Woolgoolga to Wells Crossing

Upgrading the Pacific Highway

ROUTE OPTIONS DEVELOPMENT REPORT

OCTOBER 2005

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Roads and Traffic Authority

Pacific Highway Upgrade - Woolgoolga to Wells Crossing

Route Options Development Report

October 2005

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The identification of all remaining route options to upgrade the Pacific Highway between the F3 Freeway and Tweed Heads is a key step in moves to complete the upgrade of the highway. With the $2.2 billion Pacific Highway Upgrade Program in place since 1996 almost 230 kilometres of the highway are now double-lane divided road. A further 225 kilometres of new highway have been approved for construction or have had a preferred upgrade route identified.

Five projects have been announced in October 2005:

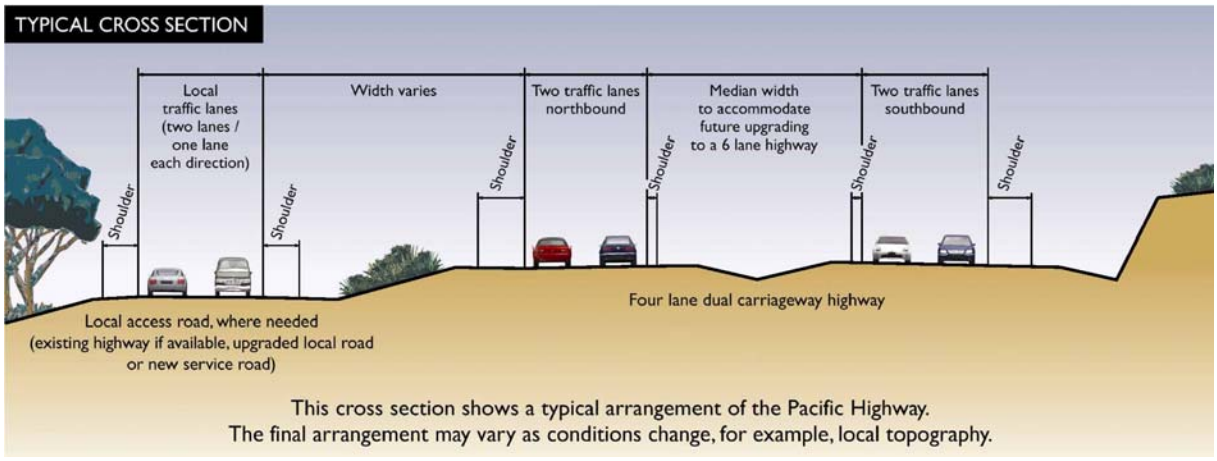
- F3 Freeway to Raymond Terrace;
- Oxley Highway to Kempsey;
- Woolgoolga to Wells Crossing;
- Wells Crossing to Iluka Road; and
- Tintenbar to Ewingsdale.

