

PART B

Chapter 3 Assessment and Planning

June 2013

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Table of Contents

| | | |
|------------|---|-------------|
| 3.1 | INTRODUCTION | B3-1 |
| 3.1.1 | Determine Scope of Assessment Required | B3-1 |
| 3.1.1.1 | Landscape Assessment Site Analysis | B3-2 |
| 3.1.1.2 | Integrated Landscape Assessment Opinion | B3-2 |
| 3.1.1.1 | Integrated Landscape Assessment Report | B3-3 |
| 3.2 | LANDSCAPE ASSESSMENT PROCESS | B3-3 |
| 3.2.1 | Step One – Describe the Existing Landscape Conditions | B3-5 |
| 3.2.1.1 | Establish Landscape Context | B3-5 |
| 3.2.1.2 | Identify Local Landscape Factors | B3-7 |
| 3.2.2 | Step Two – Identify Interaction with Road Proposal | B3-9 |
| 3.2.2.1 | Familiarisation with Road Proposal | B3-9 |
| 3.2.2.2 | Proposal Affects on Existing Landscape Conditions | B3-9 |
| 3.2.3 | Step Three – Undertake Detailed Studies | B3-10 |
| 3.2.4 | Step Four – Combined Analysis of Landscape Context and Landscape Values | B3-12 |
| 3.2.5 | Step Five – Integrated Landscape Assessment Strategy | B3-12 |

Figures

| | | |
|---------------------|--|-------|
| Figure B3-1: | Guide to level of landscape assessment required for road projects | B3-2 |
| Figure B3-2: | Major Projects, such as busways, require a full Integrated Landscape Assessment Report to be produced, due to potential magnitude of impacts on surrounding landscape, particularly in urban areas | B3-3 |
| Figure B3-3: | Landscape assessment process. | B3-4 |
| Figure B3-4: | Broad landscape regions of Queensland | B3-5 |
| Figure B3-5: | Describe existing landscape conditions | B3-7 |
| Figure B3-6: | Overlay mapping of landscape factor | B3-8 |
| Figure B3-7: | Road proposal checklist | B3-9 |
| Figure B3-8: | Effects of road on existing landscape conditions | B3-10 |
| Figure B3-9: | The role of landscape context and landscape values analyses within the integrated landscape assessment process | B3-11 |

Part B - Chapter 3

Assessment and Planning

3.1 Introduction

Undertaking an integrated landscape assessment process in the early stages of a project allows for potential opportunities and constraints to be clearly identified and mapped. It also provides a suitable method of communicating the possible impacts of transport infrastructure proposal to the community and stakeholders. Documenting the assessment undertaken and resulting outputs enables provision of a defensible and logical position to stakeholder groups. Completing this process is also an important step towards achieving effective landscape and urban design outcomes, integrated with the wider environment.

An integrated landscape assessment describes, classifies and evaluates the landscape in relation to the proposed project. This process provides a consistent methodology for determining key landscape character values, impacts and prioritising opportunities. The process is undertaken in association with other environmental studies, assessments and reporting. While landscape assessment refers to the visual appearance and value of the landscape, it should be noted that it may also encompass, ecological and cultural heritage values.

3.1.1 Determine Scope of Assessment Required

The level of landscape assessment required is dependent upon joint consideration of the landscape setting and the type of road proposal. A guide to determining this is provided (Figure B3-1).

There are three levels of landscape assessment which should be considered in road projects. These should be determined by project managers through reference to this manual. These are:

- **Landscape Site Analysis Assessment;**
- **Integrated Landscape Assessment Opinion;** and
- **Integrated Landscape Assessment Report.**

