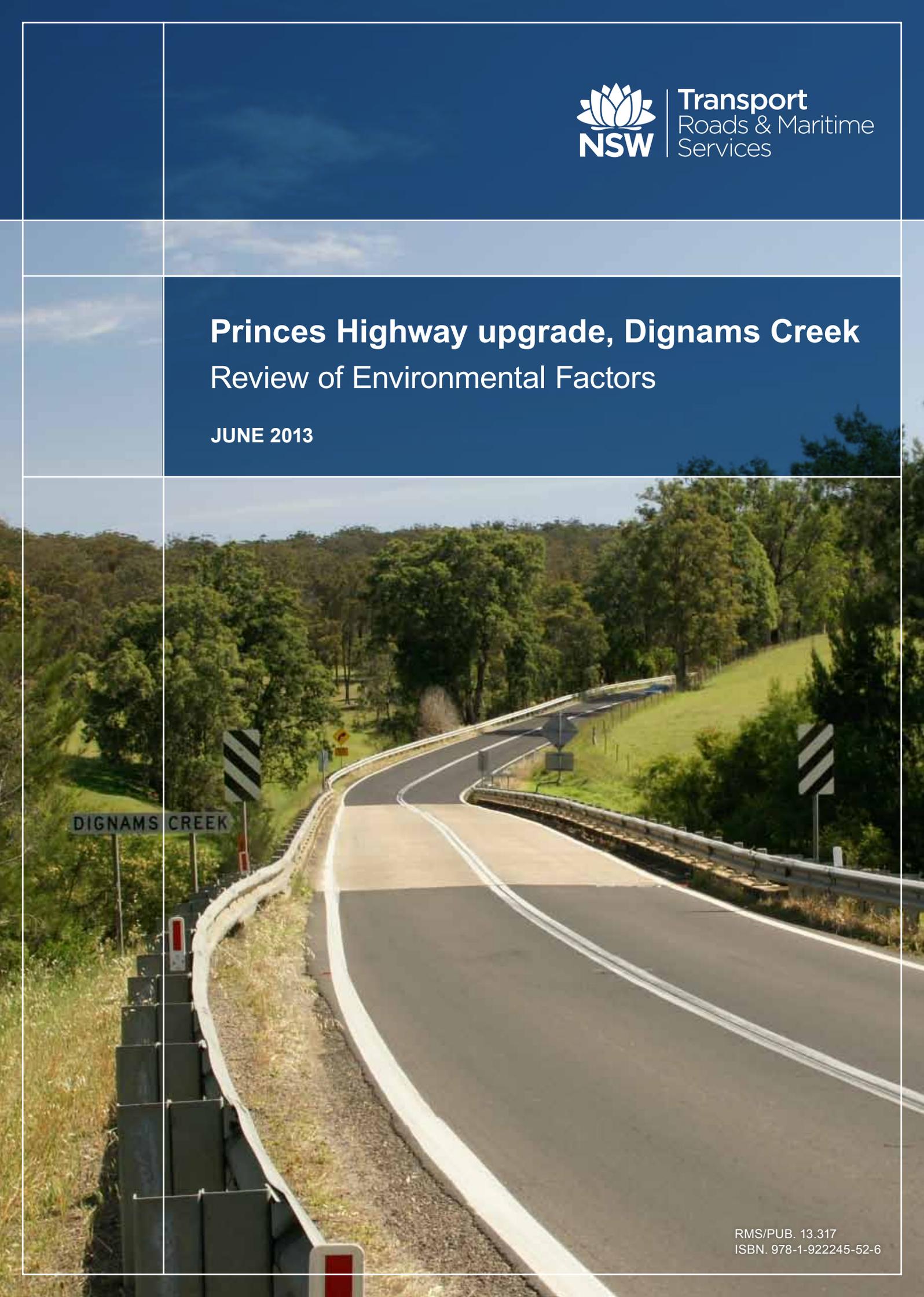




Transport
Roads & Maritime
Services

Princes Highway upgrade, Dignams Creek Review of Environmental Factors

JUNE 2013

A photograph of a newly upgraded asphalt road curving through a lush green landscape. The road has a light-colored concrete curb on the left and a metal guardrail on the right. A road sign on the left reads 'DIGNAMS CREEK'. The background is filled with dense green trees and rolling hills under a clear blue sky.

