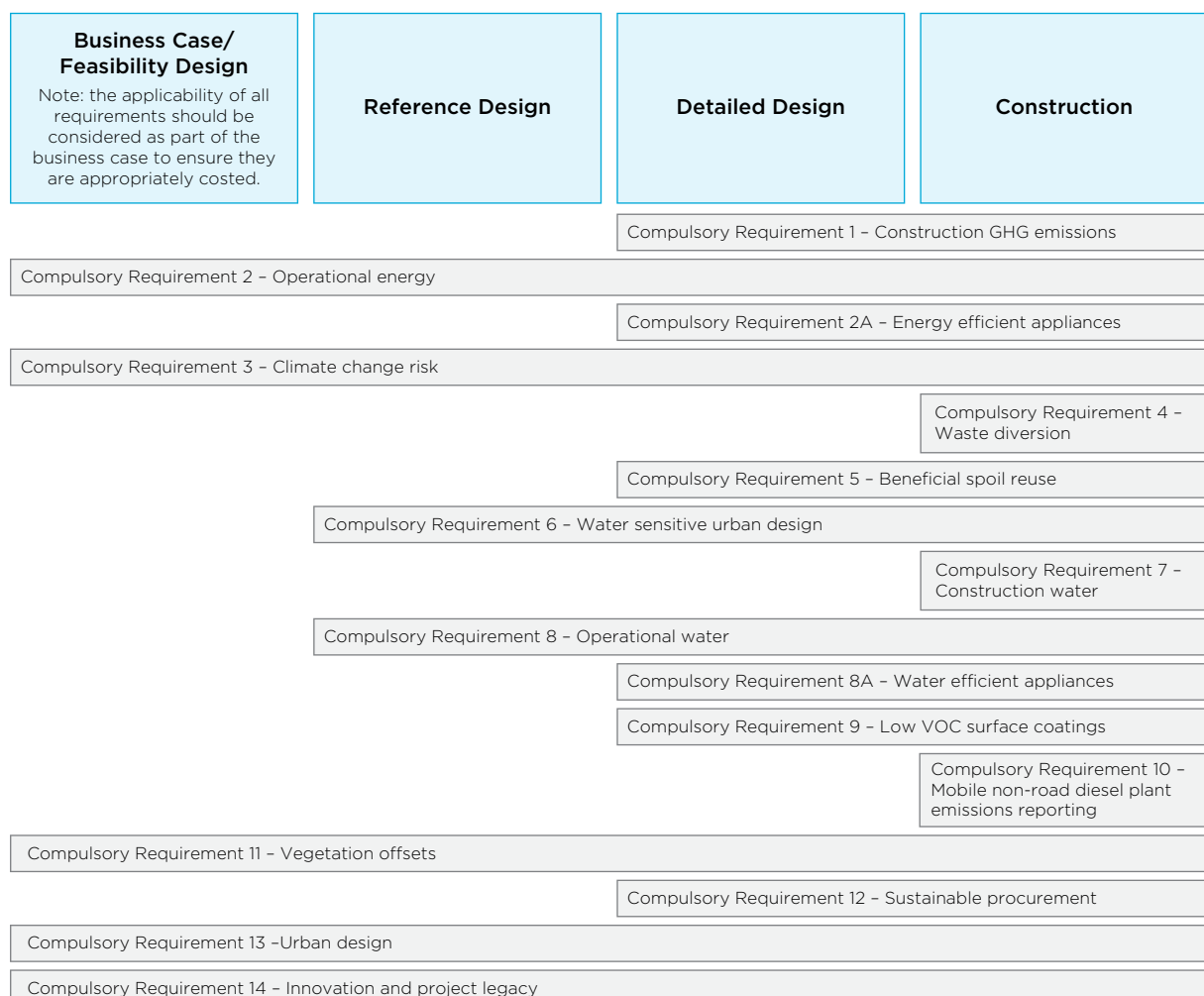
All compulsory requirements and supporting initiatives must include assessment for benefits achieved from an asset thorough its life and the financial impact to operate and maintain these assets determined in the lifecycle costing (refer to Appendix E). Project teams are required to liaise with TfNSW's Infrastructure Management team through this process.

4.1 Requirements throughout project delivery

Figure 6 highlights the project stage that is most relevant to each of the compulsory requirements. *Note: That this is indicative only and that each requirement should be considered on a project by project basis throughout the project delivery lifecycle.*

Figure 6: Most relevant project stage for applying compulsory requirements

Note: this is indicative only



4.2 Thresholds for compulsory requirements

To ensure that the compulsory requirements applied to a given project are compatible with the nature and scale of the project, thresholds have been applied to each of the compulsory requirements. In order for a compulsory requirement to be deemed applicable to a project the relevant threshold must be triggered. There are two types of thresholds that have been assigned to the compulsory requirements including:

- CapEx related thresholds.
These thresholds are purely based on the capital expenditure of the project exceeding a given value. There is one CapEx related thresholds within the guidelines –
 - >\$15 million
- Non-CapEx related thresholds.
These thresholds are based on criteria other than capital expenditure. There are three non-CapEx related thresholds within the guidelines including –
 - All project generating >300m³ of spoil
 - All projects with new effective impervious area with a continuous area >1000m²
 - All projects with non-significant biodiversity impacts

Figure 6 provides a summary of how the different thresholds apply to each of the compulsory requirements.



Figure 7: CapEx and non-CapEx related thresholds

| CapEx related thresholds | | |
|--|--|---|
| All Projects | Projects with a CapEx> \$15million | |
| Compulsory Requirement 1 - Construction GHG emissions | | |
| Compulsory Requirement 2 - Operational energy | | |
| Compulsory Requirement 2A - Energy efficient appliances | | |
| Compulsory Requirement 3 - Climate change risk | | |
| Compulsory Requirement 4 - Waste diversion | | |
| Compulsory Requirement 7 - Construction water | | |
| Compulsory Requirement 8 - Operational water | | |
| Compulsory Requirement 8A - Water efficient appliances | | |
| Compulsory Requirement 9 - Low VOC surface coatings | | |
| Compulsory Requirement 10 - Mobile non-road diesel plant emissions reporting | | |
| Compulsory Requirement 12 - Sustainable procurement | | |
| Compulsory Requirement 13 - Urban design | | |
| Compulsory Requirement 14 - Innovation and project legacy | | |
| Non CapEx related thresholds | | |
| All projects generating >300m³ of spoil | All projects with non significant biodiversity impacts | All projects with new effective impervious area with a continuous area >1000m² Refer to requirement for definition |
| Compulsory Requirement 5 - Beneficial spoil reuse | Compulsory Requirement 11 - Vegetation offsets | Compulsory Requirement 6 - Water sensitive urban design |


4.3 Compulsory requirements

The following section provides detail for each of the compulsory requirements including:

- theme
- threshold
- importance score
- performance levels for rating
- weighted score
- minimum evidence requirements
- definitions
- policy drivers (*Note: The policy drivers form the basis for the P1 performance levels*)
- supporting guidelines
- ISCA alignment (*Note: The ISCA alignment is in regard to version 1.2 of the IS rating scheme*)

A list of supporting initiatives is included in Appendix C. The designer/contractor can select from the list of supporting initiatives to meet the requirements of relevant compulsory requirements. *Note: That the designer/contractor is not limited to using the initiatives listed only.*