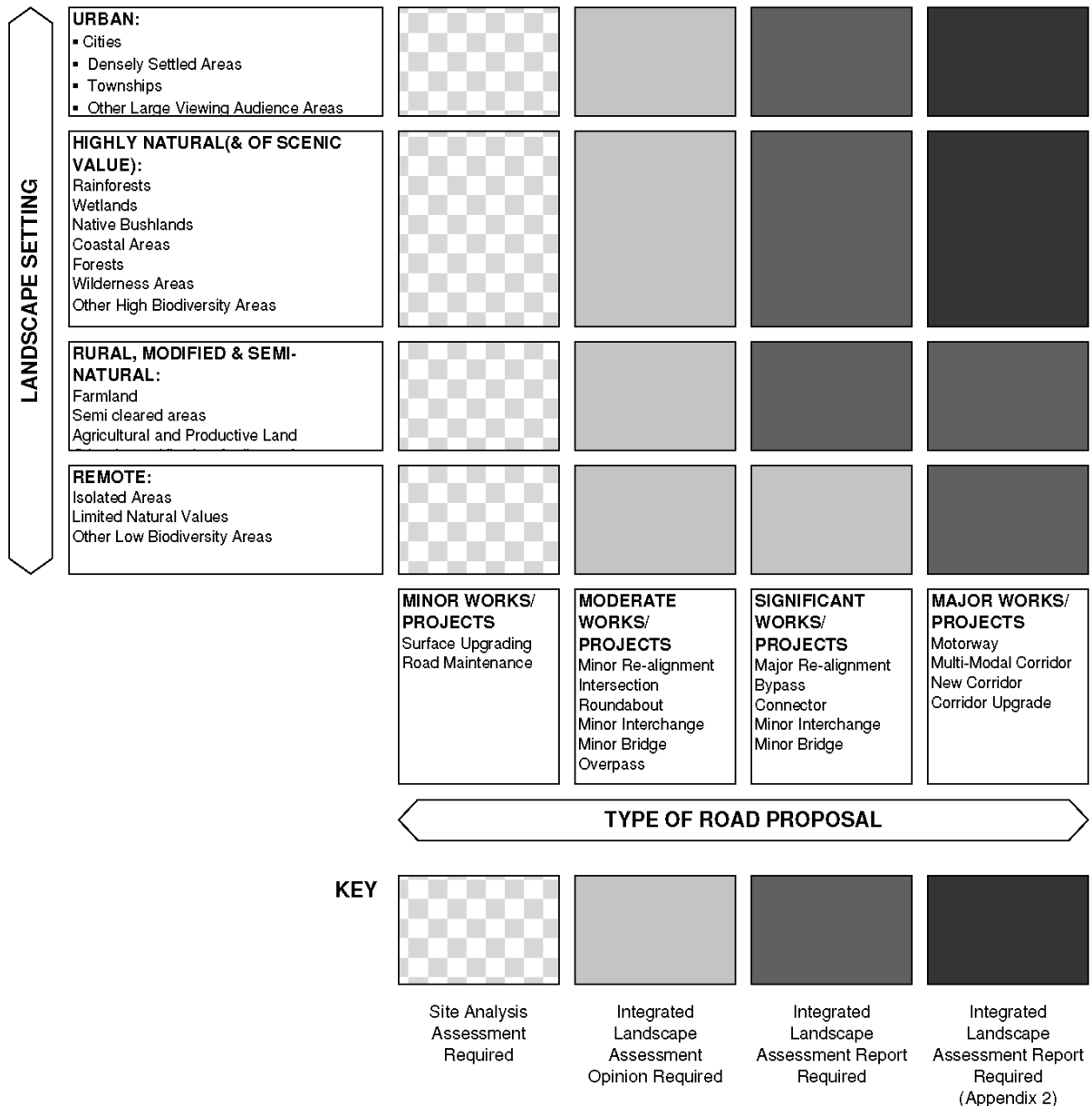


Figure B3-1: Guide to level of landscape assessment required for road projects

3.1.1.1 Landscape Assessment Site Analysis

In the majority of cases, minor road works require minimal (or no) landscape assessment to be undertaken other than that what would be considered appropriate for a typical landscape proposal.

3.1.1.2 Integrated Landscape Assessment Opinion

For moderate scale works such as minor re-alignments, new or upgraded intersections, roundabouts, overpasses and minor bridges, Steps two to five of the integrated landscape assessment process will still be required to be undertaken but not to the level of detail of a full integrated *Landscape Assessment Report*. As part of any environmental assessment processes and reporting undertaken; an integrated landscape assessment opinion should be prepared to ensure that landscape considerations are not overlooked. This should take the form of a short report of approximately two to five pages in length, summarising:

- Steps two to five of the integrated landscape assessment process; and
- Recommendations as to whether a full integrated *Landscape Assessment Report* is required to be prepared in the future.

