Appendix A

Sapphire to Woolgoolga section value management workshop report prepared by ACVM (April 2003)

Roads and Traffic Authority
New South Wales

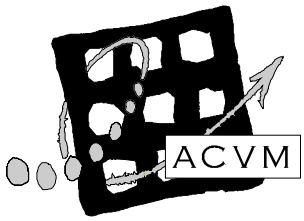
PACIFIC HIGHWAY UPGRADE

SAPPHIRE TO WOOLGOOLGA PROJECT

MOONEE TO WOOLGOOLGA SECTION

Value Management Workshop
Report

April 2003



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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. An agreement between the NSW and Commonwealth Governments to upgrade the Pacific Highway has led to an upgrade program to eliminate accident blackspots, provide dual carriageway conditions where possible, improve traffic flows and reduce travel times over a ten year period which ends in 2006.

The section of the highway (subject of this project) between Sapphire to Woolgoolga is largely a single carriageway with one lane in each direction and limited overtaking opportunities. The highway has many key intersections with various local roads serving coastal and rural residential communities. Some of the intersections have poor sight lines, inadequate merging lanes and high accident rates.

The population growth on the north coast region in general, and along the northern beaches of the Coffs Harbour Local Government Area in particular, is increasing which is likely to lead to further safety concerns on the road network.

Moreover, the through traffic volumes are expected to increase as the Pacific Highway Upgrade Program continues and the overall highway improves. These increases (in both local and through traffic volumes) is likely to lead to more traffic conflicts and increased congestion with the risk of increased accidents as well as reduced local amenity particularly caused by increased noise (a major issue in the community). The highway will continue to be used by the current mix of traffic (ie. heavy and light vehicles, etc)

Upgrading of the Sapphire to Woolgoolga section of the Pacific Highway forms part of the Coffs Harbour Highway Planning Strategy. The Strategy is being developed to co-ordinate the upgrading of the Pacific Highway between Sapphire and Woolgoolga (Northern Section) with the planning for future traffic needs within the Coffs Harbour urban area (Southern Section). The Strategy is being overseen by a Steering Committee comprising of representatives of the Roads and Traffic Authority (RTA), PlanningNSW and Coffs Harbour City Council.

Investigations to upgrade the sapphire to Woolgoolga section commenced in June 2001 with the RTA commissioning Connell Wagner (the Study Team) on behalf of the Steering Committee to investigate potential options and develop a Route Options Development Report for eventual recommendation of a preferred option to upgrade the highway.

Investigations indicated that this project (Sapphire to Woolgoolga) could be divided into two sections. One section being Sapphire to Moonee was found to have the upgrading of the existing highway as the only feasible route option.

The other section being Moonee to Woolgoolga (the subject of this value management workshop report) was found to have a number of potential options requiring more detailed investigations in order to determine a preferred option. The preferred option is to meet the future transport needs for the highway whilst balancing the social, ecological, engineering and cost factors.

Numerous route options in the Moonee to Woolgoolga section of the project were developed and after an extensive process involving the Steering Committee and community input, a shortlisting of five route options were determined for further consideration. The shortlisted route options considered (shown in **Figure 1**) were:

- **Option A** – An outer bypass corridor which passes mainly through State Forest lands from Skinners Creek to Arrawarra with minimal impact on private property
- **Option B** – A central bypass corridor that includes a section along the existing highway from Moonee until it deviates inland north of Smiths Road opposite the Gun Club and rejoins the highway near Mullaway. It traverses assorted terrain and land use conditions with rural agricultural freehold land being dominant. The identification of an alternative alignment at its southern end has led to the option being divided into two sub-options (**Option B1** – deviating further to the west and **Option B2** – deviating further to the east)
- **Option C** – An inner bypass close to the main Woolgoolga urban area. It leaves the highway about one kilometre south of Woolgoolga (near Graham Drive North) and rejoins the highway near the Safety Beach Drive intersection. The corridor north from Moonee to the deviation would comprise an upgrading/amplification of the existing highway
- **Option D** – A major upgrade/amplification along the whole length of the existing highway

A value management workshop was seen as the 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 evaluation of the options against agreed assessment criteria, determine a preferred direction for further investigation to progress the project development.

The assessments and evaluations 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 **31st March and 1st April 2003**. 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 to ensure it meets the project objectives, and to recommend a preferred direction, if appropriate, to progress the project to the next stage of development"

Specifically the participants were to:

- *Clarify the objectives of the project;*
- *Review the planning parameters for the project;*
- *Examine the options developed and identify potential value improvements to meet the project objectives;*
- *Recommend a preferred option(s) and strategy to the Steering Committee 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 evaluation from a functional base (ie. what are the problems that the project must address and what must the project achieve to be successful).

During the workshop, background material was presented (**Appendices 2 and 4**). What was important about the project from various stakeholder perspectives was identified. 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 identified and weighted within three "triple bottom line" categories (being functional, environmental and socio-economic performance) for later evaluation of the options (**Appendix 2**).

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

The group evaluated the route options using the assessment criteria. The result of the evaluation indicated that Options C and D performed, on balance, better than the other options against the criteria. They were also acknowledged to have lower cost estimates and better benefit cost ratios (BCRs). However it was acknowledged that Options C and D needed to satisfactorily address the issues raised during the workshop (**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:

- **Identified** the problems causing the need for the project being a mix of:
  - *The highway being currently two lanes and single carriageway with limited overtaking opportunities*
  - *Having a number of key intersections with various local roads serving coastal and rural residential communities as well as a number of private property access points. Some of the intersections have poor sight lines, inadequate merging lanes and high accident rates*
  - *The predicted population growth in the LGA and northern beaches (in particular) and the expected increase in through traffic volumes as well as the mix of traffic (heavy vehicles are a particular concern to the local community) will lead to more conflict of local and through traffic, congestion and accidents*

- *The amenity of the area as a result of the highway (ie. noise, pollution, visual impact, etc) is an issue*
- *There are already a number of urban bottlenecks (congestion) that need to be addressed*

- **Confirmed** the project objectives which reflect what the project must do to be successful in achieving its purpose and addressing the problems. The project objectives are to:
  - Provide a dual carriageway road with the potential to reduce crash rates to 15 crashes per 100 MVKT over the project length
  - Provide a design which would allow signposting at a minimum of 100 km/h in rural areas and 80 km/h in urban areas *(It was noted that a minimum of 80 km/h in urban areas was questioned)*
  - Provide flood immunity for a 1:100 year flood event
  - Minimise vehicle operating costs
  - Meet (or exceed) heavy vehicle requirements *(including buses)* including intersections where required
  - Integrate the input from local communities into the development of the project through the implementation of a comprehensive program of community consultation and participation
  - Provide a solution at all potential conflict points with local traffic that meets community expectations and maintains local connectivity
  - Provide a highway which is integrated with local land use and transport
  - Incorporate best environmental practice including assessing and addressing cumulative impacts and ESD principles as well as meeting RTA guidelines (ie. State standards) for managing all environmental issues (eg. biodiversity, noise impacts, water quality, acid sulfate soils, social severance, natural environment, etc)
  - Maximise the use of the existing road asset where consistent with the project
  - Ensure the project outcomes achieve value for money
  - Achieve best practice outcomes for urban design
- **Identified** and **challenged** assumptions being made about the project from a range of perspectives (see **Appendix 2**).
- **Identified** and weighted assessment criteria within the three "triple bottom line" categories nominated. These would be used to evaluate the shortlisted options. The assessment criteria identified were:

  Functional Performance
  - *Road safety for all road users*
  - *Traffic efficiency and long term functionality*
  - *Landscape, urban design and scenic quality (view from the road)*
  - *Constructability*
  - *Achievement of early benefits through staging*

  Environmental Performance
  - *Heritage impacts*
  - *Bio-diversity impacts – direct effect to threatened species*
  - *Bio-diversity impacts – migratory species*
  - *Bio-diversity impacts – key habitat and movement corridors*
  - *Bio-diversity impacts – waterways and aquatic environments*
  - *Construction impacts*

  Socio-economic Performance
  - *Traffic noise impacts*
  - *Amenity effects (excluding noise but including visual and pollution impacts)*
  - *Compatibility with CHCC strategic planning*
  - *Rural land impacts (ie. agriculture, State Forests, fire management, acquisitions, etc)*
  - *Urban land impacts (ie. land severance, property and business impacts, acquisitions, etc)*
  - *Local traffic access and movement impacts*
  - *Construction impacts on the community*
- **Reviewed** the shortlisted options tabled for the project and obtained an understanding of their relative merits and weaknesses (see **Appendix 3**).
- **Evaluated** the shortlisted options against the three "triple bottom line" categories of assessment criteria and ranked the performance of each option. The options were also ranked in terms of the estimated cost and their benefit cost ratio (BCR) (see **Appendix 3**)
- **Indicated** that as a result of undertaking the evaluation, Options C and D performed, on balance, better than the other options and should be considered for further investigation because:
  - Options C and D perform well against all the assessment criteria (ranked second or better in each category) and provide a good balance between community and natural environment criteria

  - There is potential to more effectively integrate traffic noise mitigation into a route option solution for Option C or Option D
  - There is minimal land loss and impact on the "ability to farm" the agricultural land which is highly regarded in the area

However this is subject to the following issues being addressed:

  - The mitigation of potential bio-diversity impacts on migratory birds, wetland and lowlands rainforest risks
  - Managing the noise mitigation issues effectively
  - Reviewing Council's strategic plan and resolving the strategic direction for Woolgoolga
  - Investigating good urban design outcomes for Woolgoolga
  - Resolving the connectivity between rural residential and urban areas
  - Refining Option C to minimise impacts on existing landuse zoned 2A (residential) lands within Woolgoolga
  - Undertaking a detailed cultural heritage assessment along the route
  - Resolving/managing the community's preference and perceptions of the option
  - Carefully considering and managing the construction impacts

- **Noted** that:
  - Option C had some significant functional advantages over Option D (eg. road safety, travel speed, etc)
  - While there are early benefit opportunities available with Options C and D, Option C would be easier to construct
  - There is less severance involved with Option C than with Option D
- **Acknowledged** that for some participants, a preference could not be drawn, however some conclusions drawn by them from the workshop included:
  - Based on output from this workshop, it would appear that either Option C or D is preferred. However it is based on information available to us at this time and it is not appropriate to make definitive recommendations
  - The known community position is out of sync with the workshop outcomes
- **Were presented** with an outline of the process and direction (Action Plan) for the project to move forward from here (see next page).

Where to From Here?

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

No.	Task	Timeframe
1.	Prepare a draft value management workshop report	Mid April 2003
2.	Issue the draft report to the Steering Committee for review and consideration	
3.	Steering Committee to agree on the way forward and release the value management workshop report to the participants who attended the workshop	Late April 2003
4.	Complete other input items (eg. submissions report, supplementary studies, address issues raised in the workshop, etc) to finalise the Route Selection Report	
5.	Steering Committee to consider all reports and other information and make recommendation as to the preferred route option to move forward	May 2003
6.	Refer the recommended route option to the Minister for adoption of a preferred option	
7.	Decision by the Minister to progress the proposal to EIS stage	Mid 2003

Diagram indicating the Shortlisted Route Options

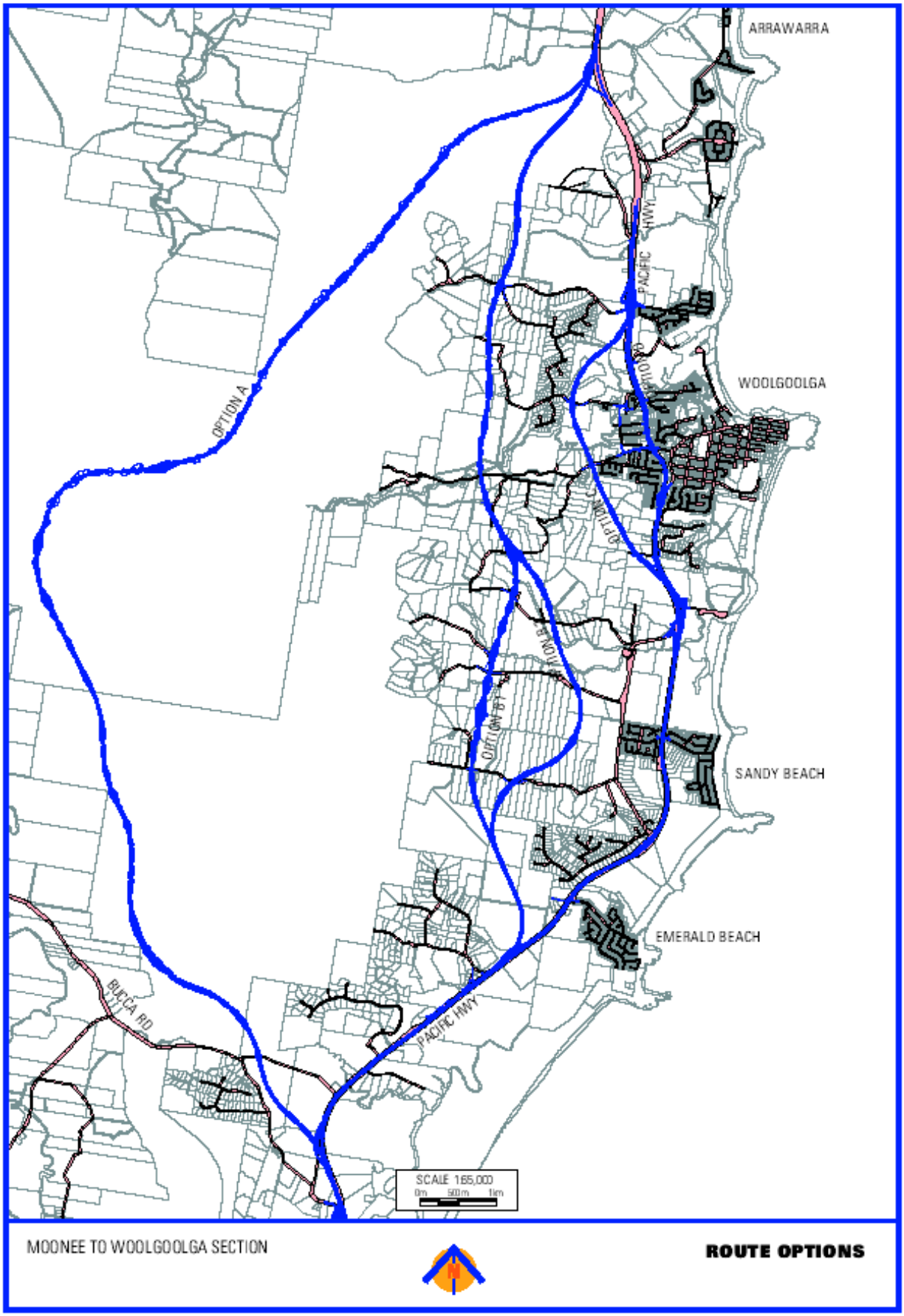


Figure 1: Route Options ***(diagram supplied by Connell Wagner)***

Appendix 1. List of Participants

PACIFIC HIGHWAY UPGRADE – SAPPHIRE TO WOOLGOOLGA PROJECT

VALUE MANAGEMENT WORKSHOP
PARTICIPANTS LIST

Project Stakeholders

Bill Wood	Chairman, Coffs Harbour Highway Planning Strategy Steering Committee
Jenny Bonfield	Mayor, Coffs Harbour City Council
Mark Ferguson	General Manager, Coffs Harbour City Council
Lewis Ford	Engineer, Coffs Harbour City Council
Jo Gardner	PlanningNSW
Kim Forsyth	National Parks and Wildlife Service
Irwin Perring	Senior Regional Operations Officer, EPA
John Murray	NSW State Forests
Greg Ireland	NSW Agriculture
Andrew Stimson	NSW Police Service and Emergency Services
Marzi DeSanti	Policy, Planning and Economics Branch, NRMA
Steve Cooper	Lindsays Transport
Stephen Moody	Community Focus Group and Woolgoolga Chamber of Commerce
Bruce Scanlon	Community Focus Group
Greg Benson	Community Focus Group
Col South	Community Focus Group
Tony Perkins	Yarrawarra Aboriginal Corporation
Ken Nayda (Day 2)	Gumbala and Junnapi Elders
Jas Benning	Banana Growers Association
Steve Clemesha	Ulitarra Conservation Society