DIGNAMS CREEK

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Roads and Maritime Services

Upgrade of the Princes Highway, Dignams Creek

Review of Environmental Factors
June 2013
Final

Prepared by
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Executive summary

The proposal

The Roads and Maritime Services (RMS) propose to realign around 3.7 kilometres of the Princes Highway at Dignams Creek on the South Coast of New South Wales (NSW). The proposal is located between Narooma and Cobargo in the Eurobodalla and Bega Valley Local Government Areas (LGAs). The proposal includes the section of the Princes Highway starting about 1.5 kilometres north of the intersection of Dignams Creek Road and extending around 2.2 kilometres to the south of the intersection.

The proposal has been split into two stages in order to obtain construction funding for the proposal and to provide a plan for future works. Stage 2 is a long term plan and is unlikely to be constructed for some time.

A description of the proposal is provided below. Key features of Stage 1 include:

- Realigning about two kilometres of single carriageway starting about 1.5 kilometres north of the Dignams Creek Road intersection and extending to about 600 metres south of the Dignams Creek Road and Princes Highway intersection. The section would be constructed as a single carriageway with 3.5 metre wide lanes and three metre shoulders in each direction.
- Removal of four tight sub-standard curves along the existing Princes Highway.
- Construction of a new single carriageway bridge over Dignams Creek about 91 metres in length.
- Relocating the Princes Highway and Dignams Creek intersection about 100 metres north-west.
- Realigning around 200 metres of the most eastern section of Dignams Creek Road.
- Tie ins to the existing Princes Highway alignment.
- Provision of around 1.4 kilometres of road safety treatments along the existing Princes Highway alignment at the southern end of the proposal.
- Provision of one dedicated fauna underpass and one combined drainage culvert/fauna underpass.
- Relocating two private property access roads and formalising and consolidating one national park access point.
- Part of the existing Princes Highway alignment and Dignams Creek Bridge would be retained for private use.

Key features of Stage 2 include:

- Realigning about 1.5 kilometres of single carriageway commencing about 600 metres south of Dignams Creek Road and extending to the southern end of the proposal. The section would be constructed as a single carriageway with 3.5 metre wide lanes and three metre shoulders in each direction.
- Removal of six sub-standard curves along the existing Princes Highway.
- Tie ins to stage 1 and the existing Princes Highway alignment.
- Provision of one dedicated fauna underpass, one combined drainage culvert/fauna underpass and one rope canopy bridge.
- Relocating access roads for Kooraban National Park and Gulaga National Park.
- Removal of the existing Princes Highway between Dignams Creek Road and the access road to Gulaga National Park.

The following general features would be included for both stages of the proposal:

- Installation of operational water quality controls including:
 - Five biofiltration basins.
 - A water quality basin.
 - Two constructed wetlands.
 - Biofiltration/vegetated swales.
- Installation of four retaining walls.
- Provision of ancillary facilities such as temporary sedimentation basins, compound and stockpile sites, and access tracks.
- Removal, rehabilitation and revegetation of 0.6 kilometres of the redundant sections of the Princes Highway.
- Relocation of overhead utilities to accommodate the proposal.

Construction of the proposal would proceed following determination of the Review of Environmental Factors (REF), obtaining other approvals as required, completion of the detailed design and the securing of funding from government sources. The construction period for Stage 1, would have duration of between 18 and 24 months. Stage 1 of the proposal has a strategic estimate of about \$40 million. Whilst Stage 2 is a long term plan which is unlikely to be built for some time, the strategic cost estimate for this stage is around \$20 million (2013 dollars). The construction period for Stage 2 would be defined during detailed design.

The proposal objectives are as follows:

- To improve road safety.
- To provide a continuous 100 kilometre per hour travel speed environment.
- To improve economic efficiency including freight through improved alignment.
- To provide a well-engineered, safe and environmentally acceptable road transport facility.
- To provide a value for money project.

Need for the proposal

The Princes Highway has a poor crash history in the Dignams Creek region. Between 2005 to 2010, there have been 21 crashes along the Dignams Creek section of the Princes Highway. One crash was fatal, 11 crashes resulted in injury, and nine were non causality crashes. Currently the crash rate on the Princes Highway at Dignams Creek is 214.1 per 100 million vehicle kilometres travelled (MVKT). This is over seven times the typical casualty crash rate for this type of road in NSW of 30.4 crashes per 100 MVKT. The casualty crash rate is 132.6 per 100 MVKT, which is nearly eleven times the casualty crash rate for NSW of 12.2 per 100 MVKT. The predominant crash type is run off road on a curve (hit object), representing 67 per cent of the crashes. Contributing factors include speed (76 per cent) and wet road conditions (62 per cent).