3.1.1.1 Integrated Landscape Assessment Report

A full *Integrated Landscape Assessment Report* provides a comprehensive summary of landscape context and values and the manner in which they should be managed. These apply to more significant and complex major transport and road projects including deviations, bypasses, major interchanges and bridges, roads and multi-modal corridors (Figure B3-2).



Figure B3-2: Major Projects, such as busways, require a full Integrated Landscape Assessment Report to be produced, due to potential magnitude of impacts on surrounding landscape, particularly in urban areas

The scope of these reports will vary depending again on the landscape setting, scope of the transport and road proposal and level of complexity. The content of an *Integrated Landscape Assessment Report* should draw together all the analysis and reporting undertaken during the assessment process. Its format should follow the five steps of the integrated landscape assessment process; using the steps as key headings within the report, and similarly, the corresponding sub-sections as sub headings. The report should comprise an illustrated document, which may include maps, plans, cross sections, photographs, and any other required graphics. Including photomontages, perspectives, character sketches and artist's impressions are useful methods of indicating the predicted impacts upon the existing landscape, and measures to mitigate these effects.

In addition to the process outlined in this chapter, Appendix 2 provides detailed steps for the visual, ecological and cultural heritage analysis process.

3.2 Landscape Assessment Process

There are five steps in the landscape assessment process (Figure B3-3):

- Step one – describe existing landscape conditions;
- Step two – identify the interaction with transport infrastructure proposal;
- Step three – undertake detailed studies (if so identified by step two);
- Step four – combined assessment of effects and development of mitigation measures; and

Step five – formulate landscape integration strategy.

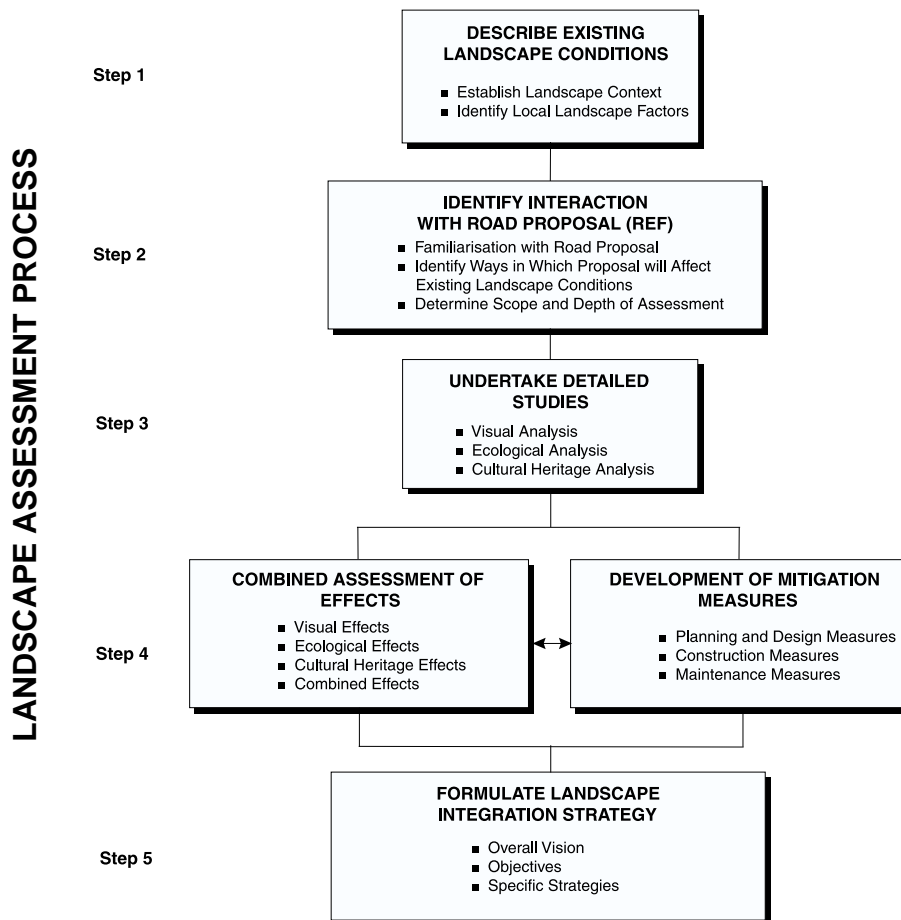


Figure B3-3: Landscape assessment process.

