

# PART A

## Chapter 1 Key Principles

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# Chapter 1 Amendments – June 2013

## Revision Register

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# Part A - Chapter 1

## Key Principles

### 1.1 Introduction

This chapter provides a summary of the key principles which guide this Manual and the Road Landscape Policy (Chapter 2 of Part A). The key principles are:

- Integration
- Context sensitive design
- Collaboration
- Sustainability
- Liveability.

By applying these principles throughout the design process, the design team will fulfil its legal and corporate obligations throughout the transport network.

### 1.2 Integration

Integration is essential to create effective road landscapes. Blending the functional aspects of transport infrastructure into its surroundings can create benefits for all corridor users. Seamless access points, connections and transitions within the transport system can meet the needs of the local community while providing the functional needs of the broader community.

Road landscape integration requires that a consistent and harmonious approach is adopted. Transitions are required to distinguish the various road landscape settings of the journey. Reflecting and referencing the surrounding natural and built landscape is a method to achieve integration.

This Manual facilitates integration by providing theoretical and practical tools that are both broad and specific. Integration can be achieved by:

- **Respecting diversity:** the road landscape must not just value biodiversity, but also acknowledge and respect the *“diversity of place and of culture, of desire and need, the uniquely human element”* (McDonough, 2002);
- **‘Fitting-est’:** the road landscape must transcend fit for purpose and seek *“an energetic and material engagement with place and an interdependent relationship to it”* (McDonough, 2002);
- **Local sustainability:** the road landscape extends beyond the immediate corridor and impacts on the neighbourhoods, communities and the region; *“The idea of local sustainability is not limited to materials, but begins with them.”* (McDonough, 2002).

## 1.2.1 Context Sensitive Design

Context sensitive design “equally addresses safety, mobility and the preservation of scenic, aesthetic, historic, environmental and other community values” (FHWA, 1995).

Context sensitive design underpins the strategic objectives of the Road Landscape Policy (Chapter 2 of Part A).

Applying this approach seeks to achieve the outcome of a context sensitive solution within the transport corridor. A context sensitive design solution provides *“a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community and environmental resources, while improving and maintaining safety, mobility, and infrastructure conditions”* (FHWA, 1995 and AASHTO , 2007).

A context sensitive design solution must:

- recognise and respond to the **road landscape setting**
- be achieved through **collaboration** with other professional disciplines
- view the design as a **coordinated design approach** rather than isolated, specialist silos
- maximise the use of flexibility in the **application of road standards** to achieve more creative solutions
- utilise **design technology** to better understand the implications of alternative designs.

### 1.2.1.1 Road Landscape Setting

Road landscape settings can be classified as:

- **Urban**
- **Rural**
- **Natural**

**Urban** roads (Figure A1-1) are often the most complex and difficult to achieve road landscape integration. Solutions which should be considered include:

- developing a suite of matching treatments and materials in design components within a project, such as bridges, lighting and signage
- adopting urban design solutions which are compatible with surrounding built structures. Design Components; such as retaining systems, barriers and bridge abutments, can be treated to reflect and improve awareness of the surrounding urban setting
- maximising the opportunity for vegetated gateways, boulevards and avenues in appropriate urban locations
- optimising local community access and circulation networks, and the subsequent need for any overpasses or underpasses.



**Figure A1-1: Example of an urban landscape setting**

**Rural** roads (Figure A1-2) should minimise disturbance to surrounding areas and provide an appreciation of the landscape as a result of the design. Design solutions which should be considered include:

- attempting to match and make compatible landscape responses to surrounding landforms;
- working with and balancing existing landforms to minimise extent of earthworks
- site sensitive road geometry that fits the road into the existing topography, frames views, providing an alternating and interesting sequence of experience for motorists
- avoiding continuous planting along corridors unless it is part of a habitat link and providing regular vegetation breaks, particularly at significant vistas and viewing locations
- reducing obtrusive roadside structures such as barriers and advertising structures, unless required for safety purposes
- considering local landholder needs; factors such as stock crossings and machinery access.



Figure A1-2: Example of a rural landscape setting



**Natural** roads (Figure A1-3) through sensitive areas such as regional open space networks, woodland, forest, heath, or wetlands require greater design resolution. Since some natural landscapes may be relatively untouched and unmodified, road infrastructure integration should minimise vegetation clearing and mitigate environmental disturbance. Solutions which should be considered are:

- minimising vegetation clearing through the alignment and road formation
- ensuring hydrological regimes are not significantly altered through provision of suitable structural infrastructure and drainage devices
- fauna sensitive road design.



Figure A1-3: Example of natural landscape setting

Identification and analysis of road landscape settings in the planning stage of a road proposal is required as part of the integrated landscape assessment process (Chapter 3 of Part B).