In 2008 a coronial inquiry was undertaken by the NSW Government in response to 15 fatalities on the Princes Highway. One of the findings included a recommendation that the NSW Government seek Australian Government funding to upgrade the Princes Highway between Victoria Creek and Dignams Creek. The proposal is therefore required to improve the substandard alignment, the poor crash history and safety concerns associated with the Dignams Creek section of the Princes Highway.

The proposal forms part of progressive ongoing upgrades of the Princes Highway. The aim of the upgrades is to improve road safety, road geometry and alignment, creek and river crossings, and travel times on the Princes Highway. The proposal would specifically improve road safety along the Dignams Creek section of Princes Highway through the realignment of tight curves. The proposal would also address objectives outlined in the *NSW 2021: A Plan to Make NSW Number One*, the *NSW State Infrastructure Strategy 2008-09 to 2017-18*, the *RMS 2012-2016 Corporate Strategy*, the *South Coast Regional Strategy 2006 – 2031* and the *South East NSW Local Action Plan*.

Options considered

Fifteen options (including four longer options, nine shorter options, 3 intermediate length options and two community options) were considered by RMS during the preliminary investigations and analysed according to the following five selection criteria:

- Road Safety.
- Economic Analysis/Cost.
- Environmental Constraints.
- Urban Design.
- Constructability.

Each option was also assessed against whether or not they meet the previously described proposal objectives. Based on the results of the analysis by RMS, Option 13 was shown to fulfil the proposal objectives and identified as the best performing option according to the selection criteria. Consequently Option 13 was selected as the preferred option and is the subject of this REF.

Statutory and planning framework

The *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) aims to facilitate the effective delivery of infrastructure across New South Wales. Clause 94 of the ISEPP permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. The proposal can therefore be assessed under part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) by the RMS as both the proponent and the determining authority. Development consent from Council is not required.

The southern part of the proposal is located through a section previously identified as Kooraban National Park, which is currently vested in the Minister for Environment and under the management of Office of Environment and Heritage (OEH). However, the *National Parks and Wildlife Amendment (Adjustment of Areas) Bill 2012* has been passed by the NSW Parliament which included the revocation of about 18.28 hectares of Kooraban National Park. The land would be transferred to RMS for use as road reserve as part of this proposal following agreement on an offset strategy between RMS and OEH for the revocation of former national park land. As such the proposal is permitted to be assessed under part 5 of the EP&A Act.

Community and stakeholder consultation

Consultation has been ongoing since June 2009 and has included consultation with the general public, the Aboriginal community, Bega Valley Shire Council, Eurobodalla Shire Council, the Office of Environment and Heritage (OEH), Batemans Marine Park

Authority, Department of Primary Industries (Fisheries and Aquaculture), the Australian Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) and the Mine Subsidence Board. The consultation process has assisted the development of the proposal. The main issues raised during consultation undertaken to date include the following:

- Process, including option selection.
- Cost.
- Road safety, including crash history.
- Design.
- Future traffic growth.
- Property acquisition / revocation of Kooraban National Park.
- Offset requirements.
- Construction impacts.
- Environmental impacts, including:
 - Ecology.
 - Heritage (Aboriginal and non-Aboriginal).
 - Social.
 - Flooding and hydrology.
 - Noise and vibration.
 - Visual and urban design.
- Impacts to utilities.

This REF would be placed on public display for community comment. All submissions received will be considered and addressed in a submissions report, which will be made publicly available on the RMS website.

Environmental impacts

A summary of the main environmental impacts are summarised below.

Flora and fauna

The proposal is located within the south eastern corner bioregion of NSW, which is important for biodiversity as it's the transitional area from the coast to the hinterland. The proposal would result in the loss of about 20.6 hectares of vegetation which includes 0.2 hectares of the Threatened Ecological Community (TEC) recognised as River-flat Eucalypt Forest on Coastal Floodplains and listed as endangered under the *Threatened Species Conservation Act 1995* (TSC Act).