Roads and Traffic Authority

Bob Higgins	Manager, Pacific Highway Office
Chris Clark	Project Development Manager
Ken Collis	Road Network Infrastructure
Wes Stevenson	Road Development Planner
Scott Lawrence	Environmental Officer

Connell Wagner Study Team

Tim Paterson	Project Manager
Rosemary Russell	Environmental Planner
Barry Hancock	Design Manager
Neil Gross	Noise Specialist

Workshop Facilitation Team

Alan Butler	Co-facilitator, ACVM
Ross Prestipino	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: Sapphire to Woolgoolga Project (concentrating on the section between Moonee and Woolgoolga) which allowed them to later make comparisons of 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, Jo Gardner a member of the Coffs Harbour Highway Planning Strategy Steering Committee and PlanningNSW outlined the "Big Picture" for the project including the Steering Committee's role and expectations.

Key points raised in her presentation included:

- The Steering Committee had been formed to oversee the development of the Pacific Highway Planning Strategy from Boambee to Arrawarra. The Committee includes representatives from the Roads and Traffic Authority (RTA), PlanningNSW and Coffs Harbour City Council
- The aims of the Steering Committee are to:
  - Oversee the preparation of the Pacific Highway Planning Strategy
  - Ensure the community is adequately consulted in the development of the Strategy
  - Coordinate input from other government agencies and organisations into the development of the Strategy
- The Terms of Reference for the Steering Committee include:
  - Overseeing the development of a Planning Strategy for the Pacific Highway between Boambee and Arrawarra
  - Providing a forum for the three organisations to raise, discuss and resolve issues relating to the development of the Strategy
  - Making recommendations to the Minister on the process and outputs for the Strategy
  - Reviewing technical papers associated with the Strategy
  - Being responsible for the issue of press releases and other forms of communications to the media
  - Consulting with the community focus groups and other stakeholders in relation to the Strategy
- The Planning Strategy Objectives are:
  - To upgrade the highway between Sapphire and Woolgoolga (Northern Section)
  - To plan for future traffic needs within the Coffs Harbour urban area (Southern Section)
  - To fulfil statutory objectives of the North Coast Regional Environment Plan (REP) and Section 5 of the Environmental Planning and Assessment (EP&A) Act (which requires an examination of a triple bottom line of functional, environmental and socio-economic impacts of a project)
- Section 5 of the EP&A Act requires:
  - The protection of the environment, including the protection and conservation of native animals and plants (such as threatened species, populations and ecological communities, and their habitats) as well as requiring ecologically sustainable development
  - Promoting the sharing of the responsibility for environmental planning between different levels of government in the State
  - Providing increased opportunity for public involvement and participation in environmental planning and assessment
  - Encouraging the proper management, development and conservation of natural and artificial resources (including agricultural land, natural areas, forests, minerals, water, cities, towns and villages) for the purpose of promoting the social and economic welfare of the community and a better environment
  - Promoting and coordinating the orderly and economic use and development of land
  - Protecting, providing and coordinating communication and utility services
  - Providing land for public purposes
  - Providing and coordinating community services and facilities

Coffs Harbour City Council Perspective

A Coffs Harbour City Council perspective was outlined by Mark Ferguson, General Manager, Coffs Harbour City Council (CHCC) which included aspects related to an upgrade/bypass of Coffs Harbour as well as for the section of Highway upgrade between Sapphire and Woolgoolga.

Key points raised in his presentation included:

- Council expects the Pacific Highway Upgrade Project to achieve sustainable outcomes for the City in terms of its economic, environmental and social impacts. To this end, Council believes that objectives that need to be addressed by any upgrading or by-pass option must include the following:
  - The consideration of the north and south sections as a single project and completed within a 5-8 year timeframe
  - The impacts of full upgrades to the existing highway through urban areas are unacceptable. Any upgrade must be outside residential areas of the City, must not lead to severance of the community and must redress existing severance
  - Noise impacts are to be mitigated to acceptable levels by physical separation over distance rather than artificial barriers (eg. suggested sound barriers at Sapphire and locations on inner corridor routes)
  - Visual amenity is to be achieved through adequate screening at all residential sight lines and through excellence and innovation in detailed design (eg. Sapphire, inner corridor routes)
  - Highway upgrade or bypass options must look at integration with local transport needs (eg. cycleways and distributor networks, public transport, etc)
  - There must be adequate compensation for property impacts adjacent to new and existing routes (eg. noise, visual impact, farm operation buffers, etc)
  - Prominent ridge lines should remain intact to preserve the visual amenity of the escarpment (ie. more use of short tunnels)
  - Redevelopment of the existing highway corridors through urban areas must be included in the overall strategy (eg. streetscaping and non-motorised transport facilities from Englands Road to Bray Street and River Street to Newmans Road)
  - Any selected route must minimise impacts on banana and other horticultural industries, to ensure long-term viability of the industry, by considering other mitigation options or route refinements
  - The selected route must maximise potential residential development east of the new route for a sustainable regional city

The Roads and Traffic Authority Perspective

In order to allow the participants to obtain an understanding of the project's context within the total Pacific Highway Upgrade Program, Bob Higgins, Director Pacific Highway Office, RTA outlined the Roads and Traffic Authority (RTA) perspective including the program background, objectives and development to date.

Key points raised in his presentation included:

- The purpose of the Pacific Highway is to:
  - Provide a major transport asset of National significance
  - Provide safe and efficient transportation of people and goods to destinations between Sydney and Brisbane
  - Service coastal townships and populations along the route
  - Support National and Regional economic development
- Key features of the Highway Upgrade Program include:
  - The length of the upgrade is approx. 700 km from Hexham to the State Border
  - The funding commitment is $2.2 billion over 10 years from the Commonwealth and State Governments

- Currently the Program is in Year 7 of the 10 years. The status is:
  - 21 major and 19 minor projects have been open to traffic
  - Just over 30% of the highway has been duplicated
  - 14 projects (including the Sapphire to Woolgoolga project) are being planned under the program
- No similar program has been developed for beyond the 10 Year Program. The current position is:
  - The State Government is committed to the Highway upgrade beyond the 10 years
  - The Commonwealth Government is yet to commit. Projects along the highway may have to qualify as an "Auslink" funded project in the future
  - At this stage, no firm date for construction of the Sapphire to Woolgoolga project can be made
  - The Sapphire to Woolgoolga project still has to be prioritised against other projects

- The objectives of the Highway Upgrade Program are to:
  - Significantly reduce road accidents and injuries
  - Reduce travel times
  - Reduce freight transport costs
  - Have a community satisfied with the physical development of the route
  - Have a route that supports economic development
  - Manage the upgrading of the route in accordance with Ecologically Sustainable Development (ESD) Principles
  - Maximise effectiveness of expenditure - "affordable"
- The reality check is that the project has to strike a balance between:
  - Transport needs
  - Social needs
  - Ecological needs

  while providing value for money
- Objectives of the Sapphire to Woolgoolga Project as they are aligned to the objectives of the Highway Upgrade Program are:
  - Significantly reduce road accidents and injuries
    - *Develop a dual carriageway road with potential to reduce crash rates*
  - Reduce travel times
    - *Develop a design which provides signposting at a minimum of 100 km/h in rural areas and 80 km/h in urban areas*
    - *Provide flood immunity on at least one carriageway for a 1:100 year flood event*
  - Reduce freight transport costs
    - *Develop a design that minimises vehicle operating costs*
    - *Develop a design that meets or exceeds vehicle operating requirements, including intersections*
  - Have a community satisfied with the physical development of the route
    - *Integrate input from local communities into development of the Project through the implementation of a comprehensive program of community consultation and participation*
    - *Develop a solution at all potential conflict points with local traffic that meets community expectations and maintains local connectivity*
  - Have a route that supports economic development
    - *Provide transport developments that are complementary to existing and proposed land use*
    - *Consider strategies to minimise disruption to local and through traffic and maintain access to affected properties and land during construction*
  - Manage the upgrading of the route in accordance with Ecologically Sustainable Development (ESD) Principles
    - *Assess and address cumulative impacts*
    - *Use environmental best practice*
    - *Achieve RTA Guidelines for managing environmental issues (biodiversity, noise, air quality, water quality, acid sulfate soils, etc)*
  - Maximise effectiveness of expenditure
    - *Maximise use of the existing road asset (where consistent with the project)*
    - *Ensure project outcomes achieve value for money*

Project Overview Presentation

An overview of the work undertaken to date and the steps ahead was presented by Tim Paterson, Project Manager of the Study Team, Connell Wagner. Key points made in his presentation which supplements the background information distributed to participants prior to the workshop included the following points below.

- The statutory framework for major infrastructure projects in NSW (which includes this project) comprise:
  - The Roads Act (enabling statute for RTA / highway activities)
  - Environmental Planning & Assessment (EP&A) Act. Relevant elements include:
    - The Act is the main planning approval instrument (by PlanningNSW/Minister for Planning)
    - Parts 4 and 5 (which relates to consent/no consent from Council)
    - A project with potential for significant environmental impact requires an Environmental Impact Statement (EIS)
    - EP&A Regulations
    - PlanningNSW Director General Requirements for EIS
    - EIS Practice Guideline for roads and related facilities
    - State Environmental Planning Policies (SEPP) (eg koalas, wetlands, rainforests protection)
    - Regional Environmental Plans (REP)
    - Local Environmental Plans (LEP)
  - Environment Protection & Biodiversity Conservation (EPBC) Act (a Commonwealth Act) comprise:
    - Administrative Guidelines for compliance
    - Controlled Actions for compliance
    - Matters of National Environmental Significance (NES) to be addressed
  - Threatened Species Conservation (TSC) Act
  - Other State legislation (requiring assorted licences/approvals) include:
    - National Parks & Wildlife Act
    - Rivers & Foreshores Improvement Act
    - Fisheries Management Act
    - Protection of the Environment Operations Act
    - Water Act
    - Heritage Act
    - Forestry Management Act
  - Land acquisition will be undertaken through the Just Terms Compensation Act.
- A background overview of the planning, development and assessment processes undertaken for this project included:

Strategic Stage:

- Decision by Government to examine the upgrade of highway leading to the Pacific Highway Upgrade Program – NSW / Commonwealth initiative for the period 1996-2006
- RTA is the responsible agency for project development and delivery
- The Sapphire to Woolgoolga project area defined, strategic options examined to determine likely feasibility (in 2000-2001)
- RTA applies resources to carry out project development, consultations, concept design and environmental impact assessment (in June 2001)
- A Steering Committee was established for Coffs Harbour Highway Planning Strategy (early 2001)
- A public announcement outlining the commencement of the project takes place (September 2001)

Options Development Stage:

- Constraints and opportunities for the project are identified (engineering, planning, environmental, social, etc)
- Planning Focus meetings involving government agencies are undertaken
- Assorted community involvement activities are undertaken (eg. community focus groups - CFG, open forums, presentations, etc)
- Feasible corridor route options are generated (September 2001 – March 2002)
- Public display of corridors in March 2002 and community feedback is obtained

Route Selection Stage:

- Route options were developed (April 2002 – October 2002)
- Preliminary studies were undertaken to support generation and assessment of options (May 2002 – October 2002)
- Public exhibition of Route Options took place (December 2002 – February 2003)
- Value Management Study currently proceeding (31st March and 1st April 2003)
- Route Selection report to be completed
- Ministerial decision on preferred route and public announcement (mid 2003)
- Announcement of the Preferred Route

Environmental Assessment / Approvals Stage (to be done):

- EIS preparation and preliminary design
- EIS Exhibition (statutory process starts)
- Public submissions received/analysed
- Representations Report and supplementary studies
- Submission to PlanningNSW requesting approval
- Minister for Planning makes decision
- Public notification of decision, RTA determines to proceed

- Consultation activities undertaken during the project planning to date include:
  - Community Data base now has 4415 people on it
  - Community Focus Groups (CFG) have had several working sessions for both the Woolgoolga and Moonee CFGs
  - Meetings/presentations with numerous community organisations, property owners and individuals have been undertaken
  - Community Update leaflet released in September 2002
  - Website information updated including Information Sheets, Route Options Development Report and Working Papers
  - A Hotline is being maintained
  - Briefings for Coffs Harbour City Council
  - Assorted press releases post CFGs and Steering Committee meetings
  - Planning Focus Meetings with Government agencies
  - Public Exhibition of route options (December 2002 – February 2003) including staffed days
  - Analysis of written submissions (>200 submission received) and comment forms (>1200 replies), discussions/responses to key issues
  - Selection of participants for value management and value engineering workshops

What's Important about the Pacific Highway Upgrade: Sapphire to Woolgoolga Project

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 indicated, and only one of those items if considered more critical was asterisked).