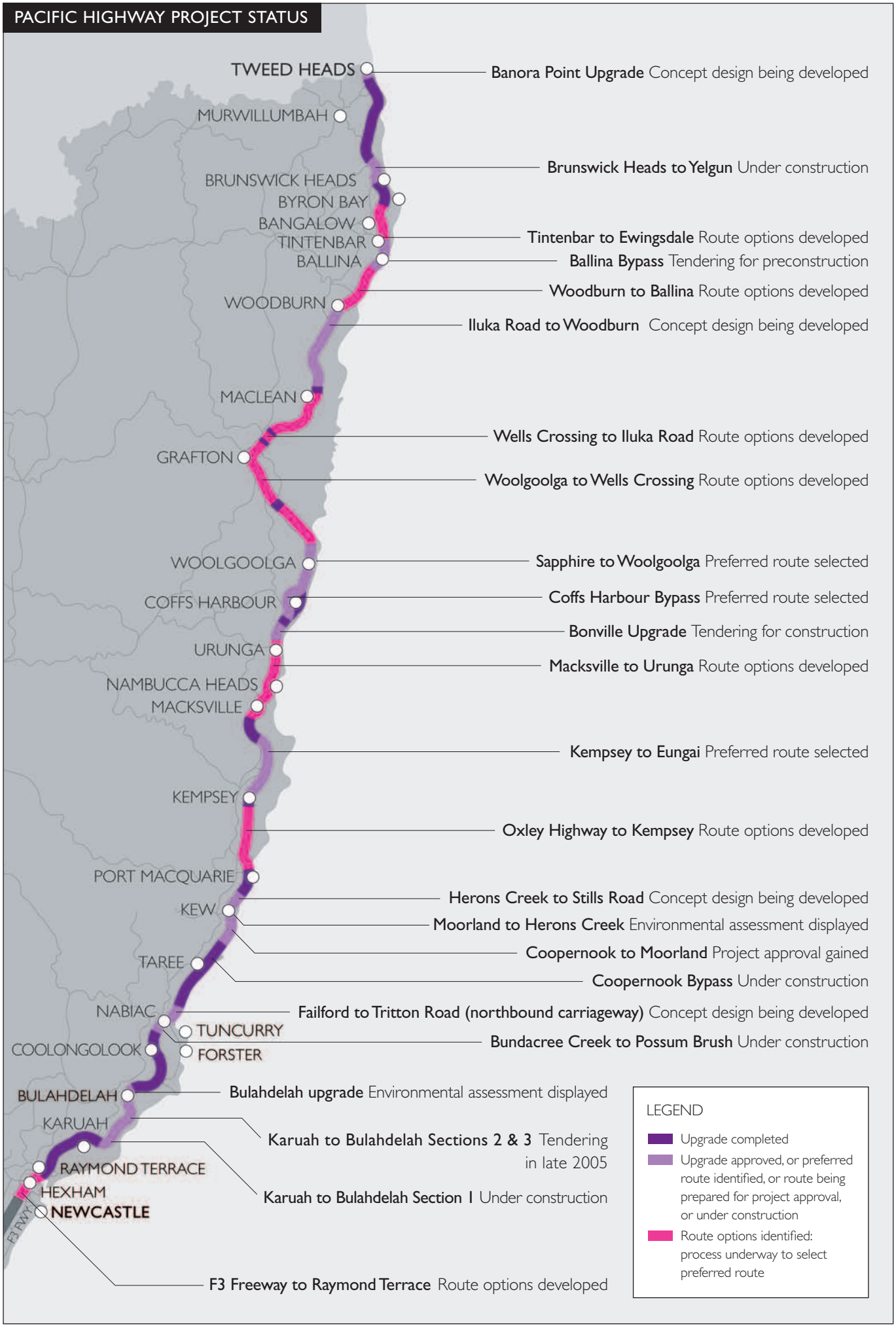
This is the final group of five projects which are proceeding to the route selection phase in October 2005. These five projects, along with the sections Macksville to Urunga and Woodburn to Ballina will provide preferred routes for the final 230 kilometres of the highway. This will provide planning certainty for local communities and pave the way for a construction program to complete the upgrade of the Pacific Highway.

Beyond 2006

The RTA is planning for the long term by providing a high standard road, described as a motorway. A key feature involves being able to separate local traffic from through or long distance traffic.

This means roads that provide a lower speed alternative are located alongside the motorway that is designed for a speed of 110 km/h. Local traffic can get onto the motorway at regular grade separated interchanges.




PACIFIC HIGHWAY PROJECT STATUS
TWEED HEADS
MURWILLUMBAH
BRUNSWICK HEADS
BYRON BAY
BANGALOW
TINTENBAR
BALLINA
WOODBURN
MACLEAN
GRAFTON
WOOLGOOLGA
COFFS HARBOUR
URUNGA
NAMBUCCA HEADS
MACKSVILLE
KEMPSEY
PORT MACQUARIE
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TAREE
NABIAC
TUNCURRY
COOLONGOLOOK
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F3 FWY
Banora Point Upgrade Concept design being developed
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Ballina Bypass Tendering for preconstruction
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Woolgoolga to Wells Crossing Route options developed
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Oxley Highway to Kempsey Route options developed
Herons Creek to Stills Road Concept design being developed
Moorland to Herons Creek Environmental assessment displayed
Coopernook to Moorland Project approval gained
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Failford to Tritton Road (northbound carriageway) Concept design being developed
Bundacree Creek to Possum Brush Under construction
Bulahdelah upgrade Environmental assessment displayed
Karuah to Bulahdelah Sections 2 & 3 Tendering in late 2005
Karuah to Bulahdelah Section 1 Under construction
F3 Freeway to Raymond Terrace Route options developed
LEGEND
Upgrade completed
Upgrade approved, or preferred route identified, or route being prepared for project approval, or under construction
Route options identified: process underway to select preferred route

2. Woolgoolga to Wells Crossing

This project involves the proposed upgrade of approximately 27.8 km of the Pacific Highway on the north coast of NSW.

