Woolgoolga to Wells Crossing

Upgrading the Pacific Highway

Value Management Workshop Report

March 2006

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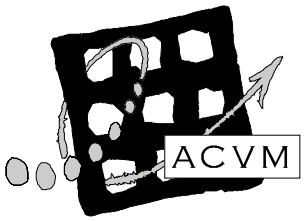
Foreword

The Pacific Highway Office of the Roads and Traffic Authority engaged the Professional Services Contractor GHD to undertake route option investigation, concept development and environmental assessment for upgrading of the Pacific Highway between Woolgoolga and Wells Crossing.

To assist GHD in the development of this project, the Australian Centre for Value Management (ACVM) undertook a value management study.

The enclosed report is a record of the proceedings from the value management workshop held on 5 and 6 December 2005.



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Report

Background

The Pacific Highway is the main road transport corridor serving the north coast region of NSW and is a major highway link between Sydney and Brisbane. The Pacific Highway Upgrade Program is a commitment by the NSW and Commonwealth Governments to improve the condition of the highway, reduce road accidents and improve transport efficiency.

The section of the highway (subject of this project) between Woolgoolga and Wells Crossing is approximately 28km long and serves as part of the local and regional road network. The traffic on this section of road is a mix of heavy and other vehicles as well as local and through traffic with different destinations and demands.

The conflict between these different traffic types becomes worse during holiday periods. Under the current road conditions, traffic conflicts at intersections and property access points resulting in a reduction in safety for the people living in and around the Study Area as well as for Highway users.

In addition, the horizontal and vertical geometry of the existing highway contains long lengths that do not comply with the 110km/h design criteria for the Pacific Highway Upgrade Program. Approximately 80% of horizontal curves and approximately 40% of vertical curves do not meet the current design standard in terms of curve radii and length, respectively.

Without upgrading the highway and as other sections of the highway are improved, this section of the highway would incur an increasing number of crashes and traffic delays in proportion to the ongoing growth in traffic volumes and would not meet the aims of the NSW and Commonwealth Governments as well as not meet community needs of improving local access, safety, traffic efficiency and capacity of this section of road.

Investigations to upgrade this section of the highway commenced in September 2004 with the Roads and Traffic Authority (RTA) commissioning consultants GHD (the Study Team) to undertake route option investigation, preferred route selection processes and concept development within the Study Area (see **Figure 1**).

The preferred route option is to meet the future transport needs for the highway whilst balancing social, environmental, heritage, functional, economic and cost factors.

For the purposes of identifying and assessing corridor options, the Study Area has been divided into 5 Sections from south to north (see **Figure 1**):

- **Section A** – Arrawarra Creek (Start Point) to Tasman Street intersection
- **Section B** – Tasman Street intersection to 500 metres south of Barcoongere Way
- **Section C** – 500 metres south of Barcoongere Way to 400 metres south of Falconers Lane
- **Section D** – 400 metres south of Falconers Lane to Lemon Tree Road intersection
- **Section E** – Lemon Tree Road intersection to Bald Knob Tick Gate Road (End Point)

A number of corridor options have been investigated within the Study Area. As a result, a short list of four corridor options for the upgrade of the highway has been placed on public display with public submissions being sought.

The development of the four short listed options along with the findings of the preliminary environmental and engineering investigations undertaken within the Study Area have been documented in the RTA's *Pacific Highway Upgrade – Woolgoolga to Wells Crossing: Route Options Development Report* (RTA/Pub 05.219, October 2005). The four corridor options placed on public display are identified as:

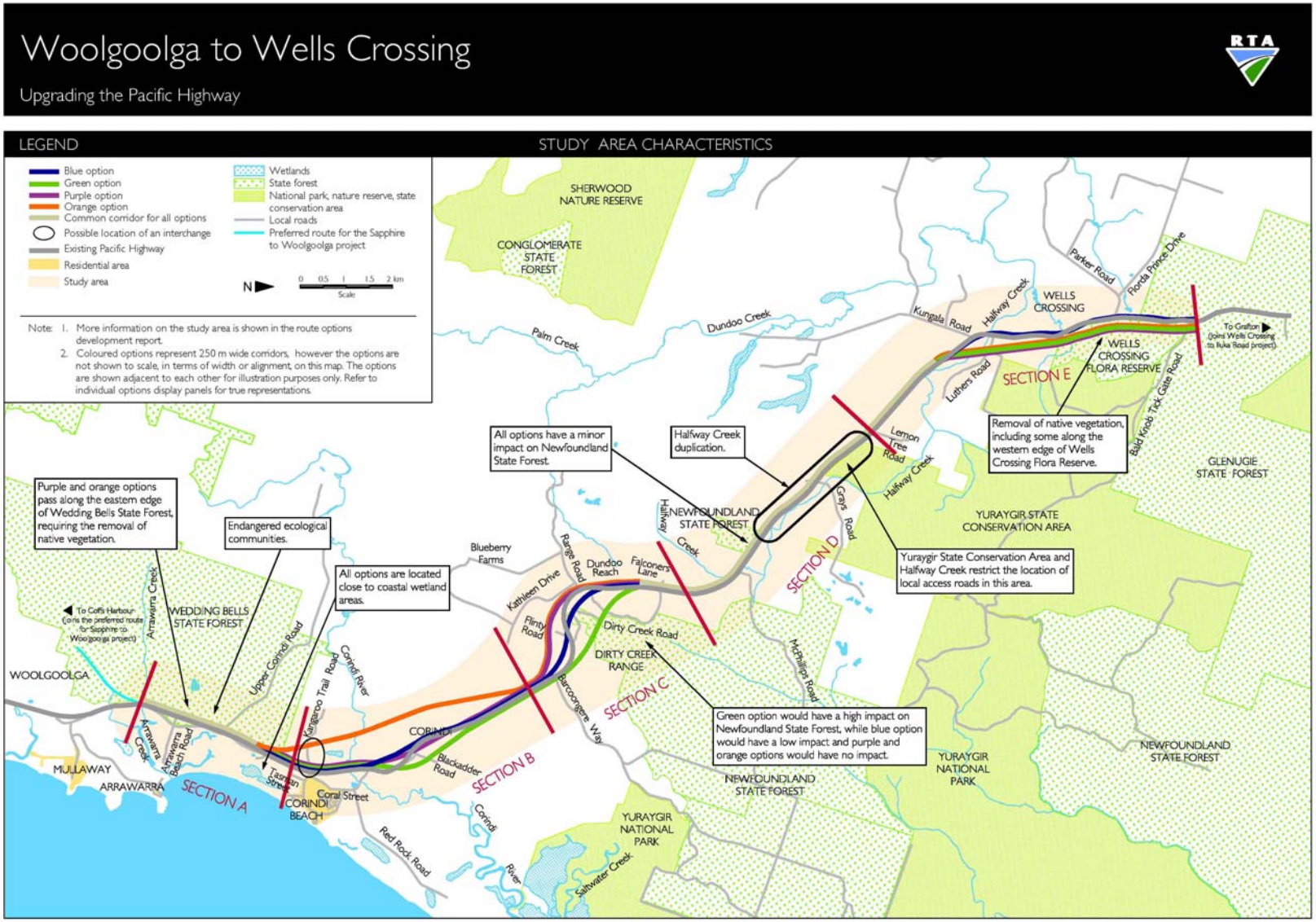
- **Blue Option**
- **Green Option**
- **Purple Option**
- **Orange Option**

Each option is defined as a 250 metre wide corridor. Preliminary road alignments within these four corridor options have also been developed and investigated by GHD. In developing the road alignments, it became evident that there existed two distinct common sections within the Study Area in which all four options co-existed. These common sections (or common corridors) occur in the following locations:

- ***Common Corridor No. 1*** – Section A (as described above), approx. length: 3.5 km
- ***Common Corridor No. 2*** – Section D and part of Section E (as described above), approx. length: 7.8 km

In other sections, two or more of the corridor options were common. The location of the four options, the common corridors and key features of each route option are shown in **Figure 1**.

Figure 1 – Shortlisted Corridor Options (source: GHD)



Now that the shortlist of corridor options have been developed and displayed for comment, a Value Management Workshop (VMW) was seen as the appropriate tool to bring together a wide range of stakeholder interests and expertise to review the investigations undertaken to date and on the balance of issues and assessment of the options against agreed assessment criteria, determine a preferred direction for further investigation to progress the project's development.

The assessments of the value management workshop are seen as one input into the process for determining the preferred route for the project.

The Australian Centre for Value Management (ACVM) was commissioned to facilitate and report on the workshop which was attended by a range of stakeholders on **5th and 6th December 2005**. A list of participants who attended the workshop can be found in **Appendix 1**.

Workshop Objectives

The objective of the workshop, as presented to the participants, was to "***Obtain a common understanding of the project and its objectives, review the work undertaken to date and to recommend a preferred direction, if appropriate, so as to progress the project to the next stage of development."***

The workshop objectives to achieve this were stated as:

- *Clarify the objectives of the project*
- *Examine the shortlisted options developed and identify potential value improvements to meet the project objectives*
- *Recommend a preferred option(s) to the RTA to progress the project*
- *Develop an action plan to progress the project*

This report has been compiled by ACVM and seeks to provide an objective overview of the project aspects discussed and the outcomes formulated by the end of the workshop.

Workshop Activities

The workshop process builds on the perspectives as well as the detailed and specialist knowledge which resides with the workshop participants then structures the review and option assessment from a functional base (ie. what must the project achieve to be successful and how well do the options perform against these).

During the workshop, background material was presented (**Appendices 2, 3 and 4**). What was important about the project from various stakeholder perspectives was identified and shared. The problem situation and the project objectives were reviewed. Assumptions being made about the project were identified and challenged from various perspectives.

Assessment criteria were developed and weighted under three key themes/perspectives (Functional, Social and Economic as well as Natural and Cultural Environment) based on what participants considered important (ie. of value) for later evaluation of the corridor options (**Appendix 2**).

Using this information, the shortlisted options (to meet the project objectives and address the problems identified) were reviewed by the group (see **Appendix 3**).

The group evaluated the corridor options within Sections B, C and E as Section A and D were common corridors in which all route options co-existed. The corridor options evaluated were:

- In **Section B** – Blue, Green, Purple and Orange Options
- In **Section C** – Blue, Green and Purple/Orange (common) Options
- In **Section E** – Blue and Green/Purple/Orange (common) Options

The options were evaluated using the assessment criteria and the indicative costs of each option (within each section) to determine which option participants would recommend (in each section) as the preferred option to progress the planning of the project to the next stage of development.

The result of the evaluation (as agreed by the participants) indicated that the ***Orange Corridor Option*** in all three sections ***(Sections B, C and E)*** performed, on balance, better than the other options against the criteria. However this recommendation was subject to a number of issues raised during the workshop being addressed (see **Appendix 3**).

The workshop discussions led the group to conclusions and actions as outlined below.

Workshop Outcomes

By the end of the workshop, the participants had:

- **Confirmed** the Pacific Highway Program Objectives which reflect what the project must do to be successful in achieving its purpose and agreed that the objectives would address the problems being experienced along this section of the highway if they were achieved. The program objectives were:

- Significantly reduce road accidents and injuries;
- Reduce travel times;
- Reduce freight transport costs;
- Develop a route that involves the community and considers their interests;
- Have a route that supports economic development;
- Manage the upgrading of the route in accordance with ecologically sustainable development (ESD) principles; and
- Provide value for money.