No.	What's Important	Rating
1.	Providing safe and consistent driving conditions on the highway *(linked to item 4)*	□□□□
2.	Removing heavy freight through-traffic from urban areas	
3.	Ensuring the protection of cultural heritage	
4.	Providing safety for all road users (including pedestrians)	
5.	Maintaining natural environmental attributes of the area (ie. maintaining the atmosphere of the area) *(linked to item 27)*	□□□
6.	Diverting traffic around the urban areas	
7.	Providing future land use planning certainty	
8.	Maintaining banana/agricultural land intact for its value of production *(linked to items 23 and 28)*	□
9.	Reducing/minimising noise impacts for residential areas (now) and managing noise effectively	□□
10.	Improving travel time and reducing travel costs (for cars, light and heavy vehicles)	
11.	Making a balanced and objective assessment which will lead to an early decision and deliver early benefits	
12.	Meeting the objectives of the State and Local planning instruments	
13.	Providing easy (ie. safe, controlled) access for local traffic onto and off the highway (now and in the future)	
14.	Minimising property acquisition impacts	
15.	Having a long term solution which delivers economic efficiency for the region and the State	
16.	Having an aesthetically pleasing appearance for the road (for highway users and adjoining neighbours of the road) *(linked to item 32)*	□
17.	Ensuring all relevant information is available during the planning phase (ie. no fatal flaws in the option chosen) *(linked to item 19)*	□
18.	Minimising the impact on forestry values (including production)	
19.	Achieving the best value outcome for the people of NSW	
20.	Following ESD principles in route development and assessment	
21.	Coming up with an achievable and affordable outcome and delivering it	□
22.	Maintaining a village atmosphere (ie. attributes and growth)	
23.	Minimising the spread of plant disease during construction	
24.	Ensuring the project has an overall benefit to the future planning of the LGA *(linked to items 12 and 39)*	□□
25.	Ensuring appropriate access to properties that are severed	
26.	Minimising adverse impacts on current and future businesses	
27.	Minimising impacts on flora, fauna and aquatic species	
28.	Minimising the impact on the ability of farmers to continue their current practices	
29.	Lessening the severance of communities either side of the highway	□
30.	Minimising habitat fragmentation and edge effects	
31.	Meeting the objectives of Highway Upgrade Program and other key objectives *(linked to items 10, 11 and 12)*	□□
32.	Improving the amenity and urban design (including visual and acoustic concerns) for highway neighbours	
33.	Addressing the impacts for fire management practices	

No.	What's Important (cont.)	Rating
34.	Having broad based community support	
35.	Improving intersections which may be conflict points	
36.	Reducing potential for road kills (plus minimising the effect on the road users who make the road kill)	
37.	Ensuring adequate access for emergency services	
38.	Eliminating crashes and fatalities	
39.	Catering for future traffic growth	
40.	Being a compatible solution with the southern (Coffs Harbour) outcome	
41.	Minimising impacts during construction	
42.	Taking advantage of commercial opportunities that the project presents	

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 and Coffs Harbour City Council objectives) would later be used in the workshop to develop assessment criteria to evaluate the various route options.

The Problem Situation

The group reflected on the background paper material 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:

- The highway is currently two lanes and single carriageway with limited overtaking opportunities
- There are a number of key intersections with various local roads serving coastal and rural residential communities as well as a number of private property access points
- Some of the intersections have poor sight lines, inadequate merging lanes and high accident rates
- The predicted population growth on the northern beaches and in the LGA in general will result in increased traffic volumes on the road network
- Through traffic volumes and the mix of traffic types are expected to increase as the Pacific Highway Upgrade Program proceeds leading to more conflict of local and through traffic, congestion and accidents. In particular, heavy vehicles are an issue in the community
- The amenity of the area as a result of highway (ie. noise, pollution, visual impact, etc) is an issue
- There are a number of urban bottlenecks (congestion) that need to be addressed
- The topography of the area is a restricting feature for any option (ie. it is a narrow coastal plain between the ocean and the mountain range)

Project Objectives

Having discussed the problems causing the need to consider a project, the group reviewed the project objectives (ie. what must the project achieve to be successful) as stated in the background papers distributed prior to the workshop. The group amended the objectives where appropriate to be more meaningful, meet the intention of the Highway Upgrade Program and reflect regional concerns raised in the workshop. Comments made by the group in amending the project objectives are shown in italics. As a result, the group agreed that the project should:

- Provide a dual carriageway road with the potential to reduce crash rates to 15 crashes per 100 MVKT over the project length
- Provide a design which would allow signposting at a minimum of 100 km/h in rural areas and 80 km/h in urban areas *(It was noted that a minimum of 80 km/h in urban areas was questioned and a concern to some participants who believed this reduced the effectiveness of the highway upgrade as a through route)*

- Provide flood immunity for a 1:100 year flood event *(for this project)*
- Minimise vehicle operating costs
- Meet (or exceed) heavy vehicle requirements including intersections where required *(for all road vehicles including buses)*
- Integrate the input from local communities into the development of the project through the implementation of a comprehensive program of community consultation and participation
- Provide a solution at all potential conflict points with local traffic that meets community expectations and maintains local connectivity
- Provide a highway which is integrated with local land use and transport
- Incorporate best environmental practice including assessing and addressing cumulative impacts and ESD principles as well as meeting RTA guidelines (ie. state standards) for managing all environmental issues (eg. biodiversity, noise impacts, water quality, acid sulfate soils, social severance, natural environment, etc)
- Maximise the use of the existing road asset where consistent with the project
- Ensure the project outcomes achieve value for money
- *Achieve best practice outcomes for urban design*

Assumptions

The group (in focus groups) identified assumptions being made about the project from various perspectives. The recorded assumptions of 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 the 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
O/S	Outside the scope of the project

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: Local Traffic, Safety and Access Assumptions**
- **Focus group 3: Environmental, Agricultural and Heritage Assumptions**
- **Focus group 4: Through Traffic, Commercial and Coastal Communities 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
Design Parameters		
1.	Planning for a 100 km/hr – 110 km/hr design speed in rural areas	–
2.	Planning for an 80 km/hr design speed in urban areas	◊
3.	Catering/planning for school buses (where required)	–
4.	The new highway will have dual carriageways	–
5.	The new highway will minimise local trip distances *(could have safety considerations depending on the option chosen)*	⌟◊

No.	Assumptions (cont.)	Category
6.	U-turn/crossover opportunities (at grade) will be provided at regular intervals (2-3 kms) for emergency services/uses	–
7.	Planning for a 1:100 year flood immunity	–
8.	There is a need to meet noise guidelines/targets (through best practice, address through design if possible, consideration of noise issues outdoors)	–
9.	Appropriate urban design will be used to address landscaping and maintenance requirements	–
10.	There will be good urban design for all project elements (including batters)	–
11.	Future grade separation of intersections will be planned for	–
12.	The project will provide for cyclists *(investigate on road/off road options)*	–
13.	The project will take into account existing land uses and address the requirements of (ie. plan for) future land uses (including residential, agricultural, forestry, tourism)	–
14.	There will be appropriate signposting for direction finding *(very important for bypass options)*	–
15.	There will be no direct access from adjoining properties to the upgraded route option *(except for emergency services)*	–
16.	Connectivity (ie. roads, fauna, waterways, pedestrian access) will be maintained by the project	–
17.	Construction phase traffic management will ensure access is maintained (including in staging considerations)	–
Broad Planning Parameters		
18.	Provide for connectivity for the local community, employment industries, tourists and State Forest lands (now and in the future)	–
19.	Provide for future land uses as per Council's Strategic Plan (eg. changes from agriculture to residential/tourist developments)	–

Focus group 2: Local Traffic, Safety and Access Assumptions

No.	Assumptions	Category
1.	Currently, traffic volumes peak 2-3 hours in the morning and afternoon on the highway	–
2.	Through traffic heavy vehicle volumes peak in the evening (between 7pm and 11.30pm) and new fatigue management laws will mean more heavy vehicles during the day	–
3.	Most origin/destination trips using the highway are within the LGA	–
4.	Local traffic volumes will grow as the city develops	–
5.	More heavy transport will be required to sustain the local population growth	–
6.	Safety is diminished as traffic volumes grow *(in the absence of intervention)*	–
7.	Access demand to the highway will likely increase	–
8.	There is a move towards bigger/more efficient heavy vehicles (ie. B-doubles)	–
9.	There is a move towards distribution centres which lesson local impact of heavy vehicles	◇
10.	Regional roads must address B-double vehicle access	◇
11.	There will be a greater need for separation between local and through traffic	–
12.	Most local drivers will see the highway primarily as a local road therefore driver behaviour will not be compatible with highway usage (ie. Urunga to Corindi)	–
13.	Local traffic will stay on the existing highway, even if a bypass is in place	◇
14.	Access demands will increase as new development occurs	–/◇

No.	Assumptions (cont.)	Category
15.	Dual carriageway is safer than single carriageway	–
16.	A physical barrier between traffic lanes would work better than dual carriageway	◊
17.	There is a need for improved access roads, overpasses and acceleration lanes	–
18.	New vehicles are inherently safer	**O/S**
19.	In peak traffic periods (which coincide with school peak traffic), the number of school buses is very high. Provision needs to be made for frequent stopping where appropriate	–
20.	Access for emergency vehicles is problematic the further out the option is (eg. fire management access needs)	–
21.	Street lighting is needed for all at-grade intersections	–
22.	The age of the average driver in Coffs Harbour is higher than the State average	**O/S**

Focus group 3: Environmental, Agricultural and Heritage Assumptions

No.	Assumptions	Category
1.	Best management practices will be adopted for mitigation of all environmental, agricultural and heritage impacts	–
2.	Reliable/accurate information will be provided to enable assessment	–
3.	Fair and realistic compensation for all directly affected property owners (residential, agriculture, commercial) will be provided under the Just Terms Compensation Act	–
4.	Cumulative impacts will be addressed	–
5.	Indirect impacts will be addressed	◊
6.	EPA noise criteria and RTA noise management manual will be followed	–
7.	It is not possible to mitigate against all impacts (irreversible consequences/impacts). However they need to be considered and managed	–
8.	All the community may not find the EPA or other criteria acceptable	–
9.	Impacts on the natural environment will be minimised	–/◊
10.	Impacts on agricultural land will be minimised	–/◊
11.	Impacts on the water catchment will be minimised	–/◊
12.	Impacts on forestry lands will be minimised	–/◊
13.	Spreading of plant disease during construction will be minimised	–/◊
14.	The process to determine the location of Aboriginal sites and their confidentiality will be followed	–

Focus group 4: Through Traffic, Commercial and Coastal Communities Assumptions

No.	Assumptions	Category
	For Through Traffic	
1.	Light and heavy vehicle traffic will increase over time	–
2.	A quicker route and a route that reduces operating costs will attract more through traffic (especially heavy vehicles)	–
3.	Through traffic excludes traffic that stops between Moonee and Arrawarra	◊
4.	Through traffic would prefer consistent travel speed (ie. not 80 km/h through Woolgoolga)	–
5.	Access to the highway will be controlled	–
6.	Rest stops may be required (for light and heavy vehicles)	–

No.	Assumptions (cont.)	Category
7.	There will be a need to provide access to services (fuel, fast food, etc)	–
8.	The mix of light and heavy vehicles will continue	–
9.	Through traffic will include a mix of heavy vehicles, tourist, journeys to work, journeys to school, long distance journeys, etc	–
	For Commercial	
10.	There will be detrimental impacts for adjacent commercial premises to Option D due to controlled access	–
11.	Exposure of commercial enterprises to through traffic would be reduced with a deviation option	–
12.	The business community can adjust to reflect the changed circumstances of the highway	–
13.	There will be no significant diffusion of the commercial centre	◊
14.	Commercial development will be attracted to the new corridors	◊
15.	Improved transport links will facilitate commercial development	–
16.	Agricultural industries will remain viable	◊
	For Coastal Communities	
17.	The coastal communities will continue to expand	–
18.	Demand for safe, efficient access will increase	–
19.	The coastal communities will maintain their lifestyle	–
20.	Coffs Harbour will remain the centre of employment and Woolgoolga will remain a local service centre with an increasing role as a service provider	◊
21.	There will be increasing demand for tourist facilities	–
22.	Growth will focus on the eastern side of the highway	◊

Developing the Assessment Criteria

As a result of the information shared in the workshop to date (in particular, the “What’s Important” statements, the objectives of the project and Coffs Harbour City Council objectives), a focus group consolidated a set of assessment criteria to evaluate the potential route options for the Moonee to Woolgoolga section of the project.

To comply with the EP&A Act requirements mentioned earlier in the workshop by Steering Committee member, Jo Gardner, (ie. an examination of a triple bottom line approach of functional, environmental and socio-economic impacts of a project), the focus group adopted an approach to categorise assessment criteria under the streams of Functional Performance, Environmental Performance, and Socio-economic Performance.

The approach adopted by the focus group was to categorise the “What’s Important” statements under these key streams. The project objectives and the objectives identified by Coffs Harbour City Council were similarly categorised into the key streams identified. A fourth stream was categorised to cater for statements which reflected process rather than assessment criteria. These items were not pursued further in the workshop.

Consolidated assessment criteria were then developed based on the statements in each of the three streams. Finally these were presented to the whole group for comment, amendment (if required) and finally endorsement (if acceptable) to evaluate the route options.

