



Woodburn to Ballina

Upgrading the Pacific Highway

PREFERRED ROUTE REPORT

NOVEMBER 2005



NSW Roads and Traffic Authority

SH10 Pacific Highway Upgrade Woodburn to Ballina

Preferred Route Report

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Author: Steven Andrew

Checker: Graham Richardson

Approver: Harry Batt

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This report has been prepared for the Roads and Traffic Authority of New South Wales in accordance with the terms and conditions of appointment for Route Selection Study for SH10 the Pacific Highway dated 23 August 2004. Hyder Consulting Pty Ltd (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

Hyder Consulting Pty Ltd

ABN 76 104 485 289

Level 5, 141 Walker Street, North Sydney NSW 2060, Australia

Tel: +61 2 8907 9000 Fax: +61 2 8907 9001 www.hyderconsulting.com



Woodburn to Ballina upgrade study team

Hyder Consulting would like to acknowledge the members of the study team that have contributed to this report, including:

Hassall and Associates – Socio-economic

PPM Consultants – Social impact and community consultation strategy

Geolyse – Ecology

Adise – Aboriginal heritage

Heritage Concepts – Non-Aboriginal heritage

GeoLINK – Community consultation

Coffey Geosciences – Geotechnical

Brown Consulting – Hydrology

HBO + EMTB – Urban design

Mark Raven Consulting – Cost estimates

Quantm – Route analysis

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Glossary of terms and abbreviations

Term	Description
1 in 100 year flood level	Refers to the flood which occurs, on average, once every 100 years. Also known as the 100 year Average Recurrence Interval of a flood. These events are of a random nature. It is possible for there to be two 100 year floods in successive years; similarly the 100 year flood may not occur for 200 years and the 100 year flood may not be the largest flood in the last 100 years.
Afflux	The rise in water level upstream of a hydraulic structure such as a bridge or culvert, caused by the losses incurred from the hydraulic structure.
AHD	Australian height datum.
AHIMS	Aboriginal Heritage Information Management System
Annual average daily traffic (AADT)	Annual Average Daily Traffic is the yearly two way traffic volume divided by 365, expressed as vehicles per day.
ASS	Acid Sulphate Soils - naturally acid clays, mud and other sediments usually found in swamps and estuaries. They may become extremely acidic when drained and exposed to oxygen, and may produce acidic leachate and run-off which can pollute receiving waters and liberate toxins. ASS are classified as materials which are above the groundwater, are undergoing oxidation and have a pH of less than 4.0.
AusLink	The Australian Government's policy for improved planning and accelerated development of Australia's land transport infrastructure. It is supported by a \$12.7 billion programme of Australian Government investment over the five year period 2004-05 to 2008-09 together with partnering funding from State and Territory Governments and the private sector.
Average daily traffic	Average daily traffic based on survey counts and not adjusted as for AADT.
Average recurrence interval (ARI)	Average or expected period between exceedance of a flood.
Background noise level	The ambient sound pressure level in the absence of the sound under investigation exceeded for 90 percent of the measurement period. Normally equated to the average minimum A-weighted sound pressure level. Symbol LA90 (unit: dBA).
CAMBA	China-Australia Migratory Bird Agreement
CLG	Community Liaison Group
CMW	Corridor Mapping Workshop
Coffee rock	Sandy soil lightly cemented by organic material to form layers of dark brown cemented sand.
DA	Development Application
dBA	Decibels using the 'A' weighted scale, measured according to the frequency of the human ear.