- **Identified** assumptions being made about the project from various perspectives and assessed whether it was safe to proceed with planning based on these assumptions or whether they needed to be resolved as planning proceeded (see **Appendix 2**)
- **Identified** assessment criteria under three key perspectives (Functional, Social and Economic, and Natural and Cultural Environment) based on what participants considered important for later assessment of the shortlisted corridor options. The assessment criteria to assess the corridor options were agreed as:

Functional

- *Relative safety performance in operation*
- *Relative safety during construction*
- *Improved travel time*
- *Potential delays for road users during construction*
- *Ability to gain benefits early (ie. staging)*

Social and Economic

- *Differential noise for receivers (existing and those new to the noise)*
- *Impacts on agricultural and forested lands*
- *Impacts on commercial business*
- *Extent of community severance*
- *Number of dwellings and other structures threatened by the corridor*
- *Visual impact of corridor from the local community viewpoint*

Natural and Cultural Environment

- *Potential flooding implications to the environment*
- *Extent of clearing of high conservation value vegetation (including riparian and aquatic ecosystems)*
- *Impact on wildlife corridors*
- *Impact on EECs and threatened species (terrestrial and aquatic)*
- *Impact on significant aboriginal sites (registered and unregistered)*
- *Relative environmental risk during construction*

- **Reviewed** the shortlisted corridor options tabled for the project, obtained an understanding of their relative merits and weaknesses and identified suggested improvements for further consideration as planning proceeds (see **Appendix 3**)
- **Assessed** the shortlisted corridor options in each Section against the assessment criteria and ranked the performance of each option. The relative project cost estimates for each option in each section was also discussed (see **Appendix 3**)
- **Concluded** as a result of undertaking the assessment, that on balance:
  - In ***Section B, the Orange Corridor Option*** was recommended as the preferred option to move forward for more detailed investigation and development to progress the project because it had the highest assessment in terms of functionality and social and economic criteria and has the ability for improvement to its environmental performance with some slight alignment adjustments at the southern end of the Section. However, this recommendation was made subject to minimising/avoiding impacts to the Aboriginal site adjacent to the corridor between Kangaroo Trail Road and the Corindi River and the confirmation that no new significant impacts to the functional, social, economic or environmental performance/values are apparent as a result of the southern adjustment suggested.
  - In ***Section C, the Orange Corridor Option*** was recommended as the preferred option to move forward for more detailed investigation and development to progress the project because it has a consistently higher ranking, on average, across all the perspectives assessed and the cost variations between options at this strategic level are not considered to be significant. It also has greater opportunity for alignment improvements if considered desirable after further investigations. There is also a greater level of confidence in minimising potential environmental and Aboriginal heritage impacts compared to the other corridors on the basis of using the “precautionary principle”). It should be noted that this option it is better than the Green Option but not as good as the Blue Option with respect to impacts on potential Aboriginal heritage items. However, this recommendation was made subject to further environmental and cultural heritage investigations being undertaken.

  - In ***Section E, the Orange Corridor Option*** was recommended as the preferred option to move forward for more detailed investigation and development to progress the project. However, this recommendation was made subject to moving the corridor closer to the existing highway to minimise clearing (ie. further aligning to the proposed corridor to the west), minimising the proximity of the corridor to culturally sensitive lands and further negotiations with the Local Aboriginal Land Council to allow acquisition of affected lands. The success of these consultations will be critically important otherwise a realignment which deviates and avoids the Aboriginal lands will likely be required to ensure certainty of the route. The recommendation is also subject to adequate mitigation works to address fauna and flora impacts and the impacts to the environment being effectively mitigated (ie. the mitigation measures need to be feasible).

- **Drew other conclusions** such as:
  - The Study Team needs to prove up the materials arising from the workshop including the recorded assumptions, the "subject to" items accompanying the recommendations and the suggested improvements;
  - The Study Team needs to continue consultation with the Aboriginal communities and the Elders to clarify possible heritage constraints (and any potential LALC matters which may impact on the project);
  - There is still a need to determine staging and local access arrangements for the project; and
  - The workshop was a positive experience which embraced perspectives across a broad cross section of stakeholders which contributed to the successful workshop outcomes.

- **Developed** an outline of the process and direction (Action Plan) for the project to move forward from here (see **Appendix 3**). Key points raised about the next steps in the process included:
  - There are three elements of the process which will come together to inform the Minister for Roads and assist in making a decision on the preferred route for this section of the Pacific Highway Upgrade. These are:
    - The public submissions and formal comments received on the short listed corridor options;
    - The Study Team's separate Route Selection Report and recommendations; and
    - The Value Management Workshop recommendations.
  - It is expected that the Minister for Roads will make a decision of the preferred corridor by mid 2006;
  - Preliminary design and specialist studies will then commence. It is at this stage, issues such as access points to the highway and staging of construction with projects to the north and south will be considered;
  - An environmental assessment will be submitted to the Department of Planning for approval;
  - It was reinforced that this section of the Pacific Highway is currently unfunded for construction. The relative priority for this section still needs to be determined. However planning will proceed and may require the development of a staged approach to the ultimate solution;
  - The Federal and State funding model to complete the upgrade of the Pacific Highway from Hexham to the Queensland border will determine the quantum and opportunity for timing of both the planning and construction of all new works.

Appendix 1. List of Participants

PACIFIC HWY UPGRADE: WOOLGOOLGA TO WELLS CROSSING VALUE MANAGEMENT WORKSHOP

PARTICIPANTS LIST

Project Stakeholders

Clyde Treadwell (Day 1 only)	Manager, Strategic Planning, Coffs Harbour City Council
George Stulle (Day 2 only)	Manager, Design and Survey, Coffs Harbour City Council
Scott Lenton	Environmental Planning Co-ordinator, Clarence Valley Council
Josh Chivers	Environmental Officer, Department of Natural Resources
Glenn Snow	Senior Planning Officer, Department of Planning
John Finlay	Local Planning Officer, Department of Planning
Scott Hunter	Senior Regional Operations Manager, Department of Environment & Conservation
Kelly Roche	Senior Threatened Species Officer, Department of Environment & Conservation
David Ward	Conservation Manager, Department of Primary Industry (Fisheries)
Chris Spencer	Coffs Harbour and District Local Aboriginal Land Council
Mark Flanders (Day 1 only)	Coffs Harbour and District Local Aboriginal Land Council
Rod Duroux	Grafton-Ngerrie Local Aboriginal Land Council
Tony Perkins	Garby Elders
Tony Wade	Community Liaison Group Member
Sloane Scott (part time)	Community Liaison Group Member
John Imrie	Community Liaison Group Member
Richard Casey	Community Liaison Group Member
Kyra Ensby	WIRES, Environmental Focus Group Member
Ron Smith	Ulitarra Conservation Society, Environmental Focus Group Member

Roads and Traffic Authority

Bob Higgins	General Manager, Pacific Highway Office
Steve Williamson	Project Development Manager
David Corry	Senior Projects Manager, Road Network Infrastructure
Christophe Steinbach	Project Development Officer
Leanne Thompson-Gordon	Aboriginal Program Advisor
Scott Lawrence	Environmental Advisor

GHD Consulting Study Team

Andrew Geddes	Project Manager
Matthew Faust	Engineering Team Leader
Simon Pearce	Planning and Environment Team Leader
Nicole Martyres	Community Liaison Officer
Anthony Penn	Graduate Civil Engineer
Glenn McDiarmid	Spatial Systems Co-ordinator (Workshop Assistance)

Workshop Facilitation Team

Ross Prestipino	Facilitator, ACVM
Alan Butler	Co-facilitator, ACVM

Appendix 2. Project Information and Analysis

Project Information and Analysis

The information presented in this Appendix is a consolidation of the general outputs and perceptions by the workshop group as they shared information about the Pacific Highway Upgrade: Woolgoolga to Wells Crossing Project which allowed them to later make comparisons of corridor options based on the analysis of what the project was required to achieve.

The Strategic Context of the Project

In order to allow the participants to obtain an understanding of the project's context, Mr Bob Higgins, General Manager Pacific Highway Office, RTA outlined the strategic context of the project (the "Big Picture") within the context of the Pacific Highway Upgrade Program.

Key points raised in his presentation included:

- The purpose of the Pacific Highway is:
  - As a major transport asset of National significance;
  - To provide safe and efficient transportation of people and goods to destinations between Sydney and Brisbane;
  - To service coastal townships and populations along the route; and
  - To support National, Regional and Local economic development.
- The Pacific Highway Upgrade Program is currently in its 10th year and the RTA is working on various projects (at various stages of planning, development or construction) from Hexham to the Queensland border. Only five projects remain (of which Woolgoolga to Wells Crossing is one) where the route is still to be determined for upgrading the highway in the future.
- The Pacific Highway Upgrade Program Objectives are to:
  - Significantly reduce road accidents and injuries;
  - Reduce travel times;
  - Reduce freight transport costs;
  - Develop a route that involves the community and considers their interests;
  - Have a route that supports economic development;
  - Manage the upgrading of the route in accordance with ecologically sustainable development (ESD) principles; and
  - Provide value for money.
- Strategic considerations in meeting this are:
  - There is a need to secure a corridor for the future upgrade of the whole highway;
  - There is a need to identify a preferred route for the Woolgoolga to Wells Crossing Section of the highway;
  - Develop solutions that facilitate staged construction;
  - Planning for the project is being funded by the State Government as part of its $1.6 billion contribution to the 10 year upgrading program ($2.2 billion total);
  - What is the future (beyond the 10 year program)?
    - The State Government is committed to continue the upgrade of the Pacific Highway;
    - The Federal Government released the AusLink White Paper which maintains expenditure at $60 million/year to the end of current 10 year program (2006) and increases contributions to $160 million/year over the following 3 years to match State Government contributions.
- Key drivers for the Program and the Project are:
  - Increasing pressure to accelerate the completion of dual carriageway due to:
    - Road safety (crashes including fatalities still high);
    - Increased travel demand from rapid population growth on the North Coast and increased interstate traffic (including freight);
  - Loss of amenity to local communities such as:
    - Highway noise; and
    - Local and through traffic interactions.
  - Potential environmental impacts (ie. flora and fauna, heritage); and
  - Economic considerations (ie. constructability, cost and value for money).
- The Project has to strike a balance between transport needs, social needs and environmental needs while providing value for money and the ability to be staged.

Coffs Harbour City Council Perspective

A Coffs Harbour City Council perspective of the Woolgoolga to Wells Crossing Section of the Pacific Highway Upgrade was outlined by Mr Clyde Treadwell, Manager Strategic Planning, Coffs Harbour City Council. Key points made in his presentation included:

- Coffs Harbour City Council's (CHCC) area of management now extends north to include Corindi and Red Rock as a result of the Council boundary changes and amalgamations. This formally came into effect in May 2005, although Council has been aware of its impending nature for 12 months;
- CHCC maintains an overtly "local perspective" and listens to the local community in terms of their vision and factors relating to social, economic and environmental considerations. The community feedback CHCC is receiving concerning the proposed road upgrade is that the community does not want to see impacts on Indigenous and European heritage or increases in noise. There does not appear to be a strong feeling about impacts on agricultural lands;
- Population projections for the CHCC area sees the 2006 figure of 69,000 people rising to 99,000 people by 2031. With this potential growth in mind, CHCC has examined their present zoning and the current potential to accommodate these numbers. CHCC indicated that there is capacity for a further 26,000 people in existing urban zone lands. This leaves a 6,000 population shortfall so further re-zoning is necessary by CHCC;
- CHCC has recently met and ratified proposals to increase urban zoning in the Corindi Beach, Corindi, Red Rock, Safety Beach and Mullaway areas. This will now form the basis of a proposal which needs to achieve approval from the Department of Planning (DoP). However, the thinking/planning has been done and the potential population demands in this Study Area for the Pacific Highway can now be considered;
- CHCC aims to finalise its Settlement Strategy and intends to send the Development Plans to DoP by June 2006. This will integrate the Coffs Harbour LEP (2000) and the Ulmarra LEP (1992); and
- Over the next five years CHCC intends to establish up-to-date Settlement Plans, Integration Plans, LEPs and a Rural Lands Strategy. This will be done in parallel with the current planning for the upgrading of the Pacific Highway.

Clarence Valley Council Perspective

A Clarence Valley Council perspective of the project was outlined by Mr Scott Lenton, Environmental Planning Co-ordinator, Clarence Valley Council. Key points made in his presentation included:

- The Clarence Valley Council covers the northern section of the project Study Area from the top of Dirty Creek Range to Wells Crossing;
- The Clarence Valley Settlement Strategy (CVSS) does not forecast or plan for any significant residential growth in or near the Study Area. The area is generally Rural 1A zoning with very low intensity of use;
- Key issues from Council's perspective on the project include:
  - Council prefers that access roads and residents' accesses to the highway corridor be maintained at a reasonable level of service;
  - Council prefers that the existing businesses and their potential opportunities (including rural pursuits) along the highway be maintained;
  - Impacts on the environment (including social, flora and fauna, etc) within the highway corridor and any wider affected lands as a result of the project are minimised; and
  - Council recognises that some affected landowners may see opportunities in the highway upgrade. However, others may feel threatened by it. Hence it may be an essential part of this project that affected individuals and communities be appropriately compensated. This could be by financial means, embellishment or provision of community facilities, or other measures.

Study Overview Presentation

An overview of the work undertaken to date and the steps ahead were presented by Mr Andrew Geddes, Project Manager, GHD Study Team and Mr Steve Williamson, Project Development Manager, RTA. Key points made in their presentation which supplements the background information distributed to participants prior to the workshop included the following points below.