An integrated landscape assessment process should clearly identify and integrate the overall visual, ecological and cultural impact of the proposal, and mitigation measures to minimise these effects.

The process should clearly determine:

- the unique landscape characteristics and context of the area within and surrounding the transport infrastructure corridor;
- the significance of these areas in terms of landscape values;
- sensitivities, and modifications associated with the proposed transport infrastructure corridor changes; and
- overall impacts on landscape values, character and quality.

The process should provide clear conclusions on:

- identified opportunities and strategies for maximising benefits;
- constraints and impacts of the transport and road proposal; and
- determination of appropriate mitigation measures.

3.2.1 Step One – Describe the Existing Landscape Conditions

3.2.1.1 Establish Landscape Context

The first task is to establish a road proposal's broad landscape context. The awareness of regional landscape differences assists in developing a suitable response to roads in varying circumstances.

Queensland contains a diversity of landscape types from temperate uplands, through wet tropical zones, to dry arid inland areas. The geographic differences between these regions will affect the way in which decisions should be made in regard to the assessment, design and management of roads.

To highlight these differences and to assist in identifying broad regional landscape types, a classification has been undertaken of the main landscape regions of the state (Figure B3-4), including a brief description thereof.

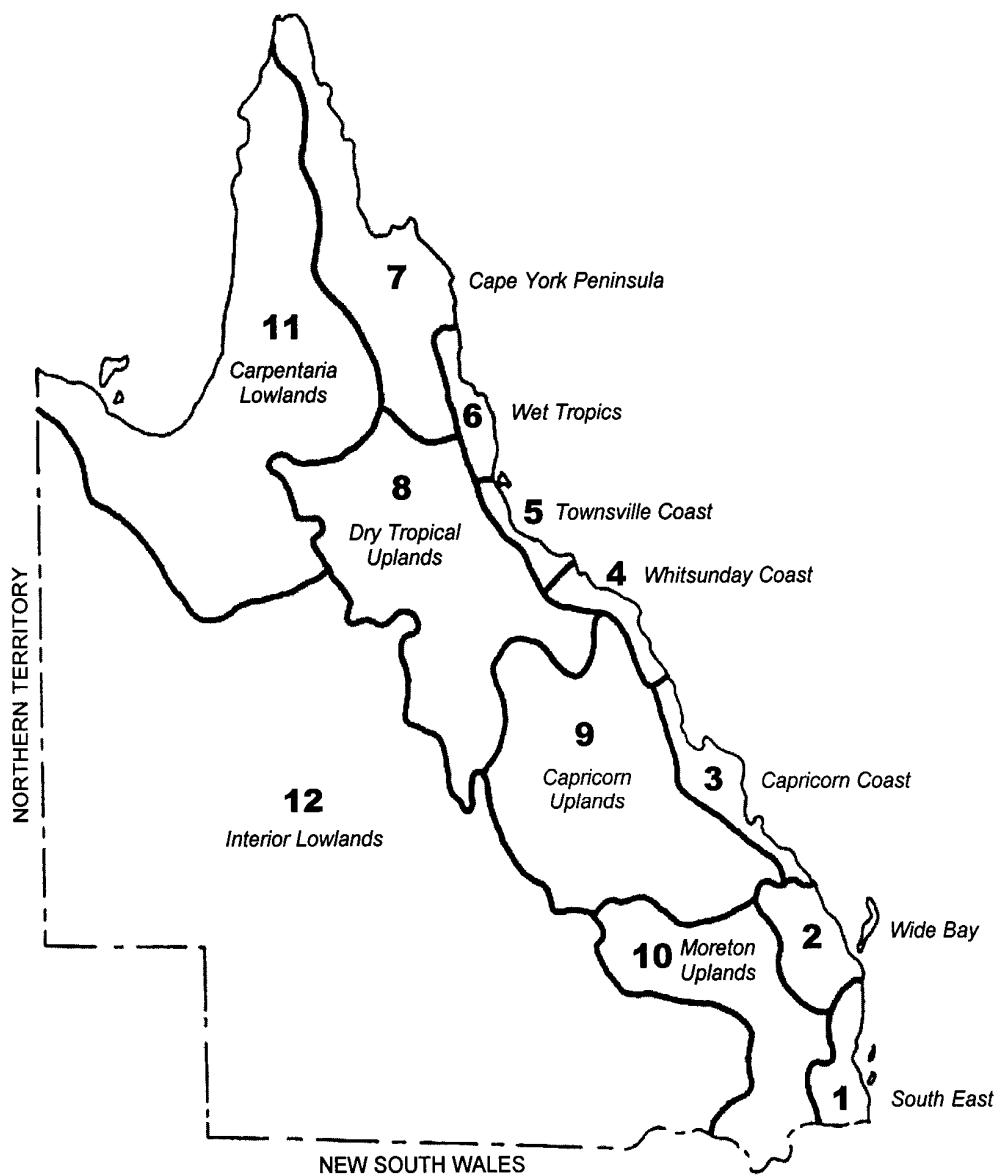


Figure B3-4: Broad landscape regions of Queensland

Region one – South East

The South East region is the most populated section of Queensland and comprises the area of Greater Brisbane City, located on gently undulating river valleys and the coastal plain. This region is framed by coastal hinterland and ranges and contains a variety of rural and semi-natural areas in addition to extensive urban development.

Region two – Wide Bay

The Wide Bay region, comprising the settled areas of Maryborough, Bundaberg and Hervey Bay, is located on a flat to rolling landscape mostly dominated by rural lands interspersed between grassy forest areas.

Region three – Capricorn Coast

The Capricorn Coast is a dry, flat to rolling landscape with remnant grasslands and forest areas. It features the cities of Rockhampton and Gladstone, together with smaller areas of coastal development. The dominant land use is low intensity farming.

Region four – Whitsunday Coast

The Whitsunday Coast, commencing south at Mackay, is a wet coastal landscape with forested hills, mountains and scenic offshore islands. Extensive natural areas are punctuated by small townships and tourism development.

Region five – Townsville Coast

The Townsville Coast comprises dry, flat to rolling farmland with coastal wetlands and areas of grassland. Dominant land uses are farming and small townships.