The proposal would directly impact on threatened flora including around 50 individuals of the Square Raspwort (*Haloragis exaltata* subsp. *exaltata*) which is listed as vulnerable under the TSC Act and the *Environmental Planning and Conservation Biodiversity Act 1999* (EPBC Act). The proposal would also remove potential habitat for:

- Twenty-four threatened fauna species including the Koala (*Phascolarctos cinereus*) which has recently been listed as vulnerable under the TSC Act and the EPBC Act.
- Eleven migratory species confirmed to occur in the study area or considered highly likely to occur based on local records and habitat preferences.

Assessments of significance found that the proposal would not have a significant impact on any threatened species, populations or ecological communities. Impacts to these species would be ameliorated, through the implementation of safeguards and

mitigation measures identified in this REF. However, RMS intends to submit a referral, to the Australian Government DSEWPaC to determine whether or not the proposal constitutes a controlled action due to:

- Potential impacts upon an important population of Koala and habitat being impacted is considered critical to the survival of Koalas based on Commonwealth guidelines (DSEWPaC 2012), refer to Section 6.1.
- Potential impacts to Square Raspwort.

If the proposal is determined to be a controlled action, the approval of the Australian Government Minister for the Environment is required.

A biodiversity offset strategy has been developed to offset the revocation of 18.28 hectares of former Kooraban National Park lands to be transferred to RMS for use as road reserve, and to compensate for impacts to threatened species and TEC which cannot be adequately addressed through mitigation and management measures. The strategy has been undertaken according to the OEH (2009) *Biobanking Assessment Methodology* and has indicated that RMS would need to secure about 125 hectares of good to moderate condition vegetation for the offset. RMS has purchased a property which could satisfy the biodiversity offset requirements and is currently finalising the offset package with OEH.

Noise and vibration

In the northern part of the proposal the realignment of the Princes Highway would move between 100 to 275 metres closer to sensitive receivers located to the west of the existing Princes Highway on Dignams Creek Road. Construction noise levels would be exceeded at 10 noise sensitive receivers located along Dignams Creek Road. One location (receiver 7 at Lot 321 DP873421) may experience noise levels close to the highly affected noise level. A feasible and reasonable approach towards noise management measures would be required to reduce noise levels as much as possible during construction.

While earthworks may produce adverse vibration impacts within 30 metres of construction works, structural damage is considered unlikely as there are no residences with 50 metres of the proposal.

The operational noise assessment was based on two build scenarios being 2016 (potential year of opening) and 2026 (design year). Both of these scenarios indicated that traffic noise levels at all but one receiver (receiver 7 at Lot 321 DP873421) would generally rise by about 2 dB(A) to 5 dB(A), this is due to low traffic volumes and distance to the proposal. For the noise receiver (7) at Lot 321 DP873421 the predicted increase is about 6 dB(A) during the day and 7 dB(A) at night. All receivers are below the project specific noise criteria as defined in the OEH *New South Wales Road Noise Policy* (RNP) (DECCW 2011). Feasible and reasonable mitigation measures such as individual building treatment would be considered for this receiver.

Landscape character and visual impacts

The existing landscape character is characterised by forested ridges and cleared valleys and the existing Princes Highway. To the north of the proposal the forested ridges are generally private property while to the south of the proposal the forested ridges are national parks, comprised of Kooraban National Park to the west and Gulaga National Park to the east. The landscape character would change as a result of the proposal by the removal of vegetation during construction, the increase in road pavement area, and the scale of earthworks. The impression of landscape character

from the road user's perspective would be altered in that the new alignment would be less responsive to the physical features of the landscape, and speed limits increased which reduces viewing time of cultural and biophysical features.

Aboriginal and Non-Aboriginal cultural heritage

The proposal would not have any significant impacts on any known items of Aboriginal cultural heritage. An Aboriginal Heritage Impact Permit (AHIP) permit was sought and issued (number 1131201) by OEH for all the survey units located within and adjacent to the proposal construction footprint.

The proposal would impact on and require partial acquisition of Crown Reserve 91754 which currently has an Aboriginal Land Claim (no 7761) on it. This claim would need to be resolved before construction commences. No known native title claims were found within the footprint of the proposal.

The proposal would have potential impacts to the old Dignams Creek public school (item DC4) and sections of the old Princes Highway alignment (item DC2). Neither item is a listed heritage item. The Dignams Creek Bridge is listed as a local heritage item in the RMS section 170 heritage register. As a result of the proposal the bridge would no longer be required by RMS for the Princes Highway and would be sold. Consequently the Dignams Creek Bridge would require delisting from the RMS section 170 heritage register. Consultation would be undertaken with the Heritage Branch to delist the bridge from the register.