The assessment criteria identified under each of the three triple bottom line categories accepted by the whole group to evaluate the route options were:

Functional

A) Road safety for all road users
B) Traffic efficiency and long term functionality
C) Landscape, urban design and scenic quality (view from the road)
D) Constructability
E) Achievement of early benefits through staging

Environmental

A) Heritage impacts
B) Bio-diversity impacts – direct effect to threatened species
C) Bio-diversity impacts – migratory species
D) Bio-diversity impacts – key habitat and movement corridors
E) Bio-diversity impacts – waterways and aquatic environments
F) Construction impacts

Socio-economic

A) Traffic noise impacts
B) Amenity effects (excluding noise but including visual and pollution impacts)
C) Compatibility with CHCC strategic planning
D) Rural land impacts (ie. agriculture, State Forests, fire management, acquisitions, etc)
E) Urban land impacts (ie. land severance, property and business impacts, acquisitions, etc)
F) Local traffic access and movement impacts
G) Construction impacts on the community

Weighting of Assessment Criteria

Relative weightings for the assessment criteria in each stream of the triple bottom line categories were undertaken qualitatively by the whole group using a paired comparison technique. The discussion in undertaking this task 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 category are shown below:

Functional Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A.	Road safety for all road users	8	38%
B.	Traffic efficiency and long term functionality	7	33%
C.	Landscape, urban design and scenic quality (view from the road)	0	0
D.	Constructability	2	10%
E.	Achievement of early benefit opportunities through staging	4	19%
	Total	**21**	**100%**

Scoring Matrix

The workings for the relative assessment are shown below.

	B	C	D	E
A	1A	3A	2A	2A
	B	3B	2B	2B
		C	2D	2E
			D	2E
				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 ***"Road safety"*** and ***"Traffic efficiency and long term functionality"*** were the most important criteria followed by the ***"Early benefits through staging"*** and ***"Constructability"*** on the next level of importance. ***"Landscaping, urban design and scenic quality"*** although important was not considered as important as the other criteria when compared in pairs and scored zero.

Environmental Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A.	Heritage impacts	6	19%
B.	Bio-diversity impacts – direct effect on threatened species	6	19%
C.	Bio-diversity impacts – migratory species	4	12%
D.	Bio-diversity impacts – key habitat and movement corridors	9	28%
E.	Bio-diversity impacts – waterways and aquatic environments	7	22%
F.	Construction impacts	0	0
	Total	**32**	**100%**

Scoring Matrix

The workings for the relative assessment are shown below.

	B	C	D	E	F
A	A/B	A/C	1D	A/E	3A
	B	1B	2D	B/E	3B
		C	2D	2E	3C
			D	1D	3D
				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 Environmental Performance using the paired comparison methodology indicated that the ***"Bio-diversity impacts – key habitat and movement corridors"*** was the most important criteria followed by the ***"Heritage impacts"*** and ***"Bio-diversity impacts – waterways and aquatic environments"*** and ***"Bio-diversity impacts - direct effect on threatened species"*** on the next level of importance and then ***"Bio-diversity impacts – migratory species"*** as the next level of importance. ***"Construction impacts"*** although important was not considered as important as the other criteria when compared in pairs and scored zero.

Socio-economic Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A.	Traffic noise impacts	10	23%
B.	Amenity effects (including visual, excluding noise)	1	2%
C.	Compatibility with CHCC strategic planning	9	21%
D.	Rural land impacts	11	26%
E.	Urban land impacts	8	19%
F.	Local traffic access and movement impacts	4	9%
G.	Construction impacts on the community	0	0
	Total	**43**	**100%**

Scoring Matrix

The workings for the relative assessment are shown below.

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

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 Environmental Performance using the paired comparison methodology indicated that the ***"Rural land impacts"*** was the most important criteria followed by ***"Traffic noise impacts"*** on the next level of importance followed by the ***"Compatibility with strategic planning"*** and ***"Urban land impacts"*** on the next level of importance and then ***"Local traffic access and movement impacts"*** and ***"Amenity effects"*** as the next level of importance. ***"Construction impacts on the community"*** 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 triple bottom line categories as determined by the group appears below.

Assessment Criteria					
Functional		**Environmental**		**Socio-economic**	
Criteria	**Wt**	**Criteria**	**Wt**	**Criteria**	**Wt**
Road safety for all road users	38%	Heritage impacts	19%	Traffic noise impacts	23%
Traffic efficiency and long term functionality	33%	Bio-diversity impacts – direct effect on threatened species	19%	Amenity effects (including visual, excluding noise)	2%
Landscape, urban design and scenic quality (view from the road)	0	Bio-diversity impacts – migratory species	12%	Compatibility with CHCC strategic planning	21%
Constructability	10%	Bio-diversity impacts – key habitat and movement corridors	28%	Rural land impacts	26%
Achievement of early benefit opportunities through staging	19%	Bio-diversity impacts – waterways and aquatic environments	22%	Urban land impacts	19%
		Construction impacts	0	Local traffic access and movement impacts	9%
				Construction impacts on the community	0

These weighted assessment criteria would later be used to evaluate the various route 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 route option evaluation, the group was now in a position to broadly review the route options shortlisted for the project.

Appendix 3. Route Option Review and Recommendation

Route Option Review and Recommendation

Route Option Presentations

The Study Team led by Chris Clark, Project Manager, RTA presented key investigations to the group of the shortlisted route options being considered. The shortlisted options are best described in the Route Options Development Report. In short they consist of:

- **Option A** – An outer bypass corridor which passes mainly through State Forest lands from Skinners Creek to Arrawarra with minimal impact on private property
- **Option B** – A central bypass corridor that includes a section along the existing highway from Moonee until it deviates inland north of Smiths Road opposite the Gun Club and rejoins the highway near Mullaway. It traverses assorted terrain and land use conditions with rural agricultural freehold land being dominant. The identification of an alternative alignment at its southern end has led to the option being divided into two sub-options (**Option B1** – deviating further to the west and **Option B2** – deviating further to the east)
- **Option C** – An inner bypass close to the main Woolgoolga urban area. It leaves the highway about one kilometre south of Woolgoolga (near Graham Drive North) and rejoins the highway near the Safety Beach Drive intersection. The corridor north from Moonee to the deviation would comprise an upgrading/amplification of the existing highway
- **Option D** – A major upgrade/amplification along the whole length of the existing highway

It should be noted that the shortlisting of options had been undertaken after an extensive process involving the Steering Committee and community input. As a result no further options were considered in the workshop. However, it was acknowledged that whichever preferred option moved forward for further analysis in the next stage of development, there would be a level of fine tuning and improvement undertaken on the option.

Below is outlined key points made in presentations which supplemented background information distributed and/or made available to participants prior to the workshop (ie. Route Options Development Report and Working Papers). The shortlisted route options A, B1, B2, C and D are shown in **Figure 1**.

Shortlisted Option Comparison of Key Elements – Chris Clark, Project Manager RTA

Material presented by Chris Clark outlining the description of options, shortlisting procedure and comparisons of key elements can be found in **Appendix 4**

Overall Assessment Process and Key Findings – Tim Paterson and Rosemary Russell, Connell Wagner

Key points raised in their presentation included:

- Investigations of the shortlisted options and the findings appear in the Route Options Development Report and a number of Working Papers which included:
  - Statutory and Strategic Planning Issues
  - Non-Indigenous Heritage Assessment
  - Geotechnical Investigations
  - Noise and Vibration Assessment
  - Ecological Assessment
  - Agricultural Land Use Assessment
  - Socio-Economic Assessment
  - Traffic and Transport Assessment
  - Cost Estimates and Economic Analysis
  - Urban Design and Visual Assessment
  - Aboriginal Heritage Assessment (Confidential)

- Key findings in the area of Bio-diversity (Working Paper No 5: Ecological Assessment)
  - Comparative assessment of options with respect to flora, terrestrial fauna and aquatic fauna with focus on threatened species and communities
  - Desk top mapping and analysis and focussed field surveys were undertaken
  - 16 threatened plant species were identified. 8 have medium-high likelihood of occurring and have significant impact. A high proportion of these are near Option A and least near Option D
  - 5 rare/regionally significant plant species were identified. 2 have medium-high likelihood of occurring/impact. Both are near Option A
  - Waterways/aquatic impact is highest for Option A, medium for B/C and lowest for D
  - 13 vegetation associations were mapped (1 endangered, 3 poorly conserved/protected). Option A will require most clearing and highest impact, Option B will have medium impact
  - 10 threatened reptiles/amphibians have been identified (6 have medium-high likelihood of occurring and significant impact). 27 threatened birds have been identified (24 have medium-high likelihood of occurring and significant impact). 24 threatened mammals have been identified (18 have medium-high likelihood of occurring and significant impact)
  - Options A and B have the highest proportion of threatened species potentially impacted. Options C and D have the lowest impact. Potential impact on migratory species is highest for A, reducing for B, then C and lowest for D
  - Impact on key habitats and movement corridors is highest for Option A, reducing for B, then C, and lowest for D
  - Effectiveness of mitigation of ecological impacts is lowest for A, increasing for B, then C, and highest for D
- Key findings in the Socio-economic area (Working Paper No 7: Socio-Economic Assessment) included:
  - Profile of the socio-economic characteristics of community was established
  - Interviews with various groups and stakeholders
  - Documentation of relevant assessment factors was undertaken (see table below), recognising that some social consideration warranted assessment independently (eg. traffic noise, land/property severance)
  - Analysis of the likely implications of upgrade options included benefits and adverse impacts
  - In the Moonee – Woolgoolga section, the overall assessment indicates Option D presents mainly adverse consequences, Options A and B are generally positive changes and Option C is in between
  - A comparative assessment of the socio-economic issues for each option is:

Issue	Sapphire To Moonee	Option A	Option B1	Option B2	Option C	Option D
Community cohesion	low adverse	low to moderate beneficial	moderate beneficial	moderate beneficial	moderate adverse	high adverse
Access and movement patterns	moderate beneficial	low to moderate beneficial	moderate beneficial	moderate beneficial	moderate to high beneficial	moderate adverse
Effects on passing trade	low adverse	low adverse	low to moderate adverse	low to moderate adverse	low adverse	low beneficial
Effects on tourism	low beneficial	low beneficial	low to moderate beneficial	low to moderate beneficial	moderate beneficial	low adverse

- Key findings on Visual Amenity (Working Paper No 10: Urban Design and Visual Assessment)
  - Preliminary assessment to identify existing visual environment (landform types, vegetation types and land use) and visual sensitivity of options (visibility of road from adjacent land uses)
  - Homogenous landscape units are less capable of absorbing change such as a new highway
  - Other factors in assessing potential impact are vegetation and slope

- Visual sensitivity was categorised as primary and secondary viewsheds:
  - Primary viewsheds defined by permanent landform constraints
  - Secondary or local viewsheds defined by buildings and vegetation
- Anther element of visual amenity was scenic quality (ie. the measure of visual variety and interest from road users' viewpoint)
- A comparative assessment of the visual amenity for each of the options is:

Route Option	Visual Impact	Visual Sensitivity	Scenic Quality	Opportunities for Scenic Management/ Urban Design
A	High	Low	Low to moderate	Moderate
B1	Moderate	Moderate to low	High	High
B2	Moderate	Moderate to low	High	High
C	Low	Moderate to high	Low to moderate	Moderate to high
D	Low	Moderate to high	Low to moderate	Moderate

- Key findings of the Non-Indigenous Heritage Assessment (Working Paper No 2: Non-Indigenous Heritage Assessment) included:
  - A desk-top assessment of non-indigenous heritage issues was carried out. Field survey may be necessary at EIS stage to identify and assess any items of heritage significance
  - Literature review was undertaken including search of listings from:
    - Australian Heritage Commission
    - Register of the National Estate
    - NSW State Heritage Inventory
    - National Trust of Australia
    - RTA Conservation and Heritage Register
    - Relevant LEPs and heritage studies
    - Consultation with historical societies/groups and CHCC
  - A number of items in the study area are on the Register of the National Estate and derive their value from natural heritage characteristics
  - Also a number of items of built heritage exist associated with developed areas
  - The only item directly affected by any of the options is the Orara Ornithological Area traversed by Option A which is listed as an “Indicative Place” on Register of National Estate.
  - Option A would also traverse Wedding Bells State Forest identified as valued by local community in Coffs Harbour Heritage Landscape Study
  - Options B1, B2, C and D would not directly affect any listed items of heritage significance
  - It is possible that items or sites of historical archaeological interest could be affected by Options B1, B2, C and D and field survey may be necessary at EIS stage to identify any as yet unidentified sites
  - The “Relics” provision of the NSW Heritage Act would apply to any sites of historic archaeological significance.
- Key findings of the Agricultural Land Use Effects (Working Paper No 6: Agricultural Land Use Assessment) included:
  - Preliminary assessment was undertaken using a desk-top study supported by site visit and meetings with Banana Growers Association
  - Main agricultural activities identified were forestry, bananas, cultivation and grazing, with the major enterprise being banana growing (the most important rural industry >$20M)
  - Sixty-six agricultural properties evaluated along bypass options and a further 87 along current highway route
  - Physical impacts of route options were assessed on a four-test basis and indexed according to the Hartley Impact Indexing System
  - Physical impacts arise from the location of the road alignment without consideration of effects on crops, balance of land use capability units on property, management capacity, existing farm management, internal access, economic factors or future rationalisation of property boundaries and property consolidation
  - Option B1 and B2 have the greatest impact on agricultural properties and impacts would cause major disruption to banana growing

- The section of B2 that diverges from B1 increases the impact on individual properties. This effect is largely cancelled if the impacts evaluated were on groups of properties with reported common ownership
- Banana growing is particularly cohesive in Woolgoolga region due to:
  - The farms being largely family run and held for generations
  - The co-operative approach to disease control based on aerial spraying for leaf spot and leaf speckle

Noise Impacts – Neil Gross, Noise Specialist, Wilkinson Murray

Key points raised in his presentation as highlighted in Working Paper 4: Noise and Vibration Assessment included:

- The traffic numbers indicate that the bypass options may not attract all the through traffic and that much of the traffic is local. Hence following construction of the bypass, traffic noise on the existing highway is not eliminated and must be considered
- The noise modelling to date is considered of sufficient accuracy to allow comparison of the different options
- The number of residences (including those along the existing highway for each option are Option A: 1050 residences, Option B1: 1101 residences, Option B2: 1093 residences, Option C: 1156 residences and Option D: 1005 residences
- In terms of meeting the EPA noise requirements, the number of residences which require noise mitigation are Option A: 276 residences, Option B1: 334 residences, Option B2: 331 residences, Option C: 471residences and Option D: 382 residences
- In terms of ranking the potential impacts (without mitigation), the weighted ranking for each option is Option A: 1315, Option B1: 1447, Option B2: 1439, Option C: 1666 and Option D: 1540
- Although the ranking shows a difference between options, an objective assessment which considers total noise impact to the overall community shows the relative differences are actually small and do not reflect the strong adverse comment for all options (other than Option A)
- Option C and Option D due to the increased residential density adjoining the options would most likely benefit from mitigation at the roadside. This is particularly critical in an area where “outdoor” (or window open) living is common

Scope Definition, Cost Estimates and Economic Analysis – Barry Hancock, Connell Wagner

Key points raised in his presentation as highlighted in Working Paper 9: Cost Estimates and Economic Analysis included:

- Estimated bypass and highway traffic volumes were presented as per the Working Paper 8 which provided the information on which to develop the economic analysis. Also the scope of work was defined and explained for each option as reported in Working Paper 9
- The general parameters on which the economic analysis was based was discussed and economic indicators described
- As a summary, the cost estimate for each option and the Benefit Cost Ratio (BCR) for each option was tabled

Route Option	Cost Estimate ($M)	Cost per km ($M/km)	BCR
A	373	15.0	1.14
B1	287	13.4	1.74
B2	272	12.3	1.85
C	239	10.3	1.99
D	259	11.7	2.12

Aboriginal Heritage Comments – Tony Perkins, Yarrawarra Aboriginal Corporation

Key points raised by Tony Perkins in his presentation indicated that Route Option A traverses culturally sensitive landscape and sacred sites which are well known and highly valued by the Aboriginal community. The other route options have less sensitive impacts as one moves from Option B1 and B2 to Option C and Option D. More detailed information is available in the Aboriginal Heritage Assessment Working Paper (some of which is confidential).

