

3. Potential Highway Options

3.1 Introduction

This section provides a description of route options that have been identified and developed in the CHCC Preferred Corridor. The options include the current CRW proposal in the Southern Section, CRW / Option A which traverses the eastern side of the Bucca Valley and three additional options that traverse the western side of the Bucca Valley. The CRW proposal developed for the Southern Section, which combines with Option A to form the eastern boundary of the CHCC Preferred Corridor, has previously been the subject of extensive investigations. Both the CRW and Option A have been developed to a level to allow key features of the route including vertical alignment, earthworks quantities, cross sections and structures to be identified. Further details can be found in the *Review of the Coastal Ridge Way Proposal* (Connell Wagner, 2004c) and the *Route Options Development Report*. (Connell Wagner, 2002d).

3.2 Southern Section

The CRW was adopted in Council's resolution as the Southern Section of the CHCC Preferred Corridor, up to the point where the Corridor widens out into the Bucca Valley. This section is approximately 11.4km. As shown in Figure 3.1, it generally traverses to the west of Coffs Harbour, passing through very rugged terrain between the Coffs Harbour basin and the Orara Valley.

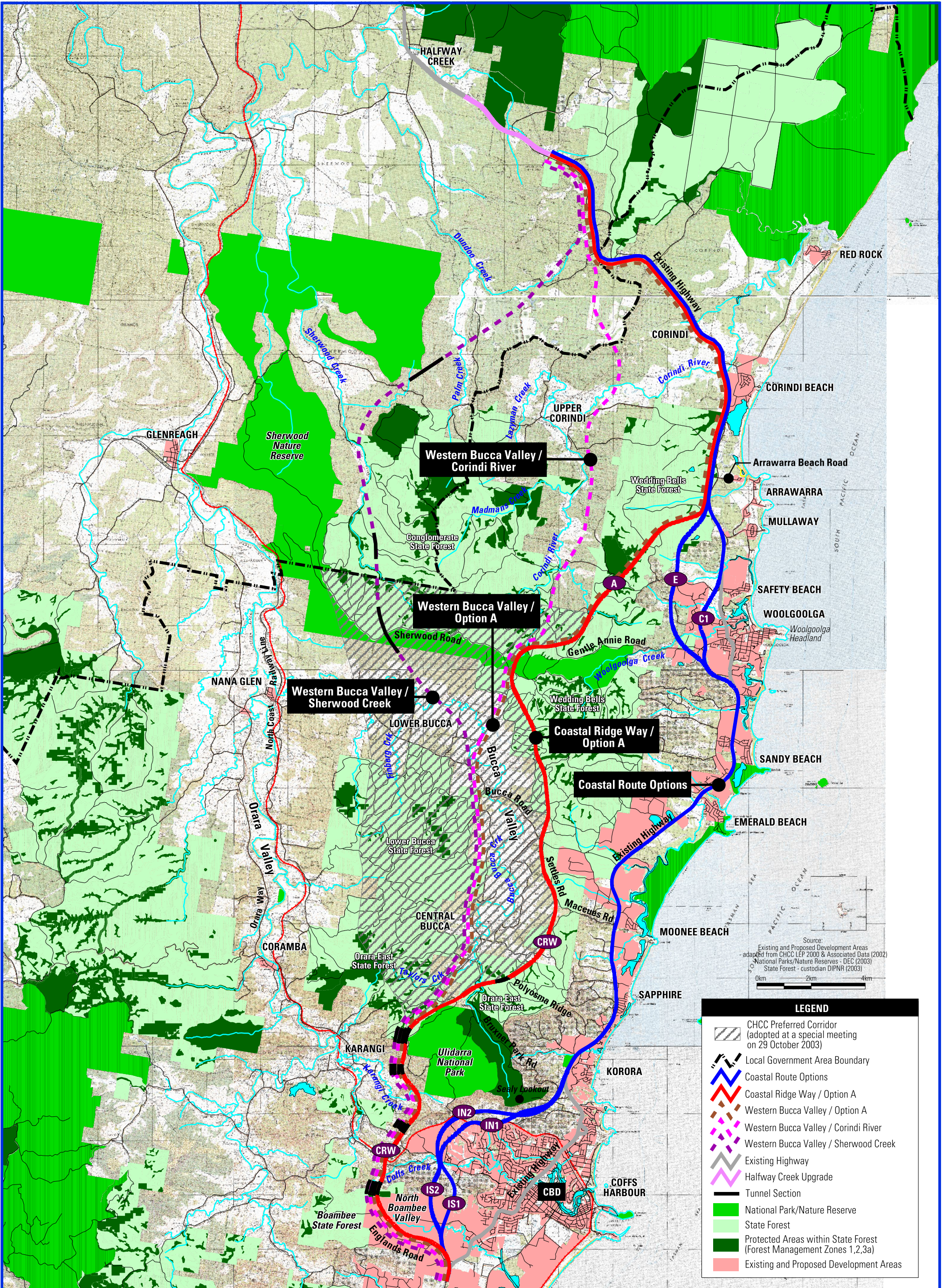
The CRW proposal would be a four-lane / dual carriageway formation with grade separation (bridges) at all intersecting local and access roads. The alignment for the CRW veers west from the existing Pacific Highway at Englands Road and passes through the North Boambee Valley, crossing the southern Coffs Harbour ridgeline at Red Hill. A 500m tunnel is proposed at this location. The route then advances northwards, requiring viaducts over the North Coast Railway line and Coramba Road, with a further 380m tunnel proposed through the ridge north of Coramba Road. Numerous ridges would need to be crossed as the terrain gradually becomes more rugged and higher towards the Ulidarra National Park, with the road reaching a maximum elevation of 242m above sea level near the join with the CHCC Preferred Corridor. Karangi Creek (a tributary to the Orara River) and Coffs Creek form two major watercourses traversed by the route which would need to be bridged.

