

## Chapter 1 - Introduction

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## 1.0 Introduction

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### 1.1 Background

Maunsell was engaged by the Roads and Traffic Authority in December 2006 to carry out an Options and Route Selection Study, Concept Development and Environmental Assessment for upgrading the Princes Highway between Gerringong and Bomaderry (approximately 30 km in total length).

The northern extremity of the project is in the vicinity of the Mount Pleasant Lookout (north of Gerringong at the termination of the four lane configuration) and the southern extremity of the project is the intersection (roundabout) of the Princes Highway with Cambewarra and Moss Vale roads at Bomaderry. The project will provide a bypass of Berry.

The study includes development of route options and identification of a preferred route. A concept design and environment assessment will be carried out for the preferred route. Results of each of the main stages of the study will be put on public display.

Community engagement is a key aspect of this project. The broader community will have the opportunity to make a demonstrable input to the process and to ensure that the requirements and aspirations of the community will be adequately and appropriately addressed. This is particularly relevant to:

- Any potential impacts on rural and residential areas within the study area.
- Social and economic impacts.
- Accessibility of the road network for local and through traffic.
- Potential impacts on water quality.
- Potential impacts on wetlands.
- Potential impact on flooding.
- Potential impacts on land uses.
- Threatened flora and fauna species.
- Indigenous and non-Indigenous heritage.
- Visual impact.
- Noise.
- Air quality.

Several studies have been undertaken since the early 1990s to identify a preferred route to upgrade sections of the Princes Highway between Kiama and Nowra including a bypass around the town of Berry.

These studies include:

- The 1991 Gerringong to Berry Route Study.
- 1998 North Street Berry Bypass Corridor.
- 2004/05 Quantm Study from Kiama to Nowra.

Sections of the highway between Gerringong and Bomaderry have a poor accident record and limited safe overtaking opportunities.

Due to the significant changes in land use and population in the region since 1991 and a review of current planning, traffic and safety conditions, the NSW State Government in March 2006 committed to investigating an area where it is likely a preferred route would be located to upgrade the Princes Highway between Mount Pleasant at Gerringong and Moss Vale / Cambewarra Road at Bomaderry. This upgrade would meet current road standards.

Key contributors to the need for the upgrade is the three per cent growth in annual traffic numbers and 10 fatalities occurring in nine traffic accidents between 2001 and 2005.

The project is currently in the route options development and display phase. There is currently no preferred option for the upgrade. Route options placed on public exhibition will undergo a detailed quantitative analysis and will be subject to value management studies to assist in determining the preferred route. The preferred route will be publicly displayed following the satisfactory completion of the value management study process.

This document has been prepared to explain the route options development process. It describes the investigative work and analysis that has led to the identification and preliminary assessment of a number of feasible options. It describes the short listed options and summarises the next steps.

### 1.2 Project objectives

The RTA has set out several objectives for the Princes Highway. Generically these include:

- Provide a flowing highway alignment that is responsive and integrated with the landscape.
- Protect the natural systems and ecology of the corridor.
- Protect and enhance the heritage and cultural values of the corridor.
- Respect the communities and towns along the road.
- Provide an enjoyable, interesting highway with strong visual connections to the Pacific Ocean, immediate hinterland and the mountains to the west.

Objectives for this project have been determined as follows:

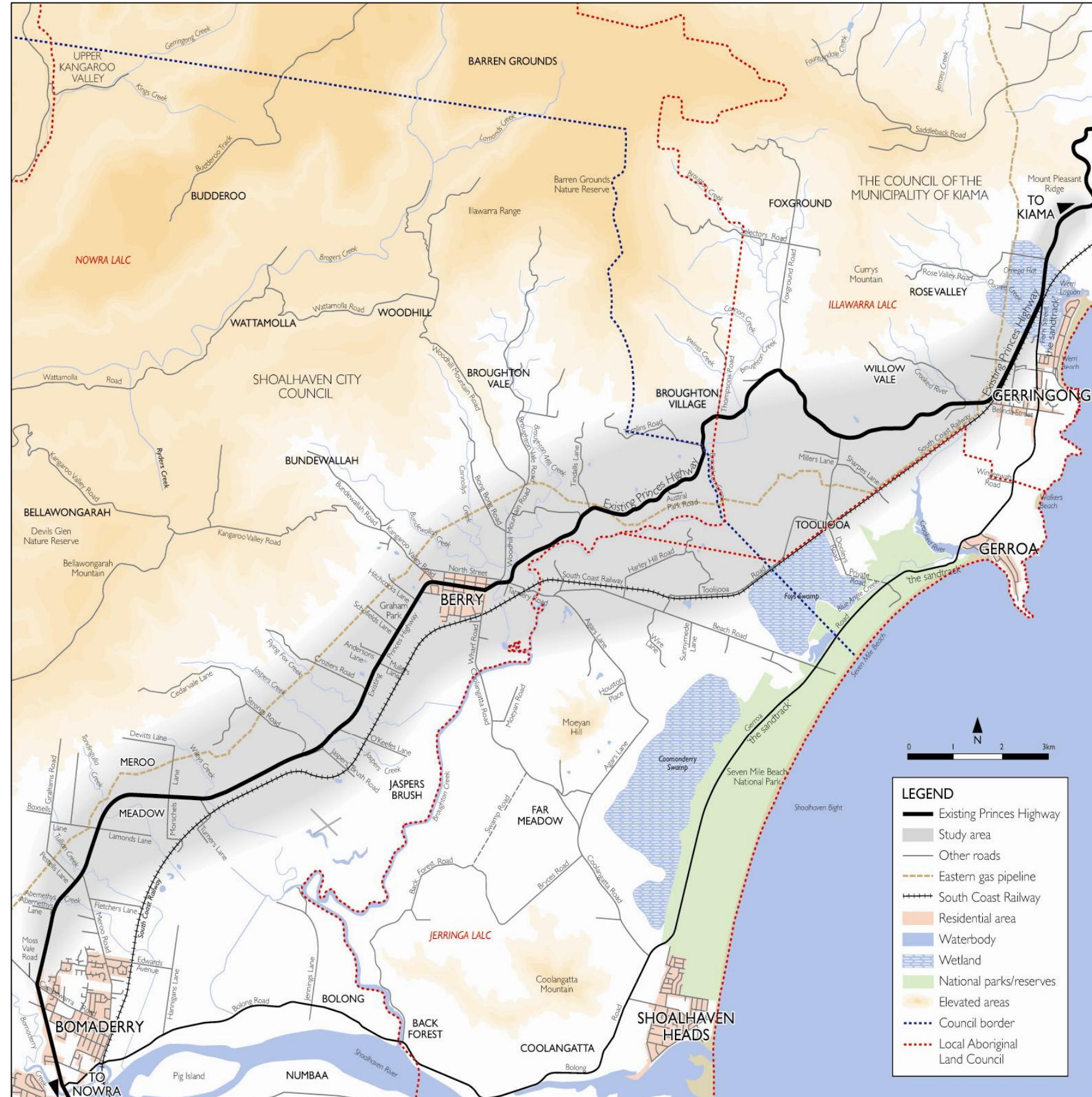
- Improving road safety by improving alignment, controlled access and standards in new road design and construction.
- Improve efficiency of the Princes Highway between Gerringong and Bomaderry.
- Support regional and local economic development.
- Provide value for money.
- Enhance potential beneficial environmental effects and manage potential adverse environmental impacts.
- Optimise the benefits and minimise adverse impacts on the local social environment.

The existing highway will be upgraded to include:

- A high standard highway with two lanes in both directions with median separation.
- Controlled access.
- A bypass of Berry.

The route options development and selection process is one that seeks to identify feasible routes which best meet these objectives. This process is set out in more detail in **Chapter 7.0**.

Figure 1.1 Study area



### 1.3 The study area

The study area identified for the proposed upgrade extends from the Mount Pleasant Lookout in the north to the Moss Vale / Cambewarra road intersection in the south. The study area varies in width from approximately one to four kilometres. Past RTA experience on other similar projects shows that a preferred route can extend beyond the original limits of a study area. Therefore the study area for this project encompasses a larger than usual area and has 'fuzzy edges', reducing the risk that parts of feasible routes extend beyond the study area.

The extent of the study area is influenced by natural landform. To the north and west the southern end of the Illawarra Escarpment and the Cambewarra Range and their spurs and ridges provide a "border". To the east and south the "border" is formed by the low-lying coastal and flood plains beyond the railway line.

From north-east to south-west the study area passes the towns of Gerringong and Berry and terminates at the northern reaches of Bomaderry. The pastureland and rural settlement patterns of the study area are defining features. The rural landscape that exists today is highly reflective of agricultural activities that have been occurring since the first half of the nineteenth century.

The largest agricultural influence has come from dairying activities. These activities have defined the general pattern of vegetation clearance, defined rural boundaries by linear cultural plantings, and the distribution of rural houses and farm buildings.