Region six – Wet tropics

The Wet Tropics, which includes the City of Cairns, feature steep forested coastal ranges including rainforest and rich coastal farming land.

Region seven – Cape York Peninsula

The Cape York Peninsula is very sparsely settled and contains mostly flatter landforms with a wide range of vegetation types from wetland, grassland and heath land through to woodland and rainforest.

Region eight – Dry tropical uplands

The Dry Tropical Uplands, inland of Townsville and the Wet Tropics, feature undulating to mountainous grassland and sparse forest and mulga. Agricultural uses are less intensive, with several mining areas.

Region nine – Capricorn uplands

The Capricorn Uplands comprise flat to gently undulating farmland, grassland, woodland and forest areas. Mining is also undertaken in this region.

Region ten – Moreton uplands

The Moreton Uplands are the most intensively farmed of the non-coastal areas of Queensland and comprise rolling to undulating landforms with several larger rural townships and cities.

Region eleven – Carpentaria lowlands

The Carpentaria Lowlands comprises a very flat landscape with minimal settlement. It extends inland from the Gulf of Carpentaria.

Region twelve – Interior lowlands

The Interior Lowlands comprise a predominantly flat channel country landscape with very minor relief and sparse grassland. Settlement is minimal and very dispersed.

3.2.1.2 Identify Local Landscape Factors

The previous classification of landscape regions provides a starting point for understanding the landscape resources of a particular area through which a road passes. There are other factors and data sources that need to be considered when establishing the landscape conditions of a particular place (Figure B3-5).

Information obtained on landscape factors can be interpreted through an overlay technique to determine areas of highest values and any particular constraints and opportunities that may affect roads (Figure B3-6). This information may include (but is not limited to) the following:

- **Land Use and Settlement Pattern** - broad scale topographic maps (1:100 000 and 1:25 000) will indicate the general land uses of an area and the settlement pattern as will local government planning schemes. Aerial photographic coverage is available for most of the state and is very useful in desk-top assessments.
- **Climate** - climatic data, particularly the frequency and distribution of rainfall throughout the year, is essential information which can be obtained from the Bureau of Meteorology.
- **Geology and soils** - geology and soil maps, together with other general information, can be obtained through the Department of Natural Resources and Mines. TMR Soil Group maps are available from the Department's Road Corridor Environmental Assessment Database.
- **Flora and fauna** - data on flora and fauna can be obtained from a number of sources including the Department of Environment and Resource Management and local government authorities.