4.3.1 Compulsory Requirement 1 – Construction GHG emissions

| | | | | | | | |
|---------------------------------|--|---|--|------------|------------|------------|---|
| Compulsory requirement 1 | | All projects with a CapEx > \$15 million to reduce construction related GHG emissions by a minimum 5% from the project baseline GHG footprint established using the Carbon Estimate and Reporting Tool (CERT). | | | | |  |
| Description | | I&S projects can reduce the construction related greenhouse gas (GHG) emissions through materials choice, optimising design and construction practices on site. Projects are required to establish a baseline footprint using the Carbon Estimate and Reporting Tool (CERT) and demonstrate a reduction of construction related GHG emissions of at least 5% from the established project baseline (<i>Note: The project baseline is automatically generated within the CERT tool, refer to CERT user manual for details</i>). The CERT was developed to simplify and provide consistency in GHG emissions assessment and reporting across all I&S projects. | | | | | |
| Importance score for rating | | 11.25 | | | | | |
| Performance levels for rating | | P1 ≥5% | P2 ≥10% | P3 ≥15% | P4 ≥20% | P5 ≥25% | |
| Weighted score | | 0 | 11.25 | 22.5 | 33.75 | 45 | |
| Minimum evidence requirements | | Completed CERT spread sheet and reporting template found in Appendix E of the CERT user guide. The completed CERT spread sheet needs to demonstrate that the relevant GHG reduction levels have been met for the project. | | | | | |
| Definitions | | Construction related GHG emissions | GHG emissions associated with the delivery of a construction project including scope 1 emissions (i.e. – direct emissions from site such as fuel combustion), scope 2 emissions (i.e. – upstream emissions from electricity purchased for site) and scope 3 emissions (i.e. – the embodied emissions in the materials used to deliver the project). Refer to CERT for the details of the emissions that must be reported on. | | | | |
| Policy drivers | | Existing I&S requirement | | | | | |
| Supporting guidelines and tools | | Carbon Estimate and Reporting Tool (CERT) <u>Carbon Estimate and Reporting – 7TP-ST-035 (user manual)</u> | | | | | |
| ISCA alignment with ISCA v1.2 | | <p>The Carbon Estimate and Reporting Tool (CERT) developed by I&S will support compliance with this requirement and has been developed to align with the design and construction stage reporting requirements associated with ISCA credits Ene-1 and Mat-1. The P3 and P5 performance levels correspond to Level 2 and Level 3 in the ISCA Ene-1 credit. <i>Note: The following differences to the ISCA Ene-1 credit:</i></p> <ul style="list-style-type: none">• <i>Emissions associated with operation are not currently captured within the CERT and will need to be captured separately.</i>• <i>Embodied emissions associated with materials use are captured within CERT but are captured in the ISCA Mat-1 credit rather than Ene-1. Note: That the target reductions in materials impacts are 15% for Level 2 and 30% for Level 3 in Mat-1. These reductions are measured in EnviroPoints (which include GHG emissions as well as other impact categories).</i>• <i>Baseline (base case) footprints may be different.</i> | | | | | |

4.3.2 Compulsory Requirement 2 – Operational energy

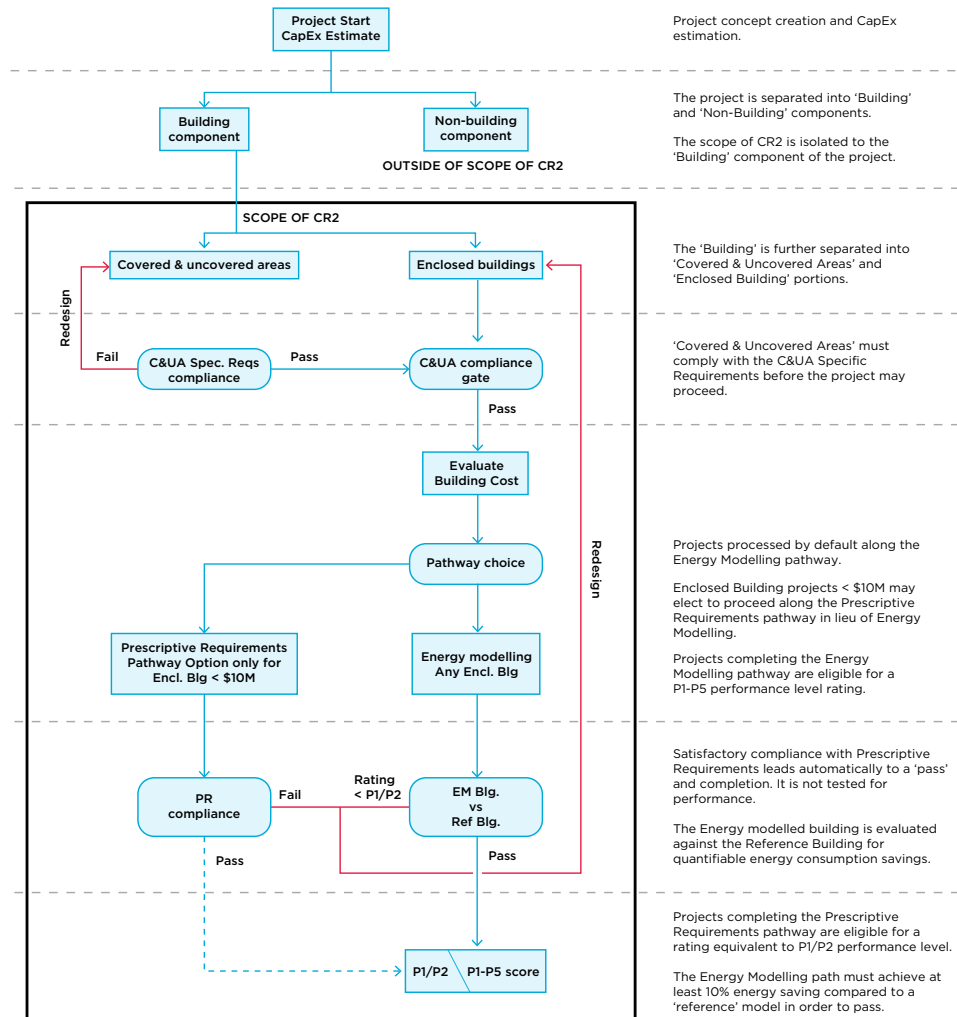
Compulsory Requirement 2

Buildings are required to be designed and built to reduce energy consumption:



- Covered or uncovered areas shall meet pre-requisite requirements for services (Appendix F, Section 3).
- Enclosed building spaces shall meet the performance targets of the energy modelling pathway (P2-P5).
- Where enclosed building space cost < \$10 million the prescriptive pathway may be followed in lieu of energy modelling (P1).

Pathways flowchart



Description

The scope of Compulsory Requirement 2 (CR2) is limited to the 'Building' component of a project.

Covered and Uncovered Areas Specific Requirements

'Covered and Uncovered Areas' are required to comply with the Specific Requirements of CR2 irrespective of other building components.

Compulsory Requirement 2

Buildings are required to be designed and built to reduce energy consumption:



- Covered or uncovered areas shall meet pre-requisite requirements for services (Appendix F, Section 3).
- Enclosed building spaces shall meet the performance targets of the energy modelling pathway (P2-P5).
- Where enclosed building space cost < \$10 million the prescriptive pathway may be followed in lieu of energy modelling (P1).

Description**Energy Modelling Pathway**

'Enclosed Buildings' are required to follow the Energy Modelling pathway to prove at least a 10% energy usage improvement over the NCC (BCA) Section JV3 Reference Building. Initiatives from, but not restricted to those listed in Appendix F, Section 6 may be considered in achieving energy consumption reductions.

CR2 assumes that the NCC JV3 Reference Building is used as the reference building regardless of building classification or requirement to comply with NCC (BCA). An alternative benchmark may be considered provided an equivalent energy saving potential as compared to NCC (BCA) Section J can be demonstrated.

Prescriptive Requirements Pathway

'Enclosed Buildings' with a component cost < \$10M may elect to follow the Prescriptive Requirements pathway in lieu of the energy modelling pathway. When electing to follow the Prescriptive Requirements pathway, all the prescriptive requirements shall be met through application of recognised good engineering practice. Since the Prescriptive Requirements pathway cannot quantify actual kWh reduction, projects on the Prescriptive Requirements pathway will not demonstrate a % reduction but will demonstrate that energy efficiency measures have been implemented, and therefore will achieve P1/P2 performance level.

On-site renewable energy generation

TfNSW is seeking to incorporate renewable energy generation on applicable building assets. However, renewable energy installations must not preclude energy efficient design. The proposed building must demonstrate a minimum 10% improvement (P1/P2 performance level rating) through the energy modelling pathway prior to inclusion of on-site renewable energy generation in the credit calculations.

Once a 10% improvement has been successfully demonstrated, the on-site renewable energy generation (e.g. solar PV) may be used to counteract the kWh energy expenditure of the proposed building in order to reach P3 – P5 score. Projects demonstrating compliance with CR2 through the Prescriptive Requirements pathway may still implement renewable energy installations. Such projects may be awarded P3 – P5 without energy modelling, subject to TfNSW approval.

| | | | | |
|--|---|------|-------|------|
| Importance score for rating | 12.25 | | | |
| Performance levels for rating | P1/P2 | P3 | P4 | P5 |
| compared to NCC Section J reference building | ≥10% (or Prescriptive Requirements pathway) | ≥15% | ≥20% | ≥25% |
| Weighted score | 0 | 24.5 | 36.75 | 49 |

Compulsory Requirement 2

Buildings are required to be designed and built to reduce energy consumption:



- Covered or uncovered areas shall meet pre-requisite requirements for services (Appendix F, Section 3).
- Enclosed building spaces shall meet the performance targets of the energy modelling pathway (P2-P5).
- Where enclosed building space cost < \$10 million the prescriptive pathway may be followed in lieu of energy modelling (P1).