Within the pasture landscape the major source of variation is the topography of the study area. The character of the rural backdrop is markedly different between the undulating higher elevations associated with the foothills of the Illawarra Escarpment and Cambewarra Range, and the coastal plain that occurs generally east of Broughton Creek.

The rural backdrop is slowly changing and the partial decline in the dairying industry has created a more complex landscape pattern. A wider variety of agricultural activities is resulting in more areas under cultivation.

Significant constraints which influence the location and design of the route options include:

- The existing highway corridor.
- Sub-standard road geometry of the existing highway, particularly in the Foxground area.
- Floodplains and soft soil conditions located generally in the south and east of the study area.
- The South Coast railway.
- Agricultural industry including dairy.
- An approved housing development in Berry.
- The Eastern Gas Pipeline.
- Indigenous and non-Indigenous cultural heritage at various locations across the study area.
- Hilly terrain (generally found to the north-west of the study area with ridges extending south and east).



- Colonies of Endangered Ecological Community and threatened plant species.
- Residences.

#### 1.4 The existing highway

The Princes Highway forms an important north-south corridor linking Sydney with the Illawarra and South Coast Regions. The Illawarra and South Coast Regional Strategies identify the Princes Highway as a critical link for both passenger and freight transport between Sydney, Wollongong and communities in the Illawarra and South Coast. It is the primary land transport route servicing the South Coast as the railway does not extend south of Bomaderry. It is also a major route for tourism with peaks at holiday periods, particularly in summer. Traffic volumes along the route are currently growing by approximately three per cent per annum.

Crash statistics collected by the RTA confirm the widely held concern that many areas of highway between Gerringong and Bomaderry perform relatively poorly with regards to road safety (refer to **Chapter 2**). In terms of the existing highway, the study area can be split into two sections:

- Between Gerringong and Berry, the highway is characterised by its rural, hilly and sinuous alignment. Generally it is an unforgiving two lane undivided carriageway with lengths of sub-standard horizontal and vertical alignment. It provides limited opportunity for overtaking and has frequent uncontrolled residential, farm and minor road access and intersections.
- Between Berry and Bomaderry, the alignment is a relatively good, although there are a number of sub-standard vertical curves which present overtaking and turning manoeuvre problems. Similar to the northern section many uncontrolled access and junctions exist.

#### 1.5 Specialist studies

A number of key environmental, engineering and economic issues influence the location and design of route options and ultimately the preferred route. Preliminary investigations have been carried out and have included reviews of studies from previous investigations into the upgrade. For further information refer to the preliminary reports enclosed in **Appendices B to Q** inclusive.

The current investigations comprise a review of existing background data, fieldwork and analysis to provide a more thorough understanding of the physical, social and economic aspects of the study area. Specialist studies conducted during the route options development phase have included:

- Geotechnical.
- Topography, geology and soils.
- Urban design landscape and visual amenity.
- Traffic, transport and road safety.
- Public utilities and services.
- Social-economic.
- Flora and fauna (terrestrial and aquatic).
- Water quality.
- Cultural heritage (Indigenous and non-Indigenous).
- Flooding and drainage.
- Land use and planning.
- Noise and vibration.
- Climate and air quality.

In fulfilling a commitment to the community, this project includes a comprehensive community engagement program to facilitate community engagement in the route options development process. This approach is described in more detail in **Chapter 3.0**.

#### 1.6 Route options development process

A summary of the route selection process is shown in **Figure 1.2**. **Chapter 7** includes a description of the route options development phase.

This report documents the first stage of route assessment. It involves collection and analysis of information from previous and new studies covering social, environmental, engineering and economic issues. In turn this has led to a short list of feasible options. Information on the short list of options will be placed on public display to obtain feedback from the community and other stakeholders. This feedback will be used to determine the need for further environmental and engineering studies that may be required to assist in the identification and selection of the preferred route.

**Appendix A** includes details of the potentially feasible routes which have been examined and from which the short list of feasible options emerged. The assessment included those which were examined as part of the 1991, 1998 and 2005 studies. The assessment also explored the feasibility of additional routes<sup>1</sup>.

As mentioned above and in more detail in **Chapter 3.0**, community engagement is a key factor for the successful outcome of this project. The preferred route will be one that provides a balance between community, environmental, engineering and economic concerns. Community engagement is necessary to:

- Understand the issues raised by the community and ensure that these are considered in the route options development process.
- Inform the community of the process and provide an opportunity to influence decisions taken during the course of the project.
- Seek community knowledge and data to assist the investigation of potential impacts.
- Improve the overall design outcomes by minimising impacts and optimising mitigation measures.