A site visit should always be undertaken to confirm mapping and desktop investigation.

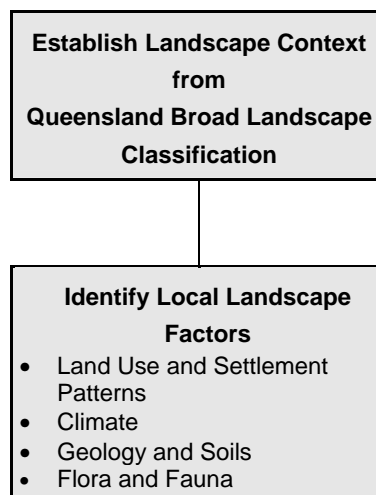


Figure B3-5: Describe existing landscape conditions

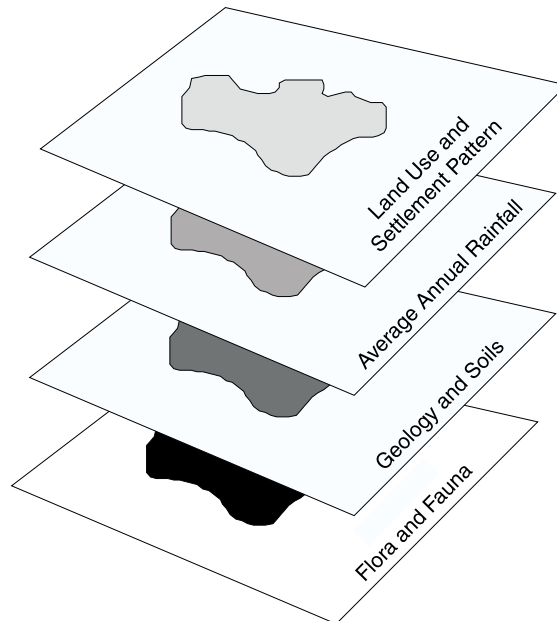


Figure B3-6: Overlay mapping of landscape factor

Other useful information for collection at the preliminary stage of the project include:

- previous studies, plans, reports and publications; and
- legislative requirements, policies and agreements (such as rare and threatened flora, fauna and declared weeds).

The data collected in step one should be combined in a logical manner to produce landscape analysis plans that highlight the sites characteristics, including (but not limited to):

- areas of existing vegetation, significant or functional with brief description thereof;
- presence of fauna on site, possible roosting locations or known movement corridors;
- geological and soil maps with relevant descriptions thereof;
- local site specific climatic conditions, including seasonal temperature, rainfall, humidity and prevalent wind/storm fronts;
- landform patterns, including manufactured and natural landscape features;
- identify views and vistas that require to be retained and or screened; and
- hydrological features such as rivers, creeks, streams and all noticeable drainage patterns.

3.2.2 Step Two – Identify Interaction with Road Proposal

3.2.2.1 Familiarisation with Road Proposal

While step one primarily involves familiarisation with the existing landscape conditions, step two is focused on understanding the detail of the actual road proposal.

It is not necessary, in the landscape assessment process, to be familiar with every detailed aspect of a road proposal. It is, however, vital to be aware of the critical elements which will affect the landscape.

The checklist (Figure B3-7) should be applied to all road projects. This data can generally be provided by the project manager responsible for design. For smaller projects, much of this information may not be applicable.

| | |
|---------------------------------|--|
| ROAD LENGTH | <ul style="list-style-type: none"> • Single or Multiple Routes • Length of Road |
| ROAD WIDTH | <ul style="list-style-type: none"> • Number of Lanes • Separation of Carriageways • Interchanges and Intersections • Presence of Service Roads • Total Land Corridor Required |
| ROAD CONFIGURATION | <ul style="list-style-type: none"> • Cross and Long Section • Batter Slopes • Median Width • Carriageway Surface • Culverts and Water Crossings |
| SEQUENCING OF ROAD | <ul style="list-style-type: none"> • Construction Staging • Use or Access Road Modification |
| ASSOCIATED ROAD ELEMENTS | <ul style="list-style-type: none"> • Major Signage • Traffic Control Barriers • Noise Barriers • Retaining Structures |
| LIGHTING | <ul style="list-style-type: none"> • Overhead Lighting |

Figure B3-7: Road proposal checklist

3.2.2.2 Proposal Affects on Existing Landscape Conditions

A preliminary assessment of likely effects of a proposal on existing landscape conditions can be identified by considering broad visual, ecological and cultural factors associated with concept planning. This preliminary assessment assists with scoping the final reporting and focus of the landscape assessment. The level of detail associated with this preliminary assessment will be determined by the scale and significance of the road project. Possible effects on landscape conditions are listed in (Figure B3-8).