Term	Description
DEH	Department of Environment and Heritage (Commonwealth)
Department of Environment and Conservation (DEC)	In September 2003, a number of separate agencies were consolidated to create a new Department of Environment and Conservation NSW. The new department incorporates the staff of the Environment Protection Authority (EPA), National Parks and Wildlife Service (NPWS), Botanic Gardens Trust and Resource NSW.
DIPNR	Former Department of Infrastructure Planning and Natural Resources (NSW) now DoP (see abbreviation below).
DNR	Department of Natural Resources
DoP	Department of Planning (formerly DIPNR)
DOTARS	Department of Transport and Regional Services
DPI	Department of Primary Industries (NSW)
DPWS	Department of Public Works and Services
DUAP	Department of Urban Affairs and Planning (now known as DoP – see abbreviations above).
Ecologically sustainable development (ESD)	Undertaking development in such a way that it uses, conserves and enhances the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.
ECRTN	Environmental Criteria for Road Traffic Noise
EEC	Endangered Ecological Communities
Environmental assessment (EA)	An environmental assessment of a major infrastructure development prepared in accordance with Part 3A of the EP&A Act 1979.
Environmental impact statement (EIS)	An environmental assessment document prepared in accordance with Part 5 of the EP&A Act 1979.
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning & Assessment Regulation 2000</i>
EPA	Environmental Protection Authority (now part of the Department of Environment and Conservation).
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
GAF	Government Agency Forum
JAMBA	Japan-Australia Migratory Bird Agreement
km	Kilometre/s
L _{A1}	The noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the LA1 level for 99% of the time.

Term	Description
LA10	The noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the LA10 level for 90% of the time. The LA10 is a common noise descriptor for environmental noise and road traffic noise.
LA50	The noise level which is exceeded for 50% of the sample period. During the sample period, the noise level is below the LA50 level for 50% of the time.
LA90	The noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the LA90 level for 10% of the time. This measure is commonly referred to as the background noise level.
LAeq	The equivalent continuous sound level. This is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.
LEP	Local Environmental Plan (prepared under the <i>Environmental Planning & Assessment Act 1979</i>).
LGA	Local Government Area
LOS	Level of Service
m	Metre/s
MVKT	Million vehicle kilometres travelled
NCREP	North Coast Regional Environmental Plan
NP&W Act	<i>NSW National Parks and Wildlife Act 1974</i>
NPWS	NSW National Parks and Wildlife Service (now part of the Department of Environment and Conservation).
PASS	Potential Acid Sulphate Soils (see ASS above)
PATN analysis	Process to undertake manipulation, analysis and display of patterns in multivariate biological data
pc/h	Passenger cars per hour
pH	pH is a measure of the hydrogen ion concentration in soil and relates to the levels of acidity and alkalinity
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REP	Regional Environmental Plan (prepared under the <i>Environmental Planning & Assessment Act 1979</i>)
RODR	Route Options Development Report – Stage 1
RTA	Roads and Traffic Authority NSW
State Environmental Planning Policy Number 14 (SEPP 14)	Policy prepared under the Environmental Planning & Assessment Act 1979 for the protection of identified coastal wetlands in NSW.
State Environmental Planning Policy Number 26 (SEPP 26)	Policy prepared under the Environmental Planning & Assessment Act 1979 for the protection of identified littoral rainforest in NSW.

Term	Description
TSC Act	NSW Threatened Species Conservation Act 1995
VMW	Value Management Workshop

Executive summary

In January 1996, the NSW and Commonwealth Governments announced their joint commitment to the Pacific Highway Upgrading Program, a \$2.2 billion, ten year program to improve the condition of the highway, reduce road accidents and injuries and improve transport efficiency. The NSW government committed \$1.6 billion to the program and the Commonwealth \$600 million. The NSW Roads and Traffic Authority (RTA) is implementing the program.

In June 2004, the Federal Government released AusLink as its new national transport plan. The Pacific Highway between Newcastle and Brisbane forms part of the Australian Government's AusLink National Network. The AusLink National Network is based on national, regional and urban transport corridors, links to ports and airports, and intermodal connections between road and rail.

The RTA has engaged Hyder Consulting Pty Ltd to undertake route option investigations, concept development and an environmental assessment for the upgrading of the Pacific Highway between Woodburn and Ballina on the North Coast of NSW.

Route options

Since the planning and design process for this section of the Pacific Highway commenced, a series of options have been investigated and analysed with extensive input from community representatives. A short list of route options was publicly displayed from May to July 2005 with submissions invited from the community.

The development of the short listed options and the community response to these, were documented in two reports; *Woodburn to Ballina: Route Options Development Report – Stage 1* (RTA, 2005a) and *Woodburn to Ballina: Route Options Submissions Report* (RTA, 2005b).