The project commences approximately five kilometres north of Woolgoolga at Arrawarra Creek. It extends for approximately 27.8 km over the Dirty Creek Range to the intersection of the highway with Bald Knob Tick Gate Road.

The study area consists of a corridor up to three kilometres wide which generally surrounds the existing highway, including the completed Halfway Creek duplication (as shown in Figure 1.2 in Section 1).

This report summarises the outcomes of the route options development phase of the project. It describes the four options that have been developed, and provides information on the process used and the factors considered in the assessment of the options.

3. Road Design and Upgrade Strategies

Design standards for the Pacific Highway Upgrade Program require two lanes in each direction, with consideration for the future addition of another lane each way, separated by a median of a desirable width of 12 metres. Traffic volume projections have been prepared for 20 years from 2016.

Two highway upgrade strategies are being considered as part of the project:

- Class A – two lanes in each direction, 100 km/h posted speed, limited access condition roadway with at grade intersections; and
- Class M – two or three lanes in each direction, 110 km/h posted speed, controlled access condition roadway with grade separated interchange access.

The upgrade of the highway is expected to be completed in stages to meet traffic growth. Upgrade to Class A may be followed by a subsequent upgrade to Class M. Upgrading may also be completed on a staged basis.

The ultimate arrangement of grade separated interchanges and local access roads cannot be accurately determined prior to selection of the preferred route and the preferred upgrade strategy. This may result in further impacts and benefits beyond those considered in this report.

4. Route Option Development Process

The route option development process involved the following steps:

- Review of existing data;
- Site visits – road and aerial inspections of the study area;
- Preliminary ecological, heritage, traffic, geotechnical and other investigations;
- A variety of community involvement activities to identify community interests, issues and concerns;
- Opportunities and constraints workshops;
- Options workshop to consider possible options;
- Identification and refinement of the feasible route options; and
- Preparation of the route options development report.

The route options display provides the community an opportunity to comment on the route options.

5. Study Area Characteristics

A summary of the key characteristics of the study area is provided below. Further information is provided within Section 3 of this report.

Overview of the Local Area

The study area is located approximately midway between Coffs Harbour (to the south) and Grafton (to the north). Woolgoolga is outside the study area but is the closest major town. The study area is dominated by rural land and forest reserves, with scattered rural residential development and a number of small towns. Portions of the towns of Corindi Beach and Arrawarra are located in the south of the study area. Other towns / settlements include Corindi, Milleara and Halfway Creek. In 2001, the population of the study area and surrounds was 3,835 people with higher population densities towards the coast.

The study area is located within the Coffs Harbour Local Government Area (LGA) and the recently formed Clarence Valley LGA and is shown on Figure 1.2 in Section 1 of this report.

Traffic and Transport Issues

If the upgrading of the Woolgoolga to Wells Crossing section of the highway does not occur, it is projected that by 2016, there would be an average of 1.5 fatal crashes per annum and 16 serious injury crashes per annum. By 2036 this would increase to an average of 2.5 fatal crashes per annum and 27 serious injury crashes per annum.

The results of the preliminary traffic investigations indicate that the Arrawarra Creek to Corindi Beach section and the Dirty Creek Range section requires upgrading prior to 2016 and that traffic growth would be defined by the underlying growth in heavy vehicles along the corridor.

Maximum predicted traffic volumes at 2016 and 2036 are 14,224 and 20,983 vehicles per day respectively. These dates have been adopted for traffic modelling and design of the project.

The highway at the time of opening (assumed for planning purposes to be 2016), based on the “do nothing” scenario, starts to exhibit unstable traffic flow conditions resulting in level of service (LoS) D. Twenty years after opening the highway would operate at LoS E. This means that the highway would experience queuing and delays, as traffic volumes would be over capacity.

All intersection (as at-grade facilities) operation would be unsatisfactory at the design horizon (2036). As a result, intersection / interchange treatments should be considered. Interchange locations would depend on which option is selected and the interaction with the adjacent projects – Sapphire to Woolgoolga and Wells Crossing to Iluka Road. Some rationalisation of interchanges may occur with these projects, depending on the timing of construction of the adjacent projects.

Theoretically the number of accidents could be reduced from the current average level of 29.5 accidents per 100 MVK to 15.9 and as low as 11.5 accidents per 100 MVK for Class A and M upgrades respectively.

The Annual Average Daily Traffic[1] (AADT) on this section of the highway ranges from 7,330 to 10,217 vehicles per day (2004). The 85th percentile speed is 107 km/h and the average speed is 101 km/h.

