



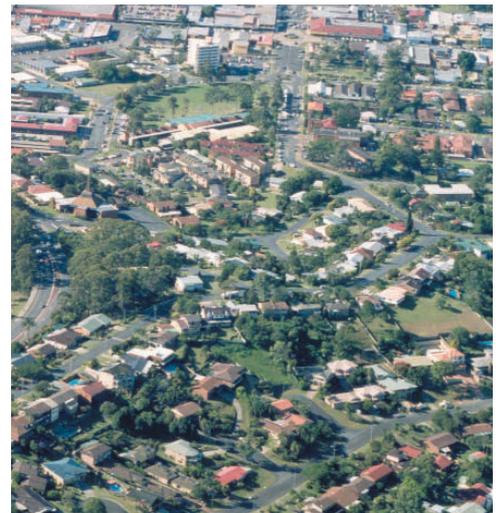
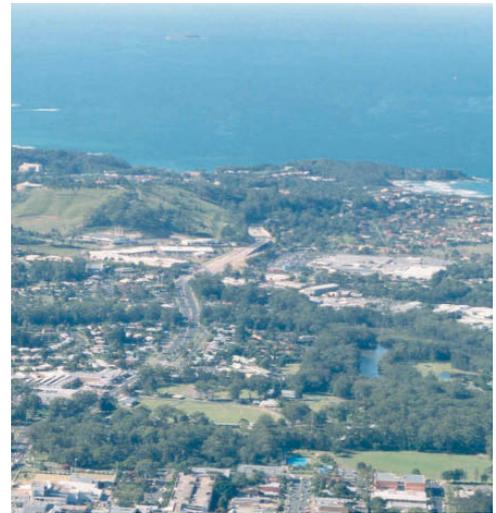
Department of  
Infrastructure, Planning and Natural Resources



# Coffs Harbour Highway Planning

Southern and Northern Sections

**COFFS HARBOUR CITY COUNCIL PREFERRED CORRIDOR FEASIBILITY ASSESSMENT  
JUNE 2004**



*Connell Wagner Pty Ltd  
ABN 54 005 139 873  
116 Military Road  
Neutral Bay  
New South Wales 2089 Australia*

*Telephone: +61 2 9465 5599  
Facsimile: +61 2 9465 5598  
Email: cwsyd@conwag.com  
www.conwag.com*

## ***Coffs Harbour Highway Planning***

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### ***Coffs Harbour City Council Preferred Corridor Feasibility Assessment***

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# **Executive Summary**

## **Background and Context**

Work began on the Coffs Harbour Highway Planning Strategy (CHHPS) in early 2001. In late 2003, following a series of community forums, Coffs Harbour City Council (CHCC) adopted a position of support for a far-western bypass of Coffs Harbour and Woolgoolga. In its letter to the Hon. Carl Scully Minister for Roads, CHCC requested that the Roads and Traffic Authority (RTA) work with CHCC to identify potential routes within the 'CHCC Preferred Corridor' shown in Figure 2.1. As a result, a feasibility assessment of the CHCC Preferred Corridor has been undertaken to provide an assessment of the feasibility of potential route options in terms of functional, socio-economic and biophysical parameters.

## **Features of the Study Area**

The CHCC resolution to adopt a Preferred Corridor stated "that the western bypass diverge from the existing highway at or near Englands Road to Red Hill, and thereafter by the best available option to Grafton with the intention that south and western Boambee and the Orara Valley be excluded from further consideration".

The CHCC Preferred Corridor cannot be considered in isolation. Access to the south would need to be gained via the Coastal Ridge Way (CRW) proposal and a route through Clarence Valley Local Government Area (LGA) may be required to provide access to the highway to the north. As a result the study area has been split into three sections – the Southern Section, the Bucca Valley Section and the Sherwood / Corindi Section.

The Southern Section comprises the Coastal Ridge Way (CRW) alignment between Englands Road and the Ulidarra National Park and has been subject to previous investigation (Connell Wagner, 2004c *CHHPS Coffs Harbour Section, Review of the Coastal Ridge Way Proposal*, February 2004). This section is characterised by steep and rugged terrain and forest, the most extreme of which is experienced in the vicinity of the Ulidarra National Park just south of the CHCC Preferred Corridor (refer Figure 2.1).

The CHCC Preferred Corridor lies within the Bucca Valley Section and includes land between the CRW / Option A on the eastern side and the range between the Orara and Bucca Valleys to the west. The Bucca Valley accounts for the major land area within the broader part of the CHCC Preferred Corridor. Mt Coramba (elevation 590m above sea level) and associated ridges is located in the south-east corner of the Corridor and the Sherwood Road ridge forms a prominent landscape feature across the northern end of the Corridor. The latter ridge formation reaches elevations of up to 465m above sea level and any new highway routes, in order to exit the Bucca Valley, would need to cross this ridge at one of two potentially available low points (one where Option A crosses and another to the west of the highest point of the ridge). A significant amount of native vegetation of high ecological importance is located in the vicinity of this ridge and any routes out of the Bucca Valley would have to cross the Sherwood Nature Reserve.

