LEVEL CROSSING REMOVAL AUTHORITY

URBAN DESIGN FRAMEWORK:
PRINCIPLES & OBJECTIVES, MEASURES & QUALITATIVE BENCHMARKS

Version 4

MAY 2018
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<td>Australian Sustainable Built Environment Council</td>
</tr>
<tr>
<td>COAG</td>
<td>Council of Australian Governments</td>
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<tr>
<td>CSG</td>
<td>Creative Strategy Guideline</td>
</tr>
<tr>
<td>DEDJTR</td>
<td>Department of Economic Development, Jobs, Transport and Resources</td>
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<td>DELWP</td>
<td>Department of Environment, Land, Water and Planning</td>
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<td>ESD</td>
<td>Environmentally Sustainable Design</td>
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<tr>
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<td>ISCA</td>
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<td>LXRP</td>
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<td>MREP</td>
<td>Mernda Rail Extension Project</td>
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<td>MMRA</td>
<td>Melbourne Metro Rail Authority</td>
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<td>OGVA</td>
<td>Office of the Victorian Government Architect</td>
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<td>TIA</td>
<td>Transport Integration Act (2010)</td>
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<td>UDAP</td>
<td>Urban Design Advisory Panel</td>
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<td>UDF</td>
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FOREWORD

A UNIQUE OPPORTUNITY

The Major Transport Infrastructure Program (MTIP) is one of the most significant investments in transport infrastructure in Victoria’s history. The program, which includes projects being undertaken by the Level Crossing Removal Authority (LXRA), is more than just road or rail projects; they are city shaping projects that will create a lasting legacy for Melbourne. Incorporating the principles and practices of great urban design and place making is therefore a priority if this investment is to deliver a full range of benefits for current and future Victorians.

The Victorian State Government, through the LXRA, is removing 50 dangerous and congested level crossings across Melbourne, as well as undertaking other infrastructure projects, to improve safety for rail and road users, pedestrians and cyclists.

Achieving high quality urban design is a long-term complex process that is intent on creating integrated, useful, attractive, safe, environmentally sustainable, economically successful and socially equitable places. By maintaining a focus on urban design from the outset, we will build more cohesive and inclusive community places, more environmentally sensitive infrastructure and new urban spaces that are safe and engaging for people, and contribute to civic pride and local economies.

This Urban Design Framework (UDF) sets the expectations of the LXRA for high quality, context sensitive urban design outcomes and sets out principles, measures and qualitative benchmarks so that we can measure and be sure design outcomes meet those expectations.

Thanks to all the people who have contributed to this document and who are working hard to achieve great urban design outcomes for the level crossing removal program. Together we are shaping the future landscape of Melbourne, its transport network and its role in building and sustaining healthy and prosperous communities.

KEVIN DEVLIN
Chief Executive Officer
Level Crossing Removal Authority
1. INTRODUCTION

1.1 WHY IS URBAN DESIGN IMPORTANT?

Urban design is the practice of designing and making great places and spaces that work well and are enjoyable for people to be in. It ensures that every move considers and capitalises on opportunities to maximise the safety and amenity of users, provide integrated transport solutions and create a better environment for people.

Urban design shapes the built environment to improve the quality and overall liveability of cities and towns. While urban design is often tailored for a specific project, the dynamic and evolving nature of urban environments means that urban design is a long-term process.

Good urban design employs a multi-disciplinary approach, derived from a variety of disciplines, such as planning, architecture, engineering and landscape architecture. It draws on these disciplines to create a vision for an area and then deploys the resources and skills needed to bring that vision to life.

Good urban design operates at a variety of scales; from the macro scale of urban structures, such as city-wide transport networks, to micro scale elements such as lighting. Urban design is also involved throughout the project lifecycle, from the project definition, through to option studies, concept and detailed design, construction and evaluation.

Urban design is not limited to special projects and should underpin all government projects. It is achievable and important in even the smallest urban interventions. Good urban design processes and outcomes are important because they improve:

- The functionality, character and spirit of public places for individuals and communities;
- The levels of comfort, accessibility, safety and inclusiveness of places;
- The expression of social and cultural values associated with places;
- The socio-economic composition, diversity and economic vibrancy of urban areas;
- The sustainability and resilience of urban environments; and
- Community connectedness, health and wellbeing, and pride of place.

When urban design objectives are considered alongside technical considerations from the outset of a project and throughout the project delivery, it results in better, more integrated and efficient urban outcomes which can often be achieved at minimal additional cost. Altering the urban environment can be challenging and costly and attempts to implement urban design objectives at later stages of projects proves difficult and expensive. Figure 1 shows that when key design initiatives are put in place at the early stages of a project, there is greater opportunity for good design to be realised.
High quality, well-integrated design is critical to the success of a major infrastructure project. Establishing a vision and key design initiatives that consider the long-term possibilities for a place and community during early stages and at a broader scale than just that of the initial transport project investment may act as a catalyst and unlock transformative urban integration and urban renewal opportunities.

It is essential that any integrated development opportunities contribute to improved urban amenity through incorporation of good urban design approaches, to ensure site responsive, locally relevant higher density development. This project has the potential to set strong benchmarks for design quality in urban renewal and to serve as a catalyst for positive urban renewal that reinvigorates and reconnects communities.