- Background and Extent of the Study Area:
  - The Study Area is between Coffs Harbour and Grafton and is generally centred on the existing Pacific Highway. The Study Area is around 3km wide;
  - Southern end of the Study Area begins at Arrawarra Creek (connecting to the Sapphire to Woolgoolga Project section of the Pacific Highway Upgrade;
  - The project extends 27.8km in length; and
  - The northern end is approximately 3.6km north of Halfway Creek (connecting to the Wells Crossing to Iluka Road Project section of the Pacific Highway Upgrade.
- The main features in the Study Area include:
  - Total number of intersections – 69 (combination of public roads, private roads including forest roads and driveways);
  - The area includes the already completed Halfway Creek highway duplication;
  - Dirty Creek Range;
  - Corindi Floodplain;
  - State Forests, State Conservation Area and Flora Reserve;
  - Corindi River and Halfway Creek;
  - Local towns in the area include Arrawarra, Corindi Beach, Corindi, Red Rock, Upper Corindi and Halfway Creek; and
  - Local businesses and community infrastructure in the area include the Tourists Parks at Arrawarra, the Sewerage Treatment Plant, Blueberry Farms Australia, the businesses at Halfway Creek and the Bananacoast 24hr Towing and Salvage business.
- The scope of work being undertaken in this stage of the project by GHD includes:
  - Route Options Investigations;
  - Selection of Preferred Route; and
  - Concept Development.
- Activities that form part of the Options Development Process include:
  - Defining the Study Area;
  - Investigating the duplication of the existing highway;
  - Investigating the existing alignment;
  - Consideration of realignment options;
  - Consultation and specialist studies; and
  - Development of feasible options.
- Consultation to this point has included:
  - Engaging with Government Agencies and Community Groups;
  - Consultation activities such as:
    - Community Information Session (CIS)
    - Community Liaison Group (CLG) meetings
    - Ecological Focus Group (EFG) meetings
    - Public displays
    - Community Updates
- To aid in the development and assessment of various route options, specialist studies have been conducted in the Study Area including studies in:
  - Terrestrial Ecology
  - Aquatic Ecology
  - Indigenous Heritage
  - Non-Indigenous Heritage
  - Noise Assessment
  - Water Quality
  - Planning and Zoning Issues
  - Land Use
  - Hydrology and Hydraulics
  - Geotechnical Investigations
  - Social Effects
  - Urban Design, Landscape and Visual Assessment
  - Traffic Assessment

The Program – Where are we now – Steve Williamson

- Steve Williamson presented a diagram showing the program for the Woolgoolga to Wells Crossing Project. It indicated that corridor route options have been developed, short listed and placed on public display for comment (November-December 2005). This has been completed prior to the Value Management Workshop (VMW) – where we are now;
- The VMW which will be used to assess the corridor options, together with the specialist assessments undertaken by GHD and RTA, and the public submissions from the display will be used to assist in determining the preferred corridor option and lead to more detailed analysis in the next stage of the project;
- A Ministerial decision on the preferred option is expected to be made around mid 2006 which will be followed by preliminary alignment design and more specialist studies undertaken on the preferred route. Environmental studies will also be undertaken and submitted to the Department of Planning (DoP) for the Planning Minister's approval. There will be ongoing consultation with the Community Liaison Group, Ecological Focus Group and other stakeholders throughout the process.

What's Important about the Pacific Highway Upgrade: Woolgoolga to Wells Crossing

The group identified from their various perspectives (individually, then within focus groups and finally collectively) what was important about the highway upgrade project. The group recorded what was important (shown below) and then reflected on the collated list (in five focus groups). Although acknowledging that all items are important, the group indicated which items were considered more critical by marking them with an asterisk (✱) as shown below. (More than one asterisk indicates an allocation by more than one focus group. Also some items were considered linked, as noted, and only one of those items if considered more critical was asterisked).

No.	What's Important	Rating
1.	Minimise and mitigate impacts to wildlife corridors, key habitats, wetlands, floodplains and other key environmental features and water courses (such as the bed and banks)	✱✱✱✱✱
2.	Provide safe and consistent driving conditions in order to reduce crashes	✱✱✱✱
3.	Minimise noise impacts	✱✱
4.	Having lower operating costs for road users (*linked to Item No 35*)	
5.	Identify and protect Aboriginal objects and sites (potential known and unknown sites)	✱✱✱✱
6.	Minimise impacts on threatened species and Endangered Ecological Communities (EECs) (terrestrial and aquatic)	✱
7.	Provide safe, functional, adequate and strategic accesses to the new highway (eg. business and emergency services accesses)	✱
8.	Ensure agricultural and businesses including timber harvesting are not adversely (financially) impacted and that their visibility is maintained	✱✱
9.	Choose the option which delivers the best, long-term solution (*linked to Item No 25*)	✱
10.	Protect banana and agricultural land (*linked to Item No 8*)	
11.	Minimise acquisition of Department of Environment and Conservation (DEC) estates and other high value conservation land areas	
12.	Provide clear and specific signage	
13.	Appropriate compensation is provided for lifestyle loss (ie. impacts outside the corridor)	✱
14.	Constructed with the least delay (*linked to Item No 19*)	
15.	Acknowledge Indigenous bush food and medicine resources as part of flora and fauna conservation	✱
16.	Minimise impacts on recreation and commercial fishing stocks and access for fishermen	
17.	Provide service roads to separate local and through traffic (*linked to Item No 2*)	
18.	The chosen route achieves a balance of social, economic and environmental outcomes	✱

No.	What's Important (cont)	Rating
19.	The project is undertaken sooner rather than later (*linked to Item No 14*)	
20.	Minimise impact on the communities of Corindi town and Corindi Beach	
21.	The project achieves value for money	✱
22.	The solution is part of an integrated transport network	
23.	The approval process can be undertaken smoothly (clear and unambiguous process)	
24.	Maximises community consultation and support for the solution	✱
25.	The preferred route can be staged (*linked to Item No 9 & 27*)	✱✱✱
26.	Adequate rest areas and truck pullovers which allows separation of heavy and light vehicles	
27.	Focussing the upgrade works near populated areas (ie. Section A and B of the Study Area) if funding is limited (*linked to Item No 9 & 25*)	
28.	Focus on local users and freight traffic (ie. focus on regular local users)	
29.	Separating trucks from local traffic (*linked to Item No 2 & 17*)	✱
30.	Minimise impact on existing and planned future land use	✱
31.	Minimise impact on flooding and drainage lines (ie. maintaining environmental flows post construction)	
32.	Increasing Aboriginal employment through the APIC guidelines	
33.	Minimise impacts during construction(eg. noise, water quality, etc)	
34.	Ensuring there are wide enough shoulders for breakdowns	
35.	Improving travel time and reduce travel costs (*linked to Item No 4*)	✱
36.	Minimise water quality impacts during operations (ie. risks of spillage)	
37.	There is adequate capacity for all traffic users	
38.	Having Aboriginal "Welcome to Country" signs and explanation signage in rest areas	
39.	Maintain or improve air quality	
40.	Minimise disruption during construction – local safety issue (*linked to Item No 14*)	
41.	Consider pedestrians and cyclist access and safety	
42.	Minimise visual impact (ie. the view to the road from the surrounding community)	
43.	Consider cumulative impacts of the overall highway	

Upon reflection, the workshop group concurred that there was overlap in the list. However, the list reflected the items considered important that the project needs to address as planning proceeds. This "What's Important" list (as well as other information such as the project objectives) would later be used in the workshop to develop themes (and assessment criteria within those themes) to assess the various corridor options in each Section of the Study Area.

The Problem Situation

The group reflected on the background material for the workshop as well as from their own perspectives and identified the problems causing the need for a project (ie. the "Problem Situation"). These were recorded as a mix of the following:

- There is a mix of traffic types with different destinations and demands (ie. heavy & light vehicles, local & through traffic);
- The conflicts become worse during holiday periods;
- The risk of conflicts are at intersections and direct property access points resulting in reduced safety for people living in and around the Study Area as well as highway users;
- Horizontal and vertical alignment of the existing highway contains long lengths that do not comply with the current design criteria;
- Increased traffic volumes in the future will amplify the problem;

- As adjoining sections of the highway are improved, there is likely to be an increasing number of road accidents on these remaining unimproved sections of the highway; and
- Although not deemed to be part of the problem, it was noted that there is more local traffic in the southern part of the Study Area (ie. Corindi area to Woolgoolga) than in the northern part and that there is a need to carefully consider topography, noise, environmental issues, etc in any solution as well.

Program Objectives

The group reviewed the program objectives (ie. what must the program achieve to be successful) as stated in the Route Options Development Report and the Workshop Background Papers to ensure there was a common understanding as to what they were. The group agreed that objectives would address the problems if they were achieved.

The Pacific Highway Upgrade Program Objectives are:

- Significantly reduce road accidents and injuries;
- Reduce travel times;
- Reduce freight transport costs;
- Develop a route that involves the community and considers their interests;
- Have a route that supports economic development;
- Manage the upgrading of the route in accordance with ecologically sustainable development (ESD) principles; and
- Provide value for money.

Assumptions

The group (in focus groups) identified assumptions being made about the project from various perspectives. The assumptions recorded from each focus group were assessed by the whole group using the assessment table below. This allowed participants to further share information about the project and find out about the various views that are being held within the group.

Assessment Table

Key	Assessment Explanation
✓	It is safe to proceed with planning on the basis of this assumption
✱	There is some doubt or uncertainty about this assumption and it needs to be resolved as the project planning proceeds
✓/✱	Although considered safe to proceed on the basis of this assumption, the planning must be mindful of its impacts

Topics for each group gave focus to the assumptions identified. The topic for each focus group is listed below:

- **Focus group 1: Key Planning/Design Parameters**
- **Focus group 2: Community, Safety, Access, Heritage and Environment Assumptions**
- **Focus group 3: Local and Through Traffic, Commercial and Future Planning Assumptions**
- **Focus group 4: Big Picture Assumptions**

Each focus group's assumptions and the whole group's assessment (comments in italics where required) are listed below.

Focus group 1: Key Planning/Design Parameters

No.	Assumptions	Category
1.	Cater for 110km/h design speed (as per RTA criteria)	✓
2.	The Corridor is wide enough to allow the highway upgrade to a Class M standard road plus provide environmental controls and mitigation measures	✓
3.	There will be the capability to stage the project and build one carriageway at a time	✓
4.	The cuttings will be designed to minimise air quality impacts (ie. reduce grades, air flow, etc). *This may be so but it is too early at this stage to comment*	❋
5.	Intersection design will include protected lanes for acceleration/deceleration	❋
6.	Design to minimise headlight glare from opposing traffic flows	❋
7.	Avoid an alignment that creates potential for noise or visual impact. Where necessary incorporate good design rather than mitigation devices	❋
8.	Rest areas should be at adequate spacing, located away from sensitive receptors and be able to separate light and heavy vehicles. Also there is a need to provide bins. *This may be so but it is too early at this stage to comment*	❋
9.	Bridges will be designed to minimise impact on water courses and flooding	✓
10.	Reduce importation of materials/earthworks and balance where possible	❋
11.	Have frequent emergency vehicle turning bays	❋
12.	Minimise number of properties needing acquisition	✓
13.	Minimise impact on High Conservation Value (HCV) land and culturally significant lands	✓
14.	Consider local traffic needs and access requirements	✓

Focus group 2: Community, Safety, Access, Heritage and Environment Assumptions

No.	Assumptions	Category
Community		
1.	Amenity will be improved once the project is completed/built	❋
2.	There will be reduced amenity during construction	❋
3.	The community expects the highway to be upgraded	✓
4.	There will be increased awareness of the project during construction	✓
5.	The community assumes that the upgrade will be along the existing highway corridor	❋
6.	Connectivity between Corindi, Corindi Beach, Arrawarra etc will be maintained	✓
7.	Connectivity between Corindi, Corindi Beach, Arrawarra etc will be improved	❋
Safety		
8.	The project will provide safety improvements (ie. reduce number and severity of accidents, dual carriageway, guardrails, shoulders, etc)	✓
9.	There will be safer access to and from the highway	✓
10.	RTA and Coffs Harbour City Council will consider cycleways as part of the project	✓
11.	The ultimate solution (Class M) will reduce the mix of local and through traffic	✓
12.	There will be provision of adequate rest/lay by areas for all users *(uncertain as to who defines adequate)*	❋

Focus group 2: Community, Safety, Access, Heritage and Environment Assumptions (cont)