Minimum evidence requirements

- Design reports and specifications which include a section demonstrating compliance with Specific Requirements outlined in Appendix F, Section 3 *Covered and Uncovered Areas Specific Requirements*.
- Design reports detailing modelling methodology in compliance with the energy modelling process outlined in Appendix F, Section 4 *Enclosed Building: Energy Modelling pathway*, and outcomes of energy modelling analysis; OR
- Design reports and specifications demonstrating compliance with Prescriptive Requirements outlined in Appendix F, Section 5 *Prescriptive Requirements pathway*.

Definitions

| | |
|-------------------|---|
| Enclosed building | Building spaces within above ground structures enclosed by roof and walls. The whole of an underground station is considered as an enclosed building. |
| Covered area | Building space covered only by roof and is otherwise exposed to outdoor ambient air. This includes a platform with a canopy. |
| Uncovered area | A space completely uncovered and exposed to the outdoor environment. This includes an open platform. |

Policy Drivers

NSW Government Resource Efficiency Policy (GREP)

Supporting guidelines and tools

National Construction Code
Appendix F

ISCA alignment with ISCA v1.2


Compliance with this requirement aligns with ISCA's requirements under Ene-1, 'Energy and carbon monitoring and reduction'. Within this credit ISCA awards projects that reduce emissions from key emission sources. ISCA requires emissions reduction to be measured in line with a base case footprint. For level 2 achievement, emissions reductions must be across both Scope 1 and Scope 2 emissions. For level 3 achievement important Scope 3 emissions must also be considered but need not be used to achieve the reduction. Note: The following differences to the ISCA Ene-1 credit:

- *Ene-1 target reductions are for infrastructure lifecycle emissions (construction and operation combined).*
- *Ene-1 targets at 15% reduction at Level 2 and 35% at Level 3 whereas this compulsory requirement targets 10%.*
- *Baseline (base case) footprints may be different.*

4.3.3 Compulsory Requirement 2A – Energy efficient appliances


| | |
|----------------------------------|---|
| Compulsory requirement 2A | All new electrical equipment (for the final asset) to be at least market average star rating. In categories where no star ratings are available, equipment purchased should be recognised as high efficiency either by being ENERGY STAR accredited, in a high efficiency band under Australian Standards or being above-average efficiency of Greenhouse and Energy Minimum Standards (GEMS) registered products. |
| Description | <p>Appliances and equipment purchased (for the final asset) in the following categories with star ratings under the Greenhouse and Energy Minimum Standards (GEMS) will be at least the following:</p> <ul style="list-style-type: none"> • Refrigerators – 2 stars • Clothes dryers, Fridge and Freezers – 2.5 stars • Washing machines – 3 stars • Air-to-air heat pumps and air conditioners – 3.5 stars if less than 4kW and 2.5 stars if greater than 4kW • Dishwashers, Televisions – 4 stars • Pool pumps – 5 stars <p>Equipment in the following categories will be endorsed as being high efficiency rating under ENERGY STAR® in Australia:</p> <ul style="list-style-type: none"> • Computers (i.e. – desktops, notebooks and tablets, workstations, small-scale servers and thin clients), Printers, Fax machines, Photocopiers, DVD players <p>Equipment in the following categories will meet the definition of ‘high efficiency’ under Greenhouse and Energy Minimum Standards:</p> <ul style="list-style-type: none"> • Refrigerated commercial display cabinets – AS1731.14, Distribution transformers – AS2374.1.2, Electric motors – AS1359.5, External power supplies – AS4879.2 <p>Equipment in the following categories will meet the following performance benchmarks:</p> <ul style="list-style-type: none"> • Air-cooled liquid chilling packages – IPLV of 4.5, Water-cooled liquid chilling packages – IPLV of 9, Closed-control air conditioners – AEER of 3.2 |
| Importance score for rating | 4.75 |
| Performance levels for rating | <p>P1/ P2/ P3/ P4/ P5</p> <p>All new electrical equipment to be at least market average. In categories where no star ratings are available all equipment must be Energy star accredited or above average GEMS registered.</p> |
| Weighted score | 0 |
| Minimum evidence requirements | <p>Register of electrical equipment specified and compliance against requirement.</p> <p>Life cycle costing assessment that demonstrates methods and costs have been assessed from an asset operations and maintenance perspective.</p> |
| Policy drivers | NSW Government Resource Efficiency Policy |
| Supporting guidelines and tools | Greenhouse and Energy Minimum Standards |
| ISCA alignment with ISCA v1.2 | Compliance with this requirement will support achievement of the requirements under ISCA's Ene-1 credit for the operational phase of a project. |

4.3.4 Compulsory Requirement 3 – Climate change risk


| Compulsory requirement 3 | All projects with a CapEx >\$15 million to undertake a climate risk assessment that mitigates all extreme and high residual risks. Refer to I&S Climate Risk Assessment Guide for further guidance. | | | |  |
|---------------------------------|---|--|--|--|---|
| Description | Recognising that the impacts from climate change pose a significant risk to its business, infrastructure assets and communities it serves, TfNSW is committed to building climate resilience across the network of current and future projects. | | | | |
| Importance score for rating | 12.75 | | | | |
| Performance levels for rating | P1/P2 Mitigate all extreme and high risks | P3 Mitigate all extreme and high risks, and 10% of medium risks | P4 Mitigate all extreme and high risks, and 25% of medium risks | P5 Mitigate all extreme and high risks, and 50% of medium risks | |
| Weighted score | 0 | 25.5 | 38.25 | 51 | |
| Minimum evidence requirements | Completed climate risk assessment in line with I&S' Climate Risk Assessment Guide which demonstrates that there are no extreme or high residual risks at a minimum. Life cycle costing assessment that demonstrates methods and costs have been assessed from an asset operations and maintenance perspective. | | | | |
| Policy drivers | Existing I&S requirement | | | | |
| Supporting guidelines and tools | <u>Climate Risk Assessment Guide (and tools/guidelines referenced within)</u> OEH Urban Green Cover In NSW Technical Guidelines | | | | |
| ISCA alignment with ISCA v1.2 | Completing this requirement supports achievement of the requirements in ISCA's Cli-1 Climate Risk Assessment and Cli-2 Adaptation Measures credits. The P1/P2, P4 and P5 performance levels correspond to Levels 1, 2 and 3 respectively in the ISCA Cli-2 credit. | | | | |

4.3.5 Compulsory Requirement 4 – Waste diversion

| Compulsory requirement 4 | 90% of construction waste and demolition waste (by weight) to be diverted from landfill for all projects with a CapEx > \$15 million. | | | |  |
|-----------------------------|---|--|--|--|---|
| Description | <p>The aim of this requirement is to reduce resource consumption and waste generation in the design and construction of projects. The waste hierarchy consists of three main stages –</p> <ol style="list-style-type: none"> 1. Avoidance including action to reduce the amount of waste generated. 2. Resource recovery including re-use, recycling, reprocessing and energy recovery. 3. Disposal including management of all disposal options in the most environmentally responsible manner. <p>This compulsory requirement focusses on projects achieving outcomes in stage 2 of the waste hierarchy by avoiding disposal of waste to landfill for a minimum of 90% construction waste produced on site.</p> | | | | |
| Importance score for rating | 6 | | | | |

| Compulsory requirement 4 | | | | | |
|---|---|--|------------|------------|------------|
| 90% of construction waste and demolition waste (by weight) to be diverted from landfill for all projects with a CapEx > \$15 million. | | | | | |
|  | | | | | |
| Performance levels for rating | P1 ≥90% | P2 ≥92% | P3 ≥94% | P4 ≥96% | P5 ≥98% |
| Weighted score | 0 | 6 | 12 | 18 | 24 |
| Minimum evidence requirements | Evidence can be either from waste contractor information and/or onsite waste separation monitoring/register depending on waste management approach: <ul style="list-style-type: none">• Waste registers which should include quantities generated, quantities reused/ recycled and the final destination (e.g. – recycling facility, on site reuse etc.) for key waste streams at a minimum.• Contractor information should include reports from the waste management provider (in the form of an invoice or otherwise) that details quantities generated and quantities reused/recycled for key waste streams. | | | | |
| Definitions | Construction waste | Includes all inert and non-hazardous waste generated on site during site establishment, construction and decommissioning including bricks, concrete, paper, plastics, glass, metal and timber, asphalt waste, used, rejected or unwanted tyres. <i>Note: Construction waste excludes spoil as spoil is covered by compulsory requirement 5.</i> | | | |
| | Diversion from landfill | Diversion from landfill relates to the following levels of the waste hierarchy: <ul style="list-style-type: none">• reuse waste• recycle waste• recover energy Refer to description above for further detail. | | | |
| Policy drivers | Existing I&S requirement | | | | |
| Supporting guidelines and tools | Business Recycling Directory http://businessrecycling.com.au/ | | | | |
| ISCA alignment with ISCA v1.2 | Compliance with this requirement supports (partial) compliance with the ISCA credits for Was-1: Waste Management and Was-2 Diversion from Landfill. The P1 performance level corresponds to Level 3 for ‘inert and non-hazardous waste’ (C&D waste) in the ISCA Was-2 credit. <i>Note: The following differences to the ISCA Wat-2 credit:</i> <ul style="list-style-type: none">• ISCA requires monitoring and measurement for both construction and operation.• Spoil is addressed by compulsory requirement 5 whereas ISCA Was-2 covers C&D waste and spoil.• ISCA Was-2 also covers office waste. | | | | |