Factors that can have a significant impact on design outcomes include:

- Developing a vision statement;
- Quality of the brief;
- Adequacy of the budget;
- Adequacy of the program;
- Good design review processes;
- Good management and governance of urban design process;
- Skill of the design team; and
- Ability to integrate multiple design disciplines.

The LXRA is committed to ensuring high quality urban design is achieved through all of its projects.

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**Embedding Design Quality**

LXRA works with the Office of the Victorian Government Architect (OVGA) to implement a design approach, applicable across the MTIP, consisting of the following pillars:

- **Common vision:** create a lasting legacy for Melbourne through great urban design and place making in our major transport infrastructure projects.
- **Accountability:** prepare urban design documents to guide the planning, design and evaluation of major transport projects.
- **Transparency:** undertake a program of stakeholder and community engagement to inform the design of major transport infrastructure projects, including identifying key local considerations and opportunities to involve the community, including young people, in the projects.
- **Governance:** seek expert design advice through the whole of project life-cycle, retaining consistent design expertise from the OVGA, industry and stakeholders at all stages of the project including development, procurement and delivery; and
- **Independent design review:** use the Victorian Design Review Panel at key milestones throughout the project lifecycle, as appropriate.

This UDF is based on this approach and demonstrates accountability.
1.2 PURPOSE AND ROLE OF THE UDF

The UDF will guide the integrated planning and design of level crossing removal projects, and other projects as allocated, to deliver high quality, context sensitive urban design outcomes which enhance urban amenity and minimise adverse impacts. The UDF will be used to:

- Inform and influence the project design and options;
- Inform site specific urban design guidelines;
- Evaluate design proposals;
- Evaluate detailed design; and
- Assess built form outcomes.

Design must address both the rail and road infrastructure, as well as identify broader place making opportunities for communities and places through which the project passes.

The UDF encourages private sector expertise and innovation in creating outstanding urban design outcomes, through a collaborative design approach to developing technical proposals.

It is essential each project demonstrates integrated urban design thinking as a catalyst for urban renewal, improving the quality of the public domain, being context responsive and helping to enhance existing urban character and amenity.

Rather than providing prescriptive urban design solutions, the UDF sets out what is to be achieved in terms of urban design quality and performance.

The principles, objectives, measures and qualitative benchmarks set out in this UDF will:

- Ensure proposals develop with good urban design considerations, treated as being integral to project solutions;
- Provide the basis for the Urban Design Advisory Panel (UDAP) to provide advice and feedback;
- Guide the evaluation of design proposals; and
- Establish the minimum quality expected by the State in terms of performance outcomes and benchmarks for quality.

The UDF is a living document that will be updated as the LXRP progresses.

While the UDF provides program wide guidance, LXRA also produces Urban Design Guidelines and detailed project requirements for each level crossing removal site. These are informed by the UDF and complemented by the Integrated Art Guidelines. Figure 2 shows the relationship between these four documents.
Figure 2 Purpose and the Role of contract documents including UDF, UDG and CSG

**URBAN DESIGN DOCUMENTATION**

1. **URBAN DESIGN FRAMEWORK (UDF)**
   - Overarching framework that describes high-level design aspirations and expectations of the State.
   - Contains eight key urban design principles, with objectives, measures and benchmarks
   - Used to inform and influence the development of design proposals and provide a framework for design evaluation.

2. **URBAN DESIGN GUIDELINES (UDG)**
   - Site-specific guidelines that establish design intent for each location.
   - Contains context analysis and design intent

3. **PROJECT/CONTRACTUAL REQUIREMENTS**
   - Detailed performance requirements for the project addressing disciplines including urban design, architecture and landscape architecture.

4. **CREATIVE STRATEGY GUIDELINES (CSG)**
   - Guidelines to facilitate engagement of creative industries to develop and integrate works for incorporation into the project.
1.3 POLICY CONTEXT AND RELEVANT DOCUMENTS

The UDF is informed by and seeks to give effect to a range of policies and strategies at both the federal and state government level. The key policy documents are outlined below.

- The eight principles of the UDF are derived from the Australian National Urban Design Protocol ‘Creating Places for People’. These principles outline the expected urban design outcomes for LXRA projects, and are supported by objectives, measures and qualitative benchmarks.

- The Transport Integration Act 2010 (TIA) is Victoria’s principal transport statute and sets out an integrated decision-making framework. The TIA includes six transport system objectives that are relevant to the UDF:
  - Social and economic inclusion;
  - Economic prosperity;
  - Environmental sustainability;
  - Integration in transport and land use;
  - Efficiency, coordination and reliability; and
  - Safety, health and wellbeing.

- The UDF has been informed by the PTV Network Technical Standard for Public Transport Precincts (2017), as well as Transport for Victoria’s Transport User Needs document. Precinct environments will be designed to provide safe and predictable movements prioritised according to Public Transport Victoria’s (PTV) transport mode hierarchy – prioritising pedestrians and bicycle access over private vehicle access.

- The Metropolitan Planning Strategy ‘Plan Melbourne 2017-2050’ includes the following action, which the UDF will assist in delivering:

  Implement measures to ensure new transformative and city-shaping infrastructure projects, such as the Metro Tunnel and level crossing removals, deliver exemplary design outcomes and opportunities for new public spaces and connections that will add to Melbourne’s vitality.