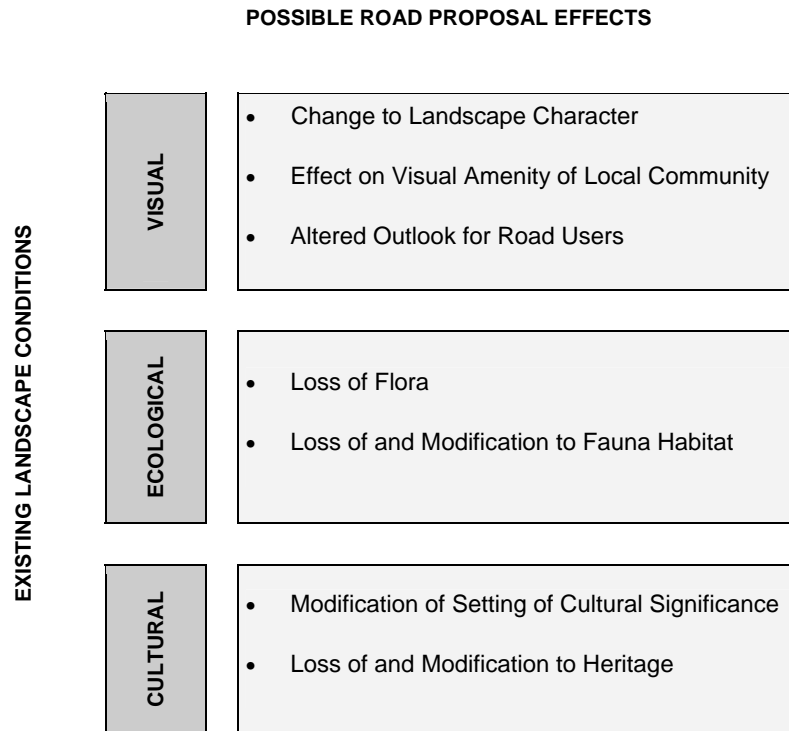


Figure B3-8: Effects of road on existing landscape conditions

3.2.3 Step Three – Undertake Detailed Studies

An integrated landscape assessment provides a culmination of the findings realised through undertaking a series of analyses at the local project area scale. These analyses are the basis of determining the landscape character of an area, and are:

- Landscape Context Analysis;
- Visual Analysis;
- Ecological Analysis; and
- Community Values.

For major projects in new corridors where route options are being explored a more detailed investigation is required (Appendix 2).

These four analysis processes are undertaken to clearly define the findings and outcomes relative to each individual value. They are then combined to determine how the analysis of landscape context and landscape values as a whole interrelates. This interrelationship is then analysed further relative to the overall impacts of the proposal on these landscape values. The full effects of the project as a whole on landscape context and landscape values can then be determined and appropriate design mitigation measures devised.

The findings from this analysis process assists in developing strategic direction and identifying public amenity improvement opportunities. These findings provide the basis for the integrated landscape integration assessment strategy to be developed at the end of the assessment process. Figure B3-9 illustrates the broad steps to be undertaken.