4.3.6 Compulsory Requirement 5 – Beneficial spoil reuse

| Compulsory requirement 5 | | 100% of usable spoil (by weight) to be beneficially reused for all projects generating >300m ³ of spoil. |  |
|---------------------------------|---|--|---|
| Description | The aim of this requirement is to reduce resource consumption and waste generation in the design and construction of projects. Projects should consider: <ul style="list-style-type: none">• Balancing site works to avoid excess or importation of spoil.• Reuse any excess usable spoil on site (e.g. – landform feature, visual screening, noise attenuation).• Reuse any excess usable spoil off site (e.g. – at a nearby development where the spoil meets use requirements). | | |
| Importance score for rating | 4.75 | | |
| Performance level for rating | P1/ P2/ P3/ P4/ P5 100% | | |
| Weighted score | 0 | | |
| Minimum evidence requirements | Spoil register, which includes quantities of usable spoil and where it has been reused at a minimum. | | |
| Definitions | Usable Spoil | Uncontaminated excavated clay, gravel, sand, soil or rock that is not mixed with any other type of waste and resulting from construction and demolition activities. <i>Note: That acid sulphate soils are not included in this definition (source: ISCA).</i> | |
| | Beneficial reuse | Beneficial reuse includes but is not limited to activities associated with reuse on site or offsite, where fit for purpose and appropriate approvals have been obtained. <i>Note: Beneficial reuse does not include being treated as waste and being sent to landfill, unless the project can demonstrate that the material is genuinely inert and is being used for landfill capping material.</i> | |
| Policy drivers | Existing I&S requirement | | |
| Supporting guidelines and tools | NSW Waste Classification Guidelines | | |
| ISCA alignment with ISCA v1.2 | Compliance with this requirement supports (partial) compliance with the ISCA credits for Was-1: Waste Management and Was-2 Diversion from Landfill. The P1/P2/P3/P4/ P5 performance level corresponds to Level 3 for spoil in the ISCA Was-2 credit. <i>Note: The following differences to the ISCA Wat-2 credit:</i> <ul style="list-style-type: none">• <i>ISCA requires monitoring and measurement for both construction and operation.</i>• <i>C&D waste is addressed by compulsory requirement 4 whereas ISCA Was-2 covers spoil and C&D waste.</i>• <i>ISCA Was-2 also covers office waste.</i> | | |

4.3.7 Compulsory Requirement 6 – Water sensitive urban design

Compulsory requirement 6

All new effective impervious area with a continuous area >1000m² to be treated through water sensitive urban design.



Description

Water Sensitive Urban Design (WSUD) is the industry term describing the integration of water cycle management into planning, design and construction of the built environment through the replication of natural processes into treatment of water in a constructed environment. The main interaction with the water cycle in the development and operation of TfNSW projects is through the management of stormwater, where the amount of hard surface area created during construction increases the volume and decreases the quality of water entering downstream waterways.

This requirement relates to continuous areas of new effective impervious area >1000m² (refer to definitions below). Projects that have areas of new effective impervious area that trigger this threshold will be required to meet the following water treatment levels for the area specified in the relevant performance levels:


- 90% retention of gross pollutants
- 85% retention of the average annual load of suspended solids
- 65% retention of the average annual load of Total Phosphorus
- 45% retention of the annual load of Total Nitrogen
- maintain the 1.5 year Average Rainfall Interval (ARI) peak discharge to pre-development levels

For higher performance levels the project must meet the treatment levels specified as well as implement other WSUD related initiatives as outlined in the performance levels below.

Potential supporting initiatives that a project can choose to use to meet this requirement are listed in Appendix C. The TfNSW Water Sensitive Urban Design Guideline – Consultation Draft provides further detail on different WSUD initiatives and where they are most suited to be used.


All projects located within water catchment areas should consider setting water quality targets for the project in line with best practice. This is most effective when established as part of the environmental assessment process.

| Importance score for rating | 7.5 | | | | |
|-------------------------------|--|---|---|---|---|
| Performance levels for rating | P1 | P2 | P3 | P4 | P5 |
| | Treat all new effective impervious area with a continuous area >1000m ² to the following treatment levels | P1 requirements and at least 1 of the below initiatives | P1 requirements and at least 2 of the below initiatives | P1 requirements and at least 3 of the below initiatives | P1 requirements and at least 4 of the below initiatives |
| | 90% gross pollutants | <ul style="list-style-type: none"> • Demonstrate stormwater design excellence that links with climate change CR3 risk (medium or above) • Demonstrate a minimum 10% additional soft landscaping design excellence from that in the existing area to be developed/upgraded • Increase the retention of suspended solids, Total phosphorus and Total nitrogen to 90%, 75% and 55% respectively at a minimum • Include education signage/interactive elements around water sensitive urban design initiatives and/or involve the community in the design and/or construction phases • Demonstrate that water sensitive urban design elements implemented enhance habitat connectivity | | | |
| | 85% suspended solids | | | | |
| | 65% Total phosphorus | | | | |
| | 45% Total nitrogen | | | | |
| | Maintain or reduce 1.5 year ARI | | | | |

| Compulsory requirement 6 | | All new effective impervious area with a continuous area >1000m ² to be treated through water sensitive urban design. | | | |  |
|---------------------------------|---------------------------|--|-----|----|------|---|
| Weighted score | | 0 | 7.5 | 15 | 22.5 | 30 |
| Minimum evidence requirements | | Design report includes section with modelling to demonstrate that the water treatment and quantity targets have been met. Life cycle costing assessment that demonstrates methods and costs have been assessed from an asset operations and maintenance perspective. | | | | |
| Definitions | Effective Impervious area | Impervious area in the catchment that is directly connected to waterways (including stormwater drains) (i.e., precipitation falling on that area is effectively transported to the receiving waterway), thought to be a better predictor of ecosystem alteration to urban waterways when compared to total impervious area. <i>Note: Roof space is considered effective impervious area.</i> | | | | |
| | Continuous area | An uninterrupted area of effective impervious surface | | | | |
| Supporting guidelines and tools | | TfNSW Water Sensitive Urban Design Guideline – Consultation Draft OEHR Urban Green Cover in NSW Technical Guidelines Landcom – Water Sensitive Urban Design Book 1 – Policy WSUD.org – Interim Reference Guidelines for WSUD Water quality modelling programs e.g. – Model for Urban Stormwater Improvement Conceptualisation (MUSIC) by eWater | | | | |
| ISCA alignment with ISCA v1.2 | | Compliance with this requirement supports compliance for WSUD outlined in the ISCA credits associated with Urb-1: Urban Design and Dis-1: Receiving Water Quality | | | | |