Figure 3 provides some context between the different elements of urban form, and the relationship and scale of planning and LXRA documentation in which they are addressed.

Links to a number of these documents and other useful documents that have informed the UDF and are relevant to urban design are located at Appendix C.
Thinking about urban design, strategic and statutory planning at different scales helps put them in context. The elements of urban design are illustrated next to the scale of planning at which they are commonly addressed. Concept adopted from Next Generation Planning, published by the Council of Mayors (SEQ), 2011.
1.4 LOCAL CONSIDERATIONS

Each individual project site should be viewed as a specific and distinctive opportunity to improve a local place, the rail corridor and the associated journey. Effective enhancement of local places requires an understanding of existing character, including the physical conditions, strategies, plans and local community values.

Each site, whether it be a level crossing removal, new station or associated development site, has its own unique character and ‘sense of place’. There are distinctive issues and opportunities inherent in each place in terms of its urban design quality. The design for each site, and each area affected by the project, should take into account the unique characteristics, issues and opportunities in its location and community. Consideration should also be given to the dynamism of communities and to the needs of those who may live in and use these areas in the future.

Key local considerations for each site will be informed by discussion with Council and the community as part of consultation for the projects. While the UDF provides program-wide guidance, local considerations are identified in Urban Design Guidelines (UDGs) prepared for each project site. UDGs define a specific site vision, identify key opportunities and constraints and unique character qualities. They also integrate relevant local government and key agency stakeholders.

Project teams should undertake careful analysis of existing contexts through site investigation and research to understand local issues and opportunities to enhance and contribute to better local outcomes. This should include analysis of each existing site, associated precincts and the corridor as a whole to establish a sound basis for a responsive design solution to LXRA projects and any integrated development opportunities.
The Urban Design Framework has five components in three sections. The five components will be used to evaluate and assess a design proposal at each stage through to delivery. High quality urban design will be achieved through the holistic application of the Principles, Objectives, Measures and Benchmarks contained within the UDF.

<table>
<thead>
<tr>
<th>VISION AND ASPIRATIONS</th>
<th>The vision and aspirations describe the goal to achieve high quality urban design outcomes for the whole program.</th>
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| PRINCIPLES AND OBJECTIVES | The eight principles of the UDF are derived from the Australian National Urban Design Protocol ‘Creating Places for People’. These principles outline the expected results for achieving good urban design outcomes.  
  The objectives clarify aspects of the principles, and describe specific outcomes to be achieved, to give effect to each principle.  
  The principles and objectives provide overarching expectations for high quality design considerations across the whole program, and are used to inform selection of preferred options, development of solutions and evaluation of proposals and final built outcomes. |
| MEASURES | The measures provide performance requirements, based on a range of elements, that demonstrate the Principles and Objectives have been achieved.  
  The measures communicate the outcomes required to achieve the Principles and Objectives, as the basis for which proposals will be informed, evaluated and delivered. |
| QUALITATIVE BENCHMARKS | The qualitative benchmarks provide a series of images that illustrate the minimum standard of design quality expected for project elements, drawn from relevant precedent projects.  
  The qualitative benchmarks provide a reference to illustrate the level of quality in meeting the measures in terms of conceptual and detailed design integration, innovation and detailed resolution. |
3. URBAN DESIGN VISION AND ASPIRATIONS

The vision and aspirations describe the goal to achieve high quality urban design outcomes for the whole program.

3.1 VISION

A collaborative, interdisciplinary approach integrates technical and urban design aspects in project solutions, and enables architectural, landscape and urban outcomes that focus on creating great places for people.

3.2 ASPIRATIONS

Five aspirations support the vision:
- Urban design excellence will be achieved to benefit all of the transport network, its users and the communities and places through which the project passes;
- The positive impacts of the project will be maximised, and negative impacts will be minimised;
- High quality urban design will be closely integrated with best practice technical solutions;
- Opportunities to provide added community benefits will be pursued, including health and wellbeing through urban amenity and quality;
- Collaborative, multi-disciplinary integrated design thinking will be achieved through an urban design led process.
4. PRINCIPLES AND OBJECTIVES

The eight principles of the UDF are derived from the Australian National Urban Design Protocol ‘Creating Places for People’. These principles outline the expected results for achieving good urban design outcomes. The objectives clarify aspects of the principles, and describe specific outcomes to be achieved, to give effect to each principle.

The principles and objectives provide overarching expectations for high quality design considerations across the whole program, and are used to inform selection of preferred options, development of solutions and evaluation of proposals and final built outcomes Urban design outcome.
Urban design outcome

**ENHANCING**

**Principle 1**

**IDENTITY**

A well-defined identity and sense of place is key to creating strong and vibrant communities.

**Objective 1.1 Sense of Place**
Recognise, maintain and enrich the identity of the local neighbourhood. Develop a design that embodies the qualities, character and aspirations of the local community.

**Objective 1.2 Responsive**
Design and integrate infrastructure to respond and contribute to the unique and valued social, cultural and physical aspects of the local area. Demonstrate sensitivity to interfaces with neighbours.