Due to the rugged nature of the terrain traversed by the CRW, some cuttings would be more than 60m deep and some fill embankments would be more than 40m high. However, the use of conventional road construction practices is unlikely to be practical for cuttings and fill embankments of this size. As such, major tunnels and bridge structures would be necessary for practical construction purposes, to limit earthworks volumes and reduce the impact on the natural environment. Specifically, the route has been developed on the basis that tunnels through major ridges would be required along with elevated viaducts (or high bridge structures) across deep valleys and over the North Coast Railway tunnel through Red Hill.

3.3 Bucca Valley Section

The CRW proposal was originally developed to finish in the general vicinity of Moonee, giving it an approximate length of 22km. It would have some flexibility at the northern end in that it could be aligned to connect with Option A of the Sapphire to Woolgoolga section instead of rejoining the existing highway in the vicinity of Moonee. However, for the purposes of this assessment the CRW alignment has been assumed to include Option A to represent the eastern boundary of the CHCC Preferred Corridor.

As a result of the work outlined in Section 2 above, three additional possible route options have been identified and developed for the CHCC Preferred Corridor. These have a common alignment along the western side of the Bucca Valley. In the vicinity of Bucca Road the options diverge, with one traversing to the north-east to connect with Option A, one continuing north along a more direct route via Upper



Source:
 Existing and Proposed Development Areas
 - adapted from CHCC LEP 2000 & Associated Data (2002)
 National Parks/Nature Reserves - DEC (2003)
 State Forest - custodian DIPNR (2003)

0km 2km 4km

LEGEND

- CHCC Preferred Corridor (adopted at a special meeting on 29 October 2003)
- Local Government Area Boundary
- Coastal Route Options
- Coastal Ridge Way / Option A
- Western Bucca Valley / Option A
- Western Bucca Valley / Corindi River
- Western Bucca Valley / Sherwood Creek
- Existing Highway
- Halfway Creek Upgrade
- Tunnel Section
- National Park/Nature Reserve
- State Forest
- Protected Areas within State Forest (Forest Management Zones 1,2,3a)
- Existing and Proposed Development Areas



**FIGURE 3.1
PROPOSED ALIGNMENT OPTIONS**

Corindi to Dirty Creek Range and the other traversing to the north-west in the vicinity of Sherwood Creek. These options are shown in Figure 3.1.

3.3.1 CRW / Option A

In the Bucca Valley Section the CRW / Option A route forms the eastern boundary of the CHCC Preferred Corridor. Passing immediately to the west of the Ulidarra National Park, the CRW route could continue along a north-easterly direction through the Orara East State Forest. The route would pass through the upper reaches of Bucca Bucca Creek and a major ridgeline known locally as Polyosma. From that point, it trends north-east and north through the Lower Bucca Valley adjacent to Settles Road. Two viaducts are proposed at Bruxner Park Road, with a 560m tunnel required through the ridgeline, this is the northern point of the CRW route.

In the course of examining route options in the Corridor, a possible sub-option for the CRW along the eastern edge of the Bucca Valley was identified (refer Figure 3.1). This variation was prompted by the possible advantages of avoiding the rugged terrain associated with Polyosma ridge and hence reducing the very significant (and expensive) engineering features presented in the CRW proposal. Although it has not been developed in detail, it would be similar to the Western Bucca Valley / Option A route (see Section 3.3.2 below) in terms of functionality, cost, economic viability and socio-economic, biophysical and indigenous heritage impacts.

Option A, which was originally a community proposed route from Moonee to Mullaway, left the existing highway in the vicinity of Bucca Road. For the purposes of extending the more recent CRW alignment, a connection to Option A was developed in the vicinity of Maccues Road, advancing in a northerly direction through State Forest lands for most of its length (see Figure 3.1). To the north, the alignment of Option A passes through the eastern low point in the prominent Sherwood Road ridge. Option A would require bridge structures at all major watercourses and at key forestry road crossings. Full details of the Option A alignment can be found in the *Route Options Development Report* (Connell Wagner, 2002d).

The longitudinal section (profile) of the CRW / Option A route option between where it leaves the existing highway at Englands Road south of Coffs Harbour and where it rejoins the highway at Arrawarra Creek north of Woolgoolga is shown in Figure 3.2.

3.3.2 Western Bucca Valley / Option A

The second possible route option (identified as Western Bucca Valley / Option A alignment) passes through agricultural and rural residential land and areas of State Forest on the western side of the Bucca Valley to a point just north of Bucca Road. At this location, the route would veer to the north-east (see Figure 3.1) across the Bucca Valley, Bucca Bucca Creek and some small creeks, before passing through timber plantations within the Conglomerate State Forest. The alignment would rise from the floor of the Bucca Valley, up the slopes of Gentle Annie ridge, converging with Option A just as it enters the eastern low point in the Sherwood Road Ridge and Sherwood Nature Reserve. The route would then follow the Option A alignment back to a tie in with the existing highway at Arrawarra Creek. Whilst the terrain still remains rugged, with maximum elevations of up to 200m no tunnels are proposed along the common alignment with Option A.

The longitudinal section (profile) of the Western Bucca Valley / Option A route option between where it leaves the existing highway at Englands Road south of Coffs Harbour and where it rejoins the highway at Arrawarra Creek north of Woolgoolga is shown in Figure 3.3.