No.	Assumptions	Category
Access		
13.	There will be safe access to the highway on both sides of the road (interchange, underpasses, etc) in the ultimate (Class M) solution	✓
14.	There will be improved or maintained access and visibility to existing highway businesses	❋
15.	Accesses will be rationalised to improve safety	✓
16.	There will be a consolidation of accesses to high standard intersections in the ultimate (Class M) solution	✓
17.	Service roads will link the communities	❋
Heritage		
18.	Aboriginal input will be provided through appropriate site surveys (by site officers)	✓
19.	There will be employment for aboriginals during construction	❋
20.	There will be ongoing consultation with the Elders of the area (local representatives)	✓
21.	Consultation with DEC on the location and management of Aboriginal heritage sites. However impact to these sites may not necessarily be avoided	✓
22.	Non indigenous sites will be avoided and/or mapped and acknowledged	❋
Environment		
23.	There will be no impacts on SEPP 14 wetlands	❋
24.	There will be compensatory habitat if there are any losses of habitat	❋
25.	Wildlife underpasses and other appropriate infrastructure will be provided	✓
26.	There will be efforts to minimise impacts during construction (eg. water quality, habitat destruction, etc)	✓
27.	Only areas of lower environmental value will be affected	❋
28.	There will be adequate mitigation measures for threatened species put in place *(The group questioned as to what adequate meant and to whom it was adequate to – needs further resolution)*	✓
29.	There will be no significant redistribution of flood waters or natural drainage systems	✓/❋

Focus group 3: Local and Through Traffic, Commercial and Future Planning Assumptions

No.	Assumptions	Category
1.	That both through traffic, freight transport and local traffic will continue to grow	✓
2.	As a percentage, freight traffic will grow at a larger rate than local traffic	✓
3.	There will be population growth (particularly in the southern part) of the Study Area	✓
4.	The design will cater for increased traffic growth (ie. number of carriageways, intersection configuration, etc)	✓
5.	The Sapphire to Woolgoolga Section of the Upgrade will be completed before construction starts on this section of the highway	❋
6.	There is increased pressure for commercial development in the area (particularly in the southern part of the Study Area ie. Corindi Beach)	✓
7.	Agricultural enterprises will continue to expand	❋
8.	There is increased pressure for small rural residential development throughout the Study Area (particularly in the southern part of the Study Area)	✓
9.	Due to costs constraints, a Class A standard road for the highway will be built first (ie. before going to a Class M standard road)	❋
10.	There is likely to be an interchange (one) located between Corindi and Woolgoolga	✓

Focus group 3: Local and Through Traffic, Commercial and Future Planning Assumptions (cont)

No.	Assumptions	Category
11.	Future residential development and development adjacent to the highway will need to be designed to take existing and /or future traffic noise into account	✓
12.	For Class M standard roads, all at-grade access will be denied, apart from emergency services. *Can have access - left turn in/out with sufficient acceleration lane*	❋
13.	For Class A standard roads, there will be limited seagull type intersections with remaining accesses rationalised to be left turn in/out accesses	✓
14.	For Class A standard roads, there will be limited access to businesses (ie. left turn in/out only)	✓
15.	For Class M standard roads, there will be changed accesses to businesses through the provision of local service roads	✓

Focus group 4: Big Picture Assumptions

No.	Assumptions	Category
1.	The ultimate project will be a dual carriageway	✓
2.	The corridor will be suitable and wide enough to cater for a Class M standard road (ie. service roads, etc)	✓
3.	The project will be appropriately assessed under the Environmental Planning and Assessment (EPA) Act and others acts	✓
4.	The timing for construction is well into the future	✓
5.	It will be constructed as one project	❋
6.	Full consideration of indigenous heritage issues will be given during investigation of the preferred option	✓
7.	The project will fit in with the Pacific Highway Upgrade Program and be compatible with the sections to the north and south (ie. Sapphire to Woolgoolga and Wells Crossing to Iluka Road)	✓
8.	The preferred option will represent the best value for money *(to be determined)*	❋
9.	There is no predetermined preferred route	✓
10.	This project has broad community support	✓/❋
11.	There will be an increase in traffic over time in the area	✓
12.	Corindi and Arrawarra will continue to have a small population. There is no big population increases expected in Sections C, D and E of the Study Area	✓
13.	Sea level will rise which may cause a future flooding issue and road height concern – *The group was uncertain whether this is an issue*	❋
14.	Community sees the need for the highway upgrade	✓

Developing the Assessment Criteria

As a result of the information shared in the workshop to date (in particular, the “What’s Important” statements and the project objectives), a focus group consisting of a representative cross section of the workshop participants (ie. RTA, Council, CLG representative, government agencies, environmental representatives, Study Team, etc) clustered statements within a set of themes or perspectives in order to present to the whole group for comment, amendment and, if acceptable, endorsement to assess the various corridor options in each section of the Study Area.

The approach adopted was to:

(1) Take the list of "What's Important" statements and separate those which would not assist in differentiating between the corridor options. Some statements were expressed as objectives (*ie. being part of an integrated transport network, meeting Pacific Highway Program objectives, etc*), some referred to process *(ie. smooth approval processes, transparent and demonstrated justification, a balanced solution, etc)* and some statements were a common requirement for all options to meet *(ie. provide clear and specific signage, use of RTA design and engineering standards, financially viable, etc)*

(2) Cluster the remaining "What's Important" statements under three key themes or perspectives being: ***Functional; Social and Economic; and Natural and Cultural Environment***

(3) Develop summary statements from the consolidated "What's Important" list within each theme which could be used as assessment criteria to meaningfully compare and differentiate the corridor options within each Section of the Study Area

(4) Present the approach and the outputs to the workshop group for consideration, discussion, adjustment and endorsement

Agreeing to the "Non-Differentiators"

The focus group agreed the following "What's Important" statements would not help to differentiate between the corridor options

No.	What's Important – *but not assist in differentiating between Corridor Options*
7.	Provide safe, functional, adequate and strategic accesses to the new highway (eg. business and emergency services accesses)
9.	Choose the option which delivers the best, long-term solution
12.	Clear and specific signage is provided
13.	Appropriate compensation is provided for lifestyle loss (ie. impacts outside the corridor)
15.	Acknowledge Indigenous bush food and medicine resources as part of flora and fauna conservation
16.	Minimise impacts on recreation and commercial fish stocks and access for fishermen
18.	The chosen route achieves a balance of social, economic and environmental outcomes
21.	The project achieves value for money
22.	The solution is part of an integrated transport network
23.	The approval process can be undertaken smoothly (clear and unambiguous process)
24.	Maximises community consultation and support for the solution
26.	Adequate rest areas and truck pullovers with separating is provided
28.	Focus on local and freight traffic (ie. focus on regular users)
32.	Increasing Aboriginal employment through the APIC guidelines
34.	Ensuring there are wide enough shoulders for breakdowns
36.	Minimise water quality impacts during operations (ie. risks of spillage)
37.	There is adequate capacity for all traffic users
38.	Having Aboriginal "Welcome to Country" signs and explanation signs in rest areas
39.	Maintain or improve air quality
41.	Consider pedestrian plus cyclist access and safety
43.	Consider cumulative impacts of the overall highway

Note: Those items which were seen to be overlapping or linked with another statement were removed and not included in this list.

The focus group also noted that some statements although not used to determine a preferred option are subject to any recommendation made. These statements were noted as:

- In relation to Item No 1, that there is no loss of any "Centre of Endemism";
- In relation to Item No 5, that Aboriginal objects and sites are appropriately identified and managed;
- In relation to Item No 13, that appropriate compensation is provided for lifestyle loss;

- In relation to Item No 15, that Indigenous bush food and medicine resources are acknowledged as part of flora and fauna conservation; and
- In relation to Item No 39, that air quality is maintained or improved.

The remaining statements were considered as having the capacity to differentiate between options and clustered under the three themes/perspectives below and rephrased as assessment criteria for consideration by the whole workshop group. Also the focus group reflected on other material presented in the workshop (ie. Problem Situation, Program Objectives, etc) to ensure no other assessment criteria were required.

After review, comment and amendment by the whole workshop group, the assessment criteria within each of the three perspectives to evaluate the options later in the workshop were agreed as:

1. Functional Perspective

A) Relative safety performance during operation (eg. geometry, etc)

B) Relative safety during construction (eg. safety of constructing under traffic)

C) Improved travel time

D) Potential delays for road users during construction

E) Ability to gain benefits early (ie. staging)

2. Social and Economic Perspective

A) Number of access points to highway – *This item was deleted by the workshop group during discussion and not used as they were not able to differentiate corridor options using this criteria*

B) Differential noise for receivers (existing and those new to the noise)

C) Impacts on agricultural and forested lands

D) Impacts on commercial business

E) Extent of community severance

F) Number of dwellings and other structures threatened by the corridor

G) Visual impact of corridor from the local community viewpoint

3. Natural and Cultural Environment Perspective

A) Potential flooding implications to the environment

B) Extent of clearing of high conservation value vegetation (including riparian and aquatic ecosystems)

C) Impact on wildlife corridors

D) Impact on EECs and threatened species (terrestrial and aquatic)

E) Impact on significant aboriginal sites (registered and unregistered)

F) Relative environmental risk during construction (ie. no. and types of waterways crossed, steepness of slopes and batters, erodability, acid sulfate soils, etc)

Weighting of Assessment Criteria

Relative weightings for the assessment criteria within each perspective were undertaken qualitatively by the whole group using a paired comparison technique.

As discussed earlier, it should be noted that the workshop group removed the criteria “Number of access points to the highway” from the Social and Economic Perspective prior to undertaking the paired comparison of criteria. This criteria was removed after much discussion because it was believed that this was an issue for the design development stage rather than corridor selection stage of the project and could not be meaningfully used as a differentiating criteria between options.

Also, the paired comparison process resulted in some criteria receiving a score of zero. This should be interpreted as, the group believed the evaluation and recommendation of the preferred option would not rely on the performance of the option against this criteria even though the criteria is important and requires careful consideration during the next stage of the project development.

The discussion in undertaking the paired comparison process was extensive and allowed the group to understand and appreciate the various perspectives represented within the group. The final weightings were reached on a consensus basis. The group’s workings and their weightings of the assessment criteria for each perspective are shown below.

Functional Perspective – Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A.	Relative safety performance during operation	5.5	39%
B.	Relative safety during construction (eg safety of construction under traffic)	4.5	32%
C.	Improved travel time	1	7%
D.	Potential delays for road users during construction	-	-
E.	Ability to gain benefits early (ie. staging)	3	22%
	Total	**14**	**100%**

Scoring Matrix

The workings for the relative assessment are shown below.

	B	**C**	**D**	**E**
A	A/B	2A	2A	1A
B		1B	2B	1B
C			1C	2E
D				1E
E				

The extent one criteria was preferred by the group over another was indicated by using the scoring system below:

3. *Major Preference*
2. *Medium Preference*
1. *Minor Preference*

Summary

The weighting of the assessment criteria for Functional Performance using the paired comparison methodology indicated that the ***"Relative safety during operation"*** was the most important criteria followed by the ***"Relative safety during construction"*** and then followed by ***"Ability to gain benefits early"*** and then ***"Improved travel time"*** on the next level of importance. ***"Potential delays for road users during construction"*** although important was not considered as important as the other criteria when compared in pairs and scored zero.

Social and Economic Perspective – Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A.	*Deleted by the workshop group*	-	-
B.	Differential noise for receivers (existing and new to the noise)	3.5	18%
C.	Impacts on agricultural and forested lands	1.5	8%
D.	Impacts on commercial business	2	11%
E.	Extent of community severance	7	37%
F.	Number of dwellings and other structures threatened by the corridor	5	26%
G	Visual impact of corridor from the local community viewpoint	-	-
	Total	**19**	**100%**

Scoring Matrix

The workings for the relative assessment are shown below.

	C	D	E	F	G
B	1B	B/D	2E	1F	2B
	C	C/D	2E	2F	1C
		D	1E	1F	1D
			E	1E	1E
				F	1F

The extent one criteria was preferred by the group over another was indicated by using the scoring system below:

3. *Major Preference*
2. *Medium Preference*
1. *Minor Preference*

Summary

The weighting of the assessment criteria for Social and Economic Performance using the paired comparison methodology indicated that ***"Extent of community severance"*** was the most important criteria followed by the ***"Dwellings and other structures threatened by the corridor"*** and then ***"Differential noise for receivers"*** and ***"Impacts on commercial business"*** on the next level of importance and followed by ***"Impacts on agricultural and forested lands"*** as the next level of importance. ***"Visual impact of the corridor from the local community viewpoint"*** although important was not considered as important as the other criteria when compared in pairs and scored zero.

Natural and Cultural Environment – Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A.	Potential flooding implications to the environment	1	4%
B.	Extent of clearing of high conservation value vegetation	3	13%
C.	Impact on wildlife corridors	5	22%
D.	Impact on EECs and threatened species (terrestrial and aquatic)	5	22%
E.	Impact on significant aboriginal sites (registered and unregistered)	9	39%
F.	Relative environmental risk during construction	-	-
	Total	**23**	**100%**

Scoring Matrix

The workings for the relative assessment are shown below.