**Objective 1.3 Heritage**
Respect and respond to indigenous and non-indigenous cultural heritage and local history.

**Objective 1.4 Journey**
Enrich the civic identity of the rail corridor, to enhance the journey and to create engaging and memorable experiences for commuters.

**Objective 1.5 Consultation**
Enhance the quality of project outcomes by working closely with affected stakeholders and communities to identify and prioritise key local issues & opportunities.

Urban design outcome

**DIVERSE**

**Principle 2**

**URBAN INTEGRATION**

A well-integrated environment is a sound framework for the successful development of a great place.

**Objective 2.1 Integration**
Provide an integrated design aligned with analysis findings, local government and community vision and relevant broader government policies.

**Objective 2.2 Reconnect**
Reconnect communities if previously severed by infrastructure intervention, and foster community cohesion.

**Objective 2.3 Urban renewal**
Identify and optimise IDOs at an early stage. Demonstrate how the new works will integrate with and catalyse future urban renewal.

**Objective 2.4 Future-proofing**
Respond to strategic transport and land use planning for the broader precinct.
Urban design outcome
CONNECTED

Principle 3
CONNECTIVITY & WAYFINDING

A well connected and legible environment contributes significantly to a strong economy and an integrated community.

Objective 3.1 Connectivity
Improve connectivity and enable ease of movement between spaces for all users by providing direct connections and clear sightlines in the station precinct, the broader region and across the rail corridor.

Objective 3.2 Legibility
Design for legibility and intuitive wayfinding by providing a clear hierarchy of pathways and spaces that reduces reliance on signs.

Objective 3.4 Multi-modal transport
Provide a range of well provisioned transport options. Make inter-modal connections effective for all users, reflecting PTV’s Station Access Mode Hierarchy*. Prioritise pedestrians and cyclists.

* Station Access Mode Hierarchy from Public Transport Precincts Design Requirements and Guidance

Urban design outcome
WALKABLE

Principle 4
ACCESSIBILITY

A highly accessible and inclusive environment provides a positive user experience and contributes to health, wellbeing and the perception of care in a community.

Objective 4.1 Universally inclusive
Design for universal accessibility, promote equity, and minimise perceived and physical barriers in public spaces within and beyond the precinct. Improve building accessibility for all users.

Objective 4.2 Walkable
Prioritise walkability by coordinating land use patterns, providing high quality footpaths and pedestrian friendly traffic and road conditions.

Objective 4.3 Active transport
Plan and design to enable and encourage walking, cycling and using public transport within and beyond the precinct.
Urban design outcome
SAFE

Objective 5.1 Personal safety
Apply Crime Prevention Through Environmental Design (CPTED) principles to design places that are and feel safe, that engender positive use of and care for the environment and are not conducive to vandalism.

Objective 5.2 Natural surveillance
Maximise passive surveillance opportunities in public spaces. Eliminate hidden corners and spaces that allow entrapment.

Objective 5.3 Natural access control
Design clear, accommodating and easily visible entries and exits to differentiate between public space and private space. Ensure users do not encounter dead-ends.

Objective 5.3 Territorial reinforcement
Design buildings, fences, pavements, signs, lighting and landscape to express ownership and define spaces.

Urban design outcome
COMFORTABLE

Objective 6.1 Improved amenity
Improve urban amenity with a design that facilitates a range of activities and mix of uses.

Objective 6.2 Comfort
Design for the physical comfort and psychological wellbeing of users of all physical capabilities.

Objective 6.3 High quality
Provide a high-quality design outcome that makes a positive contribution to the local area, through a well-considered concept, design resolution, construction detail and finished product.

Objective 6.4 Impact mitigation
Minimise the negative impacts of noise, spilled light, overshadowing and visual pollution.

Principle 5
SAFETY
A safe environment is essential for a strong, connected and happy community.

Principle 6
AMENITY
High quality urban amenity associated with access to services and the experience of a great public place contributes to a successful, equitable and prosperous community.
<table>
<thead>
<tr>
<th>Urban design outcome</th>
<th>Principle 7 VIBRANCY</th>
<th>Principle 8 RESILIENCE &amp; ENVIRONMENTAL SUSTAINABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBRANT</td>
<td>Animation and diversity in the experience of urban places supports a prosperous and healthy community.</td>
<td>Places must be sustainable, enduring and resilient to support and nurture current and future generations.</td>
</tr>
<tr>
<td><strong>Objective 7.1 Put people first</strong></td>
<td>Design an integrated, welcoming and inclusive public realm that facilitates social interaction and positive engagement between people, spaces and activities.</td>
<td><strong>Objective 8.1 Environmental sustainability</strong> Design, construct and operate environmentally sustainable places, considering the whole of life and precinct wide impacts and opportunities of the place.</td>
</tr>
<tr>
<td><strong>Objective 7.2 Vibrant public realm</strong></td>
<td>Create memorable, engaging, authentic and inspiring spaces and places.</td>
<td><strong>Objective 8.2 Climate resilience</strong> Design for climate resilience by considering the projected effects of climate change, such as heat island effect and extreme weather conditions.</td>
</tr>
<tr>
<td><strong>Objective 7.3 Range of experiences</strong></td>
<td>Provide opportunities for a range of experiences that are accessible at different times of the day and the year.</td>
<td><strong>Objective 8.3 Enduring &amp; durable</strong> Ensure a positive built legacy with design solutions that are enduring in quality and function, readily maintainable and that will age gracefully. Promote effective governance arrangements to optimise the on-going management of each place.</td>
</tr>
</tbody>
</table>
5. MEASURES AND QUALITATIVE BENCHMARKS

INTRODUCTION

The measures provide performance requirements, based on a range of elements, that demonstrate the Principles and Objectives have been achieved.