Through traffic accounts for approximately 37% of northbound and 44% of southbound traffic volume. Heavy vehicles make up approximately 13% of the existing daytime (7am to 7pm) traffic volume. The percentage of heavy vehicles approximately doubles at night (7pm to 7am).

Of the four intersections analysed as part of the assessment, the operation (as at-grade intersections) of one intersection at 2016 would be unacceptable. Level of service at this intersection is LoS F on the side road.

A total of 93 crashes have occurred in the study area between 1999 and 2004 leading to two fatalities, 44 serious crashes and 47other minor damage or injury crashes.

Highway Road Reserve

Much of the existing road reserve is not of sufficient width and property acquisition would be required to achieve a 110 km/h design. Acquisition would be required if the upgrade involved duplication or realignment of the existing highway.

Carriageway Configuration

All lanes including overtaking lanes along the existing highway are 3.5 metres wide. Within the study area there are five overtaking lanes in each direction.

On single lane sections, shoulders are generally two metres wide. Where overtaking lanes exist, shoulders are generally one metre wide. Along the straights the crossfall is between 2% and 4% and on horizontal curves with radii less than 1,000 metres, superelevation of up to 5% exists.

Horizontal and Vertical Alignment

The horizontal and vertical geometry of the carriageway contains long lengths that do not comply with the 110 km/h design standards for the Pacific Highway Upgrade (RTA 2005). Approximately 80% of the horizontal and 40% of the vertical curves do not meet the current design standards. The main areas in which the alignment is deficient are between Corindi River to the top of Dirty Creek Range and Lemon Tree Road to Bald Knob Tick Gate Road.

Clear Zones

Batter slopes vary from 1 in 1.5 for fills to 1 in 2 for cuts. In general, fills steeper than 1 in 3 are protected by safety barriers. Flat areas up to 1 in 4 fills generally have a clear zone of five metres to the tree line. Sections through cuttings generally have a clear zone from the lane or edge line of the through carriageway of at least three metres. The minimum clear zone for 1 in 4 cuts is 11 metres.

Intersections

Of the 27 intersections within the project, 13 do not comply with the 100 km/h sight distance criteria. The majority of the non-compliant intersections are located adjacent to horizontal curves or crest curves that restrict visibility. There are 42 access roads / tracks of which 24 do not comply with the 100 km/h sight distance criteria.

[1] Annual Average Daily Traffic (AADT) – The number of vehicles crossing at a specific site per year and dividing this number by the number of days in the year (366 days in 2004).

Structures

Design standards (RTA's *Upgrading the Pacific Highway, Upgrading Program Beyond 2006: Design Standards March 2005*) suggest a minimum carriageway width of 10.5 metres for a four-lane facility with an SM1600 load standard. The assessment of 22 structures along the existing highway has shown that only six comply with carriageway width standards while only nine are expected to comply with SM1600 loading. Detailed checking and design of strengthening works may increase the number of complying structures.

Drainage Infrastructure

Stormwater drainage along the highway consists of lined or unlined table or batter drains. Transverse drainage across the existing highway consists of bridges, culverts or pipes. Longitudinal drainage is provided along the Halfway Creek duplication.

Highway Accesses

There are a total of 69 accesses to the highway. The project needs to consider providing access to the highway via local access roads, controlled access points, intersections and / or interchanges.

Heavy Vehicle Rest Stops

Rest areas that cater for heavy vehicles currently exist at Lemon Tree Road adjacent to both the northbound and southbound carriageways. These rest stops would be either reinstated or relocated as part of the upgrade.

Indigenous Heritage

The NSW Department of Environment and Conservation Aboriginal Heritage Information Management System Register has identified that 15 Aboriginal heritage sites are located within the study area. These include two isolated artefacts, three artefact scatters, five shell middens, a shell midden and artefact, two scarred trees, a natural mythological site and scarred tree and a burial site.

A number of unregistered sites of cultural significance to the local Aboriginal community are also known to occur within or in close proximity to the study area. This has been confirmed by initial consultations with the Aboriginal community.

In addition, the predictive model of site location indicates that additional indigenous heritage resources (in particular stone artefacts) are likely to occur throughout the study area. Detailed field survey is required during the concept design phase to assess the presence of such resources.