	B	C	D	E	F
A	1B	1C	1D	2E	1A
	B	1C	1D	1E	2B
		C	1D	2E	2C
			D	1E	2D
				E	3E

The extent one criteria was preferred by the group over another was indicated by using the scoring system below:

3. *Major Preference*
2. *Medium Preference*
1. *Minor Preference*

Summary

The weighting of the assessment criteria for the Natural and Cultural Environmental Performance using the paired comparison methodology indicated that the ***"Impact on significant Aboriginal sites"*** was the most important criteria followed by ***"Impact on wildlife corridors"*** and ***"Impact on EECs and threatened species"*** on the next level of importance followed by the ***"Extent of clearing of high conservation value vegetation"*** on the next level of importance and then ***"Potential flooding implications to the environment"*** as the next level of importance. ***"Relative environmental risk during construction"*** although important was not considered as important as the other criteria when compared in pairs and scored zero.

A summary of the weightings of the assessment criteria within the various themes as determined by the group appears below.

Assessment Criteria					
Functional		**Social and Economic**		**Natural & Cultural Environment**	
Criteria	**Wt**	**Criteria**	**Wt**	**Criteria**	**Wt**
Relative safety performance in operation	39%	Differential noise for receivers (existing and those new to the noise)	18%	Potential flooding implications to the environment	4%
Relative safety during construction	32%	Impacts on agricultural and forested lands	8%	Extent of clearing of high conservation value vegetation	13%
Improved travel time	7%	Impacts on commercial business	11%	Impact on wildlife corridors	22%
Potential delays for road users in construction	-	Extent of community severance	37%	Impact on EECs and threatened species	22%
Ability to gain benefits early	22%	Number of dwellings and other structures threatened by the corridor	26%	Impact on significant aboriginal sites (registered and unregistered)	39%
		Visual impact of the corridor from the local community viewpoints	-	Relative environmental risk during construction	-

These weighted assessment criteria would later be used to evaluate the corridor options for the project.

Having built a foundation and common understanding of the problems and issues, the objectives (what the project is to achieve), assumptions and the assessment criteria for corridor option evaluation, the group was now in a position to broadly review the options shortlisted for the project.

Appendix 3. Corridor Option Review, Evaluation and Recommendation

Corridor Option Review, Evaluation and Recommendation

Corridor Option Presentations

Mr Andrew Geddes, Project Manager of the Study Team, GHD presented key comparisons to the group of the shortlisted corridor options being considered. Key points made in his presentation are outlined below.

- For the purposes of identifying and assessing corridor options, the 28 km long Study Area has been divided into 5 Sections from south to north (see **Figure 1**):
  - **Section A** – Arrawarra Creek (Start Point) to Tasman Street intersection
  - **Section B** – Tasman Street intersection to 500 metres south of Barcoongere Way
  - **Section C** – 500 metres south of Barcoongere Way to 400 metres south of Falconers Lane
  - **Section D** – 400 metres south of Falconers Lane to Lemon Tree Road intersection
  - **Section E** – Lemon Tree Road intersection to Bald Knob Tick Gate Road (End Point)
- A number of corridor options have been investigated within the Study Area. As a result a short list of four corridor options for the upgrade of the highway has been placed on public display with public submissions being sought
- The development of the four short listed options along with the findings of the preliminary environmental and engineering investigations undertaken within the Study Area have been documented in the RTA's *Pacific Highway Upgrade – Woolgoolga to Wells Crossing: Route Options Development Report* (RTA/Pub 05.219, October 2005). The four corridor options placed on public display are identified as:

  Blue Option – Corridor around duplication of the existing highway

  - For the majority of the route, the Blue Option involves the duplication of the existing highway by constructing one new carriageway and using the existing highway as either a southbound or northbound carriageway. Where duplication of the existing highway is proposed the existing highway would be upgraded to meet current Pacific Highway Upgrade design standards. Where new road alignments are proposed, eg. through the Corindi River floodplain and Dirty Creek Range, two new carriageways would be constructed
  - 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 the Pacific Highway Halfway Creek Duplication, and ends at Bald Knob Tick Gate Road (north of Wells Crossing)

  Green Option – Corridor around duplication of the existing highway and realignment

  - For the majority of the route, the Green Option involves the duplication of the existing highway by constructing one new carriageway and using the existing highway as either a southbound or northbound carriageway. Where duplication of the existing highway is proposed the existing highway would be upgraded to meet current Pacific Highway Upgrade design standards. Where new road alignments are proposed, eg. around Corindi and Dirty Creek Range, two new carriageways would be constructed
  - 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)

  Purple Option – Corridor around duplication of the existing highway and realignment

  - 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 highway would be upgraded to meet Pacific Highway Upgrade design standards. This option would allow the existing highway to be used as a local access road

- 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 0.5km north of Luthers Road and ends at Bald Knob Tick Gate Road (north of Wells Crossing)

Orange Option – Corridor around realignment of the existing highway

- 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 would be upgraded to meet Pacific Highway Upgrade design standards. This option could allow for some sections of the existing highway to be used as a local access road
- 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 1.5km north of Corindi and follows this alignment to about 0.5km 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 0.5km north of Luthers Road and ends at Bald Knob Tick Gate Road (north of Wells Crossing)

- Each option is defined as a 250 metre wide corridor. Why a 250m wide corridor? Because:
  - Investigation zone initially;
  - Flexibility and space for alignment options (either left, right or centre of the corridor); and
  - The preferred route corridor will eventually be 100m-150m wide and will include batters, water quality ponds and local access roads.
- Preliminary road alignments within these four corridor options have also been developed and investigated by GHD. In developing the road alignments, it became evident that there existed two distinct common sections within the Study Area in which all four options co-existed. These common sections (or common corridors) occur in the following locations:
  - ***Common Corridor No. 1*** – Section A (as described above), approx. length: 3.5 km
  - ***Common Corridor No. 2*** – Section D and part of Section E (as described above), approx. length: 7.8 km
- In other sections, two or more of the corridor options were common. Where the options differ are:
  - In **Section B** – Blue, Green, Purple and Orange Options
  - In **Section C** – Blue, Green and Purple/Orange (common) Options
  - In **Section E** – Blue and Green/Purple/Orange (common) Options
- The location of the four options, the common corridors and key features of each route option are shown in **Figure 1**. Key differentiators in each section are:

Section B

- Flooding
- Length of road
- Construction under traffic
- Crossovers
- Soft Soils
- Staging
- Traffic through Corindi Beach
- Vegetation Clearing
- Indigenous Heritage
- Noise
- Acid Sulfate Soils
- Community Severance
- Property Impact
- Buildings Impacted

Section C

- Length of road

- Construction under traffic
- Crossovers
- Steep Grades
- Depth of Cuts
- Staging
- Vegetation Clearing
- Noise
- Community Severance
- Property Impact
- Buildings Impacted
- Impact on State Forest

Section E

- Length of road
- Construction under traffic
- Re-use of existing alignment
- Vegetation Clearing
- Noise
- Property impact
- Structures impacted
- Regional wildlife corridors
- Impact on Flora Reserve

- A table outlining the advantages and disadvantages as appeared in the background paper distributed prior to the workshop can be found in **Appendix 4**.(It should be noted that some of this data was updated and clarified during the workshop).

Suggested Improvements for Further Consideration

Having listened to the presentation of various aspects of the shortlisted corridor options, the workshop group identified potential improvements for consideration during the next stage of development as planning proceeds.

Potential improvements for consideration as identified by the group were recorded as:

Section B

- Consider moving the Orange Option further to the east and north of Corindi Village but still remain to the west of the village;
- Provide more information on vegetation issues (ie. types, etc);
- More information required on extent of Aboriginal heritage sites – ensure avoidance of sacred sites;
- Consider moving the northern end of the Orange Option to straighten the route and use the existing highway as a service road which will enhance community consolidation (Corindi Village and Corindi Beach);
- Attempt to minimise the number of severed parcels and dwellings;
- Attempt to minimise the impact on productive land;
- Consider moving the Green Option further to the west of Corindi Village (to reduce the severance effect on Corindi Village and Corindi Beach); and
- Consider using the Blue Option in the south and then moving onto the Orange Option after passing the Corindi River. Consider moving the Orange Option even further west around the Corindi village (noting that there may be an issue with Aboriginal heritage/findings in this area).

Section C

- More information required on vegetation mapping and corridor clearing on the Blue Option and the implications to the State Forest Management Zones (mainly with the Green Option);
- Consider straightening the Orange Option in the south of the section to avoid the quarry (on the western side) and the forested land (requires an initial climb at the southern end);
- Maintain the present highway as a service road from Range Road to Tasman Street (near the Amble Inn at Corindi Village);

- Consider tunnelling through the steeper section of the Green Option to minimise/lower visual impacts; and
- Consider straightening the Blue Option from Range Road to the south and use the existing highway as a local service road.

Section E

- Investigate impacts on Aboriginal cultural heritage areas (at the southern end);
- More ecological information is required in this section;
- Difficult to understand impacts on businesses in this area (ie. changes to access, loss of visibility, loss of direct access, etc); and
- Consider moving the corridors to avoid impacts to Aboriginal sites at the southern end of this section. However, this may cause impacts on houses in the area.

The challenge for the Study Team will be to further investigate and resolve these issues as the project planning proceeds.

Community Feedback Summary

Ms Nicole Martyres, Community Liaison Officer, GHD presented to the group a summary of findings from the written submissions and feedback forms received during the display of Route Options. Key points raised in her presentation included:

- Consultation activities included:
  - Letters to/from potentially affected property owners (touched or within one or more of the 250m wide corridors), from statutory authorities and from CLG and EFG members;
  - Community updates sent to all property owners and properties within the Study Area;
  - Flyers at commercial centres along the route;
  - Phone calls to potentially affected property owners;
  - A website which was regularly updated;
  - Advertisements and media releases;
  - Community Liaison Group (CLG) and Environmental Focus Group (EFG) meetings with bus tours;
  - Meetings with potentially affected property owners and businesses; and
  - Council briefings.
- Static displays were held at:
  - RTA Pacific Highway Office, Grafton;
  - Coffs Harbour City Council Offices;
  - Grafton Library;
  - Woolgoolga Library;
  - Corindi Beach Post Office;
  - Red Rock Post Office; and
  - United Service Station.
- Staffed displays were held at:
  - Woolgoolga Seniors Centre;
  - Red Rock Multi Use Centre; and
  - Park Beach Plaza.
- Feedback mechanisms included:
  - Project information line (1800 154 724);
  - E-mail;
  - Fax;
  - Reply paid address;
  - Feedback forms;
  - Online feedback forms; and
  - Meetings.
- A summary of submissions included:
  - 133 feedback forms;
  - 2 online feedback forms; and
  - 9 letters.
- Feedback from statutory authorities included:

- Marine Parks Authority:
  - Key concerns – Maintaining water quality and preservation of habitat in tidal areas and catchments of the Solitary Islands Marine Park (SIMP);
  - Sections A & B traverse Arrawarra Creek and the Corindi River, which form part of the SIMP;
  - The Orange Option in Section B has least impact on the SIMP;
  - Less habitat destruction associated with upgrading the existing highway; and
  - Consider measures to minimise impacts to water quality during construction and reduce harm to SIMP from pollution incidents once the upgraded highway is operational (eg. detention structures, contingency plans, etc).
- Department of Primary Industries:
  - From an agriculture perspective – No obvious significant impacts on agriculture or the notable agricultural businesses. Consider property specific impacts, property access arrangements and rural residential uses;
  - From a fisheries perspective – Minimise impacts on fishing activity, fish and aquatic habitat;
  - From a mineral resources perspective – Petroleum exploration license covers an area in the vicinity of Dirty Creek Range. There is potential for coal, oil and gas to the north. There are potential for impacts on quarries (two lie under options and access to the others would be affected). Access should be provided onto the highway at Dirty Creek Range; and
  - From a State Forest perspective – Impact on conservation and commercial values of forests and fragmentation of forests and habitats. Prefer options that maximise use of existing corridor in Sections A & E. The Green Option is least preferred in Section C.
- Coffs Harbour City Council:
  - From an access perspective – Positioning of intersections, interchanges and U turns, so as to avoid long/indirect routes to gain access to the highway;
  - From a public transport/cycleway perspective – Provision for inter city and school bus service and provision of an off road bicycle path linked to NSW coastline cycleway project;
  - From a drainage perspective – Minimise effects on existing drainage and groundwater conditions;
  - From a noise perspective – Consideration of noise impacts on existing and future residential areas and noise minimisation and mitigation measures; and
  - Other issues included impacts on acid sulfate soils, heritage, wildlife corridors, flora and fauna, impacts on agricultural industries.
- Department of Environment and Conservation:
  - From a biodiversity perspective – The Orange and Green Options are most likely to adversely affect key flora and fauna habitats. DEC favours the Blue Option as it is likely to have less impact. The Orange Option bisects designated wildlife corridors and key habitats. There is concern about edge effects of widening in Sections D and E;
  - From a cultural heritage perspective – The Significance of Dirty Creek Range needs to be assessed. The importance of the coast range to local Aboriginal people (Gumbaingirr people) including Browns Knob and Cabbage Tree Mountain needs to be considered. Other areas to be considered include Station Creek High Dunes Burial Grounds, Green Hills and Red Rock;
  - From a road traffic noise perspective – The Blue Option has least impact, especially if linked with Section C of the Purple or Orange Option; and
  - From a water quality perspective – All options in Sections A & B have potential to directly or indirectly degrade the quality of SEPP 14 wetlands, estuarine wetlands and the Corindi floodplains. There is potential for habitats along Halfway Creek to be adversely affected by Orange, Green & Blue Options.