4.3.8 Compulsory Requirement 7 – Construction water

| Compulsory requirement 7 | All projects with a CapEx > \$15 million to monitor and report water consumption during project construction and reduce potable water consumption where practicable. | | | | |
|-------------------------------|---|--|---|---|---|
| Description | <p>This requirement aims to encourage water use monitoring and on site water capture and reuse during the construction phase of a project.</p> <p>The higher performance levels (P3 and above) require a given proportion of overall water use to be from non-potable water sources in place of reduction targets as it is recognised that water use during construction can be dependent on a number of factors including weather, types of construction activities etc.</p> | | | | |
| Importance score for rating | 5.5 | | | | |
| Performance levels for rating | P1 Potable construction water monitored | P2 Potable and non-potable construction water monitored | P3 Potable and non-potable construction water monitored and a minimum of 5% of all construction water to be from non-potable sources | P4 Potable and non-potable construction water monitored and a minimum 20% of all construction water to be from non-potable sources | P5 Potable and non-potable construction water monitored and a minimum 50% of all construction water to be from non-potable sources |
| Weighted score | 0 | 5.5 | 11 | 16.5 | 22 |

| Compulsory requirement 7 | | All projects with a CapEx > \$15 million to monitor and report water consumption during project construction and reduce potable water consumption where practicable. | |  |
|---------------------------------|--|--|--|---|
| Minimum evidence requirements | Construction water monitoring register which includes volumes of potable water used at a minimum. If the project is pursuing a performance level above the P1 level then the register must show non-potable water volumes and the percentage of overall construction water use it comprises. Note: estimates can be used for non-potable water data (i.e. – using number of trucks). | | | |
| Definitions | Construction water | All water used in site establishment, construction and site decommissioning including water used to supply site offices and sheds (excluding drinking water and water used in concrete). <i>Note: Excess water captured on site and discharged without reuse is not considered construction water.</i> | | |
| Policy drivers | Existing I&S requirement | | | |
| Supporting guidelines and tools | I&S Water Discharge and Reuse Guideline (7TP-SD-024/1.0) | | | |
| ISCA alignment with ISCA v1.2 | This requirement supports (partial) compliance with ISCA’s Wat-1 credit regarding ‘water use monitoring and reduction’ and Wat-2 credit regarding ‘replace potable water’. The P2 performance level corresponds to Level 1 in the ISCA Wat-1 credit. The P3 and P5 performance levels correspond to Level 1 and Level 2 respectively for construction water in the ISCA Wat-2 credit. Reporting under ISCA requires monitoring across the asset lifecycle (construction and operation) however not just during construction as identified by this SDG requirement. | | | |




4.3.9 Compulsory Requirement 8 – Operational water


| Compulsory requirement 8 | All projects with a CapEx >\$15 million to undertake a water balance study and identify and implement appropriate and proportionate* operational water efficiency measures. | | | | |  |
|---------------------------------|---|---|---|---|--|---|
| Description | Business as usual should be defined through the process of undertaking a water balance study. The water balance study report should address the requirements of the Infrastructure and Services Water Balance Study Guide at a minimum. | | | | | |
| Importance score for rating | 6.5 | | | | | |
| Performance levels for rating | P1 Water balance study undertaken and minimum 80% water reuse for train wash facilities where applicable | P2 Water balance study undertaken and 5% reduction and minimum 85% water reuse for train wash facilities where applicable | P3 Water balance study undertaken and 10% reduction and minimum 90% water reuse for train wash facilities where applicable | P4 Water balance study undertaken and 15% reduction and minimum 95% water reuse for train wash facilities where applicable | P5 Water balance study undertaken and 20% reduction and 100% water reuse for train wash facilities where applicable | |
| Weighted score | 0 | 6.5 | 13 | 19.5 | 26 | |
| Minimum evidence requirements | Water Balance Study Report which identifies and quantified relevant reductions in anticipated water use through the implementation of water efficiency measures. Life cycle costing assessment that demonstrates methods and costs have been assessed from an asset operations and maintenance perspective. | | | | | |
| Definitions | Appropriate and proportionate water efficiency measures | Generally means identifying and quantifying at least a 5% reduction in water usage from business as usual (BAU). For train wash facilities it is defined as a minimum 80% of water used to be collected, recycled and reused. | | | | |
| Supporting guidelines and tools | Guide to water balance study 9TP-SD-096 | | | | | |
| ISCA alignment with ISCA v1.2 | Compliance with this requirement supports (partial) compliance in line with achieving Level 2 of the Wat-1 credit during operation (only) which rewards projects that can evidence monitoring and modelling demonstrating a reduction of total water use by 5-20% below a base case footprint. It also supports the intent of Wat-2: replace potable water. | | | | | |



4.3.10 Compulsory Requirement 8A – Water efficient appliances

| Compulsory requirement 8A | All new water-using appliances, shower heads, taps and toilets must be at least the average Water Efficiency Labelling Scheme (WELS) star rating by product type. |  |
|-------------------------------|--|---|
| Description | Appliances and equipment in the following categories with star ratings under the Water Efficiency Labelling Scheme (WELS) must have at least the following star ratings: <ul style="list-style-type: none"> • showerheads – 3 star • toilets and urinals, washing machines, dishwashers – 4 stars • taps and flow controllers – 4.5 stars | |
| Importance score for rating | 5.25 | |
| Performance levels for rating | P1/ P2/ P3/ P4/ P5 WELS ratings specified achieved | |
| Weighted score | 0 | |
| Minimum evidence requirements | Register of appliances and equipment specified and WELS rating achieved for each. Life cycle costing assessment that demonstrates methods and costs have been assessed from an asset operations and maintenance perspective. | |
| Policy drivers | NSW Government Resource Efficiency Policy | |
| ISCA alignment with ISCA v1.2 | Compliance with this requirement supports compliance with Wat-1, 'Water use monitoring and reduction. In particular it aligns with the examples of water saving opportunities identified for temporary office/worker ablutions. | |

4.3.11 Compulsory Requirement 9 – Low VOC surface coatings

| Compulsory requirement 9 | All surface coatings to comply with the Australian Paint Approval Scheme (APAS) Volatile Organic Compounds Limits where fit for purpose |  |
|-------------------------------|--|---|
| Description | Volatile organic compounds (VOC) emissions contribute significantly to air pollution in NSW and there are major health and economic gains to be made from their reduction. | |
| Importance score for rating | 4.25 | |
| Performance levels for rating | P1/ P2/ P3/ P4/ P5 All surface coatings comply with the APAS VOC Compound Limits | |
| Weighted score | 0 | |
| Minimum evidence requirements | A register of surface coatings specified which demonstrates compliance with the Australian Paint Approval Scheme (APAS) Volatile Organic Compounds Limits. | |
| Policy drivers | NSW Government Resource Efficiency Policy | |

Compulsory requirement 9

All surface coatings to comply with the Australian Paint Approval Scheme (APAS) Volatile Organic Compounds Limits where fit for purpose



Supporting guidelines and tools

www.apas.gov.au/index.asp
www.apas.gov.au/PDFs/D181.pdf

ISCA alignment with ISCA v1.2

As Volatile Organic Compounds can have negative health impacts if inhaled and contribute to poor air quality (particularly in indoor environments). Compliance with this requirement supports the intent of the ISCA Dis-4 credit associated with Air Quality.

4.3.12 Compulsory Requirement 10 – Mobile non-road diesel plant emissions reporting

Compulsory requirement 10

All mobile non-road diesel plant and equipment (with an engine greater than 19kW) to report engine conformity with relevant United States Environmental Protection Agency (US EPA), European Union (EU) or equivalent emissions standards and the fitting of any exhaust after-treatment devices. Reporting should be in accordance with the Air Emission Data Workbook – 9TP-FT-439.



Description

Diesel emissions contribute significantly to air pollution in NSW and there are major health and economic gains to be made from their reduction.

Importance score for rating

3.25

Performance levels for rating

P1/ P2/ P3/ P4/ P5
 Non-road diesel plant and equipment report conformity with US EPA and EU emissions standards

Weighted score

0

Minimum evidence requirements

Completed Air Emissions data workbook 9TP-FT-439

Policy drivers

NSW Government Resource Efficiency Policy


Supporting guidelines and tools

<http://www.dieselnet.com/standards/us/nonroad.php>
<http://www.dieselnet.com/standards/eu/nonroad.php>

ISCA alignment with ISCA v1.2

Minimising emissions and air pollution associated with non-road diesel plant and equipment supports the intent of the ISCA Dis-4 credit associated with Air Quality and in particular 'measures to minimise adverse impacts to local air quality' in Level 1.