Assessment of Route Options

Having reviewed the route options and discussed their advantages and disadvantages in relation to the various studies outlined in the presentations above as well as the investigations outlined in the Route Options Development Report and Working Papers, the group was now in a position to evaluate the route options against the weighted assessment criteria developed earlier in the workshop.

The group (in three focus groups) evaluated the route options using the weighted assessment criteria in each of the three bottom line categories, separately. One focus group evaluated the route options against the functional assessment criteria, whilst a second focus group evaluated the route options against the environmental assessment criteria and the third focus group evaluated the route options against the socio-economic assessment criteria.

The options were judged on a qualitative basis of how well each option met each category's assessment criteria 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 category. 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.

Evaluation of Route Options against Functional Assessment Criteria

			Functional Criteria									
	Assessment Criteria		Road safety for all users	Traffic efficiency + LT functionality	Constructability	Opportunity for early benefits						
			ASSIGNED WEIGHT									
OPTIONS	WT		**38**	**33**	**10**	**19**						
A	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	**5**
	2		F	F	F	F	F	F	F	F	F	
	1		(P)	(P)	(P)	(P)	P	P	P	P	P	
	Sub Total		**38**	**33**	**10**	**19**						**100**
B1	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		**76**	**99**	**30**	**38**						**243**
B2	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		**76**	**99**	**40**	**38**						**253**
C	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		**114**	**132**	**20**	**76**						**342**
D	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		**76**	**99**	**10**	**76**						**261**

Conclusions and Key Observations

- The options were evaluated against the “Road safety” and “Traffic efficiency/Long Term functionality” criteria on a network wide basis (ie. new road and existing road)
- The evaluation of options against the “Long Term functionality” criteria included consideration of Level of Service (LOS) and perceived local traffic accessibility to the new road (Options B1 and B2 could be improved with more local usage)
- Should Options A, B1 or B2 go forward, issues of safety, maintenance and management of existing highway would need to be addressed
- There will be some issues for constructability of Options C and D with respect to the availability of quarry products

Evaluation of Route Options against Environmental Assessment Criteria

			Environmental Criteria									
	Assessment Criteria		Heritage impacts	BDI-Threatened species	BDI-Migratory species	BDI-Habitat + movement corridor	BDI-Waterways + aquatic env.	Construction impacts				
			ASSIGNED WEIGHT									
OPTIONS	WT		**19**	**19**	**12**	**28**	**22**	**0**				
A	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	**5**
	2		F	F	F	F	F	F	F	F	F	
	1		(P)	(P)	(P)	(P)	(P)	(P)	P	P	P	
	Sub Total		**19**	**19**	**12**	**28**	**22**					**100**
B1	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		**38**	**38**	**36**	**56**	**44**					**212**
B2	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		**38**	**38**	**36**	**56**	**44**					**212**
C	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		**57**	**57**	**24**	**84**	**44**					**266**
D	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		**57**	**57**	**60**	**112**	**66**					**352**

Conclusions

- Option D performs significantly better than the other options in terms of environmental impacts
- Option A performs significantly worse than the other options
- There is not much difference in terms of environmental impacts between Options B1, B2 and C

Observations

- There is a need to further investigate the differences between Options B1 and B2
- The rating scale used was not broad enough to make a clear distinction between Options B1 and B2
- Construction impacts do not affect the final assessment because the weighting for this criteria was zero when compared to the other criteria. However, the group identified that there was potential for significant environmental impacts for all options during construction. There is a need for appropriate strategies to minimise the impacts during construction

- In the area adjacent to Option C, there are two wetland areas that provide habitat for migratory birds which apparently were not considered during the formulation of the investigation report (Working Paper)
- Possibly Option C could be moved closer to Option D as an improvement (environmentally - consider a review by the ecologist)

Evaluation of Route Options against Socio-economic Assessment Criteria

			Socio-Economic Criteria									
	Assessment Criteria		Traffic noise impacts	Amenity effects excluding noise	Compatibility with strategy planning	Rural land impacts	Urban land impacts	Local traffic access & movement				
			ASSIGNED WEIGHT									
OPTIONS	WT		23	2	21	26	19	9				
A	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	**1**
	3		G	G	G	G	G	G	G	G	G	
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**69**	**8**	**63**	**52**	**95**	**45**				**332**
B1	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	**4**
	3		G	G	G	G	G	G	G	G	G	
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**46**	**4**	**21**	**26**	**76**	**27**				**200**
B2	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	**4**
	3		G	G	G	G	G	G	G	G	G	
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**46**	**4**	**21**	**26**	**76**	**27**				**200**
C	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	**2**
	3		G	G	G	G	G	G	G	G	G	
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**23**	**8**	**84**	**52**	**57**	**18**				**242**
D	5		E	E	E	E	E	E	E	E	E	RANK
	4		VG	VG	VG	VG	VG	VG	VG	VG	VG	**2**
	3		G	G	G	G	G	G	G	G	G	
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**23**	**6**	**63**	**130**	**19**	**9**				**250**

Conclusions and Key Observations

- Option A ranks the highest based on the evaluation against the socio-economic criteria
- Options C and D are essentially comparable
- Overall, the strategy seems to be that the option selected should go well west (Option A) or upgrade along the present corridor (Options C or D). That is do not do something at an intermediate distance westward (Options B1 or B2)
- The desire to protect the rural land resource in the study area is the single strongest influence

Summary of Route Option Evaluation

A summary of the rankings of the route options against the various triple bottom line categories together with the cost estimates and benefit cost ratios (BCR) presented earlier appears below. It should be noted where the difference in score between options was not greater than the highest weighted criteria within that category, the options were equally ranked as the difference in score was not considered significant.

	Category				
Rank	**Functional**	**Environmental**	**Socio-Economic**	**Cost ($M)**	**BCR**
1	C	D	A	C ($239)	D (2.1)
2	D, B1, B2	C	C, D	D ($259)	C (2.0)
3		B1, B2		B2 ($272)	B2 (1.9)
4			B1, B2	B1 ($287)	B1 (1.7)
5	A	A		A ($373)	A (1.1)

Recommending A Preferred Direction

As a result of the work undertaken above, the group (in four focus groups) was asked “Which route option would you prefer as the direction to move forward for more detailed investigation and refinement to progress the project and the reasons why”. However, the preference is “subject to” the issues identified below being addressed. Also a fallback option was to be nominated by each focus group.

The focus group conclusions are recorded below.

Focus group 1

We prefer Option C as the preferred route to be progressed.

Because:

- It is effectively the same as Option D (except for the deviation around the centre of Woolgoolga)
- Significant functional advantages over Option D (eg. road safety, travel speed - 100 km/h as against 80 km/h)
- Similar socio-economic impacts as Option D
- Most affordable, but still meets the benchmark (desirable) BCR

Subject to:

- Mitigation of potential bio-diversity impacts on migratory birds, wetland and lowlands rainforest
- Further noise mitigation measures and urban design outcomes being investigated (mitigation measures developed and implemented)
- A review of council’s strategic plan in the immediate Woolgoolga area
- A detailed cultural heritage assessment along the route is undertaken

Fallback position:

- Option B2. Review Option B2 with respect to agricultural land impacts, local traffic accessibility to the new route and suitable strategies to improve environmental performance

Focus group 2

We prefer Option C as the preferred route to be progressed.

Because:

- Of the ease of construction
- Early benefit opportunities
- Less severance
- Potential to integrate traffic noise mitigation
- Good balance between community and natural environment criteria
- Minimal land loss and impact on the "ability to farm" (agricultural land)

Subject to:

- Refining the option to minimise impacts on existing zoned 2A (residential) lands within Woolgoolga
- Greater identification of the "significance" of water/dam areas along this option for migratory species
- Investigation of noise mitigation for residents effected

Fallback position:

- Not Options A, B1 or B2

Focus group 3

We prefer Option C or Option D as the preferred route to be progressed.

Because:

- They provide the best overall ranking across all three triple bottom line categories (ranked second or better in each category)

Subject to:

- Resolving the strategic direction for Woolgoolga
- Resolving the connectivity between rural residential and urban areas
- Resolving/managing community preference and perceptions
- Carefully considering and managing the construction impacts of Options C and D
- Investigating and addressing urban design aspects for Option D
- Managing the noise issue effectively
- Investigating the migratory bird issues and rural land impacts for Option C

Fallback position:

- The other of the two options (ie. Option D or Option C)

Focus group 4

This focus group felt a preference could not be drawn. However the focus group drew some conclusions from the work undertaken in the workshop over the two days. As a result, the focus group concluded that:

- Based on output from this workshop it would appear that either Option C or D is preferred. However it is based on information available to us at this time and it is not appropriate to make definitive recommendations
- The known community position is out of sync with the workshop outcomes

Where to From Here?

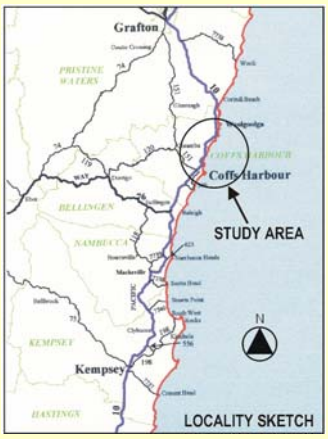
At the conclusion of the workshop, an Action Plan was produced which outlined the direction and process to be undertaken by the Steering Committee, the Study Team and others to move the project forward from here.

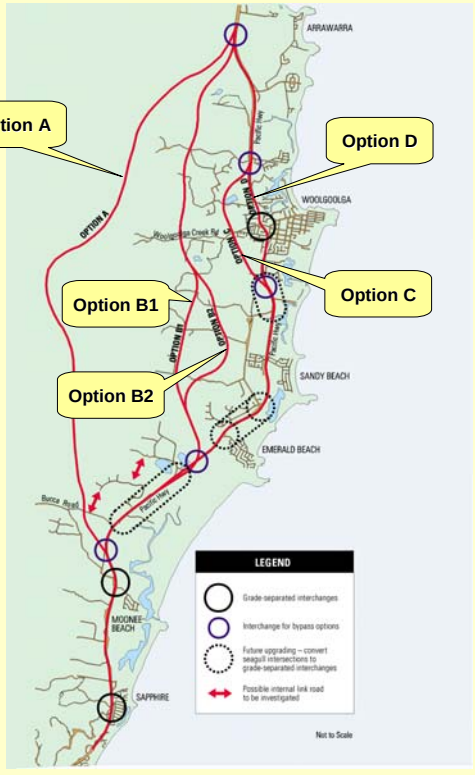
No.	Task	Timeframe
1.	Prepare a draft value management workshop report	Mid April 2003
2.	Issue the draft report to the Steering Committee for review and consideration	
3.	Steering Committee to agree on the way forward and release the value management workshop report to the participants who attended the workshop	Late April 2003
4.	Complete other input items (eg. submissions report, supplementary studies, address issues raised in the workshop, etc) to finalise the Route Selection Report	
5.	Steering Committee to consider all reports and other information and make recommendation as to the preferred route option to move forward	May 2003
6.	Refer the recommended route option to the Minister for adoption of a preferred option	
7.	Decision by the Minister to progress the proposal to EIS stage	Mid 2003

Appendix 4. Route Option Comparison Presentation Material by Chris Clark, RTA

Review of Route Options

Presentation by:
The Project Team





Strategic Overview

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS

The following table contains a comparison of the options :

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING HIGHWAY OPTION D
ROUTE DESCRIPTION					
Starting Point	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort
Finishing Point	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek
Total Length	25.6 km	22.1 km	22.8 km	23.3 km	22.9 km
Highest Point above Sea Level	170m	55m	55m	30m	Existing Highway
Highest Embankment	35m	25m	12m	8m	Existing Highway
Deepest Cutting	35m	45m	30m	8m	Existing Highway
Maximum Grade	5.0%	4.5%	4.5%	3.5%	6.0%

Sapphire to Woolgoolga - Route Descriptions

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS (cont.)

The following table contains a comparison of the options :

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING HIGHWAY OPTION D
APPROXIMATE QUANTITIES					
Starting Point	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort
Finishing Point	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek
Clearing (Ha)	117	82	84	58	48
Earthworks – Cut to Fill (Million m^3)	3.6	2.1	1.6	0.7	0.5
Pavement (m^2)	605,000	520,000	530,000	520,000	500,000
Bridges (m^2)	24,000	12,000	12,000	12,000	17,000
Noise Mitigation Measures (m^2)	7,500	18,000	18,000	21,000	28,000

Sapphire to Woolgoolga - Approximate Quantities

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS (cont.)