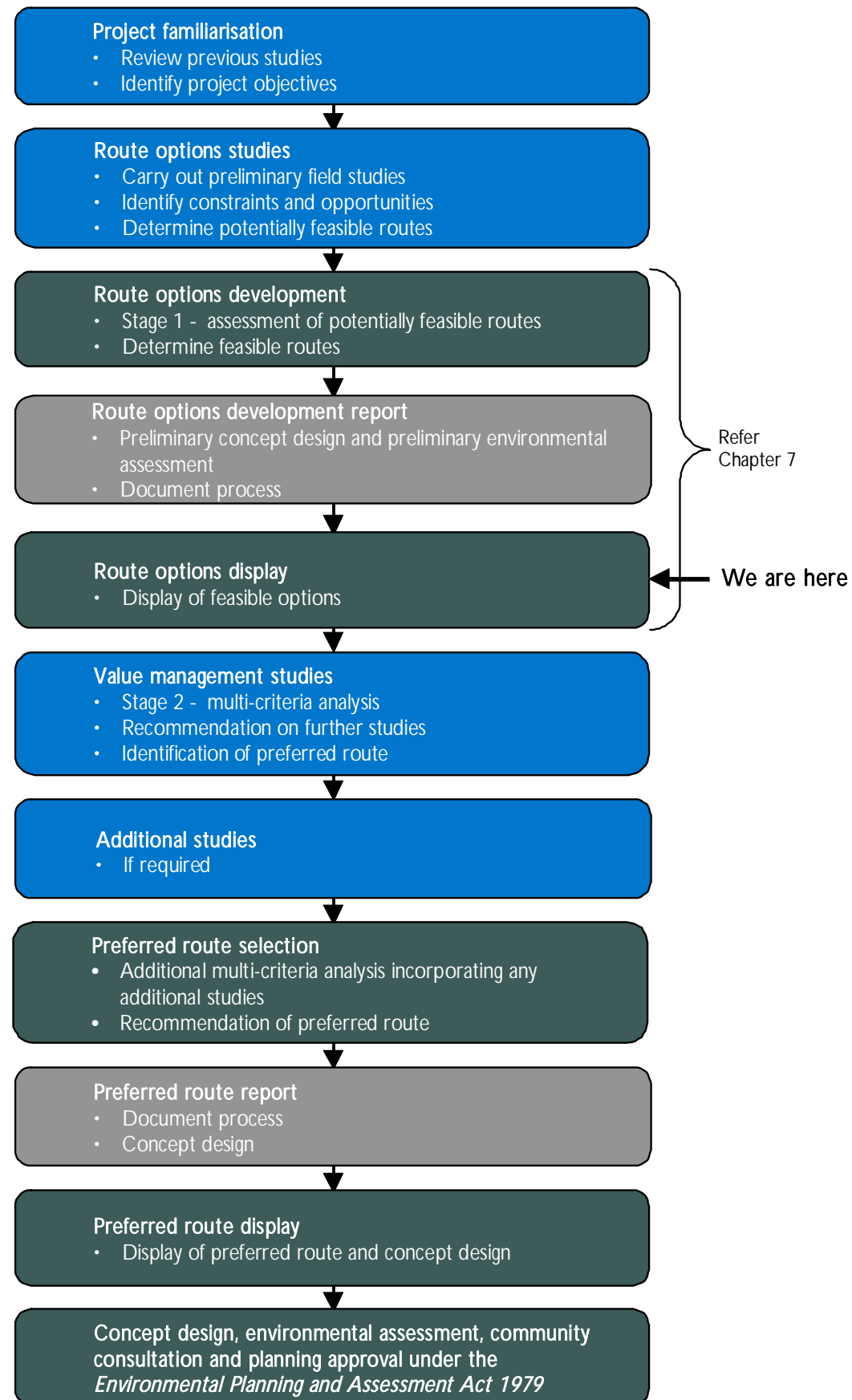
#### 1.7 RTA environmental commitment

Through its Environmental Policy 2007<sup>2</sup>, the RTA is committed to undertaking activities in an environmentally responsible manner and to effectively manage any risks that may lead to an impact on the environment. To this end, environmental management is considered an essential element of effective road and traffic related infrastructure planning, construction, maintenance and operation.

<sup>1</sup> The Sandtrack was not included in this review as it had been ruled out as part of previous studies.

<sup>2</sup> The RTA Environmental Policy 2007 is available to download from the RTA website [www.rta.nsw.gov.au](http://www.rta.nsw.gov.au).