4.3.13 Compulsory Requirement 11 – Vegetation offsets

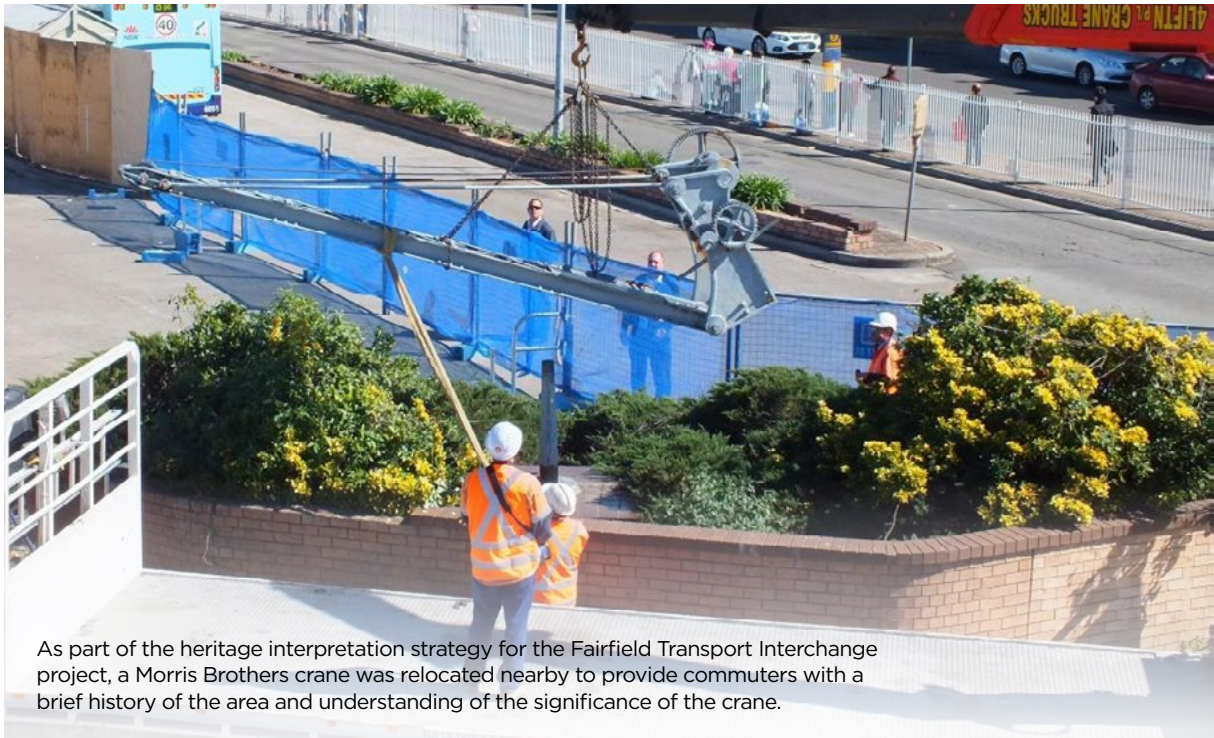
| Compulsory requirement 11 | All projects with non-significant biodiversity impacts to comply with the Infrastructure and Services Vegetation Offset Guide as applicable. | |  |
|---------------------------------|---|--|---|
| Description | The I&S Vegetation Offset Guide is to be applied to all projects that have non-significant biodiversity impacts. Projects with significant biodiversity impacts will be subject to legislative requirements. | | |
| Importance score for rating | 10 | | |
| Performance levels for rating | P1/ P2/ P3/ P4/ P5 Compliance with the vegetation offset guide | | |
| Weighted score | 0 | | |
| Minimum evidence requirements | Evidence may include but is not limited to: <ul style="list-style-type: none"> • Completed vegetation offset calculator (TP-SD-067) • Urban Design and Landscape Plan which demonstrates the required offset has been met • Consultation with relevant council | | |
| Definitions | Significant biodiversity impacts | Significant biodiversity impacts include: <ul style="list-style-type: none"> • Where proposed vegetation clearing is deemed ‘significant’ for the purposes of section 111 of the <i>Environmental Planning and Assessment Act (EP&A Act) 1979</i>. • Significant impact on threatened flora species, or ecological community, habitat of a threatened species listed under the <i>NSW Threatened Species Conservation Act 1995</i> (the TSC Act) or the <i>Commonwealth Environmental Protection and Biodiversity Conservation Act 2000</i> (the EPBC Act). • Significant impact on native vegetation that represents part of a wetland of international importance, or natural heritage values of a World Heritage property, natural heritage values of a National Heritage place. • Where the Commonwealth Minister for the Environment, Water and Heritage has determined the project is a ‘controlled action’. | |
| Policy drivers | Existing I&S requirement | | |
| Supporting guidelines and tools | I&S Vegetation Offset Guide I&S Vegetation Offset Calculator | | |
| ISCA alignment with ISCA v1.2 | Compliance with this requirement supports (partial) compliance with achieving requirements of Eco-1: Ecological value within the ISCA rating tool. | | |

4.3.14 Compulsory Requirement 12 – Sustainable procurement

| Compulsory requirement 12 | All projects must: i. meet steel and timber sustainable procurement requirements; and ii. undertake sustainable procurement training for high impact suppliers. | | | | |
|--|---|---|---|---|---|
| Description | Projects are required to: i. Steel and timber procurement requirements can be found in Appendix G. ii. Provide sustainability training for 'high impact' suppliers, for example through use of the Australian Supply Chain School. Note: Training must be undertaken within a three year period. Note: Internal training or other sustainable procurement training is sufficient. | | | | |
| Importance score for rating | 12 | | | | |
| Performance level for rating for projects with a CapEx >\$50 million | P1 Sustainability training for high impact suppliers AND Steel and timber sustainable procurement requirements | P2 Requirements for P1 and at least 1 of the below initiatives | P3 Requirements for P1 and at least 2 of the below initiatives | P4 Requirements for P1 and at least 3 of the below initiatives | P5 Requirements for P1 and at least 4 of the below initiatives |
| Weighted score | 0 | 12 | 24 | 36 | 48 |
| Minimum evidence requirements | For i. Refer Appendix G for steel and timber evidence requirements. For ii. Document outlining process undertaken to identify high impact suppliers (and the results of that process). Sustainability training register, including type of training, date of training and suppliers that have undertaken training). | | | | |





| <div> <div>Compulsory requirement 12</div> <div> All projects must: <div>  </div> </div> </div> | | |
|--|---|---|
| | <div> <div>i. meet steel and timber sustainable procurement requirements; and</div> <div>ii. undertake sustainable procurement training for high impact suppliers.</div> </div> | |
| Definitions | High impact suppliers | <p>Refers to materials/services that have known (or potentially) significant environmental, social or socio-economic impacts or opportunities. Level of spend and ability to influence are criteria that can be applied to identify suppliers for sustainability training, as well as a contractor's corporate sustainability policy commitments. Alternatively a risk assessment may reveal areas of focus across a project's various supply chains.</p> <p>For further guidance refer to:</p> <ul style="list-style-type: none"> • British Standard BS 8903:2010 Principles and Framework for Procuring Sustainably – Guide. • ISO 20400 Sustainable Procurement – Guidance. • ISCA Technical Manual Pro-2 credit. |
| | Steel and timber requirements | <p>Appendix G details the steel and timber sustainable procurement requirements. These requirements have been developed in response to a high impact supplier analysis undertaken by TfNSW. Projects should include steel and timber as part of their sustainable procurement strategy and sustainability training program (where steel and/or timber products are being used) to ensure these requirements are met.</p> |
| | Sustainability training | <p>Contractors can use their discretion to determine the training scope and needs of their organisation and suppliers – but it must at a minimum address 'high impact' suppliers. Supply chain sustainability training will ideally cover environmental, social and economic topics. Examples include waste management, energy efficiency, human rights and modern slavery, apprenticeships and traineeships, local sourcing, and worker health and safety.</p> <p>In addition to the Australian Supply Chain Sustainability School, other training options include internal sustainability education programs offered by contractors to their procurement staff/supply chain, and the Green Building Institute's Green Tradies program. A combination of training programs may be appropriate.</p> <p>Where a supplier has recently undertaken sustainability training prior to being engaged on the project, and that training meets the intent of this training requirement, it should be added to the Sustainability Training Register.</p> |
| Policy Drivers | I&S Sustainable Procurement Procedure, NSW Procurement Policy Framework | |
| Supporting guidelines and tools | ISCA Technical Manual ISO 20400 BS8903:2010 Appendix G | |
| ISCA alignment with ISCA v1.2 | Compliance with higher performance levels (P2 – P5) will assist in meeting some of the requirements in the ISCA procurement credits. | |




As part of the heritage interpretation strategy for the Fairfield Transport Interchange project, a Morris Brothers crane was relocated nearby to provide commuters with a brief history of the area and understanding of the significance of the crane.