Non-Indigenous Heritage

There are no listed heritage items situated within or in the immediate vicinity of the study area. However, historical records indicate that a range of industries and activities were carried out in the locality. Evidence of these activities (in the form of historical relics) has the potential to occur within the study area. The study area topographic map denotes the location of two sets of "ruins" within the study area, immediately to the northwest of Corindi. Further investigation is essential to identify the nature of these relics. Such evidence may be protected under the NSW *Heritage Act 1977* if it is 50 years or older.

Visual Amenity

The highest level of visual constraint occurs in the area surrounding Corindi Beach and the steeper forested parts of the study area, particularly within and in the vicinity of Dirty Creek Range. The lowest levels of visual constraint occur in the relatively flat rural areas, mainly in the Corindi area.

Noise

The results of modelling indicates that 55, or approximately 8% of the potential receivers currently experience daytime noise levels that exceed the DEC's "Redeveloped Highway" criteria of 60 dB(A). It has been found that 178, or approximately 25% of the potential receivers experience night time noise levels that exceed the DEC's "Redeveloped Highway" criteria of 55 dB(A).

The majority of the receivers subject to noise levels above these criteria are located to the southwest of Corindi Beach and in the caravan parks to the east of the existing highway, south of Corindi Beach. Additional isolated receivers are distributed along the remainder of the existing highway.

Terrestrial Ecology

Threatened species records from a variety of sources indicated that 24 threatened flora species and 56 threatened fauna species have been recorded within 10 km of the existing highway. Of these, 7 threatened flora species and 31 threatened fauna species have been recorded within two kilometres of the existing highway. Additionally, 19 rare flora species have been recorded or have the potential to be present.

The Commonwealth Department of Environment and Heritage Protected Matters Search Tool identified seven terrestrial migratory species that may use the area for nesting habitat and require consideration.

Four terrestrial endangered ecological communities listed under the *Threatened Species Conservation Act 1995* could occur within the study area.

Eleven wildlife corridors pass through the study area, and two wildlife corridors are located just to the north of the study area. In addition, a number of patches of key habitats associated with these wildlife corridors are located within the study area.

Aquatic Ecology

Database searches revealed that there are no aquatic species within the study area listed as threatened under relevant Acts. However, four aquatic communities listed as endangered are known to occur in the vicinity of the study area.

There are two wetlands listed by State Environmental Planning Policy No. 14 – Coastal Wetlands (SEPP 14) within the study area, both located between Arrawarra and Corindi Beach. There are also two SEPP 14 wetlands located downstream of the study area, to the north of Corindi Beach and wetlands associated with Halfway Creek.

Topography

The study area can be divided into three distinct terrain domains: coastal, range and tableland. Within the study area, the land rises from sea level to heights of up to 200 metres. The topography in the southeast is generally flat. Further northwest, the coastal plain gradually transitions to undulating ground before reaching the foothills of Dirty Creek Range in the middle of the study area. Dirty Creek Range features very steep terrain with well-defined peaks, ridgelines, gullies and escarpments. West of the range the landform flattens out to the tableland domain.

Regional Geology

The coastal plains in the southeast of the study area feature extensive low lying alluvial, aeolian and estuarine swamp deposits, which occur between lowland hills and beach / dune landscapes. Some of the larger coastal river systems also contain Quaternary alluvial deposits extending inland towards the Dirty Creek Range.

Immediately inland from the coastal plains are the carboniferous aged Coramba Beds forming a lowland range topography of hills, spurs and ridges. Dirty Creek Range consists of Triassic / Jurassic aged sedimentary strata. The geological units from east to west include Corindi Conglomerate, Marburg Formation, and Walloon Coal Measures.

West of the range the land is formed by Jurassic / Cretaceous aged sedimentary strata and is made up by the Grafton Formation overlying Kangaroo Creek Sandstone.

Soil Issues

Preliminary drilling did not encounter any soft soils in the low-lying terrain south of Tasman Street at Corindi Beach. Soft soils were encountered in the Blackadder Creek area in a thin layer (1.5 metres) at a depth in excess of 20 metres. Therefore, limited settlement may be expected as a result of embankment construction in this area.

The crossing of the alluvial floodplains would require removal of the topsoil and / or the introduction of material to create a trafficable surface for construction equipment. Good quality fill for use in embankment construction would most likely be available from cuts within the Dirty Creek Range, assuming these sections of the project are constructed concurrently.

A high risk of encountering acid sulphate soils has been identified in the vicinity of Corindi River and varying levels of risk have been identified in the vicinity of Arrawarra Creek.

There is some potential for soil contamination in the study area. Past and present activities that may have caused contamination include agriculture, operation of service stations, sawmills and quarries and wastewater treatment. Cattle dip sites are located in close proximity to the existing highway.