Figure 1.2 Route options development process



## 1.8 Ecologically sustainable development

The principles of ecologically sustainable development as defined in the *NSW Environmental Planning and Assessment Act 1979* and the *Environmental Planning and Assessment Regulation 2000* have been considered during the evaluation of alternative route options. The relevant requirements of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* have also been taken into account. The RTA, through its Environmental Policy, has a corporate commitment to the principles of ecologically sustainable development which must be reflected in all stages of the project.

### 1.8.1 New South Wales ecologically sustainable development requirements

The principles of ecologically sustainable development are listed under Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* as:

- *"The "precautionary principle" i.e. 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. In the application of the precautionary principle, public and private decisions should be guided by:*
  - *Careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment.*
  - *An assessment of the risk-weighted consequences of various options.*
- *"Inter-generational equity" i.e. the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*
- *"Conservation of biological diversity and ecological integrity" i.e. biological diversity and ecological integrity should be preserved as much as possible by investigating appropriate route options that minimise the impact on biological resources including threatened species and their habitats and ecologically sensitive communities.*
- *"Improved valuation, pricing and incentive mechanisms" i.e. environmental factors should be included in the valuation of assets and services, such as:*
  - *Polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement.*
  - *The users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.*
  - *Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems."*

### 1.8.2 Commonwealth ecologically sustainable development requirements

Under Section 3A of the *Environment Protection Biodiversity Conservation Act 1999*, the principles of ecologically sustainable development require:

- Decision-making processes to effectively integrate both long-term and short-term environmental, economic, social and equitable considerations.
- Consideration of the precautionary principle.
- Consideration of inter-generational equity.
- Conservation of biological diversity and ecological integrity.
- Improved valuation, pricing and incentive mechanisms to be considered.

### 1.8.2.1 Integrating the principles of ecologically sustainable development

Pursuant to the commitment to ensure that major road developments are consistent with the principles of ecologically sustainable development, these principles have been integrated into the identification and evaluation of alternatives for the upgrade.

These ecologically sustainable development principles are recognised as a part of the route selection and evaluation process through the integration of ecological, social and economic considerations into the decision making processes for route selection.

This has included significant input into the route selection process by sustainability and environmental specialists, not just the consideration of engineering and economic requirements.

The principle of conservation of biological diversity and ecological integrity has been taken into consideration by developing a range of options which aim to maintain or enhance the range and health of native plants and animals in the study area.

Maps showing areas of high conservation significance were produced for consideration during the route options selection process and these areas were avoided as much as possible in route selection.

The precautionary principle has been taken into account by, wherever possible, avoiding areas of high conservation significance rather than proposing mitigation measures that were not absolutely sure of success.

Inter-generational and intra-generational equity have been considered by the route options selection process by including social and community issues in the assessment and avoiding areas of high impact. In addition, the impact of each route on the use of scarce resources has been considered in conjunction with other environmental, engineering and economic criteria.

Additionally, the consideration of ecologically sustainable development principles will continue to be a feature throughout subsequent stages of the project including the value management process and the development of an optimum engineering design outcome, and consideration of environmental, social and economic issues in the environmental assessment and concept design of a subsequent preferred route.

## 1.9 Report objective

The objective of this report is to describe the feasible options identified within the study area to be publicly displayed and to be given further consideration in the selection of the preferred route.

More specifically, the report:

- Presents the justification for the project and its strategic context.
- Outlines community engagement to date and key issues arising.
- Confirms the constraints and opportunities which influence the development of feasible route options including social, environmental and engineering issues.
- Confirms the design parameters applicable to this project.
- Explains the route options development process and specifically the filtering of potential route options to a proposed short list of feasible options.
- Presents the preliminary comparison between the feasible options addressing engineering, environmental, social and economic issues.
- Outlines the next steps in selecting a preferred route.

## 1.10 Report structure

This report has 10 chapters:

- Chapter 1 provides an introduction to the project.
- Chapter 2 outlines the strategic context of the project.
- Chapter 3 addresses the community and stakeholder involvement in the route options development process.
- Chapter 4 considers the strategic and statutory planning approvals process pertinent to the project.
- Chapter 5 describes the existing environment in biophysical, social and cultural terms.
- Chapter 6 outlines the design criteria and physical constraints which influence the development of the route options.
- Chapter 7 addresses the route options development and assessment process.
- Chapter 8 presents the short list of feasible options and their specific impacts on the existing environment.
- Chapter 9 summarises the economic evaluation and concept cost estimate for the feasible options.
- Chapter 10 documents the next steps of the project.

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