9. Environmental risk analysis

9.1 Approach

In accordance with the process outlined in Part 3A of the *Environmental Planning and Assessment Act 1979* (the EP&A Act), 'key' environmental issues for consideration in this Environmental Assessment were identified during the preparation of the Project Application and Project Application Report (NSW Roads and Traffic Authority 2006a) for the proposed upgrade. This involved an environmental risk analysis to determine which environmental issues were considered 'key' issues based on detailed preliminary environmental and engineering investigations.

Government agencies have been consulted as part of the Part 3A process. Relevant agencies were invited by the Department of Planning to review the Project Application and attend a planning focus meeting on 30 August 2006 to discuss project issues and help refine the key issues for further consideration and documentation in the Environmental Assessment.

The subsequent Director-General's Environmental Assessment requirements issued by the Department of Planning outlined the required scope of the Environmental Assessment (see Appendix A).

This Environmental Assessment was written in response to the Environmental Assessment requirements. It provides a description of the proposed upgrade, the changes likely to result from construction and operation of the proposed upgrade, and how the RTA proposes to mitigate or manage any potential residual impacts associated with these changes.

The Environmental Assessment focuses on the key issues identified during the Project Application phase and in the Director-General's Environmental Assessment requirements, and briefly describes 'other issues' that can be mitigated through the use of standard environmental management measures.

This Environmental Assessment also focuses on the impacts that have not been avoided or reduced during the development of the design. Where an identified impact required the development of a project-specific management measure, for example, a noise wall to reduce noise levels near residential dwellings, a description of the feature or strategy is provided in the relevant Chapter.

The draft Statement of Commitments (Appendix D) summarises all of the proposed management measures, and demonstrates the RTA's commitment to preparing and implementing a comprehensive system of environmental management prior to and during the construction and operation of the proposed upgrade.

9.2 Key and other environmental issues

Table 9-1 provides a summary of the environmental risk analysis that identified the 'key' and 'other' environmental issues relating to the proposed upgrade. Further discussion of key issues is provided in Chapters 10 to 20 of this Environmental Assessment. The environmental issues identified as 'other' issues can be managed through appropriate management actions and mitigation measures, as identified in Table 9-1 and discussed further in Chapter 21 – *Other environmental issues*.

Table 9-1 **Summary of environmental risk analysis**

Issue	Potential impacts	Section of Environmental Assessment that addresses impacts and management
Key environmental issues		
Hydrology and water management	The proposed upgrade would traverse the Macleay River and its floodplain, the Collombatti Creek floodplain and various other creeks and drainage lines along the alignment. Impacts and design measures to mitigate any impacts on the existing hydrological regimes are proposed. Further details on potential flooding impacts are provided in Technical Report 1 (Volume 2).	Chapter 10
Biodiversity	The proposed upgrade would require the removal of flora and fauna habitats and potentially sever some fauna corridors. A number of threatened species are known to exist along the corridor and may be affected by the proposed upgrade. Details of the impact on threatened species and proposed management measures are included in Chapter 11 and Technical Report 2 (Volume 2).	Chapter 11
Geology, soils and groundwater	Soft soils on the Macleay River floodplain are likely to require special construction techniques. Acid sulfate soils are also present, particularly in low-lying areas close to the water table. Groundwater could be encountered during excavations and piling. Soil and geology issues could be adequately addressed through the application of standard environmental management measures.	Chapter 12 Chapter 10, 21 (groundwater)
Contaminated land	Preliminary desktop environmental investigations indicated that there is a low potential for contaminants of concern to be present along the proposed alignment. Standard environmental management measures are available to adequately manage and mitigate impacts, should contaminated land be encountered.	Chapter 12
Hazard and risk	The use of chemicals and other hazardous materials during construction and the transport of dangerous goods along the proposed upgrade pose a risk to health, safety and the environment. These hazards and risks are further considered in the Chapter 13.	Chapter 13

Issue	Potential impacts	Section of Environmental Assessment that addresses impacts and management
Traffic, transportation and access	The development of a more efficient and safe highway would greatly reduce road accidents and improve travel times through the Macleay Valley. Construction traffic would be mainly off-road; however, there may be some impacts on local and highway traffic during the construction of the proposed upgrade. Temporary and permanent changes to local access arrangements are described in Chapter 14.	Chapter 14
Land use and property	Agricultural and rural residential land constitutes the majority of land use within and surrounding the proposed upgrade corridor. The proposed alignment would necessitate changes to some farming operations, and some reconfiguration of properties and access. The implications for current and future land use development are described in Chapter 15.	Chapter 15
Noise and vibration	Residential dwellings and other sensitive receivers in close proximity to the proposed upgrade would experience increased noise levels during the construction and operation of the proposed upgrade relative to existing conditions. The horizontal and vertical alignment has been amended to reduce operational noise impacts. Residual noise impacts would be mitigated through a combination of pavement treatment, noise walls and architectural treatments. Impacts and noise treatments are considered further in the Chapter 16.	Chapter 16
Heritage	The Macleay Valley has significant Indigenous and non-Indigenous cultural heritage features. During the environmental assessment investigations, locations of heritage sites were identified. The alignment of the proposed upgrade has avoided these sites where possible. Procedures for heritage protection during construction are outlined in Chapter 17.	Chapter 17
Economic and social impacts	The proposed upgrade would have direct and indirect impacts on the local economy and community. Specific impacts would include community severance and land acquisition, access impacts, amenity impacts, potential loss of business for highway-dependent businesses, and impacts on agricultural enterprise. The social and economic impacts of the proposed upgrade are outlined in Chapter 18.	Chapter 18
Landscape and visual impacts (referred to as Urban Design and Landscaping by the Department of Planning)	The Macleay Valley is characterised by a wide floodplain and surrounding undulating hills to the east and west. The proposed upgrade would traverse several landscapes within the road corridor. The impacts of the proposed upgrade on views and the landscape in general are considered in Chapter 19.	Chapter 19, Chapter 6 (Urban design and landscape strategy)
Air quality	The construction and operation of the proposed upgrade would result in a temporary increase in air pollutants, including dust, from the operation of machinery and vehicles.	Chapter 20

Issue	Potential impacts	Section of Environmental Assessment that addresses impacts and management
Other environmental issues		
Water quality	Sedimentation of nearby waterways could occur during construction of the proposed upgrade. Standard environmental management measures are available to adequately manage and mitigate impacts.	Chapter 21 and Statement of Commitments
Cumulative impacts	The development of the proposed upgrade could coincide with other major developments, including the concurrent construction of other upgrades of the Pacific Highway.	Chapter 21
Project sustainability	The operation of the proposed upgrade would reduce greenhouse gas emissions overall, relative to a 'no build' scenario, as a more efficient highway requires less fuel consumption. The proposed upgrade would generate various construction wastes, increase energy use and increase demand on local and regional resources (e.g. fill material and water). A potential green offset strategy is also outlined in Chapter 21.	Chapter 21 and Statement of Commitments