Traffic and access

The proposal would have long-term benefits including improved road safety through improvements in road geometry and alignment of the Princes Highway at Dignams Creek. Other long term benefits include improvements in traffic and freight efficiency along the Princes Highway.

Hydrology, flooding and groundwater

The proposal is predominantly located within the Dignams Creek and Blind Creek catchments and a small portion to the south of the proposal is within the Narira Creek catchment. All catchments flow into Wallaga Lake which is tidally influenced and is located to the south-east of the proposal. The proposal includes the construction of a new 91 metre bridge with bridge abutments and drainage structures over Dignams Creek. The bridge is designed to provide flood immunity to a 100 year average recurrence interval (ARI) flood level. The bridge piers are located outside of the Dignams Creek low flow level and are designed to minimise potential scouring of the banks of the waterways.

The proposal would cause a minor increase in flood levels by up to 0.10 metres adjacent to the proposed bridge over Dignams Creek for the 100 year ARI level under unblocked conditions. The modelled increase in flood levels gradually reduces to about zero metres around 250 metres upstream of the proposed bridge. The proposal would not significantly change the patterns of ponding/retention of floodwaters, nor would it change the duration of inundation of the floodplain. As such, no adverse flooding impacts to adjacent properties are anticipated and no mitigation controls would be required.

Soils, landscape and water quality

The proposal would require excavation, removal of vegetation, disturbance of soils and the construction of pavements, a new bridge and culverts which may lead to exposed soils, sediment entering waterways and the degradation of water quality. Dignams Creek flows downstream through the Dignams Creek Sanctuary Zone (Batemans Marine Park) and through five *State Environmental Planning Policy No 14 – Coastal Wetlands* (SEPP 14). The sanctuary zone is around three kilometres downstream of the proposal and the first SEPP 14 wetland is 5.2 kilometres downstream of the proposal. No impacts to the marine sanctuary or the SEPP 14 wetlands would be anticipated provided mitigation measures outlined in this REF are implemented. Operational water quality measures, including one water quality basin, five biofiltration basins, two constructed wetlands and a series of biofiltration swales are proposed and would be further refined during detailed design.

Socio-economic, land use and property impacts

During construction, the community would be likely to experience noise, air quality and visual amenity impacts. The community would also experience traffic delays including occasional temporary restrictions of property access. Any temporary restrictions to property access would be arranged with the affected property owner prior to restrictions occurring. The proposal would require one partial property acquisition and relocation of two property access roads. During operation, the proposal would improve access and connectivity for local and regional communities by reducing travel times and increasing road safety.

Justification and conclusion

This REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity. A number of potential environmental impacts resulting from the proposal have been avoided or reduced during the options assessment and development of the concept design. The proposal as described in this REF best meets the proposal objectives. The proposal would still result in some impacts including impacts to biodiversity, noise and vibration impacts, temporary disruptions to traffic flow and access, a minor increase in flood levels of 0.10 metres immediately adjacent to the proposed bridge and property acquisition impacts. A range of measures have been developed to minimise and mitigate the potential adverse impacts of the proposal, and these are summarised in this REF.

This REF has concluded that the adverse impacts of the proposal would be outweighed by the long term benefits of providing improved safety for all road users. Safety would be specifically improved through the realignment of tight curves to meet existing road design requirements. On balance the proposal is therefore considered justified. This REF has concluded that the proposal would not have a significant impact on the environment and therefore an environmental impact statement and assessment under part 5.1 of the EP&A Act is not required. This REF has also found there would be no significant impacts to matters of national environmental significance or to the environment of Commonwealth land. However, RMS intends to submit a referral, to the Australian Government DSEWPaC to determine whether or not the proposal constitutes a controlled action due to:

- Potential impacts upon an important population of Koala and habitat being impacted is considered critical to the survival of Koalas based on Commonwealth guidelines (DSEWPaC 2012), refer to **Section 6.1**. The Koala

(*Phascolarctos cinereus*) has recently been listed as vulnerable under the TSC Act and the EPBC Act.

- Potential impacts to Square Raspwort

If the proposal is determined to be a controlled action, the approval of the Australian Government Minister for the Environment is required.