### 1.2.2 Collaboration

The input from numerous disciplines is required in a transport infrastructure design team to ensure a holistic design process and integration is achieved. These may include:

- planners – including strategic, town and land use, environmental and transport planning
- engineers – including civil, structural, electrical, traffic, hydraulic and environmental
- architects – including building, landscape and urban design
- geologists – including geotechnical, soil pedologists and scientists
- cultural heritage specialists
- environmental scientists and ecologists
- acoustic consultants and air quality specialists
- property consultants and developers
- artists
- other specialist consultants as required according to the complexity of the project.

These professionals may all be involved in the transport and road planning and design process. A

holistic team approach will help facilitate integrated design. Collaborating with relevant local government authorities and determining their requirements is also important in achieving successful integration. Examples of these requirements include:

- regional environmental area plans
- local environmental area plans
- council development control plans, including townscape plans and city wide strategic plans (Figure A1-4)
- design guidelines, including local plant palettes and preferred landscape and urban design treatments.

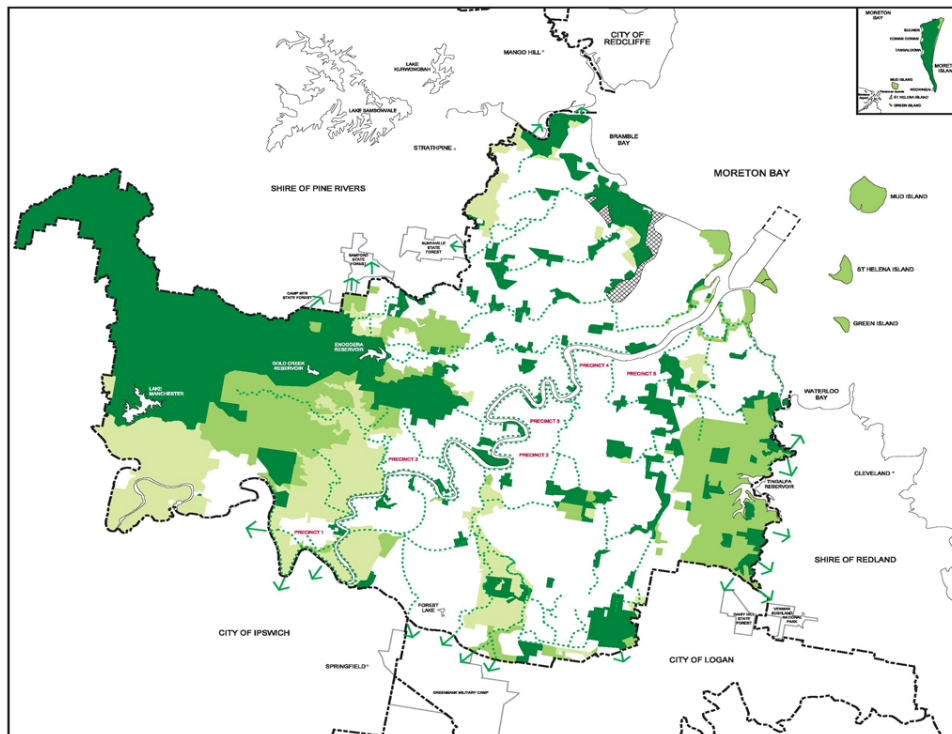


Figure A1-4: Example of a local authority city wide green space strategic plan

Source: Brisbane City Council (2000)

### 1.2.3 Coordinated Design Approach

When developing an integrated transport design package it must consider:

- how the road and transport system will be used
- the impact it will have on the local community
- the manner in which materials and details will need to relate to each other, the surrounding context and landscape setting types
- the detail which can be applied to design components to provide a better design outcome.

These considerations can be applied to all of the design components and is particularly applicable to urban settings. In critical locations such as highly visible inner city roads, transport networks and tourist destinations, the skill set of a design professional in the field of landscape architecture and urban design can add immense value to the project and the community. It is important that the design team have a clear set of design goals and an understanding of the road landscape design principles and design objectives (Chapter 4 of Part A).

## 1.2.4 Application of Standards

The Departmental standards have been developed to ensure consistency, in order to achieve a range of safety, economic and performance requirements. In most cases, standards have provision for flexibility and variation and should be considered when a better integration between roads, transport infrastructure and landscape can be achieved.

All landscape and urban design documentation shall be developed under the supervision of an Registered Practicing Engineer, Queensland (RPEQ). Landscape and urban design drawings and reports require review and certification by an RPEQ to ensure designs comply with relevant standards and do not negatively impact on civil and structural components of the project. The RPEQ, in consultation with the Landscape Architect, shall review the drawings and understand the impacts of the landscape treatments on the civil and structural design components. The signature on the drawings demonstrates the RPEQ's responsibility to direct, oversee and evaluate the work of others providing input to the project has been complied with as per the legislation.