Geotechnical Issues

Geotechnical features of the study area were assessed using available information including known properties of geotechnical domains and the performance of embankments and rock cuttings along the existing highway.

Rock cuttings up to 30 metres depth are likely to be required for the new alignment. Visual evidence indicates the existing cut batters are performing satisfactorily, apart from cuttings through the Lower Marburg formation. Batter slopes of 2H:1V are recommended in this area.

Hydrology and Flooding

The main areas of complexity are near Corindi River, Blackadder Creek and Casson's Creek. In these areas frequent highway closures have occurred due to flooding.

The main waterways within the study area are the Corindi River, together with its tributaries, and Halfway Creek. The Wells Crossing bridge is the only structure recorded as having been inundated above deck level although the bridge has been upgraded since being flooded in 1950.

Hydraulic modelling has determined the structures necessary to provide levels of flood immunity across Blackadder Gully and adjacent waterways for the existing highway. Structures range from 7 x 3.3 x 1.8 reinforced concrete box culverts (RCBC) for 20% annual exceedance probability (AEP) immunity to 25 x 3.3 x 1.8 RCBC for 1% AEP immunity.

Hydraulic modelling of existing bridge decks indicates that 1% AEP flood immunity is achieved at all bridges. The soffits of the existing bridges at Halfway Creek and Arrawarra Creek do not have flood immunity in the 1% AEP event, while the Wells Crossing bridge has been upgraded since being flooded in 1950.

6. Route Options

Development of Route Options

The options were initially developed with the assistance of the Infrastructure Corridor Analysis (INCA) modelling program, which is run in a geographical information system (GIS) environment. INCA was used as a tool to establish a range of possible alignments, based on weightings assigned to the constraints within the study area.

Following the identification of possible alignments using INCA, further work was undertaken to develop feasible route options based on the project design criteria. The route options were developed based on consideration of the INCA outputs, community input and the results of specialist studies providing information on study area constraints.

Once an alignment was developed horizontally the viability of the option was assessed vertically using MX road design software. This enabled the study team to check grades, particularly with respect to heavy vehicle performance and estimate earthworks volumes for cost estimating purposes.

Four route options were identified which provide broad corridors within which it is considered feasible to build the new highway. The options include a common corridor through some of the project sections. The corridors provide flexibility for refinement following further investigations and community consultation.

Description of the Options

A brief description of the four options is provided below. Further information is provided in Section 5 of the report. The preferred route may be a combination of the options presented below.

Blue Option

The Blue option starts at Arrawarra Creek, following the existing highway alignment, running along the eastern edge of Wedding Bells State Forest before crossing the Corindi River. It deviates to the west across the Corindi River floodplain, rejoining the existing highway south of Corindi before continuing north along the existing highway alignment through Corindi to Barcoongere Way where it diverts to the west. It runs through Dirty Creek Range, deviating to the east of the existing highway at the southern tip of Newfoundland State Forest. It again follows the existing alignment, incorporating the recently completed Halfway Creek duplication, and ends at Bald Knob Tick Gate Road (north of Wells Crossing).

For the majority of the route, the Blue option involves the construction of one new carriageway. Where new alignments are required, e.g. through the Corindi River floodplain and Dirty Creek Range, two new carriageways would be constructed. Elsewhere, this option includes rebuilding of the existing highway to current Pacific Highway Upgrade standards.

Green Option

The Green option starts at Arrawarra Creek, following the existing highway alignment along the eastern edge of Wedding Bells State Forest before crossing the Corindi River. It deviates to the east across the Corindi River floodplain and east of Corindi, rejoining the existing highway about one kilometre north of Corindi. It follows the existing highway to Barcoongere Way where it deviates to the east through Dirty Creek Range, rejoining the existing highway near Falconers Lane. It follows the existing highway alignment to Lemon Tree Road where it deviates to the east before rejoining the existing highway about 0.5 km north of Luthers Road and ends at Bald Knob Tick Gate Road (north of Wells Crossing).

For the majority of the route, this option involves the construction of one new carriageway. Where a new alignment is required, two new carriageways would be constructed. Elsewhere, this option includes rebuilding of the existing highway to current Pacific Highway Upgrade standards.