Display of the review of environmental factors

This review of environmental factors is on public display for comment until July 29 2013. You can access the documents in the following ways:

Internet

The documents would be available as pdf files on the RMS website: http://www.rta.nsw.gov.au/roadprojects/projects/princes_hway/dignams_creek/index.html

Display

The documents can be viewed between 10:00am to 2:00pm Monday to Friday at the following locations:

- Central Tilba General Store.
- Bega Valley and Eurobodalla Shire Councils.
- Bega RMS office.

Purchase

The review documents are available in hard copy or CD upon request by contacting Timothy Webster (RMS Project Manager) on (02) 4221 2430.

How can I make a submission?

To make a submission on the proposal, please send your written comments to:

Roads and Maritime Services project manager:
Timothy Webster
PO Box 477 Wollongong NSW 2520
Email: Timothy.WEBSTER@rms.nsw.gov.au
Facsimile number: 02 4221 2590

Submissions must be received by 29 July 2013.

Privacy information

All information included in submissions is collected for the sole purpose of assisting in the assessment of this proposal. The information may be used during the environmental impact assessment process by relevant RMS staff and its contractors.

Where the respondent indicates at the time of supply of information that their submission should be kept confidential, RMS would attempt to keep it confidential. However there may be legislative or legal justification for the release of the information, for example under the *Government Information (Public Access) Act 2009* or under subpoena or statutory instrument.

The supply of this information is voluntary. Each respondent has free access at all times to the information provided by that respondent but not to any identifying information provided by other respondents if a respondent has indicated that the representation should be kept confidential. Any respondent may make a correction to the information that they have provided by writing to the same address the submission was sent. The information would be held by the RMS Southern Regional Office, Level 6, 90 Crown Street, Wollongong.

What happens next?

Following the public display period, RMS will collate submissions. Acknowledgement letters will be sent to each respondent. The details of submission authors will be retained and authors will subsequently be advised when project information is released.

After consideration of community comments RMS will determine whether the proposal should proceed as proposed, or whether any changes to the proposal are necessary. The community will be kept informed regarding this RMS determination.

If the proposal is approved, RMS would proceed with final design and call tenders for construction of the project. If you have any queries, please contact the RMS project manager, Timothy Webster on (02) 4221 2430.

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Appendix A - Concept design drawings

Appendix B - Consideration of clause 228(2) factors and matters of national environmental significance

Appendix C - Urban design, landscape character and visual impact assessment

Appendix D - Hydraulic assessment

Appendix E - Operational water quality assessment

Appendix F - Erosion and sedimentation management report

Appendix G - Noise and vibration assessment

Appendix H - Historical heritage assessment

Appendix I - Community consultation

Appendix J - Aboriginal cultural heritage assessments

Appendix K - Biodiversity assessment

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1 Introduction

This chapter provides an overview of the proposal and outlines the purpose of the report.

1.1 Proposal identification

Roads and Maritime Services (RMS) propose to realign around 3.7 kilometres of the Princes Highway at Dignams Creek on the South Coast of New South Wales (NSW) (the proposal). The proposal is located between Narooma and Cobargo in the Eurobodalla and Bega Valley Local Government Areas (LGAs). The Princes Highway is a rural highway on the NSW South Coast that extends from Sydney to the Victorian border. To the north of the proposal, in the Eurobodalla LGA, the existing Princes Highway passes through forested areas before descending into the Dignams Creek valley. The valley is characterised by cleared pastoral lands and is comprised of a number of private farms and rural residences. The highway crosses Dignams Creek and into Bega Valley LGA over Dignams Creek Bridge which is listed as a local heritage bridge on RMS section 170 heritage register. To the south of the Dignams Creek Bridge the existing Princes Highway climbs up a forested ridge to the top of Dignams Hill. The forested areas adjacent to the highway include Kooraban National Park to the north and Gulaga National Park to the south. At the base of Dignams Hill, the surrounding area is characterised again by cleared pastoral and rural properties. An overview of the locality of the proposal is shown in **Figure 1-1**.

The proposal includes realignment and upgrade of the Princes Highway from about 1.5 kilometres north of the intersection with Dignams Creek Road to around 2.2 kilometres south of the intersection. This section of Princes Highway is a single carriageway with one northbound and one southbound lane. An overtaking lane is present on the southbound lane around 50 metres from the junction with Dignams Creek Road. The alignment of this section of highway is characterised by steep road inclines and tight radii curves that follow east-west orientated ridgelines and spur, which have resulted in a road that is well below modern, safe road design standards.