In conjunction with the public display of the short listed options, a Value Management Workshop (VMW) was held in July 2005 attended by key project stakeholders from various government agencies, councils and community representatives. The workshop participants assessed the short listed route options tabled for the project and obtained an understanding of their relative merits and weaknesses. A significant outcome of the VMW was to recommend the elimination of some routes and to recommend particular routes for further study with suggested refinements to address concerns of the workshop participants.

The study team has investigated a series of refinements suggested by both the VMW participants as well as from submissions received during the public display period. Further targeted engineering and environmental investigations have been undertaken on each of the suggested refinements to allow the refined options to be reassessed against the project objectives.

A final assessment of all routes, including the refined routes, using fundamental guiding principles was undertaken by the study team.

Preferred route

The preferred route (as illustrated in **Figure 0-1**) commences at the existing Pacific Highway alignment approximately 3.0 km south of Woodburn and extends generally in a north-east direction away from the current highway. An approximately 350 m long bridge crossing would be required at the Tuckombil Canal (Evans River).

Between Woodburn and Broadwater the route continues in a north-easterly direction through agricultural land, skirting the edge of an endangered ecological community and Broadwater National Park. This section of the route consists of embankments and bridges to provide immunity from floodwaters. North of Lang Hill the route follows the western edge of Broadwater National Park before joining the existing highway alignment which bisects the Park. Through the Park, the route would follow the existing highway road reserve, avoiding any direct impact on the National Park.

In the vicinity of Broadwater, the route would be located to the east of Cooks Hill and west of the National Park boundary.

North of Cooks Hill the route would swing north-west and approximately 2.0 km north of Broadwater crosses the Richmond River on a bridge approximately 850 m long with a navigational clearance of 15 m. The route would proceed to the west of Laws Hill on the northern side of the river. North of the river, the highway would head north-west towards the Blackwall Range.

The route would skirt around Jali Local Aboriginal Land Council (LALC) land and areas of Wardell Heath containing endangered ecological communities before returning east to join the existing highway approximately 4.0 km north of Wardell. For the remaining 6.5 km the route would follow the existing highway corridor, and would be raised up on embankments to be above the floodwaters. The route would connect with the approved Ballina Bypass.

The total length of the preferred route is 36 km.

Location and configuration of interchanges would be determined as part of the detailed investigations to be undertaken during the preparation of the concept design and environmental assessment stages.