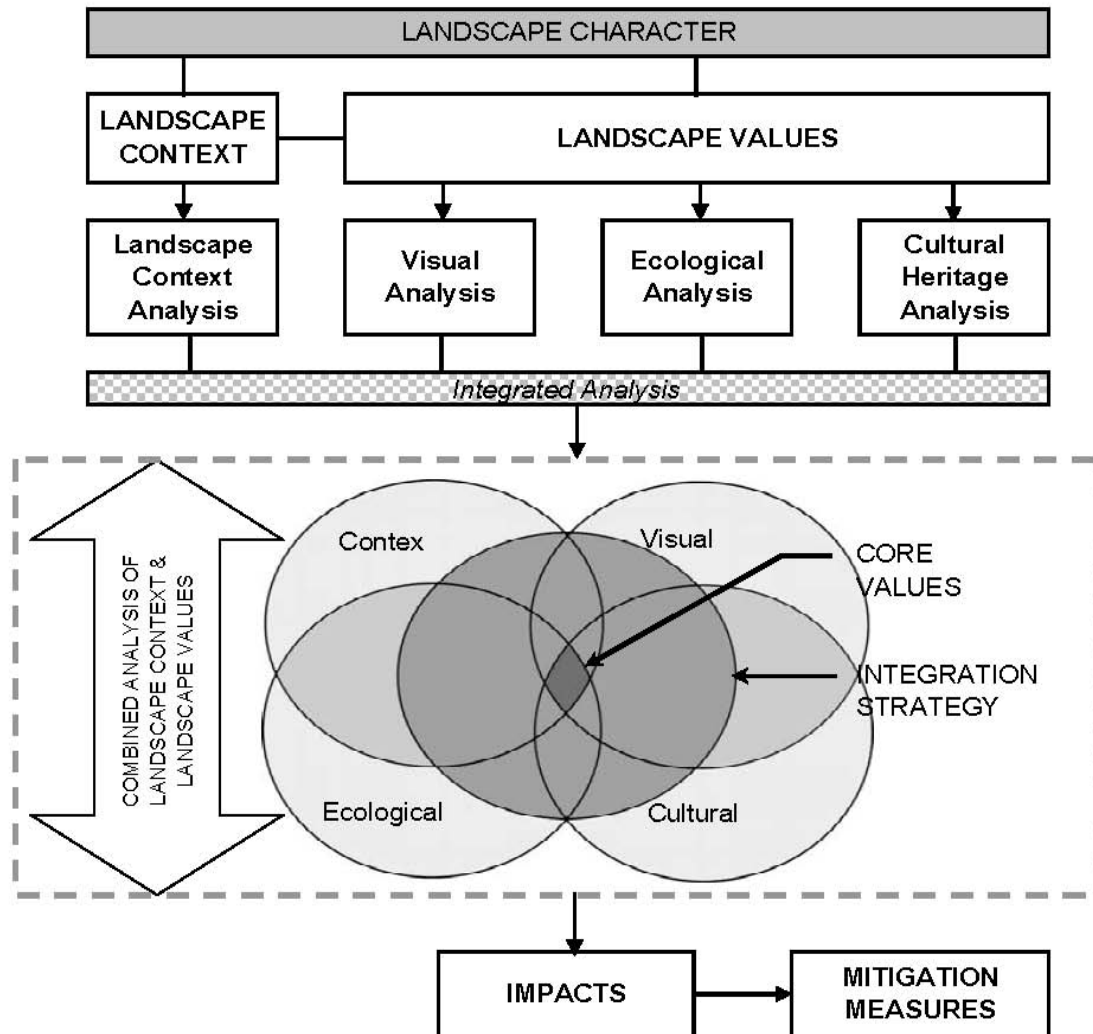


Figure B3-9: The role of landscape context and landscape values analyses within the integrated landscape assessment process

Mapping of landscape values is also a useful tool to use when undertaking the analysis process. Mapping can be used to identify, present and overlay the layers of landscape context and landscape values apparent within the project site. Mapping through overlays may be used to map individual layers (of landscape context, visual, ecological and cultural heritage values) and action of layers combined over each other to determine interrelationships, conflicts or constraints within the road landscape.

3.2.4 Step Four – Combined Analysis of Landscape Context and Landscape Values

The landscape value analysis is to synthesise the combined visual, ecological, heritage analyses. This should be a simple process of drawing together data collected and summarising key outcomes. The combined analysis should establish clear links between landscape context and values, and how they contribute to the landscape character of the area as a whole. The analysis should also identify potential mitigation strategies. For more detail on this process refer to Appendix 2 – Step 4.

3.2.5 Step Five – Integrated Landscape Assessment Strategy

The intention of a landscape integration strategy is to provide a proactive statement on how a proposal may best be integrated with its landscape setting. An integrated landscape assessment strategy should generally include the following levels:

- establishing an overall vision;
- developing project specific strategies; and
- master planning.

For more detail on this process refer to Appendix 2 – Step 5.