The following table contains a comparison of the options :

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING HIGHWAY OPTION D
GEOTECHNICAL ISSUES					
Starting Point	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort
Finishing Point	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek
Terrain	Very Steep	Steep	Steep	Undulating	Flatter
Runoff Velocities	High	High	High	Moderate	Lower
Soil Erodibility	Very High to High	Extreme to High	Extreme to High	Very High to High	Extreme to High
Nature of Material from Cuttings	Good Quality Select and Possible Pavement Materials	Good Quality Select and Possible Pavement Materials	Good Quality Select and Possible Pavement Materials	Low Quality Fill Material	Low Quality Fill Material
Settlement	Minor	Up to 100mm	Up to 100mm	Up to 300mm	Up to 300mm

Sapphire to Woolgoolga - Geotechnical Issues

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS (cont)

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING H'WAY OPTION D
TRAFFIC AND TRANSPORT					
2021 Average Daily Traffic Volumes (all vehicles)					
On Bypass	9,700	10,300	10,300	16,500	N.A.
On Existing Highway north of Clarence Street	14,600	14,000	14,000	7,800	24,300
2021 Average Daily Heavy Vehicle Volumes					
On Bypass	2,000	2,000	2,000	2,000	N.A.
On Existing Highway north of Clarence Street	300	300	300	300	2,300
Transport Efficiency (Semi-trailer, Moonee to Arrawarra)					
Travel Time (mins)	13.9	10.3	10.7	11.1	11.1
VOC ($/vehicle)	$16.00	$13.60	$14.10	$14.30	$14.00

Existing Highway — Travel Time (mins) 12.4; VOC ($/vehicle) 13.80

Sapphire to Woolgoolga - Traffic and Transport

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS (cont)

The following table contains a comparison of the options :

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING HIGHWAY OPTION D
ECONOMICS					
Starting Point	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort	Nautilus Resort
Finishing Point	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek	Arrawarra Creek
Cost ($2002)	$370M	$290M	$270M	$240M	$260M
Cost per Km	$14.6M	$13.1M	$12.0M	$10.2M	$11.4M
Benefits (PVB)	$373M	$437M	$429M	$440M	$516M
BCR	1.18	1.81	1.86	2.17	2.35

Sapphire to Woolgoolga - Economics

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS (cont)

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING HIGHWAY OPTION D
BIO-PHYSICAL IMPACTS					
Impact on Threatened Terrestrial Fauna Species	Highest	Highest / Medium	Highest / Medium	Medium / Lowest	Lowest
Impact on Migratory Species	Highest	Medium	Medium	Medium	Lowest
Impact on Key Habitats and Movement Corridors	Highest	Medium	Medium	Medium	Lowest
Impact on Waterways and Aquatic Environment	Highest	Medium	Medium	Medium	Lowest

Sapphire to Woolgoolga - Bio-physical Impacts

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS (cont)

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING HIGHWAY OPTION D
SOCIO-ECONOMIC IMPACTS					
Community Cohesion	Low to moderate beneficial	Moderate beneficial	Moderate beneficial	Moderate adverse	High Adverse
Amenity Effects	Low adverse	Moderate adverse	Moderate adverse	Moderate to high adverse	Moderate to high adverse
Access and Movement Patterns	Low to moderate beneficial	Moderate beneficial	Moderate beneficial	Moderate to high beneficial	Moderate adverse
Rural Land Use and Property	Moderate adverse	High Adverse	High Adverse	Moderate adverse	Low adverse
Urban Land Use and Property	No effect	Low adverse	Low adverse	Moderate adverse	High Adverse
Effects on Passing Trade	Low adverse	Low to moderate adverse	Low to moderate adverse	Low adverse	Low beneficial
Effects on Tourism	Low beneficial	Low to moderate beneficial	Low to moderate beneficial	Moderate beneficial	Low adverse

Sapphire to Woolgoolga - Socio-economic Impacts

Figure 7-1 Changes in Noise Levels (Daytime, Without Mitigation)

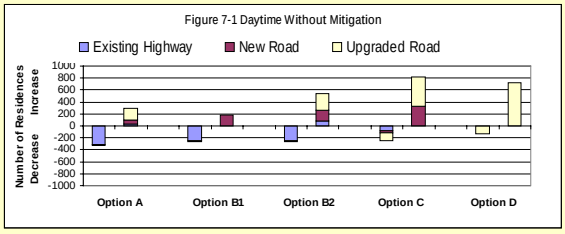
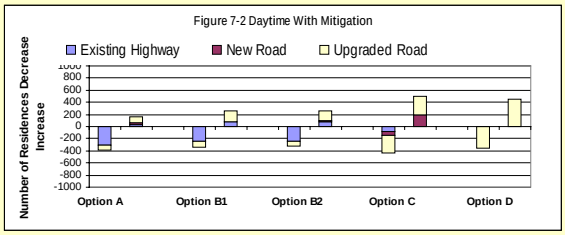


Figure 7-2 Changes in Noise Levels (Daytime, With Mitigation)



Sapphire to Woolgoolga - Daytime Noise Impacts

Figure 7-1 Changes in Noise Levels (Nighttime, Without Mitigation)

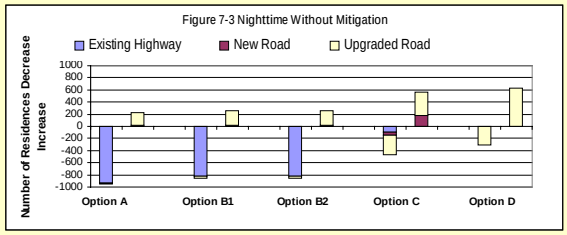
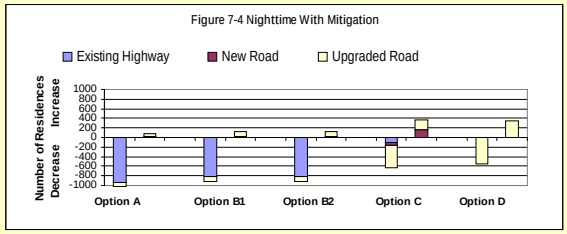


Figure 7-2 Changes in Noise Levels (Nighttime, With Mitigation)



Sapphire to Woolgoolga - Nighttime Noise Impacts

COMPARISON OF SAPPHIRE TO WOOLGOOLGA OPTIONS (cont)

ITEM	ROUTE OPTION PROPOSAL				
	OUTER BYPASS OPTION A	CENTRAL BYPASS OPTION B1	CENTRAL BYPASS OPTION B2	INNER BYPASS OPTION C	UPGRADE EXISTING H'WAY OPTION D
INDIGENOUS HERITAGE IMPACTS					
Sites in Vicinity of Options	At least 2 natural sacred sites and an historic camping place	Historic Campsite and 2 Bora / Ceremonial Grounds	Historic Campsite and 2 Bora / Ceremonial Grounds	No Permanent Aboriginal Constraints Identified	No Permanent Aboriginal Constraints Identified
Artefacts					
Presence	Expected to be present on at least some of the unsurveyed ridgelines	Likely to be restricted to 2 forested spur crests which could not be accessed for the survey	Likely to be restricted to 2 forested spur crests which could not be accessed for the survey	Evidence of 1 small highly disturbed artefact scatter	1 small disturbed scatter of stone artifacts and an isolated stone artifact
Aboriginal Social Significance	Likely to be High	Not able to ascertained	Not able to ascertained	Low	Low
Scientific Significance	Likely to be High to Moderate	Not able to ascertained	Not able to ascertained	Low	Low

NOTE :- Option A Traverses culturally sensitive landscape and a number of ridgelines known to have been used as travelling routes through the forest

Sapphire to Woolgoolga - Indigenous Heritage Issues

Appendix B

Coffs Harbour section value management workshop report prepared by ACVM (August 2004)

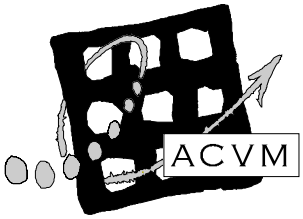
Coffs Harbour Highway Planning

COFFS HARBOUR – SOUTHERN SECTION

INNER BYPASS CORRIDOR
ROUTE EVALUATION WORKSHOP

Value Management Workshop Report

August 2004



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Summary 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. An agreement between the NSW and Commonwealth Governments to upgrade the Pacific Highway has led to an upgrade program to eliminate accident blackspots, provide dual carriageway conditions where possible, improve traffic flows and reduce travel times over a ten year period which ends in 2006.

The section of the highway (subject of this project) between Englands Road (in the South) and Korora (in the North) runs through the main commercial centre of Coffs Harbour. The highway has many major intersections and traffic lights with various local roads serving coastal and rural residential communities. Although the section of road is dual carriageway, there are multiple speed zones which would be expected given the urban environment through which it travels.

The population within the north coast region of NSW in general, and within the Coffs Harbour Local Government Area in particular, is increasing at a high rate, and the associated increase in local traffic using the Pacific Highway is leading to further safety and capacity concerns. Moreover, the through-traffic volumes are expected to increase as the Pacific Highway Upgrade Program continues and the overall highway standard improves.

These increases in both local and through traffic volumes on the existing highway are anticipated to lead to more traffic conflicts and increased congestion with the risk of increased accidents as well as reduced local amenity particularly caused by increased noise (a major issue in the community).

Consequently bypass route options are being considered which would enable the majority of through traffic and particularly heavy vehicles to be given a travel choice to avoid the conflicts one would expect to experience within an urban environment.

The bypass of the Coffs Harbour section of the Pacific Highway forms part of the broader Coffs Harbour Highway Planning Strategy. The Strategy is being developed to address the need to upgrade the Pacific Highway between Sapphire and Woolgoolga while planning for the future traffic needs within the Coffs Harbour urban area. The principal parties involved in the Strategy development are the Roads and Traffic Authority (RTA), Department of Infrastructure Planning and Natural Resources (DIPNR) and Coffs Harbour City Council (CHCC).

Investigations to address the traffic problems of the Coffs Harbour section commenced in September 2001. The RTA commissioned Connell Wagner (the Study Team) to investigate potential route options for an upgrade of the highway through Coffs Harbour and Woolgoolga (including possible bypasses) and to recommend a preferred route option for consideration by the NSW Minister for Roads.

Investigations divided the Inner Corridor options into two sections – a southern section and a northern section. The southern section extends from Englands Road in the south to Bennetts / Coramba Roads. It passes through the North Boambee Valley which is subject to urban development proposals and Roberts Hill ridge with its Koala habitat, fauna corridor considerations and North facing banana farms. The Northern Section extends from Bennetts / Coramba Roads around the western part of Coffs Harbour, across the railway line and through Gately's Road ridge to meet up with the existing highway at Korora Hill.

These two sections (South and North) each had two route options to be considered through a structured Value Management Workshop process: South – **IS1 and IS2**; North – **IN1 and IN2**. The preferred option is to meet the future transport needs for the highway whilst balancing the social, economic, environmental, functional engineering and cost considerations.

The specific route options considered (shown in **Figure 1**) were:

- **Option IS1** – A bypass corridor which passes through the Boambee Valley, and an eastern low point in Roberts Hill ridge before reaching the Bennetts Road area;
- **Option IS2** – A bypass corridor which arcs out further west as it passes through the Boambee Valley, tunnels through Roberts Hill ridge before reaching the Bennetts Road area;
- **Option IN1** – A bypass corridor which runs north from Bennetts / Coramba Roads before arcing through Spagnolos Road, across the rail line then adjacent to the rail corridor on the southern slopes of a large knoll and down through Gatelys Road ridge to meet up with the existing highway at Korora
- **Option IN2** – A bypass corridor which runs from Bennetts / Coramba Roads before arcing through Spagnolos Road and then bridging across the rail line before sweeping around the Northern slopes of a large knoll and down through Gatelys Road ridge to meet up with the existing highway at Korora.

A value management workshop was seen as the most appropriate vehicle 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 evaluation of the options against agreed assessment criteria, determine a preferred route for the Inner Bypass corridor.

The outcomes of the value management workshop are seen as one further input into the final decision by the Minister for Roads on the preferred route.

The Australian Centre for Value Management (ACVM) was commissioned by Connell Wagner to facilitate and report on the workshop which was attended by a range of stakeholders on **2nd and 3rd August 2004**.

A list of participants who attended the workshop can be found in **Appendix 1**.

Workshop Purpose

The purpose of the workshop was to:

- ***Recommend a preferred route from within the Inner Bypass Options.***

To achieve this purpose the workshop participants were specifically to give focus to the following:

- *Clarifying the objectives of the program and this project;*
- *Reviewing the planning parameters for the project;*
- *Examining the options developed for the Inner Bypass Corridor and identifying any potential value improvements; and*
- *Recommending a preferred route for the Inner Bypass Corridor to the RTA and DIPNR.*

This report has been compiled by ACVM and seeks to provide an objective overview of the key aspects which arose and the outputs from the workshop.

Workshop Focus

The specific focus of the workshop was on the four route options:

- ***Inner South 1 (IS1)***
- ***Inner South 2 (IS2)***
- ***Inner North 1 (IN1)***
- ***Inner North 2 (IN2)***

Workshop Activities

The workshop process was intended to build on the perspectives as well as the detailed and specialist knowledge of the workshop participants. The intent of the workshop was to then structure the review and option evaluation from a functional base ie.

- *What are the problems that the project must address? and*
- *What must the project achieve to be successful?*

During the workshop, background material was presented. What was important about the project from various stakeholder perspectives was identified. The problem situation and the project objectives were reviewed. Assumptions being made about the project were identified and challenged from various perspectives. This has been recorded in **Appendices 2 and 4**.

Assessment criteria were identified and weighted on a "triple bottom line" basis. The three groupings of Assessment Criteria developed for later evaluation of the options were:

- Functional;
- Environmental and
- Socio-economic performance

Details can be seen in **Appendix 2**.

Using this information, the shortlisted route options developed were reviewed by the workshop group. See **Appendix 3**.

The group then evaluated the route options using the assessment criteria. (**Appendix 3**).