- Key issues raised by the community included road safety and improved travel times, noise impacts and the need to separate traffic. The response to the question which route best addresses the issues, 64% of responses indicated the Orange Option. However, the overwhelming number of responses came from people who lived in and around Corindi Beach (ie. 73% of feedback forms returned were from people who lived in Section B). 62% of respondents selected that their key area of interest was Section B and that Orange as their preferred option. Some respondents selected more than one option as the option which best meets the issues. This may have been because they may have selected one option for one section and another option for another section.
- A general overview of likes/dislikes of options was presented which was not exhaustive, but gave an indication of what people said about the options.
- A general overview of other issues raised was tabled which again was not exhaustive, but gave an indication of the issues that are important to the community.

Assessment of Corridor Options

Having reviewed the shortlisted corridor options and discussed their advantages and disadvantages as well as potential improvements to be considered by the Study Team as planning proceeds, the group was now in a position to assess the corridor options against the assessment criteria under the three key themes/perspectives developed earlier in the workshop.

Due to the commonality of some of the corridor options in some sections, it should be noted that the corridor options evaluated in each section were:

- In **Section B** – Blue, Green, Purple and Orange Options
- In **Section C** – Blue, Green and Purple/Orange (common) Options
- In **Section E** – Blue and Green/Purple/Orange (common) Options

The group (in three focus groups) evaluated the corridor options in each Section using the considerations and prompts for each of the key perspectives being Functional; Social and Economic; and, Natural and Cultural Environment. For instance, one focus group assessed the corridor options against the functional perspective, whilst a second focus group assessed the corridor options against the social and economic perspective, and so on. It should be noted that each focus group was (as much as possible) a representative cross section of the workshop participants (ie. a mix of community, council, government agencies, RTA and Study Team representatives, etc).

The options were assessed relatively on a qualitative basis of how well each option met each criteria in each perspective on a scale of Excellent **(E)**, Very Good **(VG)**, Good **(G)**, Fair **(F)** or Poor **(P).**

Once the qualitative evaluation was completed, the evaluation was scored using the weightings of the criteria and establishing a ranking for each option within that perspective.

It should be noted that where the difference in score between options was not greater than the value of the highest weighted criteria within that perspective, the options were considered equally ranked as the difference in score was not considered significant enough to differentiate between them.

Each focus group discussed their findings and recorded their observations and conclusions as a result of their deliberations.

The findings of each focus group was presented to the whole group for discussion, amendment (if necessary) and finally endorsement (if appropriate) as to an agreed assessment to assist the group move forward. Their findings as presented (together with amendments) and agreed by the whole group are listed below.

Assessment of Corridor Options within the Functional Perspective

Section B			Functional Perspective									
	Assessment Criteria		Safety performance in operation	Safety during construction	Improved travel time	Ability to gain benefits early						
			ASSIGNED WEIGHT									
OPTIONS	WT		**39**	**32**	**7**	**22**						
Orange	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**1**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**195**	**160**	**35**	**44**						**434**
Purple	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**2**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**156**	**96**	**21**	**66**						**339**
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**4**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**117**	**64**	**21**	**88**						**290**
Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**2**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**156**	**128**	**14**	**66**						**364**

Section C

			Functional Perspective									
	Assessment Criteria		Safety performance in operation	Safety during construction	Improved travel time	Ability to gain benefits early						
			ASSIGNED WEIGHT									
OPTIONS	WT		**39**	**32**	**7**	**22**						
Orange & Purple	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**2**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**117**	**128**	**14**	**88**						**347**
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**3**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**117**	**96**	**21**	**44**						**278**
Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**1**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**156**	**160**	**35**	**88**						**439**

Section E

			Functional Perspective									
	Assessment Criteria		Safety performance in operation	Safety during construction	Improved travel time	Ability to gain benefits early						
			ASSIGNED WEIGHT									
OPTIONS	WT		**39**	**32**	**7**	**22**						
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**2**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**117**	**96**	**21**	**66**						**300**
Orange, Purple, Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**1**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**156**	**128**	**21**	**66**						**371**

Key Observations

Section B

- In relation to the criteria “Relative safety performance in operation”, the Orange Option provided the straightest alignment. Whereas the Blue Option has two gentle curves and the Green and Purple Options have one each.
- In relation to the criteria “Relative safety during construction”, the Blue Option has more direct impact during construction (ie. closer to existing highway).
- In relation to the criteria “Improved travel time”, the Orange Option is the shortest route so travel time is shorter.
- In relation to the criteria “Ability to gain benefits early”, a potential suggestion could be to build one carriageway on the Orange Option alignment and use the existing highway for the other carriageway as a stage to the ultimate solution. However, there was debate as to if this was possible.

Section C

- In relation to the criteria “Relative safety performance in operation”, the Green Option has the best overall geometric alignment.
- In relation to the criteria “Relative safety during construction”, the Purple/Orange Option has approximately 12m cuts needed at Range Road, therefore more potential conflict during construction.
- In relation to the criteria “Improved travel time”, the Green Option is 18% shorter than the existing highway while the Blue Option is 11% shorter and Purple/Orange Option is 6% shorter.
- In relation to the criteria “Ability to gain benefits early”, there is potential to build one carriageway and use the existing highway for the other carriageway on the Green and Purple/Orange Options.

Section E

- In relation to the criteria “Relative safety performance in operation”, the Green, Purple and Orange Options have the same straight alignment.
- In relation to the criteria “Relative safety during construction”, the Orange, Green and Purple Options can be built “off line” and therefore reduce conflict with existing traffic.
- In relation to the criteria “Improved travel time”, time travel between options is basically the same.
- All options have very similar potential to stage.

Assessment of Corridor Options within the Social and Economic Perspective

Section B	Social & Economic Perspective											
	Assessment Criteria		Differential noise for receivers	Impacts on agricultural & forested lands	Impacts on commercial business	Extent of community severance	No. dwellings & other structures threatened					
			ASSIGNED WEIGHT									
OPTIONS	WT		**18**	**8**	**11**	**37**	**26**					
Orange	5		E	E	E	E	E	E	E	E	E	RANK
	4		(VG)	VG	VG	(VG)	VG	VG	VG	VG	VG	
	3		G	G	G	G	(G)	G	G	G	G	**1**
	2		F	F	(F)	F	F	F	F	F	F	
	1		P	(P)	P	P	P	P	P	P	P	
	Sub Total		**72**	**8**	**22**	**148**	**78**					**328**
Purple	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	(G)	G	G	G	G	G	G	G	**3**
	2		(F)	F	F	F	F	F	F	F	F	
	1		P	P	(P)	(P)	(P)	P	P	P	P	
	Sub Total		**36**	**24**	**11**	**37**	**26**					**134**
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	(G)	G	G	G	G	G	G	G	**3**
	2		(F)	F	F	F	F	F	F	F	F	
	1		P	P	(P)	(P)	(P)	P	P	P	P	
	Sub Total		**36**	**24**	**11**	**37**	**26**					**134**
Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	(G)	G	G	G	G	**2**
	2		(F)	(F)	F	(F)	F	F	F	F	F	
	1		P	P	(P)	P	P	P	P	P	P	
	Sub Total		**36**	**16**	**11**	**74**	**78**					**215**

Section C

			Social & Economic Perspective									
	Assessment Criteria		Differential noise for receivers	Impacts on agricultural & forested lands	Impacts on commercial business	Extent of community severance	No. dwellings & other structures threatened					
			ASSIGNED WEIGHT									
OPTIONS	WT		**18**	**8**	**11**	**37**	**26**					
Purple & Orange	5		E	E	E	E	E	E	E	E	E	RANK
	4		(VG)	VG	VG	VG	(VG)	VG	VG	VG	VG	
	3		G	(G)	G	G	G	G	G	G	G	**1**
	2		F	F	F	(F)	F	F	F	F	F	
	1		P	P	(P)	P	P	P	P	P	P	
	Sub Total		**72**	**24**	**11**	**74**	**104**					**285**
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	(VG)	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**3**
	2		(F)	(F)	(F)	F	F	F	F	F	F	
	1		P	P	P	(P)	P	P	P	P	P	
	Sub Total		**36**	**16**	**22**	**37**	**104**					**215**
Green	5		E	E	E	E	(E)	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	(G)	(G)	G	G	G	G	G	**1**
	2		(F)	F	F	F	F	F	F	F	F	
	1		P	(P)	P	P	P	P	P	P	P	
	Sub Total		**36**	**8**	**33**	**111**	**130**					**318**

Section E

			Social & Economic Perspective									
	Assessment Criteria		Differential noise for receivers	Impacts on agricultural & forested lands	Impacts on commercial business	Extent of community severance	No. dwellings & other structures threatened					
			ASSIGNED WEIGHT									
OPTIONS	WT		**18**	**8**	**11**	**37**	**26**					
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	(G)	G	G	G	G	G	G	G	**2**
	2		(F)	F	F	(F)	F	F	F	F	F	
	1		P	P	(P)	P	(P)	P	P	P	P	
	Sub Total		**36**	**24**	**11**	**74**	**26**					**171**
Orange, Blue, Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		(G)	G	G	(G)	G	G	G	G	G	**1**
	2		F	(F)	F	F	(F)	F	F	F	F	
	1		P	P	(P)	P	P	P	P	P	P	
	Sub Total		**54**	**16**	**11**	**111**	**52**					**244**

Section 3

Key Observations

Section B

- In relation to the criteria “Differential noise for receivers”, the assessment of noise is based on weighted values, but it is acknowledged that increased impacts will occur on new exposed residences (ie. greater difference in background noise levels).
- In relation to the criteria “Impacts on agricultural and forested lands”, there is no State Forest in the section. Agricultural lands are grazing lands and potential blueberry farms to the north.
- In relation to the criteria “Impacts on commercial business”, no direct access currently exists to commercial business. The impacts on the “Amble Inn” are dependent on the interchange location.
- In relation to the criteria “Extent of community severance”, the Blue and Purple Options make severance marginally worse than the status quo. The Green Option still creates some severance between Corindi and Corindi Beach. The Orange Option maintains some separation.
- In relation to the criteria “Number of dwellings and other structures impacted”, the impacts on dwellings etc are based on a 250 metre corridor, and it needs to be acknowledged that some dwellings may not be directly impacted within the 250 metre investigation corridor.

Section C

- In relation to the criteria “Differential noise for receivers”, the noise receivers (as shown in the GIS) may not be dwellings, consideration was based on distances and not topography. Assessment for noise is based on weighted values.
- In relation to the criteria “Impacts on agricultural and forested lands”, Newfoundland State Forest impacted and can be harvested but difficult due to steep topography and environmental attributes.
- In relation to the criteria “Impacts on commercial business”, businesses include quarries (inactive). Also commercial businesses are not passing trade businesses. Continuing access to businesses (eg. blueberry farm) is a given. Only established businesses were considered in the assessment.
- In relation to the criteria “Extent of community severance”, Dirty Creek community considered as whole, for severance purposes. If access is maintained within the community then severance issues are less.
- In relation to the criteria “Number of dwellings and other structures impacted”, the impacts on dwellings etc are based on a 250 metre corridor, and it needs to be acknowledged that some dwellings may not be directly impacted within the 250 metre investigation corridor.