Purple Option

The Purple option starts at Arrawarra Creek, following the existing highway alignment along the eastern edge of Wedding Bells State Forest before crossing the Corindi River. It deviates to the west of the existing highway across the Corindi River floodplain, then diverts to the east of Corindi and rejoins the existing highway about one kilometre north of Corindi and follows this alignment to Barcoongere Way. It then passes to the west through Dirty Creek Range and rejoins the existing highway near Range Road. It follows the existing highway alignment to near Kungala Road where it deviates to the east, rejoining the existing highway alignment about 0.5 km north of Luthers Road and ends at Bald Knob Tick Gate Road (north of Wells Crossing).

For the majority of the route, the Purple option involves the construction of two new carriageways. However, between Corindi River floodplain and Dirty Creek Range, one new carriageway would be added and the existing carriageway reconstructed to Pacific Highway Upgrade standards.

Orange Option

The Orange option starts at Arrawarra Creek, following the existing highway alignment along the eastern edge of Wedding Bells State Forest. It deviates to the west of the existing highway before crossing the Corindi River, then follows a relatively straight alignment to the west of Corindi. It then rejoins the existing highway about 1.5 km north of Corindi and follows this alignment to about 0.5 km south of Barcoongere Way before passing to the west through Dirty Creek Range and rejoins the existing highway near Range Road. It follows the existing highway alignment to near Kungala Road where it deviates to the east, rejoining the existing highway alignment about 0.5 km north of Luthers Road and ends at Bald Knob Tick Gate Road (north of Wells Crossing).

For the majority of the route, the Orange option involves the construction of two new carriageways. Between Range Road and the Halfway Creek duplication, one new carriageway would be added and the existing carriageway reconstructed to Pacific Highway Upgrade standards.

Project Cost Estimates

Strategic cost estimates have been prepared for each of the four route options and upgrade strategies using the "Roadworks Estimator" software. The Roadworks Estimator automatically prepares an estimate for new road projects specifically at a feasibility and strategic stage.

The estimates were based on plans and long-sections of each option as well as preliminary geotechnical investigations of the study area.

The estimate for this project is in the range of $300 million to $420 million (in 2005 dollars) depending upon the option and the upgrade strategy. These estimates included contingency factors if between 35% and 50% on all cost items. These estimates assume that the upgrade will be undertaken in one stage, however it is likely that the highway upgrade will be undertaken in stages, ultimately to a Class M facility. Further details on project cost estimates are included in the table below.

Project Cost Estimates

	Cost ($ Million)							
	Blue		Green		Purple		Orange	
Section	Class A	Class M	Class A	Class M	Class A	Class M	Class A	Class M
A(1)	35	40	35	40	40	55	45	45
B(1)	115	135	105	130	95	110	100	100
C(1)	45	65	55	60	50	60	50	50
D(1)	30	55	70	60	60	85	55	80
E(1)	75	125	75	80	75	80	70	75
Total	300	420	340	370	320	390	320	350

Note: (1) Rounded to the nearest $5 million.

7. Next Steps

The project is being developed in a way that is both ecologically sustainable and achieves the best overall outcome for the whole community. The RTA recognises the importance of addressing social, ecological, engineering and cost factors while continuing to provide for future transport needs. Most importantly, dual carriageway roads and fewer highway connections will result in a safer road environment.

A preferred route has not been selected at this stage.

A preferred route will be selected by considering:

- The community's issues and comments on the route options.
- Information on the physical impact of each of these routes, in relation to economic, ecological, engineering and community issues.
- A value management process which will include a workshop. This workshop will be held with participants from the community, government and technical areas. The workshop will assess the performance of each of the route options against a range of agreed criteria.

Four feasible route options have been identified for further consideration and assessment (see figure over page).