In the Dignams Creek region, the Princes Highway has a poor crash history with a casualty crash rate eleven times higher than for similar types of roads in NSW. The majority of these crashes result from vehicles running off the road on curves, with speed being the major contributing factor. This section of the Princes Highway was highlighted in 2008 by the NSW State Coroner's Report into recent fatal crashes on the Princes Highway. The proposal is therefore required to improve road safety issues associated with the existing road, including geometry, alignment, intersection arrangement and other safety considerations (eg site distance). The need for the proposal is further detailed in **Chapter 2**.

An overview of the proposal is provided in **Figure 1-2** and detailed drawings are included in **Appendix A**. Further detail on each of the components of the proposal is provided in **Chapter 3**. The proposal has been split into two stages in order to assist in obtaining construction funding for the proposal and to provide a plan for future works. A description of the proposal is provided below.

Key features of Stage 1 include:

- Realigning about two kilometres of single carriageway starting about 1.5 kilometres north of the Dignams Creek Road intersection and extending to about 600 metres south of the Dignams Creek Road and Princes Highway

intersection. The section would be constructed as a single carriageway with 3.5 metre wide lanes and three metre shoulders in each direction.

- Removal of four tight sub-standard curves along the existing Princes Highway.
- Construction of a new single carriageway bridge over Dignams Creek about 91 metres in length.
- Relocating the Princes Highway and Dignams Creek intersection about 100 metres north-west.
- Realigning around 200 metres of the most eastern section of Dignams Creek Road.
- Tie ins to the existing Princes Highway alignment.
- Provision of around 1.4 kilometres of road safety treatments along the existing Princes Highway alignment at the southern end of the proposal.
- Provision of one dedicated fauna underpass and one combined drainage culvert/fauna underpass.
- Relocating two private property access roads and formalising and consolidating one national park access point.
- Part of the existing Princes Highway alignment and Dignams Creek Bridge would be retained for private use.

Key features of Stage 2 include:

- Realigning about 1.5 kilometres of single carriageway commencing about 600 metres south of Dignams Creek Road and extending to the southern end of the proposal. The section would be constructed as a single carriageway with 3.5 metre wide lanes and three metre shoulders in each direction.
- Removal of six sub-standard curves along the existing Princes Highway.
- Tie ins to stage 1 and the existing Princes Highway alignment.
- Provision of one dedicated fauna underpass, one combined drainage culvert/fauna underpass and one rope canopy bridge.
- Relocating access roads for Kooraban National Park and Gulaga National Park.
- Removal of the existing Princes Highway between Dignams Creek Road and the access road to Gulaga National Park.

The following general features would be included for both stages of the proposal:

- Installation of operational water quality controls including:
 - Five biofiltration basins.
 - A water quality basin.
 - Two constructed wetlands.
 - Biofiltration/vegetated swales.
- Installation of four retaining walls.
- Provision of ancillary facilities such as temporary sedimentation basins, compound and stockpile sites, and access tracks.
- Removal, rehabilitation and revegetation of 0.6 kilometres of the redundant sections of the Princes Highway.
- Relocation of overhead utilities to accommodate the proposal.

Construction of the proposal would proceed following determination of the Review of Environmental Factors (REF), obtaining other approvals as required, completion of the detailed design and the securing of funding from government sources. The construction period for Stage 1, would have duration of between 18 and 24 months. Stage 1 of the proposal has a strategic estimate of about \$40 million.

Whilst Stage 2 is a long term plan which is unlikely to be built for some time, the strategic cost estimate for Stage 2 is around \$20 million (2013 dollars). The construction period for Stage 2 would be defined during detailed design.

1.2 Purpose of the report

This REF has been prepared by Sinclair Knight Merz (SKM) on behalf of RMS Infrastructure Development South Coast Regional Office. The purpose of this REF is to describe the proposal, to document the likely impacts of the proposal on the environment, and to detail protective measures to be implemented. For the purposes of these works, RMS is the proponent and the determining authority under part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The description of the proposal and assessment of associated potential environmental impacts have been undertaken in context of clause 228 of the *Environmental Planning and Assessment Regulation 2000* (refer to **Appendix B**), the *Threatened Species Conservation Act 1995* (TSC Act), the *Fisheries Management Act 1994* (FM Act), and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so, this REF helps to fulfil the requirements of section 111 of the EP&A Act, that RMS examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of this REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Infrastructure under part 5.1 of the EP&A Act (refer to **Appendix B**).
- The significance of any impact on threatened species as defined by the TSC Act and/or FM Act, in section 5A of the EP&A Act and therefore the requirement for a Species Impact Statement.
- The potential for the proposal to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act (refer to **Appendix B**).