The measures communicate the outcomes required to achieve the Principles and Objectives, as the basis for which proposals will be informed, evaluated and delivered.

The qualitative benchmarks provide a series of images that illustrate the minimum standard of design quality expected for project elements, drawn from relevant precedent projects (refer to QB1 to QB55).

The qualitative benchmarks provide a reference to illustrate the level of quality in meeting the measures in terms of conceptual and detailed design integration, innovation and detailed resolution.

The measures and qualitative benchmarks together identify and illustrate the level of quality expected, and requirements against which proposals will be evaluated. A successful design must adequately meet the relevant measures to achieve a high-quality outcome for the project.

In developing the UDF, LXRA have built on initiatives by other agencies, which underpin many of the measures and benchmarks in this section.

Three spatial contexts have been identified (outlined below and at Figure 4), that describe the different environments for level crossing removal projects.

1. The station interchange and its immediate environment;
2. The transition between the interchange and the surrounding area; and
3. The corridor and the wider precinct - enhancing the wider context.

The UDF principles, objectives, measures and benchmarks apply to all three contexts, and LXRA expects that the measures and qualitative benchmarks will be applied, as relevant, to these areas:
5.1 GENERAL MEASURES

M1.1 The design delivers a high quality, well-resolved, innovative outcome that is enduring in expression and timeless in nature, for all transport users, the adjacent community and Melbourne as a whole.

M1.2 The design is responsive, engaging, functional, adaptable for future infrastructure needs and finely executed in detail across the whole project.

M1.3 Structural, functional and service elements are resolved and integrated with the landscape, cultural heritage, land use, and character of the precincts along the alignment. A sense of journey is created and all elements deliver overall coherence and identity.

M1.4 The design is sensitive to the context of the local area by considering amenity impacts on nearby residents and adjacent land uses, including public open space and future development sites, and providing safe and convenient access.

M1.5 Where land acquisition and demolition occur and a new interface is created, negative impacts are minimised.

M1.6 Best practice environmentally sustainable development is achieved from design through to operation as:

- New infrastructure is aligned with the LXRA Sustainability Policy, LXRA Sustainability Management Plan and LXRA Sustainability Strategy.

- Environmentally Sustainable Development (ESD) initiatives are demonstrated at the planning stage.

- An Infrastructure Sustainability Council of Australia (ISCA) rating for the project and a Green Building Council of Australia (GBCA) rating for station buildings is achieved.

QB1 Olympic Sculpture Park, Seattle, USA
Innovative urban design response for the city as a whole

QB2 Craigieburn Bypass, Melbourne
High quality design outcome enhancing Melbourne’s cultural identity and reputation for design innovation and excellence

QB3 Newtown Interchange, Sydney
Responsiveness of contemporary design to heritage precinct
- The sustainability of any building is addressed by effective and innovative design and technology solutions.
- The design is resource efficient by minimising energy usage, using materials efficiently, reducing and recycling waste and minimising materials wastage.
- Greenhouse gas emissions and embodied energy are minimised.
- Water usage is minimised, including by the use of integrated water capture, rainwater tanks and reuse into adjacent open space areas where feasible.
- Natural elements are used in the design where possible and biodiversity is promoted in the whole-of-life and precinct wide context.
- The long-term impacts of a changing climate on the design and surrounding communities is considered through a climate resilient approach.

**M1.7** Principles for form, finishes and siting for all rail, road and street furniture, lighting, signage housings and other miscellaneous items are established at the concept stage of the design. The principles minimise visual clutter and align with the urban design concept or local palettes as appropriate.

**M1.8** Substations and ancillary structures (such as signal buildings or communication equipment buildings) are located with consideration of amenity impacts on nearby residents and adjacent land uses, and minimise the need for vegetation removal.
M1.9 Substations are designed using a combination of the following treatments in sensitive locations relevant to the context, including:

- Architectural cladding of the building.
- Architectural security fencing separate to the building, which also functions as a visual screen.
- Landscape screening through planting and land form integrated with the security fence.

M1.10 The maintenance responsibilities of the ultimate asset owners are identified at an early stage of planning and design. There is compatibility between the proposed design, materials, landscaping and the ongoing maintenance regime. Asset classification and maintenance requirements are balanced.

M1.11 The design applies CPTED principles to deter criminal behaviour, and create an environment which is accessible, inclusive, welcoming, supports safe behaviour and is perceived as safe, including consideration of good visual connectivity, passive surveillance and orientation that minimises visual obstruction.
5.2 ALIGNMENT MEASURES

M2.1 Subject to site constraints, the horizontal and vertical alignment, including alignment geometry, responds positively to the local context including:

- Local access requirements and the need for and potential impacts of any required service roads.
- Pedestrian and cyclist accessibility and permeability
- Intuitive wayfinding
- Adjacent activity centres and public realm.
- Any identified visual amenity issues.
- Any potential overshadowing issues.
- The existing and proposed landscaping.