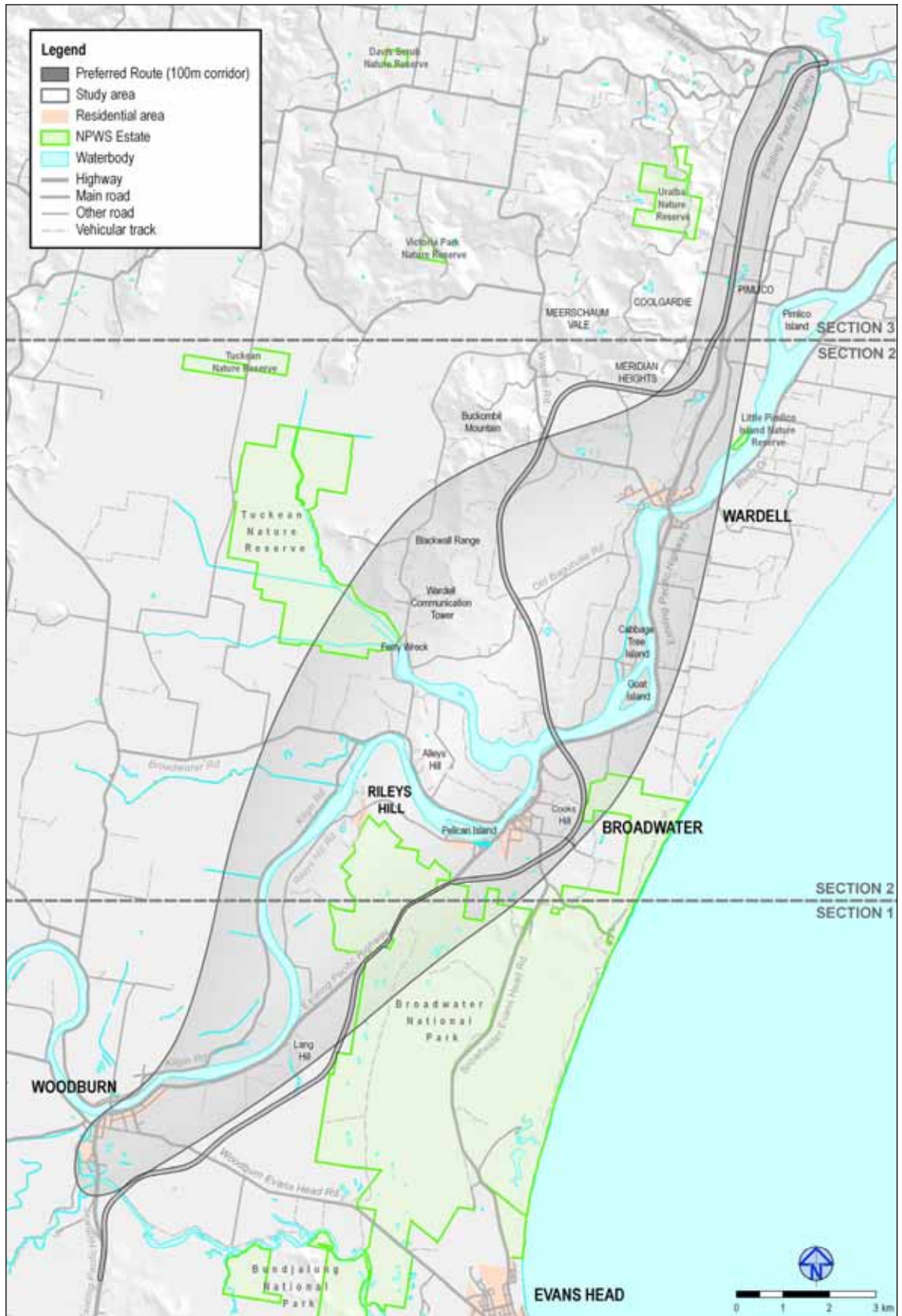


Figure 0-1 Preferred route

The selection of the preferred route is based on technical investigations undertaken, the outcomes of the VMW, assessment of issues raised in submissions during community consultation activities and the refinements of the options undertaken by the study team. In summary, the preferred alignment is the preferred route for the upgrade of the Pacific Highway between Woodburn and Ballina on the basis that it:

- Best meets the objectives of both the Pacific Highway Upgrade Program and the Woodburn to Ballina project.
- Provides for grade separation of the Pacific Highway and local road intersections including consolidation of accesses by the use of service roads.
- Provides efficient connections from the upgraded highway towards Ballina, Lismore and Evans Head through the construction of interchanges.
- Provides reasonable physical separation from existing and proposed residential areas so that, with sensitive urban design, acceptable visual and traffic noise outcomes could be achieved.
- Is the route recommended at the VMW as the preferred option in section 1 and section 3 of the project and is the route agreed to be feasible in section 2 subject to the further investigation of environmental, heritage and quarry issues.

Ballina Bypass (Bruxner Highway interchange section) and connection with the Woodburn to Ballina project

The concept design for the approved Ballina Bypass includes a part grade separated interchange at the Bruxner Highway.

A review will be undertaken of the interchange design at the Bruxner Highway to ensure a good level of connection between the Woodburn to Ballina and Ballina Bypass projects.

The next steps

The proposed next steps for the development of the Woodburn to Ballina Project are to:

- Refine the concept design for the preferred route.
- Submit the proposal to the Department of Planning for approval under the recently introduced Part 3A of the *Environmental Planning and Assessment (EP&A) Act 1979*. The proposal would be the subject of an environmental assessment (EA) which would examine the potential impacts of the preferred route. The EA may include a statement of commitments in respect of environmental management and mitigation measures proposed to be undertaken if the project is approved.
- When completed, the EA would be publicly exhibited and submissions sought. The RTA may be asked to prepare a report on the submissions,

consider modifications to the project to minimise environmental impacts and revise its statement of commitments.

- The Department of Planning would consider the EA, the public submissions and any report requested from the RTA in recommending to the Minister for Planning whether the project should be approved.

The proposed next step for the Ballina Bypass (Bruxner Highway interchange section) is to:

- Undertake a review of the interchange design at the Bruxner Highway to ensure a good level of connection between the Woodburn to Ballina and Ballina Bypass projects.