4.3.15 Compulsory Requirement 13 – Urban design

| Compulsory requirement 13 | All projects to address the urban design principles in the TfNSW Interim Urban Design Best Practice Guidelines within their urban design and landscaping plan (UDLP) or equivalent. |  |
|---------------------------|--|---|
| Description | <p>Projects that have an interaction with the public domain (both surrounding community and customer) are required to prepare Urban Design and Landscape Plans (UDLP) or equivalent.</p> <p>The 8 principles outlined in the Interim version of the Urban Design Best Practice Guidelines <i>Around the Tracks urban design for heavy and light rail</i> are outlined below:</p> <ul style="list-style-type: none"> • Principle 1 Draw on a comprehensive site and context analysis to inform the design direction. • Principle 2 Provide value-for-money design solutions that achieve high quality low maintenance architectural and urban design outcomes that have longevity. • Principle 3 Provide connectivity and permeability for pedestrians. • Principle 4 Integrate the project with the surrounding area. • Principle 5 Maximise the amenity of the public domain. • Principle 6 Protect and enhance heritage features and significant trees. • Principle 7 Maximise positive view opportunities. • Principle 8 Design an efficient and functional transport solution which enhances and contributes to local amenity and prosperity. <p>Projects are required to outline how they have addressed each of these principles at a minimum as part of their project UDLP or equivalent. The UDLP or equivalent is to be delivered in an early design phase.</p> | |

| Compulsory requirement 13 | | All projects to address the urban design principles in the TfNSW Interim Urban Design Best Practice Guidelines within their urban design and landscaping plan (UDLP) or equivalent. | | | |  |
|---------------------------------|---|---|---|--|---|---|
| Importance score for rating | 11 | | | | | |
| Performance levels for rating | P1 Principles in the interim urban design best practice guidelines to be addressed in the project UDLP or equivalent | P2 Requirements of P1 and project engages with Precincts and Urban Design Team | P3 Requirements of P1 and project engages with Precincts and Urban Design Team at concept design phase | P4 Requirements of P1 and project undertakes ongoing engagement with Precincts and Urban Design Team from concept design through detailed design phases | P5 Requirements of P4 and project can demonstrate that the design development responds to comments made by the Precincts and Urban Design Team and Design, Sustainability Review Panel (where relevant) in a timely manner | |
| Weighted score | 0 | 11 | 22 | 33 | 44 | |
| Minimum evidence requirements | Urban Design and Landscaping Plan (UDLP) or equivalent that addresses the 8 principles outlined in <i>Around the Tracks urban design for heavy and light rail</i> . Evidence may also include: <ul style="list-style-type: none">• Meeting minutes• Emails• Presentations• Comments closeout registers Life cycle costing assessment that demonstrates methods and costs have been assessed from an asset operations and maintenance perspective. | | | | | |
| Definitions | Urban Design and Landscape Plan or equivalent | This includes but is not limited to Public Domain Plans (PDP) and Urban Design Plans (UDP) | | | | |
| Policy drivers | Suite of documents that comprise the Urban Design Best Practice Guidelines (refer to supporting guidelines below). | | | | | |
| Supporting guidelines and tools | INTERIM VERSION TfNSW Around the Tracks urban design for heavy and light rail INTERIM VERSION TfNSW Managing Heritage issues in rail projects guidelines INTERIM VERSION TfNSW Creativity Guidelines for transport systems INTERIM VERSION Multi-level and at-grade Commuter Car Parks urban design guidelines | | | | | |
| ISCA alignment with ISCA v1.2 | Compliance with this requirement supports (partial) compliance with requirements outlined under Urb-1: Urban design. The TfNSW Interim Urban Design Best Practice Guidelines are expected to be approved as an 'ISCA approved guideline' under Urb-1. Subject to this approval, performance levels P1, P2 and P5 align with Urb-1 levels 1, 2 and 3 respectively. | | | | | |

4.3.16 Compulsory Requirement 14 – Innovation and project legacy

| | | |
|---------------------------|---|---|
| Compulsory Requirement 14 | The project is awarded at least 1 point for a single initiative against the ISCA Innovation Credit Inn-1 |  |
| | <p>OR</p> <p>The project makes a contribution to industry and/or the local community in line with the project legacy categories specified (<i>Note: The requirements are determined by CapEx</i>).</p> | |
| Description | <p>This requirement encourages innovation and project legacy. There are two pathways in which a project can meet this compulsory requirement. They can either pursue an innovation in line with the ISCA innovation credit Inn-1 or they can implement other project legacy or community initiatives in line with the categories specified below.</p> <p>Pathway 1: ISCA Inn-1 Credit</p> <p>Under the ISCA innovation credit (Inn-1) a project can be awarded up to 10 points as follows:</p> <ul style="list-style-type: none"> • Up to 10 initiatives can be submitted. • Each verified initiative will be awarded one point unless it is an Australian 1st (2pts), World 1st (3 pts), or indicated otherwise elsewhere • Each initiative must meet one or more of the following five criteria: <ul style="list-style-type: none"> – innovative technology or process – market transformation – improving on credit benchmarks – innovation challenge – global sustainability <p>If the project is registered with ISCA the points awarded will be entirely at the discretion of the ISCA verifiers.</p> <p>Note: Projects not pursuing an ISCA rating can still pursue pathway 1 under Compulsory Requirement 14.</p> <p>Pathway 2: other project legacy or community initiatives</p> <p>If a project is not pursuing an innovation that meets the ISCA innovation credit (Inn-1), the project must achieve a certain number of points through implementing project legacy initiatives. Project legacy initiatives can address any of the following areas:</p> <ul style="list-style-type: none"> • Knowledge sharing/ Educational initiatives (refer to ISCA Technical Manual for suggested approaches to knowledge sharing). • Initiatives to support renewable energy transport forms. • Initiatives to support active transport and integration with other modes and forms of transport. • Initiatives to provide communication networks in metro areas. • Future proofing initiatives. • Shared/adaptive reuse initiatives. • Community facilities or community identity related initiatives. • Initiatives to monitor resource use within buildings. <p><i>Note: That the performance levels vary depending on the project value, with different performance levels specified for the following project values:</i></p> <ul style="list-style-type: none"> • CapEx <\$15 million • CapEx ≥\$15 million – <\$ 50 million • CapEx ≥\$50 million <p>The project must self-assess each proposed initiative against the criteria in the below table to determine how many points the initiative/s are worth.</p> | |

Compulsory Requirement 14

The project is awarded at least 1 point for a single initiative against the ISCA Innovation Credit Inn-1



OR

The project makes a contribution to industry and/or the local community in line with the project legacy categories specified (*Note: The requirements are determined by CapEx*).

Description continued

| Points | Criteria |
|----------|--|
| 1 point | Indirect benefit and / or tangible benefit |
| | Benefits are of a temporary nature (during the construction period only) |
| | Benefits are of a localised nature (i.e. – benefit a specified local community group only) |
| 2 points | Tangible benefit |
| | Benefit is anticipated to continue beyond the construction period for up to five years |
| | The initiative provides a benefit that contributes to a broader local community |
| 3 points | Considerable/substantial benefits |
| | The benefit is anticipated to continue beyond a five year period after construction completion |
| | The initiative provides a benefit that contributes to broader community |

The project must submit a memo outlining the initiative/s and how many points they consider them to be worth to the TfNSW Sustainability and Systems Team. Final points awarded for this requirement will be subject to approval of the memo.

Importance score for rating

11.5

Performance level for rating for projects pursuing initiatives that meet the ISCA Inn-1 credit

P1/ P2

1 – 2 points against the ISCA Innovation Credit Inn-1 (as certified by ISCA)

P3

3 – 4 points against the ISCA Innovation Credit Inn-1 (as certified by ISCA)

P4/P5

5 or more points against the ISCA Innovation Credit Inn-1 (as certified by ISCA)

Performance level for rating for projects with a CapEx < \$15 million

P1/ P2

At least 1 point for a project legacy initiative

P3

At least 2 points for a project legacy initiative/s

P4/P5

At least 3 points for a project legacy initiative/s

Performance level for rating for projects with a CapEx >\$15 million – \$50 million