M2.2 Opportunities associated with alignment considerations are optimised including:

- Multi-modal access and transit networks at stations to encourage and enable growth in sustainable transport modes.
- Cross-corridor connectivity and permeability at key locations along the rail corridor.
- The potential for integrated development opportunities.
- Enhancing access and egress outcomes for stations, particularly pedestrian and cyclist access.
5.3 STATIONS PRECINCT MEASURES

M3.1 Key user needs Including safety, reliability, speed, ease, comfort and experience are demonstrated in the design.

M3.2 The design ensures the station precinct functions well at both peak and off-peak times.

M3.3 The design recognises the dual role of a station as a service point for public transport infrastructure and as a high quality public realm by:
- **Responding to and enhancing the local context**
- **Being fit for purpose, sustainable and offering good amenity for commuters and others**
- **Being enduring in design concept and execution**
- **Improving community connections and public spaces to encourage social interaction.**

M3.4 Subject to site constraints, the location of a new station:
- **Optimises high quality outcomes for accessibility, particularly by walking and cycling**
- **Maximises the opportunity to activate adjacent activity centres**
- **Minimises negative impacts on the amenity of surrounding areas.**

M3.5 Station facilities provide comfortable, efficient and adequate services and settings for commuters and users of the station.

M3.6 Station entrances are legible, universally accessible, welcoming, located to maximise inclusiveness and accessibility and have generous spaces that are sited and designed to enhance local context and connectivity.
M3.7 The design promotes direct, efficient, comfortable, safe and legible intermodal connections by:

- Adequately accommodating all relevant modes
- Ensuring walking and cycling paths cater for desire lines and key flows
- Ensuring intuitive way finding through visual and physical connectivity
- Ensuring cycling facilities are safe, robust and elegant aspects of the urban design proposal in terms of spatial and detail resolution.

M3.8 The edges of the station precinct are well considered and avoid severance of access due to rail and road infrastructure.
5.4 BRIDGE AND ELEVATED STRUCTURE MEASURES

M4.1 Elevated structures contribute to urban amenity.

M4.2 The design of any new or modified bridge, viaduct, elevated structure or ramp is sensitive and respectful of its context.

M4.3 All the elements of a bridge or elevated structure are integrated to ensure a well-proportioned structure.

M4.4 Pedestrian and cycling overpasses are provided at strategic points relative to pedestrian movement patterns and the existing and proposed street and cycle networks; where applicable.

M4.5 The siting, visual connections, relationship to pathways, open space and access to natural light below elevated structures is designed to enhance safety, inclusiveness and amenity; where applicable.

M4.6 The visual and spatial impact of all services associated with elevated structures, including conduits, drainage and fixtures is minimised through design integration.

M4.7 Lighting is integrated and contributes to identity, vibrancy and visual and spatial amenity.

M4.8 Superstructure, piers, beams and barriers are designed as integrated elements that minimise visual clutter and align with the urban design concept for the corridor.

M4.9 Visual permeability is maximised where possible.
M4.10 Barriers and screens are integrated in the technical and urban design through use of high quality, enduring and sustainable materials.

M4.11 Pedestrian bridges are located and designed to contribute to identity and legibility.
5.5 OPEN CUTTING MEASURES

M5.1 Where shotcrete is located in sensitive urban environments or within a station environment consideration is given to urban amenity and high quality finishes or cladding.

M5.2 Access to community spaces and movement networks is facilitated, and connection of communities is maximised, by providing integrated linkages across cuttings.

M5.3 The design of open cuttings contributes to the visual quality and amenity of affected areas through high quality hard and soft landscaping. Landscaping, fencing and barriers are well integrated.

M5.4 Retaining walls use a consistent form, design and materials palette with high quality finishes and are integrated elements in the urban design concept, landscape design and local context.

M5.5 The cutting width and load bearing capacity of retaining walls takes into account opportunities for potential development over the railway line in the future.
5.6 PUBLIC REALM AND BUILT ENVIRONMENT MEASURES

M6.1 Opportunities to create, enhance and connect to existing and future pedestrian precincts, community and recreation facilities, public open spaces, identified future developments and activity centres are maximised.

M6.2 Accessibility and general amenity for the community is improved through a coherent, legible, inclusive and continuous public realm.

M6.3 Interfaces with, and connections to, identified future development in surrounding areas are well managed.

M6.4 Access to activity centre precincts is improved. Precincts that were previously disconnected by transport infrastructure are reconnected.

M6.5 Community connectivity is enhanced by improving permeability, legibility and accessibility across the corridor, and at station precincts.

M6.6 The design promotes positive use of open space.

M6.7 The design acknowledges, responds to and preserves indigenous and non-indigenous heritage and local history.

M6.8 Open spaces are comfortable and inclusive with good access to sunlight and shade.

M6.9 The design minimises wind impacts within the transport environment and the broader precinct.

M6.10 Spaces are provided that support a diversity of active and passive uses. Spaces such as civic plazas for community activities and cultural events are integrated with parkland and passive recreation spaces where appropriate.
5.7 LANDSCAPE AND NATURAL ENVIRONMENT MEASURES

M7.1 The extent and quality of existing and surrounding landscapes is enhanced through a coherent landscape design concept for the corridor.