Section E

- In relation to the criteria “Differential noise for receivers”, the assessment for noise is based on weighted values, but acknowledged there are small differences between the scores.
- In relation to the criteria “Impacts on agricultural and forested lands”, the Blue Option has no significant acquisition required from commercial/agriculture business. The Rose Farm to be considered as a commercial business.
- In relation to the criteria “Impacts on commercial business”, access will continue but it will change for businesses in the area (ie. not direct access to highway). Impacts on Banana Coast Towing considered equal between options. Also advice not received from lessees of impacted properties (eg. petrol station) – which needs to be considered.
- In relation to the criteria “Extent of community severance”, severance issues relate to the connectivity of Parker Road and Kungala Road.
- In relation to the criteria “Number of dwellings and other structures impacted”, the impacts on dwellings etc are based on a 250 metre corridor, and it needs to be acknowledged that some dwellings may not be directly impacted within the 250 metre investigation corridor.

Assessment of Corridor Options within the Natural and Cultural Environment Perspective

Section B	Natural & Cultural Environment Perspective											
	Assessment Criteria		Potential flooding implications	Extent of clearing HCV vegetation	Impact on wildlife corridors	Impact on EECs & threatened species	Impact on significant Aboriginal sites					
			ASSIGNED WEIGHT									
OPTIONS	WT		**4**	**13**	**22**	**22**	**39**					
Orange	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		(G)	(G)	G	G	G	G	G	G	G	**4**
	2		F	F	F	F	(F)	F	F	F	F	
	1		P	P	(P)	(P)	P	P	P	P	P	
	Sub Total		**12**	**39**	**22**	**22**	**78**					**173**
Purple	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	(G)	(G)	(G)	G	G	G	G	**1**
	2		(F)	(F)	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**8**	**26**	**66**	**66**	**117**					**283**
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	(VG)	VG	VG	VG	VG	VG	
	3		G	G	(G)	G	(G)	G	G	G	G	**1**
	2		(F)	F	F	F	F	F	F	F	F	
	1		P	(P)	P	P	P	P	P	P	P	
	Sub Total		**8**	**13**	**66**	**88**	**117**					**292**
Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	(G)	G	(G)	G	G	G	G	**3**
	2		(F)	F	F	(F)	F	F	F	F	F	
	1		P	(P)	P	P	P	P	P	P	P	
	Sub Total		**8**	**13**	**66**	**44**	**117**					**248**

Section C

	Natural & Cultural Environment Perspective											
	Assessment Criteria		Potential flooding implications	Extent of clearing HCV vegetation	Impact on wildlife corridors	Impact on EECs & threatened species	Impact on significant Aboriginal sites					
			ASSIGNED WEIGHT									
OPTIONS	WT		**4**	**13**	**22**	**22**	**39**					
Purple & Orange	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	(VG)	VG	VG	VG	VG	VG	
	3		G	(G)	(G)	G	G	G	G	G	G	**1**
	2		F	F	F	F	(F)	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total			**39**	**66**	**88**	**78**					**271**
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	(G)	(G)	G	G	G	G	**2**
	2		F	(F)	(F)	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total			**26**	**44**	**33**	**117**					**220**
Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**3**
	2		F	F	F	F	F	F	F	F	F	
	1		P	(P)	(P)	(P)	(P)	P	P	P	P	
	Sub Total			**13**	**22**	**22**	**39**					**96**

Section E

	Natural & Cultural Environment Perspective											
	Assessment Criteria		Potential flooding implications	Extent of clearing HCV vegetation	Impact on wildlife corridors	Impact on EECs & threatened species	Impact on significant Aboriginal sites					
			ASSIGNED WEIGHT									
OPTIONS	WT		**4**	**13**	**22**	**22**	**39**					
Blue	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	(G)	G	(G)	(G)	G	G	G	G	**1**
	2		F	F	(F)	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total			**39**	**44**	**66**	**117**					**266**
Orange, Purple, Green	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	
	3		G	G	G	G	G	G	G	G	G	**2**
	2		F	F	F	F	F	F	F	F	F	
	1		P	(P)	(P)	(P)	(P)	P	P	P	P	
	Sub Total			**13**	**22**	**22**	**39**					**96**

Key Observations

Section B

- In relation to the criteria "Potential flooding implications to the environment", the shortest length of corridor will have the least impact and require less structures.
- In relation to the criteria "Extent of clearing of high conservation value vegetation", did not include EEC (assessed separately), included vegetation on all tenures including riparian vegetation (not EEC).
- In relation to the criteria "Impact on wildlife corridors", all impact two corridors. The Orange Option creates new fragmentation impacts (using DEC wildlife corridor data).
- In relation to the criteria "Impact on EECs and threatened species", used the mapped EEC (potential) and local knowledge of the focus group to make an assessment. Assumed where there are high impacts on EEC (and high conservation habitat) there will also be high impact on threatened species. Also on the floodplain, need to recognise that threatened species occur here (ie. Black-necked stork, Brolga, etc).
- In relation to the criteria "Impact on significant Aboriginal sites", the Orange Option has the potential to impact on known significant site. Assumed the Orange Option should not move further west. The Orange Option would be rated only "fair" – subject to not moving further west. It would rank higher if modified between Kangaroo Trial Road and the Corindi River (ie. moving further to the east in consultation with the local Aboriginal community).

Section C

- In relation to the criteria "Potential flooding implications to the environment", flooding is not an issue for this section.
- In relation to the criteria "Extent of clearing of high conservation value vegetation", the Purple/Orange is good since it:
  - Keeps disturbance separate from the habitat areas
  - Protects other habitat types (eg. rock outcrops)
  - Less impact on aquatic "wet" habitats
  - Less fragmentation
  - Does not impact on forest that can not be harvested
- In relation to the criteria "Impact on wildlife corridors", the focus group considered the role of State Forest in connecting wildlife corridors (in addition to DEC mapped corridors).
- In relation to the criteria "Impact on significant Aboriginal sites", there are no specific sites recorded or known (at this stage). However, the Blue Option goes through less disturbed land.

Section E

- In relation to the criteria "Potential flooding implications to the environment", flooding is not a factor that could be used to distinguish between the route options in this section.
- In relation to the criteria "Extent of clearing of high conservation value vegetation", native vegetation has been already removed (total).
- In relation to the criteria "Impact on wildlife corridors", the Blue Option is better than the other options because it traverses less fauna corridor.
- In relation to the criteria "Impact on EECs and threatened species", EEC not measured, so the focus group used threatened species records (DEC database) in this area to make the assessment. Because the Blue Option follows the existing highway and less clearing of native vegetation, it is likely to have less impact on threatened species.
- In relation to the criteria "Impact on significant Aboriginal sites", the Blue Option appears better because it has:
  - Less impact on disturbed land
  - Less impact on Aboriginal owned land
  - Culturally significant land

Summary of Strategic Project Cost Estimates

As concept project cost estimates were still to be determined, preliminary information was presented to the workshop to give an understanding of the relative nature of the capital costs of the various corridor options in each section for comparative purposes.

The strategic project cost estimates included:

- Project development costs
- Investigation and design costs
- Property acquisition costs
- Public utility adjustments costs
- Construction costs
- Handover costs

The strategic project cost estimates for the ultimate road solution for comparison purposes only appear below as presented to the group.

Section & Corridor Options	Strategic Estimate ($ million)
Section B	
Orange Option	**90**
Purple Option	**115**
Blue Option	**120**
Green Option	**105**
Section C	
Purple/Orange Option	**65**
Blue Option	**55**
Green Option	**60**
Section E	
Blue Option	**100**
Purple/Orange/Green Option	**85**

Summary of Corridor Option Assessment Rankings

A summary of the rankings of the corridor options against the various perspectives together with the strategic cost estimates presented earlier appears below.

Section B

Corridor Option	Assessment Perspective			
	Functional	Social & Economic	Natural & Cultural Environment	Cost ($M)
Orange Option	1	1	4	90
Purple Option	2	3	1	115
Blue Option	4	3	1	120
Green Option	2	2	3	105

Section C

Corridor Option	Assessment Perspective			
	Functional	Social & Economic	Natural & Cultural Environment	Cost ($M)
Purple & Orange Option	2	1	1	65
Blue Option	3	3	2	55
Green Option	1	1	3	60

Section E

Corridor Option	Assessment Perspective			
	Functional	Social & Economic	Natural & Cultural Environment	Cost ($M)
Blue Option	2	2	1	100
Orange, Purple, Green Option	1	1	2	85

Recommending a Preferred Direction

As a result of the work undertaken above, the group (in focus groups) was asked "Which corridor option should be recommended as the preferred option to move forward for refinement and more detailed investigation to progress the project as well as the reasons why". However, the preference is "subject to" certain identified issues being addressed. It should be noted that each focus group was (as much as possible) a representative cross section of the workshop participants (ie. a mix of community, council, government agencies, RTA and Study Team representatives, etc).

One focus group examined Section B of the Study Area, another focus group examined Section C and the third focus group reviewed Section E. Their findings were then discussed, amended (if required) and finally agreed as to the direction forward by the whole group.

The focus group conclusions as agreed by the whole group are recorded below.

Focus group examining Section B

We recommend the Orange Option as the preferred corridor in Section B to move forward
Because:

- It has the highest assessment in terms of functionality and social & economic criteria; and
- It has the ability to improve its environmental performance by some slight alignment adjustments at the southern end of the Section.

Subject to:

- Minimising/avoiding impacts to the Aboriginal site adjacent to the corridor between Kangaroo Trail Road and the Corindi River; and
- Confirmation of no new significant impacts to the functional, social, economic or environmental performance/values as a result of the southern adjustment.

In addition, further improvements to the Orange Option may arise in relation to Section C so it would be prudent to:

- *Investigate the opportunity to straighten the alignment (ie move further to the west) at the northern end pending the recommended corridor in Section C.*

Focus group examining Section C

We recommend the Orange/Purple Option as the preferred corridor in Section C to move forward
Because:

- It has a consistently higher ranking, on average, across the criteria categories;

- Cost variations between options at this strategic level are not considered to be significant;
- It has greater opportunity to improve the alignment if considered desirable after further investigations; and
- There is a greater level of confidence in minimising potential environmental and Aboriginal heritage impacts compared to the other corridors (ie. using the "precautionary principle"). It should be noted that it is better than the Green Option but not as good as the Blue Option.

Subject to:

- Further environmental and cultural heritage investigations being undertaken.

In addition, further improvements to the Orange/Purple Option may arise in relation to Section B so it would be prudent to:

- *Examine the feasibility of the Orange/Purple corridor option being realigned to the west at the southern end of Section C.*

Focus group examining Section E

We recommend the Orange/Purple/Green Option as the preferred corridor in Section E to move forward

Subject to:

- Moving the corridor closer to the existing highway corridor to minimise clearing (ie. further aligning to the west);
- Minimising the proximity of the corridor to culturally sensitive lands;
- Further negotiations with the Local Aboriginal Land Council to allow acquisition of affected lands. The success of these consultations are critically important otherwise a realignment which deviates and avoids the Aboriginal lands will likely be required to ensure certainty of the route;
- Adequate mitigation works to address fauna and flora impacts; and
- Impacts to the environment being effectively mitigated (ie. the mitigation needs to be feasible)

Conclusions Drawn from the Workshop

As a result of the discussions over the two days of the workshop, the group agreed to the following conclusions:

- The preferred corridor options recommended (subject to the points noted) were the ***Orange Option*** in all three sections (Section B, C and E);
- The Study Team needs to prove up the materials arising from the workshop including the recorded assumptions, the "subject to" items accompanying the recommendations and the suggested improvements;
- The Study Team needs to continue consultation with the Aboriginal communities and the Elders to clarify possible heritage constraints (and any potential LALC matters which may impact on the project);
- There is still a need to determine staging and local access arrangements for the project (ie. separated carriageway, Class M or Class A standard road, achieving early benefits, etc); and
- The workshop was a positive experience which embraced perspectives across a broad cross section of stakeholders which contributed to the successful workshop outcomes.

Action Plan

At the conclusion of the workshop, an Action Plan was produced which outlined the direction and process to be undertaken by the Study Team and others to move the project forward from here.

No.	Task	By Whom
1.	Consider the potential improvements suggested during the workshop in the next stage of project planning	GHD
2.	Address the "subject to" items identified by the workshop group accompanying the recommendations	GHD
3.	Develop a draft workshop report to be provided to the Study Team and RTA for their distribution to all participants	ACVM
4.	Draft a media release on the findings of VM workshop to inform the community of the recommendations	RTA

Where to From Here?