Upgrade of the Princes Highway, Dignams Creek

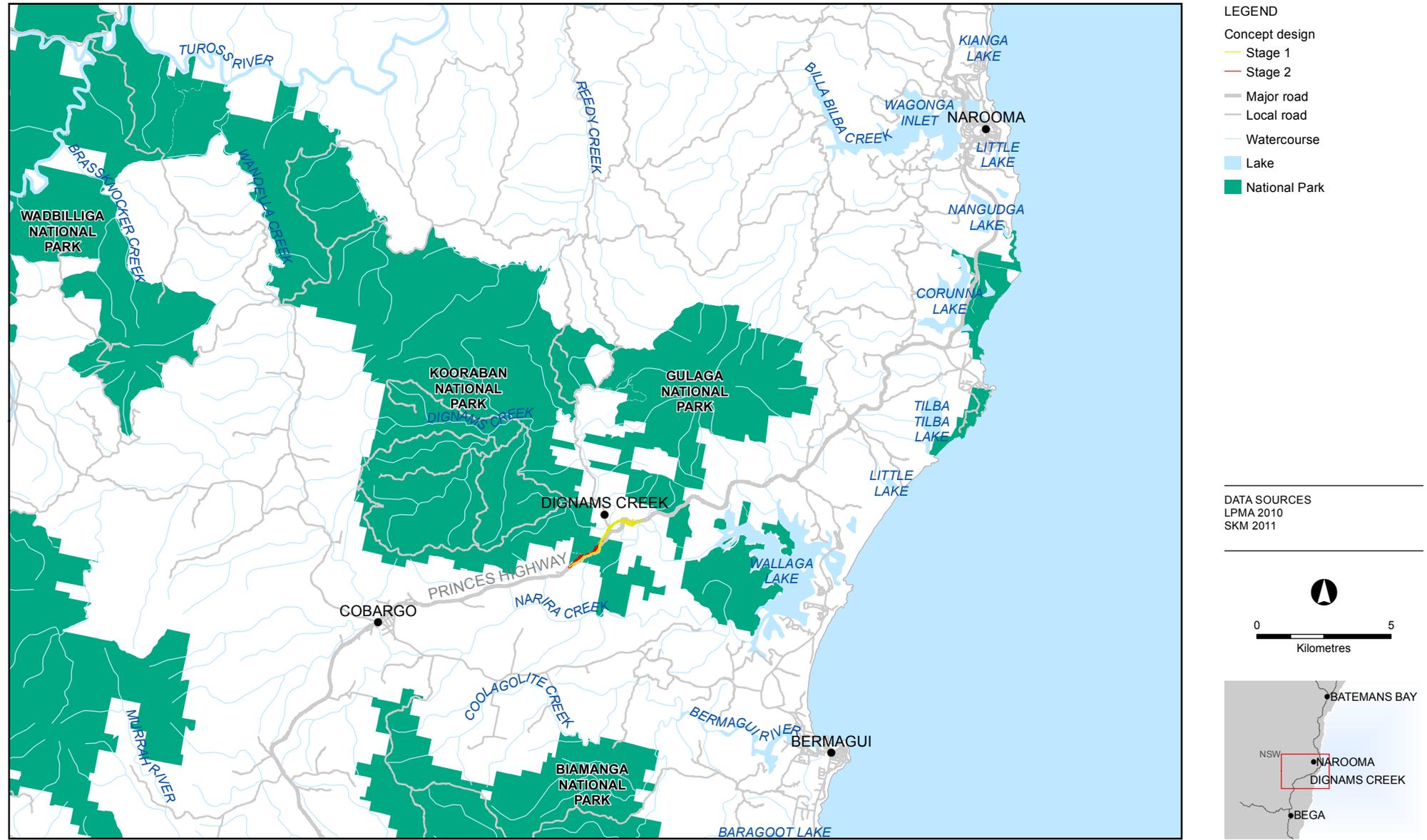


Figure 1-1 | Locality

Upgrade of the Princes Highway, Dignams Creek



Figure 1-2 | The proposal