M7.2 Habitat value and the biodiversity of flora and fauna communities along the corridor is enhanced and increased.

M7.3 The design of new infrastructure and the siting of elements minimises loss of mature trees, remnant vegetation, significant landscapes and parkland.

M7.4 Canopy trees are planted wherever possible to contribute to the immediate and surrounding landscape.

M7.5 Plant selection, design and layout presents a coordinated colour, form and texture palette integrated to the urban design concept and contributes to the landscape character. Each selected species is appropriate to the micro-climate and will give a low maintenance, thriving and enduring outcome.

M7.6 Plant selection, design and layout create a visual and noise buffer between the new infrastructure and surrounding areas where required.

M7.7 Native or indigenous species are used where possible, particularly in environmentally sensitive zones and in response to the local context.

M7.8 The design has regard to future maintenance requirements.

QB27 Footscray Railway Reserve, Melbourne
Select viable species appropriate to micro-climate

QB28 Shared User Path, Ormond Station, Melbourne
Landscape buffer between a residential zone and the rail corridor

QB29 Buffalo Bayou Promenade, Houston, USA
Well coordinated landscape response to large scale infrastructure
5.8 PEDESTRIAN AND BICYCLE CONNECTION MEASURES

M8.1 The design of station precincts reflects the PTV’s Transport Mode Hierarchy and prioritises permeability and connectivity of active transport modes.

M8.2 The existing pedestrian and cycling network along the rail corridor and to the station precinct is maintained and enhanced, particularly strategically important cycling corridors (SICCs), priority bicycle routes, the principal pedestrian network (PPN) and pedestrian priority areas.

M8.3 Identified issues and barriers for cycling and pedestrian connection are addressed by improving conditions for pedestrians and cyclist equally with continuous, more direct, safe and high-quality routes. Space is allocated at an early stage and the need to re-allocate space for motorised vehicles to achieve a sustainable outcome is actively considered.

M8.4 Opportunities are investigated for new pedestrian and bicycle paths that maintain and extend local connectivity for all users, including linking to existing or new community facilities, open spaces, urban renewal areas or National Employment Innovation Clusters. Connectivity is achieved through an integrated and dense network that links people with destinations and with other modes.

M8.5 Opportunities for grade-separated pedestrian and bicycle connections across the rail corridor and any cuttings are considered.

M8.6 Transitions between pedestrian and cycling paths are safe, continuous and seamless. Routes are direct and consistent design elements assist legibility.
M8.7 The design applies universal design principles that cater for all abilities and ages. Surfaces are designed to avoid unnecessary level changes.

M8.8 Wayfinding and legibility around the area is improved and new infrastructure and improvements to existing pathways and linkages are provided where possible. Wayfinding is intuitive, clear and consistent.
5.9 CAR PARKING MEASURES

M9.1 Car parking is integrated as part of the urban design response. Car parking areas are safe and comfortable spaces with good visual connectivity and integrated landscape design.

M9.2 Opportunities to maximise car parking efficiency have been included where feasible, including opportunities to integrate commuter car parking into any integrated development outcome through a shared arrangement or through off-peak use of car park spaces.

M9.3 Commuter car parking facilities are located near station entrances but do not compromise pedestrian or bicycle access.

M9.4 Car parking is designed to be adaptable for alternative uses in the future if the need for commuter car parking reduces.

M9.5 The design provides intuitive wayfinding and legible signage for easy navigation.

M9.6 Accessible, safe and comfortable locations are provided for kiss and ride areas.
5.10 MATERIALS & FINISHES MEASURES

M10.1 A palette of materials, treatments and finishes is developed for the whole corridor as part of the urban design concept, and for key precincts, as appropriate to the design, including for:

- Roads, bridges and elevated structures;
- Noise barriers, retaining walls, abutments, fencing and barriers;
- Pedestrian and cycle paths and infrastructure;
- Land forming, planting and open space elements, including open cuttings;
- Associated elements including signage, lighting and any furniture.

M10.2 The palette adopted is sensitive to the local environment, assists the broader wayfinding strategy for the corridor and its precinct and contributes to enhancing local identity.

M10.3 The materials and finishes used in the project are high quality, durable, robust, easy to maintain and will age well over time.

M10.4 New materials and finishes are not overly reflective and do not create light pollution in the surrounding areas.

M10.5 The selection and application of materials and finishes minimises the potential for vandalism and graffiti.

M10.6 The palette of hard and soft landscaping elements is coordinated with any local government strategy or palette where relevant.
5.11 NOISE ATTENUATION MEASURES

M11.1 Noise attenuation elements are integrated with structures. Consider existing noise attenuation elements, landforms, urban interfaces and the urban design concept for the precinct and the project.

M11.2 Transparent panels are used where noise walls substantially interfere with residents’ views or access to daylight.

M11.3 Noise barriers are designed to positively address and enhance both the rail side and community side of the barrier and show careful consideration of form, texture and colour on both sides of the wall equally.

M11.4 Overshadowing of residential properties, open space, waterways and valuable habitat by noise barriers or other noise attenuation structures is minimised.