As the CHCC Preferred Corridor ends at the former (late 2003) northern boundary of the Coffs Harbour LGA, it was necessary to consider options through the section that was then within the Pristine Waters LGA in order to provide a connection back to the existing highway. The former Pristine Waters LGA is therefore part of the study area and it consists of a range of topography with two roughly parallel mountainous ridges extending north from the Sherwood Nature Reserve. Through the Upper Corindi area, the terrain then becomes more hilly and undulating as it falls towards the coast.

## **Potential Highway Options**

Investigations have identified four route options within the CHCC Preferred Corridor. These options have been developed from a constraints analysis which focused on biophysical and land use issues to identify key features of the study area. The four options are shown in Figure 3.1 and, to allow

comparison between the options, the common end points have been taken to be Englands Road in the south and the start of the Pacific Highway Upgrade works at Halfway Creek. The route options include:

- *Coastal Ridge Way / Option A*: This alignment was previously detailed within the *Review of the CRW Proposal* (Connell Wagner, 2004c) and the *Route Options Development Report* (Connell Wagner, 2002d). The route has a total length of 55km and up to five tunnels. It traverses State Forest for most of its length and across the Sherwood Nature Reserve through the eastern low point in the Sherwood Road Ridge before rejoining the Pacific Highway at Arrawarra Creek.
- *Western Bucca Valley / Option A*: This route is 52.1km long with up to four tunnels. It follows the CRW alignment then passes through the western side of the Bucca Valley, crossing over the north section of the valley to rejoin Option A as it passes through the eastern low point in the Sherwood Road Ridge and Sherwood Nature Reserve. It then follows the Option A alignment back to Arrawarra Creek.
- *Western Bucca Valley / Corindi River*: This alignment was identified and developed following discussions with Council representatives. The route has a total length of 46.8km. It follows the Western Bucca Valley / Option A route through the eastern low point in the Sherwood Road Ridge, then deviates from Option A approximately 1km further north near Wedding Bell Creek Road. The route then generally follows a northerly direction along the eastern side of the Corindi River valley, crossing Upper Corindi Road approximately 2km east of its intersection with Rufus Road. It then continues in a northerly direction before rejoining the highway just south of Dirty Creek Range.
- *Western Bucca Valley / Sherwood Creek*: This route is 51.3km long with up to seven tunnels. This option follows the CRW before passing along the western side of the Bucca Valley. At Bucca Road the route diverges from the common alignment and crosses in a north-westerly direction across the Bucca Valley. A series of tunnels (many in excess of 1km long) and viaducts would be required to provide passage through the western low point in Sherwood Road ridge and the Sherwood Nature Reserve. On the northern side of the Sherwood Road ridge the option enters the Clarence Valley LGA, following a route through the lower terrain of Dundoo, to rejoin the Pacific Highway at Dirty Creek Range.

### **Traffic Issues**

Traffic volumes using the CRW / Option A and the Western Bucca Valley / Option A options would be comparable, as they connect to the Pacific Highway at the same location. The Western Bucca Valley / Corindi River and Western Bucca Valley / Sherwood Creek routes would potentially attract slightly lower traffic volumes than the other two options as they reconnect with the Pacific Highway approximately 15km further north. The situation is the same in terms of heavy vehicles. However, due to the long steep gradients associated with each of the bypass options, the travel times and operating costs for heavy vehicles would potentially reduce the attractiveness of such bypass options for these vehicles.

### **Cost Evaluation**

The Western Bucca Valley / Sherwood Creek route is the most costly alignment at approximately \$1,652M. The costs are high due to the need for extensive tunnelling works. The Western Bucca Valley / Option A route is \$1,025M and less costly than the CRW / Option A alignment (\$1,281M) due to the fact that it is 2.9 km shorter in length and requires one less tunnel. The Western Bucca Valley / Corindi River option at \$1,064M is also less costly than the CRW / Option A alignment because the concept is considerably shorter and requires one less tunnel.

All four route options provide very poor economic viability (BCR < 0.5) due to their high cost and the relatively low traffic volumes that would use them.

### **Socio-economic Issues**

For the seven socio-economic parameters assessed, the CRW / Option A route, which passes predominantly through State Forest would have the least negative impacts. The overall socio-economic impact of this option has been assessed as low adverse.

The Western Bucca Valley / Corindi River, Western Bucca Valley / Sherwood Creek and the Western Bucca Valley / Option A routes would all have greater overall negative impacts than the CRW / Option A route. This is mainly due to the fact that these routes within the CHCC Preferred Corridor all pass through rural residential and agricultural properties in the Bucca Valley as well as rural lands in the Sherwood / Corindi area to the north. This would result in potential severance and introduce a new source of disturbance to the area in terms of noise, visual intrusion and air quality. The overall socio-economic impact of these options has been assessed as low to moderate adverse.