Workshop Outputs

By the end of the workshop, the participants had:

- **Recommended a preference** for combining route options IS2 and IN2 as they were considered to perform, on balance, better than the other route option combinations against the Criteria developed in the session. *<u>However,</u>* it was acknowledged that:
  - Route option IS2 necessitated a tunnel, the cost of which raised some concerns about value for money and construction timing because it was $65M more expensive than option IS1;
  - There needed to be review of CHCC urban planning in the North Boambee Valley and in west Coffs Harbour;
  - In Option IS2, a tunnel must be included and involves a need for policy review on traffic type usage;
  - Consideration of inclusion of tunnel(s) in Option IN2 involves choices across stakeholder impact scenarios, additional cost and a need for policy review on traffic type usage;
- **Identified** *the problems causing the need for the project, being a mix of:*
  - *Through traffic volumes and local traffic conflicts*
  - *Composition of traffic and its purpose*
  - *Traffic growth*
  - *Heavy transport noise and diesel pollution*
  - *Travel time and delays – including various speed zones and traffic lights*
  - *Road safety*

- *Rapid development and urban growth closing out route options in a geographically limited area*
- *Conflict between present land use planning across the Coffs Harbour area and the introduction of a new highway route*
- *The challenge of defining an entire highway corridor for the Pacific Highway program*

- **Confirmed** the project objectives which reflect what the project must do to be successful in achieving its purpose and addressing the problems. The project objectives are to:
  - Provide a dual carriageway road with the potential to reduce crash rates to 15 crashes per 100 MVKT over the project length
  - Provide a design which would allow signposting at a minimum of 100 km/h in rural areas and 80 km/h in urban areas
  - Provide flood immunity for at least one carriageway in a 1:100 year flood event
  - Minimise vehicle operating costs
  - Meet (or exceed) heavy vehicle requirements *(including B-doubles)* including at intersections, where required
  - Integrate the input from local communities into the development of the project through the implementation of a comprehensive program of community consultation and participation
  - Provide a solution at all potential conflict points with local traffic that meets community expectations and maintains local connectivity
  - Provide a highway which is integrated with local land use planning and transport needs
  - Incorporate best environmental practice including assessing and addressing cumulative impacts and ESD principles as well as meeting RTA guidelines (ie. State standards) for managing all environmental issues (eg. biodiversity, noise impacts, water quality, acid sulfate soils, social severance, natural environment, etc)
  - Maximise the use of the existing road asset where consistent with the project
  - Ensure the project outcomes achieve value for money

- **Identified** and **challenged** assumptions being made about the project from a range of perspectives (see **Appendix 2 for detail**) including:
  - Local traffic, safety, access and community;
  - Environment and heritage;
  - Through traffic and commercial business.

- **Identified** and **weighted** assessment criteria within the three "triple bottom line" categories nominated. The assessment criteria identified were:

Functional Performance

- *Long term function, safety, flexibility, capacity*
- *Safety (including dangerous goods / tunnels)*
- *Travel time and efficiency*

Environmental Performance

- *Impact on water courses/aquatic environment*
- *Impact on fauna habitat/vegetation*
- *Impact on wildlife corridors*
- *Impact on threatened species*

Socio-economic Performance

- *Impact on local air quality*
- *Impact of traffic noise*
- *Extent of community severance*
- *Impact on Aboriginal heritage*
- *Impact on European heritage*
- *Impact on existing land use and business*
- *Impact on future land use planning*
- *Effects on landscape and visual amenity*
- *Impact on agricultural business/viability*

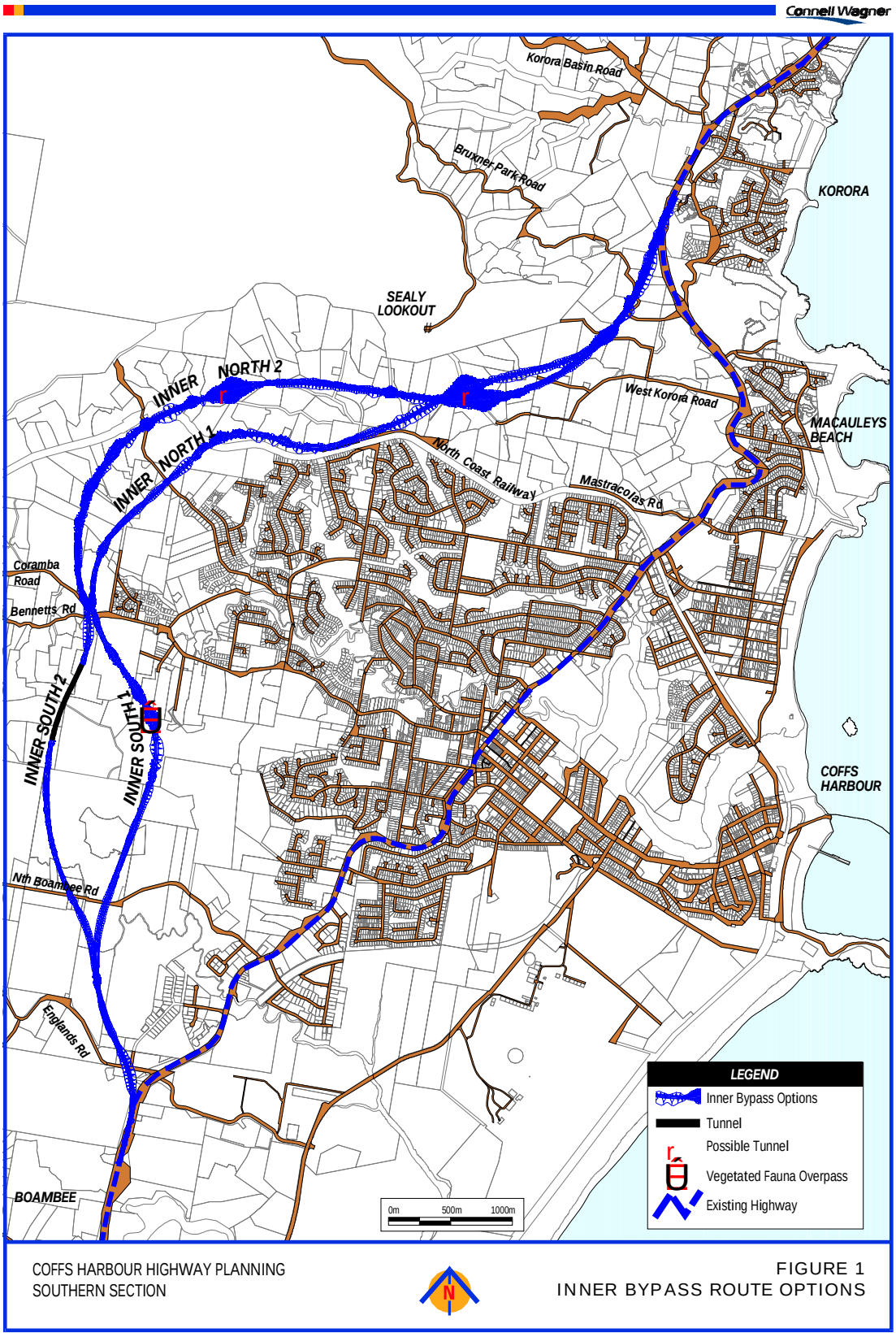
- **Reviewed** the inner bypass corridor route options tabled for this section of the Coffs Harbour Strategy and obtained an understanding of their relative merits and weaknesses (see **Appendix 3**).
- **Evaluated** the route options against the "triple bottom line" categories of assessment criteria and ranked the performance of each option. The options were also ranked in terms of the estimated cost (see **Appendix 3**)
- **Indicated** that the route option combination of IS2 and IN2 was favoured, as highlighted earlier (with a number of reservations) because:
  - IS2 and IN2 perform well against the assessment criteria (IS2 ranked second in the Functional category while both IS2 and IN2 ranked first in all others) and provide a good balance between socio-economic and environmental criteria
  - There seems to be potential to more effectively integrate traffic noise management for IS2 while IN2 impacts on far lesser numbers of people;
  - All options appear to impact to some degree on the operations related to existing rural cropping lands;

However this recommendation is subject to the following issues being addressed and resolved:

- Tunnel feasibility and number of tunnels:
  - *Is the additional cost worth it?*
  - *Resolving access for dangerous goods;*
  - *There is a preference for inclusion of tunnels in the IN2 solution*
- Confirmation of Indigenous Cultural concerns about disruption to the ridgeline and view lines in Options IN1 & IN2 which may influence the need for one or both tunnels;
- Noise mitigation at residences in the valley in relation to option IN2
- Implications of the final route option on banana growers needs to be considered – Compensation arrangements should be broadened to impacts beyond just "direct effects" and it should include indirect impacts on business operations by requirements such as "no spray, buffer zones", etc;
- Urgent clarification of the 150m vs 300m exclusion zone for aerial spraying;
- Immediate action by Council to reassess its planning for West Coffs Harbour / North Boambee;
- Immediate action by Council and DIPNR to establish a reserved route corridor within relevant planning instruments;
- Community acceptance;

- **Noted** that:
  - The VM workshop group was asked to select a preferred route within the inner corridor only;
- **Were presented** the "way forward" for the project from here:
  - RTA will assemble all the material produced on this project and the Sapphire / Woolgoolga section of the strategy including:
    - All route options and assessments to-date;
    - Community liaison and participation;
    - April 2003 VMS outputs;
    - August 2004 VMS on the inner bypass corridor routes at Coffs Harbour and the Option C, C1 and E routes near Woolgoolga;
  - All of this data will be packaged under a covering report by RTA and supplied to the Minister for Roads for a final decision on the preferred route option;
  - Then RTA, DIPNR and Coffs Harbour City Council will need to pursue planning activities to formally establish a reservation for the route corridor to guide local planning decisions while the project awaits priority funding;

Figure 1: Inner Bypass Route Options



Appendix 1. List of Participants

PACIFIC HIGHWAY UPGRADE – COFFS HARBOUR SOUTHERN SECTION
INNER BYPASS CORRIDOR – ROUTE EVALUATION WORKSHOP
PARTICIPANTS LIST

Project Stakeholders

Keith Rhoades	Mayor, Coffs Harbour City Council
Bill Palmer	Councillor, Coffs Harbour City Council
Mark Ferguson	General Manager, Coffs Harbour City Council
Rick Bennell	Planner, Coffs Harbour City Council
Steve Murray	Department of Infrastructure, Planning and Natural Resources (DIPNR)
John Finlay	DIPNR
Irwin Perring	Department of Environment and Conservation (DEC) (past EPA)
Arthur Tsembis	DEC (past National Parks)
Greg Ireland	Department of Primary Industries, Agriculture
Lisa McGill	NRMA - Policy, Planning and Economics Branch
Hugh McMaster	Road Transport Association
Stan Dasey	Coffs Harbour Chamber of Commerce
Bert Beasley	Community Focus Group – (for Trish Welsh)
Wilson Dale	Community Focus Group
Peter Lubans	Community Focus Group
Doug Binns	Community Focus Group
Chris Spencer	Coffs Harbour Local Aboriginal Land Council (for Michael Rogers)
Gerio Rossi	Banana Growers Association
Ron Smith	Ulitarra Conservation Society

Roads and Traffic Authority

Bob Higgins	General Manager, Pacific Highway Office
Chris Clark	Project Development Manager
Scott Lawrence	Environmental Advisor
David Corry	Senior Projects Manager, Road Network Infrastructure
Adam Cameron (Day 2)	Project Development Officer
Chris Steinbach (Day 1)	Graduate Environmental Engineer

Connell Wagner Study Team

Tim Paterson	Project Manager
Barry Hancock	Design Manager
Jo North	Environmental Scientist
Mark Syke (Day 2)	Project Planner
Neil Gross (Day 2)	Noise Specialist
Rob Bullen (Day 1)	Noise Specialist

Workshop Facilitation Team

Alan Butler	Co-facilitator, ACVM
Ross Prestipino	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: Coffs Harbour Inner Bypass Corridor route options which allowed them to later make comparisons of 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, **Bob Higgins**, the RTA General Manager for the Pacific Highway Upgrade Office outlined the "Big Picture" for the project.

Key points raised in his presentation included:

- We are in year 9 of a 10 year, $2.2 Billion program which has seen funding from the Federal Government ($600M) and NSW ($1.6B);
- The objectives of the Pacific Highway Upgrade Program are to:
  - Significantly reduce road accidents and injuries
  - Reduce travel times
  - Reduce freight transport costs
  - Have a community satisfied with the physical development of the route
  - Have a route that supports economic development
  - Manage the upgrading of the route in accordance with Ecologically Sustainable Development (ESD) Principles
  - Maximise effectiveness of expenditure - "affordable"
- We have completed a number of significant improvement projects which are currently in operation;
- We are through the planning phase and moving into construction or approaching commissioning of many other shared projects including:
  - Nabiac Bypass;
  - Karuah Bypass;
- As well NSW is funding noise mitigation projects (treating residences before construction even starts) in advance of upcoming projects;
- Recently Auslink announced that the Federal Government has increased their annual funding from $60M to $160M based on a matching funding from the NSW State Government;
- We have lots of projects "in the wings";
- For Coffs Harbour study area we are:
  - Pushing on with highway duplication based on our quest to improve safety;
  - Pushing on with Sapphire to Woolgoolga improvements and we have had to do this in the context of the "big picture" because the need is increasing and the priorities must be established;
  - RTA has worked with Council to explore route modifications to address Councils concerns – Options C1 and E were developed from Option C for the Sapphire to Woolgoolga Section;
  - In Coffs Harbour we have had strong pressure for the Coastal Ridge Way Proposal;
  - A decision must be made on a route and that route corridor secured in the planning instruments to guide future urban and local planning and enable delivery of the roadworks when funded;

The Project Objectives

The project objectives were tabled by **Chris Clark**, the RTA's Project Development Manager.

- Objectives of the Coffs Harbour Highway Planning Strategy as they are aligned to the objectives of the Pacific Highway Upgrade Program are:
  - Significantly reduce road accidents and injuries
    - *Develop a dual carriageway road with potential to reduce crash rates*
  - Reduce travel times
    - *Develop a design which provides signposting at a minimum of 100 km/h in rural areas and 80 km/h in urban areas*
    - *Provide flood immunity on at least one carriageway for a 1:100 year flood event*
  - Reduce freight transport costs
    - *Develop a design that minimises vehicle operating costs*
    - *Develop a design that meets or exceeds vehicle operating requirements, including intersections*
  - Have a community satisfied with the physical development of the route
    - *Integrate input from local communities into development of the Project through the implementation of a comprehensive program of community consultation and participation*
    - *Develop a solution at all potential conflict points with local traffic that meets community expectations and maintains local connectivity*
  - Have a route that supports economic development
    - *Provide transport developments that are complementary to existing and proposed land use*
    - *Consider strategies to minimise disruption to local and through traffic and maintain access to affected properties and land during construction*
  - Manage the upgrading of the route in accordance with Ecologically Sustainable Development (ESD) Principles
    - *Assess and address cumulative impacts*
    - *Use environmental best practice*
    - *Achieve RTA Guidelines for managing environmental issues (biodiversity, noise, air quality, water quality, acid sulfate soils, etc)*
  - Maximise effectiveness of expenditure
    - *Maximise use of the existing road asset (where consistent with the project)*
    - *Ensure project outcomes achieve value for money*

What's Important about the Pacific Highway Upgrade: Coffs Harbour Highway Planning Strategy (Inner Bypass)

The group identified from their various perspectives what was important about the highway upgrade project. This process was done individually, then within five focus groups, and finally collectively as a whole group.