M11.5 The potential for vandalism to noise attenuation treatments is minimised through materials selection, detail and positioning.
5.12 LIGHTING MEASURES

M12.1 Functional lighting for the project is integrated with and appropriate to the surrounding land uses.

M12.2 Functional lighting is used to enhance personal safety and access around infrastructure.

M12.3 Energy efficient, vandal proof and easily maintained light fixtures are used.

M12.4 Feature lighting is used to enhance navigation and the user experience.

M12.5 Feature lighting is coordinated with other design elements to create a cohesive identity for the project.

M12.6 All lighting is designed sensitively to the surrounding environment and oriented to minimise light pollution. Highly directional lighting is used where possible to avoid light spill into surrounding areas.

QB45 Jim Stynes Bridge, Melbourne
Integrated feature lighting to celebrate structural form

QB46 Webb Bridge, Melbourne
Lighting fixtures are integrated design elements

QB47 University of Sydney Darling Campus, Sydney
Lighting to enhance user experience
5.13 INTEGRATED ART WORK MEASURES

M13.1 Where appropriate, art works are integrated into the design and construction of transport precincts and infrastructure at key locations, in accordance with the LXRA Integrated Art Guidelines, such as:

– Within activity centres to provide an opportunity to activate local areas.
– Infrastructure elements such as retaining walls, bridges, bridge piers and underpasses.
– Built form components such as bike parking facilities, walls, screens and fences.
– Public realm spaces and contributory elements such as lighting, sound, soft and hard landscape and seating.

M13.2 A creative approach to transport infrastructure design improves the function of the transport environment.
5.14 INTEGRATED DEVELOPMENT OPPORTUNITY MEASURES

M14.1 The Integrated Development Opportunity demonstrates consideration of all relevant measures contained within the UDF.

M14.2 The Integrated Development Opportunity is integrated with train station functions and creates physical connectivity, maintains protection of visual and noise amenity and gives precedence to station requirements (such as access and other operational requirements).

M14.3 The design of the Integrated Development Opportunity facilitates a positive contribution to the local area and acts as a catalyst for urban renewal.

M14.4 The proposed built form and land uses of the Integrated Development Opportunity have regard to the policy context of the site and location, including relevant Plan Melbourne policy objectives that encourage higher density development in and around activity centres and at transport hubs.

M14.5 The Integrated Development Opportunity considers a mix of land uses that contribute positively to the area and the local economy, including the potential to accommodate commercial uses and community and social uses to meet other government outcomes.

M14.6 The Integrated Development Opportunity continues any existing active frontages and retail functions in commercial areas where appropriate.

M14.7 The Integrated Development Opportunity provides a diversity in housing options where feasible, including a mix of dwelling types and social and affordable housing.
M14.8 The Integrated Development Opportunity incorporates environmentally sustainable design measures for energy and water efficiency, greenhouse gas emissions, passive solar design, natural ventilation, stormwater reduction and management, solar access, orientation and layout of development, building materials and waste minimisation.

M14.9 Any temporary vacant site has been investigated in consultation with Victrack, to determine whether an appropriate interim land use is feasible. Any proposed interim land use makes a positive contribution to the local area over the entire project life cycle.
6. DESIGN QUALITY INITIATIVES

To support high quality and integrated urban design outcomes the LXRA has design initiatives and processes in place to ensure design quality throughout the project’s lifecycle.

6.1 URBAN DESIGN ADVISORY PANEL

The Urban Design Advisory Panel (UDAP) includes members working within government who have expertise in architecture, urban design, strategic planning, transport planning and landscape architecture. A representative from the OVGA is the Chair of the UDAP and drives high quality outcomes and integrated design for the projects.

The UDAP guides and advises on:

a. Integrated design for projects delivered by the LXRA, including vision statements, urban context/design reports and reference designs/project proposals to inform project scope and budget decisions;

b. Development of project briefs and urban design performance requirements;

c. Development of bidders’ concept designs;

d. Concept design development during a competitive tender process;

e. Evaluation of bidders’ design proposals;

f. Design and integration of development opportunities.

The UDAP facilitates workshops and design advisory processes throughout the project lifecycle, before major decisions are made. This design-led approach is positive and iterative, promoting site responsive designs that are consistent with the aspirations of each of the activity centres and adjacent neighbourhoods, and adds value to the outcomes of the program.

6.2 VICTORIAN DESIGN REVIEW PANEL

The Victorian Design Review Panel (VDRP), managed by the OVGA, provides independent and authoritative advice to government and statutory decision makers across Victoria about the design of significant development proposals.

The VDRP consists of experienced built environment professionals, who provide expert design review of significant projects at key stages of the design and development process. Architects, urban designers, landscape architects and planners, as well as specialists in sustainability, accessibility, health, place-making and masterplanning contribute to the VDRP.

The VDRP reviews projects that are significant because of their site, context or complexity, or because they will be establishing a precedent for new development in a place. The VDRP can review all scales of development from masterplans, major infrastructure, buildings, streets and public spaces.

For LXRA, the VDRP can be made available to review project designs at key milestones, as an independent peer review.
### APPENDIX A - FIGURE AND QUALITATIVE BENCHMARK SOURCES

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<td>Line of sight from national to site level</td>
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# APPENDIX C - USEFUL DOCUMENT LINKS

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