### **Biophysical Issues**

In terms of biophysical impacts the CRW has been identified as having significant adverse impacts on flora and fauna, including potential loss of threatened species and severance of wildlife movement corridors, to the extent that mitigation is unlikely to be effective (Connell Wagner, 2004c). The CRW / Option A, Western Bucca Valley / Option A and Western Bucca Valley / Corindi River options also bisect the Sherwood Nature Reserve, as well as passing through a number of protected zones within the State Forest. Construction of a highway through both the Sherwood Nature Reserve and the protected zones within the State Forest would generally require the concurrence of the Minister for the Environment and an Act of Parliament to revoke the Nature Reserve and / or protected zone. The high level of biophysical impact associated with these options, the difficulties of achieving effective impact mitigation and the availability of alternative options with lesser impact are major impediments to obtaining this statutory approval.

By comparison, the Western Bucca Valley / Sherwood Creek route avoids the Sherwood Nature Reserve by tunnelling beneath it and passes around the State Forest, avoiding most of the protected zones within the State Forest. However, this route would still have extensive flora and fauna impacts in both the southern section and the Bucca Valley. In addition, this route would affect the greater length of natural vegetation overall as it passes through a significant area of native forest within the Clarence Valley LGA.

### **Conclusions**

The study comprises an assessment of feasible route options through the CHCC Preferred Corridor. Four potential alignments have been identified. These would all require construction of the CRW alignment from Englands Road through to the Ulidarra National Park. Previous studies have identified that whilst this route has benefits in terms of minimising impacts on existing residential communities, it has major biophysical impacts. The likely road geometry could be a deterrent to heavy vehicles which may continue to use the existing highway. In cost terms, the strategic estimate indicates a cost for the Englands Road to Bucca Road section of between \$670M and \$860M, far in excess of any other NSW Pacific Highway upgrade project. Coupled with the estimated travel benefits, the road user economic analysis showed that the CRW proposal alone would represent a very poor investment in road transport infrastructure in NSW.

The terrain within the CHCC Preferred Corridor section presents a significant constraint to the development of route options. The four options developed avoid Mount Coramba by passing through the Bucca Valley. Feasible route options also need to pass through one of two low points in the Sherwood Road ridge (which reaches elevations of up to 465m above sea level) at the northern end of the CHCC Preferred Corridor.

Traffic volumes using the CRW / Option A and the Western Bucca Valley / Option A options would be comparable, while the Western Bucca Valley / Corindi River and Western Bucca Valley / Sherwood Creek routes would potentially attract slightly lower traffic volumes than the other two options.

The cost of the route options varies between \$1,025M for the Western Bucca Valley / Option A route and \$1,652M for the Western Bucca Valley / Sherwood Creek route. All four route options provide poor economic viability (BCR < 0.5) due to their high cost and the relatively low traffic volumes that would use them.

The Western Bucca Valley / Corindi River route is the shortest of the four options and has the second lowest cost by a small margin. As such, it would provide the best benefit to cost ratio of the four options. The Western Bucca Valley / Sherwood Creek route would have the greatest cost due to the significant engineering requirements and give the lowest benefit to cost ratio.

One of the underlying reasons for Council's adoption of its Preferred Corridor is to minimise impacts upon existing residential communities. This objective would be best achieved by CRW / Option A route as the three Western Bucca Valley alignments have the potential to sever the rural communities within the Bucca Valley and, with the Western Bucca Valley / Corindi River route option, parts of the Upper Corindi Valley. These route options would also introduce a range of traffic related impacts to these areas.

All options have very significant adverse biophysical impacts. With all options, approvals from the Commonwealth Department of Environment and Heritage (DEH) and the NSW Department of Environment and Conservation (DEC) would be required for the removal of significant areas of native vegetation, including protected areas within the State Forest.

The CRW / Option A, Western Bucca Valley / Option A and Western Bucca Valley / Corindi River routes would require the revocation of a section of the Sherwood Nature Reserve to allow construction. As feasible highway alternatives have previously been identified, revoking the Nature Reserve Status would be difficult to justify. All options traverse a culturally sensitive landscape which is well known and highly valued by the Aboriginal community.

Based on the review of potential alignments, it is concluded that none of the options within the CHCC Preferred Corridor (including the necessary connections back to the existing highway) would be viable and do not merit further consideration for the future upgrading of the Pacific Highway due to:

- the significant topographical constraints and engineering challenges associated with locating the alignment outside the coastal plain and into the steep and mountainous terrain associated with the coastal ridge
- their poor functional performance
- their high cost and poor economic viability
- their significant adverse impacts on flora and fauna
- their significant impacts upon a landscape of Aboriginal importance