Steve Williamson, Project Development Manager, RTA provided an overview of the next steps in the process. Key points raised were:

- The project team has received a clear and strong direction from the workshop group and need to review the noted opportunities to improve the recommended corridor options and address the highlighted risks and assumptions raised;
- There are three elements of the process which will come together to inform the Minister for Roads and assist the decision on the preferred route for this section of the Pacific Highway Upgrade. These are:
  - The public submissions and formal comments received on short listed corridor options;
  - The Study Team's separate Route Selection Report and recommendations; and
  - The Value Management Workshop recommendations.
- It is expected that the Minister for Roads will make a decision of the preferred corridor by mid 2006;
- Preliminary design and specialist studies will then commence. It is at this stage issues such as access points to the highway and staging of construction with projects to the north and south will be considered; and
- An environmental assessment will be submitted to the Department of Planning for approval.

It was reinforced that this section of the Pacific Highway is currently unfunded for construction. The relative priority for this section still needs to be determined. However planning will proceed and may require the development of a staged approach to the ultimate solution.

The Federal and State funding model to complete the upgrade of the Pacific Highway from Hexham to the Queensland border will determine the quantum and opportunity for timing of both the planning and construction of all new works.

The contributions and critical importance of the Community Liaison Group and the Environmental Focus Group is acknowledged and it is the intention of the RTA to maintain ongoing consultation with both groups and with all stakeholders throughout the next phases of project planning.

Appendix 4. Option Comparison by Section (extract from Workshop Background Paper)

Option Comparison by Section (extract from the Workshop background Paper)

The table below outlining the advantages and disadvantages of various the sections in the Study Area are as they appeared in the background paper distributed prior to the workshop. It should be noted that some of this data was updated and clarified during the workshop.

Section B	Blue Option	Green Option	Purple Option	Orange Option
	◗ Further divides the township of Corindi through the construction of a wider road corridor.	◗ Realignment of the highway to the east would minimise direct impacts on the township of Corindi and hence provide an opportunity to consolidate the township and the small cluster of dwellings surrounding Corindi into a larger community.	◗ Directly impacts upon the dwellings in Cassons Cl at Corindi, but does not impact directly on the dwellings on Post Office Lane	◗ Realignment of the highway to the west would minimise direct impacts on the township of Corindi and hence provide an opportunity to consolidate the township and the small cluster of dwellings surrounding Corindi into a larger community.
	◗ Directly impacts on approx. 23 ha of privately owned land. Maximises the use of the existing road corridor.	◗ Directly impacts on approx. 29 ha of privately owned land	◗ Directly impacts on approx. 28 ha of privately owned land	◗ Directly impacts on approx. 53 ha of privately owned land
	◗ Vegetation clearing - 8ha	◗ Vegetation clearing - 12ha	◗ Vegetation clearing - 9ha	◗ Vegetation clearing - 18ha
	◗ Less area of clearing of high conservation value vegetation community than Orange option, but greater than Purple option (Approx 0.5ha)		◗ Nil area of clearing of high conservation value vegetation community.	◗ Highest area of clearing of high conservation value vegetation community (1.5ha).
	◗ Existing highway floods regularly and therefore requires the highway to be raised in the order of 1-2m to ensure the upgraded road is flood free – (increased footprint due to change in level)			◗ Least impacted by flooding as it is further upstream
	◗ Highest noise impact on residences (worst option for noise impact)	◗ Lower noise impact on residences than the blue and purple options (2nd best option for noise impact)	◗ Lower noise impact on residences than the blue option (3rd best option for noise impact)	◗ Lowest noise impact on residences (best option for noise impact)
	◗ 130m shorter than existing road	◗ 30m shorter than existing road	◗ 130m shorter than existing road	◗ 430m shorter than existing road – greatest potential for travel time

Section B	Blue Option	Green Option	Purple Option	Orange Option
				savings
	◗ Greatest length of construction required under traffic and potentially greatest road user delays during construction.	◗ Second greatest length of construction required under traffic	◗ Third greatest length of construction required under traffic	◗ Least length of construction required under traffic and hence least road user delays during construction.
	◗ Requires no crossovers of the existing highway	◗ Requires one crossover of the existing highway (either bridge or underpass) to the north of Coral St	◗ Requires one crossover of the existing highway (either bridge or underpass) at Blackadder Rd	◗ Requires no crossovers of the existing highway
	◗ Has a direct impact on 41 dwellings	◗ Has a direct impact on 33 dwellings	◗ Has a direct impact on 38 dwellings	◗ Has a direct impact on 21 dwellings
	◗ Artefacts have been recorded adjacent to these options on a hill slope bordered by Corindi River & Coral St, but are not listed on the DEC State Heritage Register.			◗ No known listed indigenous heritage items within this option.
	◗ This options traverses less soft soils and acid sulfate soils than the Green option, but more than the Orange option	◗ This option potentially traverses the largest extent of soft soils and acid-sulphate soils	◗ This options traverses less soft soils and acid sulfate soils than the Green option, but more than the Orange option	◗ This option traverses the least extent of soft soils and acid-sulphate soils
	◗ Requires a greater proportion of the the existing Highway to be upgraded to meet current design standards compared with the Purple and Orange options.			◗ Does not require existing highway to be upgraded
	◗ Blue, Green and Purple Options have greater impact on public utilities than the orange option, hence greater potential for disruption to services.			◗ Least impact on public utilities
	◗ Difficult (but possible) to stage in the short term due to the crossover of the existing highway	◗ Most difficult to stage in the short term due to two crossovers of the existing highway (near Blackadder Road and north of Corindi)		◗ Easiest to stage construction in both the long and short term

Section B	Blue Option	Green Option	Purple Option	Orange Option
	◗ In the long term, the blue option could result in more traffic using Coral St (through Corindi Beach) particularly heavy vehicles generated from the Blueberry Farm and logging operations in Yuraygir State Forest (off Barcoongere Way) – reduced amenity and increased noise.	◗ In the long term, the green option could result in more traffic using Coral St (through Corindi Beach) particularly heavy vehicles generated from the Blueberry Farm and logging operations in Yuraygir State Forest (off Barcoongere Way) – reduced amenity and increased noise.	◗ Does not require diversion of local traffic through Corindi Beach as this option would provide for two new carriageways adjacent to and on the west side of the existing highway from Tasman St to beyond Coral St	◗ Does not require diversion of local traffic through Corindi Beach as this option would provide for two new carriageways adjacent to and on the west side of the existing highway

Section C	Blue Option	Green Option	Purple / Orange Option
	◗ Directly impacts on approx. 28 ha of privately owned land. Maximises the use of the existing road corridor.	◗ Directly impacts on approx. 29 ha of privately owned land	◗ Directly impacts on approx. 35 ha of privately owned land
	◗ Vegetation clearing - 35ha	◗ Vegetation clearing – 30ha	◗ Vegetation clearing - 27ha
	◗ Approximate area of clearing of high conservation value vegetation community = 0.5ha		
	◗ High noise impact on residences (worst option for noise impact) - 14 residences affected		◗ Lower noise impact on residences – 6 residences affected
	◗ 430m shorter than existing road	◗ 730m shorter than existing road	◗ 230m shorter than existing road
	◗ Equal greatest length of construction required under traffic (Approx 2100m). Greatest number of traffic switches	◗ Shortest length of construction required under traffic (Approx 1300m). Least number of traffic switches	◗ Equal greatest length of construction required under traffic (Approx 2100m).
	◗ Requires one crossover of the existing highway	◗ Requires no crossover of the existing highway	
	◗ Has a direct impact on 31 dwellings	◗ Has a direct impact on 15 dwellings	◗ Has a direct impact on 33 dwellings
	◗ This option includes 480m at 5.2% grade and 300m at 4.3% grade. The overall length of climb is 2.4km, broken by a 400m length of slight decline – This option results in the lowest mean speeds through Dirty Creek Range and the highest vehicle operating cost	◗ This option includes 460m at 5.0% grade and 330m at 2% grade. The overall length of climb is 3.2km – This option results in the highest mean speeds through Dirty Creek Range and lowest vehicle operating cost	◗ This option includes 665m at 5.0% grade and 660m at 3.5% grade. The overall length of climb is 3.2km – This option is better than the Blue Option but not as good as the Green Option in terms of mean speeds through Dirty Creek Range and vehicle operating cost
	There are no known listed indigenous and non indigenous heritage items within or in the immediate proximity of the options		
	◗ Up to 20m deep cuts	◗ Up to 40m deep cuts	◗ Up to 22m deep cuts
	◗ Requires a greater proportion of the the existing Highway to be upgraded to meet current design standards than the green option	◗ Requires the least proportion of the existing Highway to be upgraded to meet current design standards	◗ Requires a greater proportion of the the existing Highway to be upgraded to meet current design standards than the green option
	◗ Approximately half the length of the existing highway would be reused as a local access road.	◗ The majority of the length of the existing highway would be utilised as a local access road maximising asset reuse.	◗ Approximately half the length of the existing highway would be reused as a local access road.

Section C	Blue Option	Green Option	Purple / Orange Option
	◗ Minor impact on Newfoundland State Forest – Southern tip only	◗ Greatest impact on Newfoundland State Forest – Land acquisition and severance	◗ No impact on State Forest
	◗ No acquisition of blueberry farm required	◗ No acquisition of blueberry farm required	◗ Strip acquisition from the blueberry farm may be required but is not expected to include any areas subject to production. This option would require the acquisition of the non-operational quarry at the base of Dirty Creek Range.
	◗ May result in separation of isolated rural properties along Dirty Creek Road	◗ May create a barrier to movement between rural properties along Dirty Creek Road and Range Road East at the top of Dirty Creek Range	
	◗ Least impact on Public Utilities, and hence lowest potential for disruption to services	◗ Greatest impact on public utilities and hence the greatest potential for disruption to services	
	◗ Staging of construction activities may not be possible with this option	◗ Staging of construction activities would be possible	◗ Staging of construction activities would be more difficult than the Green Option

Section E	Blue Option	Green / Purple / Orange Options
	◗ Directly impacts on approx. 47 ha of privately owned land. Maximises the use of the existing road corridor.	◗ Directly impacts on approx. 67 ha of privately owned land
	◗ Possible strip acquisition required from the United Service Station & General Store (Kungala Rd) and Big Garden Furniture (Luthers Rd) depending on final alignment. Substantial acquisition from Bananacoast 24hour Salvage & Wreckers would be required.	◗ Acquisition of land from behind (east side) of Big Garden Furniture (Luthers Rd)
	◗ Vegetation clearing - 28 ha	◗ Vegetation clearing - 47ha
	◗ Higher noise impact on residences – 40 residences affected	◗ Lower noise impact on residences – 35 residences affected
	◗ 30m shorter than existing road	◗ 130m shorter than existing road
	◗ Greatest length of construction required under traffic and potentially greatest road user delays during construction.	◗ Lower length of construction required under traffic
	◗ Access across the highway would be restricted and may make it more difficult for properties on the eastern side of the existing highway to access local facilities such as the Community Hall and Service Station & General Store at Kungala Rd	◗ Potential separation of scattered rural properties that are located to the east of these options ◗ Potentially improved consolidation within the halfway creek locality
	◗ More difficult to construct due to construction under traffic	◗ Less difficult to construct due to new road on new alignment
	◗ Has a direct impact on 28 dwellings	◗ Has a direct impact on 18 dwellings
	◗ Requires a greater proportion of the the existing Highway to be upgraded to meet current design standards.	
	◗ 0.9km of Telstra Optic Fibre Cable adjacent to the existing highway near Kungala Road may require relocation.	◗ Up to 2km of Telstra Optic Fibre Cable may require relocation.
	◗ There are no known listed indigenous and non indigenous heritage items within or in the immediate proximity of the options	

Section E	Blue Option	Green / Purple / Orange Options
	◗ Blue option has the potential to impact upon the existing service station and general store located at the intersection of Kungala Road. ◗ The Blue option would potentially have a detrimental impact on Benefields Rose Farm ◗ Requires acquisition of a large area of land from Banana coast 24hour Salvage & Wreckers.	◗ Likely business impacts for highway businesses (Benefields Rose Farm, Kungala Road United Service Station & General Store, Big Garden Furniture and Banana coast 24hour Salvage & Wreckers) due to separation from highway through traffic.
	◗ The Blue option passes along the boundaries of Wells Crossing Flora Reserve and Glenugie State Forest. This option would require widening of the existing highway alignment in this section	◗ Greater impact on Wells Crossing Flora Reserve and Glenugie State Forest for various lengths in a new alignment roughly parallel with and to the east of the existing highway alignment
	◗ Involves widening of the existing cleared corridor through the “Halfway Creek Regional Corridor”	◗ These options would involve creation of a new cleared corridor through the “Halfway Creek Regional Corridor”
	◗ This option may involve clearing along the edge of the “Snake Creek Sub-Regional Corridor”	◗ It is not expected that these options would require clearing within the “Snake Creek Sub-Regional Corridor”