P1/ P2


At least 2 points for a project legacy initiative/s

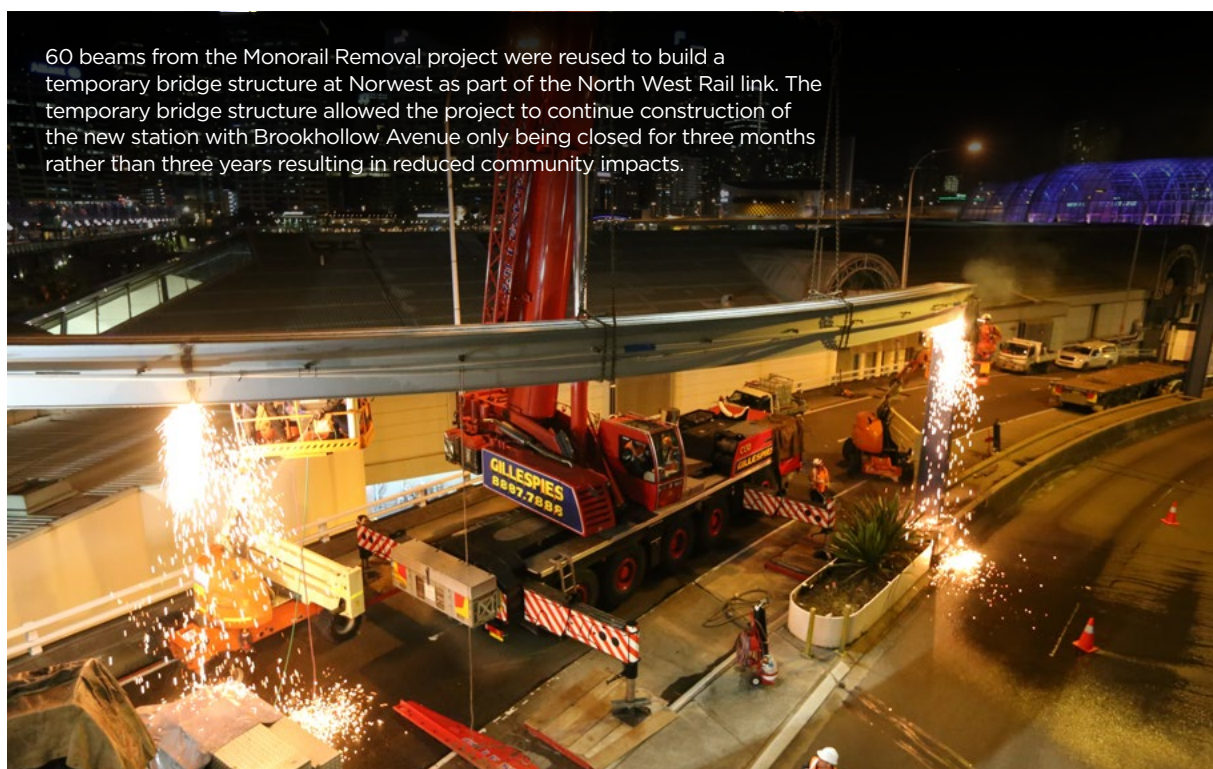
P3

At least 4 points for a project legacy initiative/s

P4/P5

At least 6 points for a project legacy initiative/s

| | | | | |
|--|---|---|--|---|
| Compulsory Requirement 14 | The project is awarded at least 1 point for a single initiative against the ISCA Innovation Credit Inn-1 | | |  |
| | OR The project makes a contribution to industry and/or the local community in line with the project legacy categories specified (<i>Note: The requirements are determined by CapEx</i>). | | | |
| Performance level for rating for projects with a CapEx >\$50 million | P1/ P2 At least 3 points for a project legacy initiative/s | P3 At least 6 points for a project legacy initiative/s | P4/P5 At least 9 points for a project legacy initiative/s | |
| Weighted score | 0 | 23 | 34.5 | |
| Minimum evidence requirements | Evidence may include: <ul style="list-style-type: none">• Memo• Photos• Emails Life cycle costing assessment that demonstrates methods and costs have been assessed from an asset operations and maintenance perspective. | | | |
| Supporting guidelines and tools | ISCA Technical Manual | | | |
| ISCA alignment with ISCA v1.2 | The compulsory requirement gives you the option to pursue ISCA requirements associated with ISCA credit Inn-1 | | | |



5. Review of the Sustainable Design Guidelines



Newtown Station upgrade project.

The Guidelines will be reviewed on an annual basis to consider the following at a minimum:

- The effectiveness of the current compulsory requirements, and whether any changes are required.
- Any new emerging areas where a compulsory requirement should be developed.
- Whether the weighting associated with each compulsory requirement still reflects I&S organisational priorities and areas of material impact.
- Evaluation of benefits realisation.



Epping to Thornleigh Third Track project – Cheltenham Station.

6. Glossary of terms



Artwork at Beecroft Station on the Epping to Thornleigh Third Track project, which used local children's interpretation of the native plants and wildlife to create a six-panel artwork named 'Our Place'.

| Term/Abbreviation | Definition |
|------------------------------------|---|
| BCA | Building Code of Australia |
| Beneficial reuse | <p>Beneficial reuse includes but is not limited to activities associated with reuse on site or offsite, where fit for purpose and appropriate approvals have been obtained.</p> <p><i>Note: Beneficial reuse does not include material being treated as waste and being sent to landfill, unless the project can demonstrate that the material is genuinely inert and is being used for landfill capping material.</i></p> |
| CERT | Carbon Estimate Reporting Tool – a tool that has been developed to provide consistency in Greenhouse Gas (GHG) emissions assessment and reporting across all I&S projects, and to streamline and simplify the GHG assessment process for I&S, its service providers/contractors and its stakeholders. |
| Construction related GHG emissions | GHG emissions associated with the delivery of a construction project including scope 1 emissions (i.e. – direct emissions from site such as fuel combustion), scope 2 emissions (i.e. – upstream emissions from electricity purchased for site) and scope 3 emissions (i.e. – the embodied emissions in the materials used to deliver the project). Refer to CERT for details of the emissions that must be reported on. |
| Construction water | All water used in site establishment, construction and site decommissioning including water used to supply site offices and sheds (excluding drinking water and water used in concrete). <i>Note: Excess water captured on site and discharged without reuse is not considered construction water.</i> |
| Covered area | Refers to a building space covered only by roof and is otherwise exposed to outdoor ambient air. This includes a platform with a canopy. |
| Critical design review (CDR) | CDR is a design review process that takes place at or close to the completion of the detailed design phase. The primary purpose is to ensure that the design appears to be suitable to proceed with construction/fabrication of hardware items or coding of software. In cases where the project is limited to design i.e. – separate design and construct contracts are involved, the CDR will form a major input for determining whether the requirements of the design contract have been met. |
| DTS | Deemed to satisfy |
| Effective impervious area | Impervious area in the catchment that is directly connected to waterways (including stormwater drains) (i.e. precipitation falling on that area is effectively transported to the receiving waterway), thought to be a better predictor of ecosystem alteration to urban waterways when compared to total impervious area. <i>Note: roof space is considered effective impervious area.</i> |
| Enclosed building | Refers to building spaces within above ground structures enclosed by roof and walls. The whole of an underground station is considered as an enclosed building. |
| High impact suppliers | <p>Refers to materials/services that have known (or potentially) significant environmental, social or socio-economic impacts or opportunities (refer to British Standard BS 8903:2010 for further guidance). Level of spend and ability to influence are also criteria that can be applied to identify suppliers for sustainability training.</p> <p>The contractor can determine which organisations/suppliers are required to undertake training and to what level.</p> |

| Term/Abbreviation | Definition |
|----------------------------------|--|
| ISCA | Infrastructure Sustainability Council of Australia (ISCA) is a member based not for profit industry peak body. ISCA is a peak industry body for advancing sustainability outcomes in infrastructure through the development and facilitation of the IS rating scheme. |
| IS rating scheme | An industry compiled voluntary sustainability performance rating scheme developed by ISCA evaluating planning, design, construction and operation of all infrastructure asset classes in all sectors linking industry, communities and commerce beyond regulatory standards. |
| G-REP | NSW Government Resource Efficiency Policy (GREP) sets a vision <i>for a resource productive public sector that provides better services to the NSW community with less impact on the environment</i> , establishing targets and goals for the NSW public sector to meet. |
| NCC | National Construction Code |
| Significant biodiversity impacts | <p>Significant biodiversity impacts include:</p> <ul style="list-style-type: none"> • Where proposed vegetation clearing is deemed 'significant' for the purposes of section 111 of the <i>Environmental Planning and Assessment Act (EP&A Act) 1979</i> • Significant impact on threatened flora species, or ecological community, habitat of a threatened species listed under the <i>NSW Threatened Species Conservation Act 1995</i> (the <i>TSC Act</i>) or the <i>Commonwealth Environmental Protection and Biodiversity Conservation Act 2000</i> (the <i>EPBC Act</i>) • Significant impact on native vegetation that represents part of a wetland of international importance, or natural heritage values of a World Heritage property, natural heritage values of a National Heritage place and <p>Where the Commonwealth Minister for the Environment, Water and Heritage has determined the project is a 'controlled action'.</p> |
| Systems design review (SDR) | SDR is a design review process that should be carried out as early as possible after the start of a project (early in preliminary design phase). The main purpose is to ensure that the engineering specification fully defines the requirements for the task and that any inconsistencies or omissions are identified and resolved. |
| Uncovered area | Refers to a building space completely uncovered and is exposed to the outdoor environment. This includes an open platform. |
| Usable spoil | Uncontaminated excavated clay, gravel, sand, soil or rock that is not mixed with any other type of waste and resulting from construction and demolition activities. <i>Note: That acid sulphate soils are not included in this definition.</i> |

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