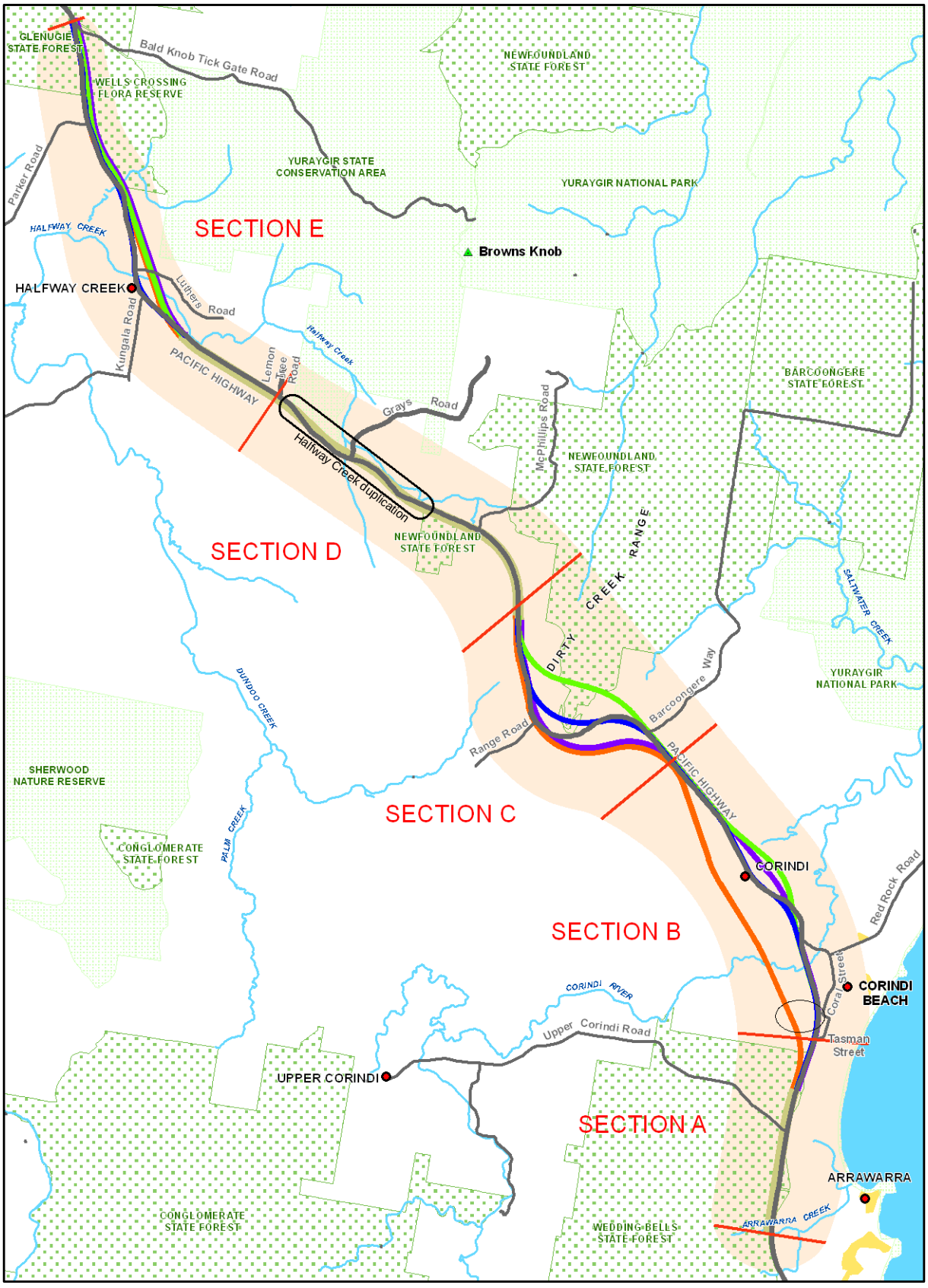
Community response to these feasible options is an important part of selecting a preferred route. The route options will be on display for approximately four weeks.

As the route options can be linked together in different ways, there are decisions to be made about a preferred route in the study area. The community is being invited to consider each of the route options and provide comments on the reply paid feedback form included with the community update (the feedback form is also available online). Community feedback will be integrated into the value management workshop.

Investigation of the four options will continue in preparation for the value management process.

A value management workshop will be held to consider the full range of issues and constraints to locating a highway route. Following refinement of the preferred route the concept design and environmental assessment phases would commence.

Community consultation will continue. A community liaison group, updates in the local media, newsletters, meetings with individuals and groups, and a project website will continue to keep the community informed and assist community input.



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SCALE 1:100,000

0.5 0 0.5 1 1.5

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

GRID N

LEGEND

- Blue option
- Green option
- Purple option
- Orange option
- Common corridor for all options
- Study Area
- Urban Area
- Possible interchange location
- Highway; Main Rd
- Locality
- Hill/Mountain
- River / Creek
- Nat Park / Reserve
- State Forest

Note Coloured options represent a 250m wide corridor, which includes 4 lanes. ie 2 lanes each way, separate by a landscaped area.

Spatial layers courtesy of Coffs Harbour City Council, NSW Department of Lands, NSW Roads & Traffic Authority, Geoscience Australia, NSW Department of Environment & Conservation, NSW Department of Primary Industries.

Route Options Plan

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