The engineering standards provide guidance on managing safety risk. An RPEQ may vary standards following a risk assessment of the specific site conditions, proposed improvements and mitigation measures. This process must be documented as part of the design and noted as a design exception.

Any variance to standards must be reviewed by the Department and approved by the Regional Director.

## 1.2.5 Design Technology

A range of effective and affordable design tools can be utilised to assist with visualisation and achieve an integrated road landscape design. These include:

- generation of 3D wire frame images
- generated simulations overlaid on photographs
- video imaging and drive through animation.

Refer further to the Department's *Drafting and Design Presentation Standards Manual* for examples of potential visualisation design tools available for use.

## 1.3 Sustainability

### 1.3.1 Ecologically Sustainable Development

The *Environment Protection and Biodiversity Conservation Act (1999)* sets the principles for ecologically sustainable development. These are:

- a) *“decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;*
- b) *if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;*
- c) *the principle of inter-generational equity - that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;*
- d) *the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; and*
- e) *improved valuation, pricing and incentive mechanisms should be promoted.”* (Australian Government, 1999: Section 3A).

Transport infrastructure projects will always have a certain degree of impact on the environment. Effective asset management of the transport network, which is based upon the principles of ecologically sustainable development, will seek to minimise, mitigate and manage these impacts. Sustainability in road landscapes may be achieved by adopting the following approaches:

- value of the road landscape
- liveability.

### 1.3.2 Value of the Landscape

The values of the road landscape that contribute to the sense of community are:

- **environmental value**
- **community value**
- **aesthetic value**

Road landscapes are also areas which are used by many parts of the community, including infrastructure and utility authorities, tourists and commuters, and as a result, have significant environmental, community and aesthetic value.

Apart from obvious functional values within a transport corridor, road landscapes contain many features which are of social and economic value, and which sustain a sense of community.

#### 1.3.2.1 Environmental Value

Human activities such as agricultural, urban and industrial development have substantially altered most of the natural landscape. This highlights the importance of roadside areas for conservation, particularly in corridors with significant biodiversity levels and values. Road landscapes are often the only places where remnant vegetation or rare or endangered plant species are found, which consequently, have immense value for nature conservation. Valuable vegetation can be conserved within a road corridor, and further enhanced through the revegetation of disturbed areas (Figure A1-5). Environmental values, goals and values relative to the road landscape are an integral part of the design process (Chapter 6 of Part C).



Figure A1-5: Environmental value – valuable roadside vegetation conserved and reinstated where disturbed



### 1.3.2.2 Community Value

In addition to their natural features, road landscapes have value for cultural reasons which can include aesthetic, historic, scientific, community and social aspects. Travellers also use the shade and amenity of roadsides, especially when travelling long distances. Developing and locating rest areas and open spaces adjacent to a road corridor can provide this reprieve and add value to the community (Figure A1-6). Rest areas and open spaces may also be important for building a sense of local pride and ownership. Community values, interests and needs relative to the road landscape must be considered throughout the design process (Chapter 7 of Part C).



**Figure A1-6: Community value – an open space provides amenity to travellers and a sense of community**

### 1.3.2.3 Aesthetic Value

Road landscapes are experienced in different ways by the corridor user. Apart from the physical experience of moving at varying speeds, the visual experience is equally important. The aesthetic values of the road landscape enrich the traveller experience (Figure A1-7). Maintaining, framing and creating visual compositions are an integral part of the road design process (Chapter 4 of Part C). Visual aesthetic relationships relative to the road landscape must be considered throughout the design process.



Figure A1-7: Aesthetic values within the road landscape providing interest for users of the road corridor

Collectively the diverse values within the roadside landscape; including environmental, community and aesthetic values, can contribute to the liveability of a region.

### 1.3.3 Liveability

Liveability relates to the quality of life and wellbeing of the community and is the human focus of sustainability. It does not exclude the natural environment but seeks to incorporate aspects of it into cities and towns, to manage and enrich the lifestyle of the area. Liveability is about *“providing a high quality street environment, where people derive pleasure and pride from the areas in which they live, work and socialise, therefore, wishing to spend more time and money there”* (Jones, 2008:p26).

A liveable transport corridor meets the needs of all its users by providing connectivity and accessibility for vehicular drivers, pedestrians and cyclists (Figure A1-8). Liveability is generated not only through retention of existing heritage and amenity values, but through delivery of high quality design outcomes which give places character and appeal. By making the road landscape more attractive to users; with enhanced facilities and activities to suit the needs of the local community, improvements in safety are also enabled, contributing to health and wellbeing.



**Figure A1-8: Example of a liveable transport corridor**

Liveability is also affected by the tourism potential of a region, as it brings with it economic benefits of the development of community facilities. The Tourism Queensland Themed Tourism Roads (Chapter 8 of Part C) and Scenic Routes network (Chapter 4 of Part C) within Queensland are therefore important contributors to the liveability of cities or towns.