The group recorded what was important (shown below) and then reflected on the collated list. Although acknowledging that all items are important, the group indicated which items were considered more critical by marking them with an asterisk (□) as recorded in the table. More than one asterisk indicates an allocation by more than one focus group.

No.	What's Important	Sorting	Criteria Category	Not a differentiator
1.	Performs its high performance role for a long time	◊ ◊	**F**	
2.	Early decisive decision, to remove uncertainty	◊ ◊	**-**	**X**
3.	Minimise HV diesel air quality, noise pollution etc	◊	**S**	
4.	Minimise social impacts (severance, connectivity, visual etc)	◊	**S**	
5.	Minimise adverse environmental impacts on natural environment (bio diversity, fauna corridors, etc)	◊ ◊ ◊ ◊ ◊	**E**	
6.	Minimise adverse environmental impacts on Aboriginal heritage sites, built environment, noise etc	◊ ◊ ◊ ◊ ◊	**S**	
7.	Improves movement and separating local and through traffic (conflicts)	◊ ◊ ◊	**F**	**X**
8.	Connectivity with local road system (see #7 above)		**F**	**X**
9.	Minimise health impacts (see #3 above)		**S**	
10.	Providing a cost effective solution		**Ec**	**X**
11.	Minimising effect on all classes of agricultural and forestry land		**Ec**	
12.	Maintain and enhance aesthetic quality		**S**	
13.	Minimising economic impact on Coffs Harbour (see #14 below)		**Ec**	**X**
14.	Providing economic opportunities (tourist etc)	◊ ◊	**Ec**	**X**
15.	Providing compatibility with adjacent land use (now and the future)	◊ ◊	**S**	
16.	Protect rights of farmers to continue to farm		**Ec**	
17.	Ability to accommodate future freight growth		**Ec / F**	
18.	Complement Coffs Harbour urban planning strategy	◊	**S / Ec**	
19.	Minimising impacts on "liveability" next to corridor (existing and future)		**S**	
20.	Integrating environmental solutions in design		**F/E/S/Ec**	
21.	Positive response by Council to the opportunity a best route provides for new land use plans			**X**
22.	Reduce travel time and transport costs (transport efficiency)		**F / Ec**	**X**
23.	Concern over the word "bypass" vs "deviation"		**-**	**X**
24.	Reduce noise on existing highway		**S**	**X**
25.	Avoid impacts on Korora nature reserve		**E**	
26.	Establish a reservation to protect future route	◊	**-**	**X**
27.	Affordable, value for money – deliverable and buildable	◊ ◊ ◊	**F / Ec**	
28.	Improve safety of existing highway	◊	**F**	**X**
29.	Provide safe and consistent driving conditions on new highway	◊ ◊ ◊	**F**	
30.	Road construction doesn't create dam for flooding		**F**	**X**

31.	No fatal flaws in planning process (robust)		**-**	**X**
32.	Attract volumes off existing highway		**F**	**X**
33.	Connection to northern section (seamless transition to S2W)		**-**	**X**
34.	Opportunities to use road as a levee in West Coffs Harbour		**F**	**X**

Key to Symbols used in discussion and assessment of "What's Important" points:

◇ Relative rating of the "very most important" by the whole group;

F Function Criteria focus;

E Environment Criteria focus;

Ec Economic Criteria focus;

S Social Criteria focus;

X Although important, this aspect does not enable differentiation between route options, so was not used to develop specific assessment criteria

Note: After some considerable discussion the whole group agreed that the "Economic" (Ec) and "Social" (S) should be combined into a "Socio-economic" grouping of assessment criteria. This was principally due to the inter-relations between the aspects and the potential for double-counting.

This "What's Important" list as well as other information such as the project objectives would later be used in the workshop to develop assessment criteria to evaluate the various inner bypass corridor route options.

The Problem Situation

The group reflected on the background paper material 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:

What is the problem that the project is meant to address/

- Through traffic volumes and local traffic conflicts
- Composition of traffic and its purpose
- Traffic growth
- Heavy transport noise and diesel pollution
- Travel time and delays – including various speed zones and traffic lights
- Road safety
- Rapid development and urban growth closing out route options in a geographically limited area
- Conflict of present land use planning across the Coffs Harbour area and introduction of a new highway road
- Belief that if the Pacific Highway had National Highway status it would attract greater funding to address the Coffs Harbour traffic problems
- Defining an entire highway corridor within "big picture" for the Pacific Highway program

Project Givens to Date

- The Value Management Workshop will aim to determine the most suitable of the short-listed route options in the Inner Corridor, those being:
  - *IS1 and IS2 (south of Coramba Road)*
  - *IN1 and IN2 (north of Coramba Road)*
- At this time, no decision has been made in regard to Council's preferred corridor
- Other potential highway corridors including the Outer and Central corridors, the Far Western option (through the Orara Valley) and the Existing Highway Upgrade will not be further considered as part of the Highway Planning Strategy
- Option IS2 comprises a tunnel under Roberts Hill ridge, with no option for a deep cutting at that location
- Deep cuttings or tunnels would be feasible where Options IN1 and IN2 pass through the large ridges near Sheppards Lane and Gatelys Road. A decision on the construction method is not required to enable land reservation for the preferred route
- Reservation of land for the preferred option is a required outcome of the Highway Planning Strategy

Assumptions

The group (in smaller focus groups) identified assumptions being made about the project from various perspectives. The recorded assumptions of 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 the 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: Local Traffic/Safety/Access/Community

Focus group 2: Through Traffic/Commercial Business

Focus group 3: Environment/Heritage

A separate focus group was formed to work in parallel and examine the parameters being assumed in the planning and design of the highway options. This is reported separately in the following pages

Focus Group 4: Planning and Design Parameters

Each focus group's outputs and the whole group's assessment are listed below.

Assumptions - Local traffic, safety, access, community

What assumptions are we making from various perspectives?

No	Assumptions - Local traffic, safety, access, community	Assessed valid to move ahead
1.	Ring road network will be complete	
	- Mastrocolas Road	✓
	- Hogbin Drive	✓
	- North Boambee	◊
	- Combine / Albany Street	◊
2.	Design standards will ensure high level of road safety for all road users (as per fundamental objectives)	✓
3.	Local access to be provided:	✓
	• in the north,	✓
	• in the south and	✓
	• central	◊
4.	Some local demand possible but separation of through & local traffic is highly desirable	✓
5.	Minimise number of access points or the highway solution will be functionality eroded	✓
6.	There will be a suitable number of points to cross the line of the highway (overpasses, underpasses)	✓
7.	Community expectations can be met	
	- Cycleways? (Off road)	◊
	- Landscaping, aesthetic softening	✓
	- No pedestrian access along but certainly across (separated)	✓
	- Environmental impacts can & will be mitigated	✓
	- Land acquisition/compensation is fair & reasonable	✓

Assumptions - Through traffic & commercial business

No	Assumptions - Through traffic & Commercial	Assessed valid to move ahead
1.	Reduced vehicle operating costs	✓
2.	Designed to cater for and encourage through traffic	✓
3.	Safety (improved)	✓
4.	Provide “gateway” statement facilities for road users at “decision points” beyond each of bypass	
	- Rest areas	✓
	- Information e.g. tourism	✓
5.	Access	
	- Maintain and possibly improve local east/west access	✓
	- Suitable access locations (interchanges) to/from new highway	✓
6.	Highway planning will require changes to Council’s planning strategies for commercial businesses	✓
7.	There will be an impact on and opportunity for commercial activities	✓

Assumptions – Environment / heritage

No	Assumptions - Heritage, Environment	Assessed valid to move ahead
1.	Fauna - Wildlife corridors/movements will be maintained - Provision of adequate mitigation measures	 ✓ ✓
2.	Soil and water - Approved environmental management using "best management practice" - Approved operational pollution control measures - ASS (acid sulphate soils) management in accordance with best practice i.e. ASSMAC Guidelines - Water crossing designs meet NSW Fisheries Guidelines - Contaminated soil (if any) can be managed appropriately – in accordance with EPA Criteria & Guidelines guidelines	**All ✓**
3.	Noise - all feasible and reasonable measures be undertaken at <u>design stage</u> to meet ECRTN → targeting "at source" noise first regarding → road design, cuttings, tunnels, pavement	✓
4.	Indigenous heritage - LALC will be involved in development of mitigation measures – use the roll-out principle of avoid, reduce, minimise, mitigate, compensate	✓
5.	Non indigenous heritage - assume all sites will be identified and that these would have been picked up in early development stage	✓
6.	Land use - All landowners directly, physically impacted will be adequately compensated/acquired - The majority of farmers do not want to sell property for highway development	✓ ✓
7.	Visual - Urban design and landscaping measures will be incorporated to mitigate against visual scarring, and that scarring could be the noise barriers	✓
8.	Air quality - Adequate venting of tunnels - There will be air quality impacts - Adequate provision for emergency services (access and systems) will be incorporated into the design	 ✓ ◇ ✓

Planning and Design Parameters

One focus group identified and recorded the planning and design parameters. The whole group reviewed and endorsed or questioned the outputs as shown by the symbols on the table.

What are they?

	Planning / Design Parameter	**Assessed as valid**
1.	100km/h design speed highway	✓
2.	Dual divided carriageway – crash reduction	✓
3.	Freeway design standard – all access will be controlled	✓
4.	Demonstrated best practice for environmental issues (built and natural)	✓
5.	Highway needs to be compatible with existing built environment and future land uses	✓
6.	Topographical constraints	✓
7.	ESD principles – 4 principles are considered in planning and delivery	✓
8.	Koala habitat – fauna movement corridors	✓
9.	Other identified threatened species, their habitats and movement corridors	
10.	State government and Council support to establish formal Reservation of a road corridor for this highway route – eg, adjustment of LEP, REP	✓
11.	Total "width" of road corridor implications – including impact zones caused by buffer zone for uses and noise mitigation	✓
12.	Planning options to ameliorate impacts - for road planning	✓
13.	Planning options to ameliorate impacts - for land use planning	✓
14.	Existing roads will be modified (where necessary) to cater for changed traffic flows	✓
15.	All types of traffic will be allowed on the new highway - risk assessment shows that it is safer for dangerous goods vehicles to use the deviation / bypass than the existing highway through the town	◊

Key to assessment symbols:

✓ Agreed as valid

◊ A matter that needs to be resolved as planning continues

Note: *the inclusion of a tunnel in the various route options is only a physical "given" in Option IS2 due to the height of the hill through which this route passes and the depth of cut which would be necessary for another construction approach on that route.*

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 objectives of the project, a focus group developed a set of assessment criteria to evaluate the inner bypass corridor route options.

The Environmental Planning and Assessment Act (EP&A Act) requires an examination of a triple bottom line approach that assesses the functional, environmental and socio-economic impacts of a project. The focus group adopted an approach to categorise assessment criteria under the streams of Functional Performance, Environmental Performance, Social and Economic Performance. The split of social and economic aspects was examined by the focus group but the whole group recognised the overlap and recommended retention of the three assessment categories, so Socio-economic was re-assembled for the option review.

The approach adopted by the focus group was to categorise the "What's Important" statements under these key streams.

A fourth stream was categorised to cater for statements which reflected process rather than assessment criteria. These items were not pursued further in the workshop.

Consolidated assessment criteria were then developed based on the statements in each of the three streams. Finally these were presented to the whole group for comment, amendment (if required), and finally endorsement to evaluate the route options.

The assessment criteria identified under each of the three triple bottom line categories accepted by the whole group to evaluate the route options were:

Environmental Criteria

		Weighting %
A.	Impact on water courses/aquatic environment	22
B.	Impact on fauna habitat/vegetation	22
C.	Impact on wildlife corridors	Zero
D.	Impact on threatened species	56

Functional Criteria

		Weighting %
A.	Long term function, safety, flexibility, capacity	50
B.	Safety (including tunnels)	50
C.	Travel time and efficiency	Zero

<u>Note:</u> Breakdown of Functional Criteria used in evaluation:

ACVM facilitators felt there was too much complexity and some clarity problems in the Functional Criteria derived on Day 1 of the workshop to enable easy assessment. So they reviewed the material during the over-night period and broke the criteria down into constituent parts. On Day 2, this was presented to the group who unanimously endorsed consideration of it in the assessment process. The breakdown of criteria, as detailed below, did not alter the previously determined weightings. The breakdown of criteria into constituent parts was as follows:

Functional Criteria A.

- Relative horizontal geometric safety
- Better vertical alignment (grades)
- Ease of catering for future growth
- Capacity for incident management

Functional Criteria B.

- Risk from dangerous goods transport
- Consistency of driver experience

Functional Criteria C.

- Relative travel time savings

Socio-Economic Criteria

		Weighting %
A.	Impact on local air quality	3.6
B.	Impact of traffic noise	24.4
C.	Extent of community severance	15.8
D.	Impact on Aboriginal heritage	19.5
E.	Impact on European heritage	Zero
F.	Impact on existing land use and business	13.4
G.	Impact on future land use planning	4.9
H.	Effects on landscape and visual amenity	8.5
I.	Impact on agricultural business/viability	19.9

Weighting of Assessment Criteria

Relative weightings for the assessment criteria in each stream of the triple bottom line categories were undertaken qualitatively by the whole group using a paired comparison technique. The discussion in undertaking this task 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 category are shown below:

Environmental Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A	Impact on water courses/aquatic environment	2A	22
B	Impact on fauna habitat/vegetation	2B	22
C	Impact on wildlife corridors	Zero	Zero
D	Impact on threatened species	5D	56
	Total	**8**	**100**

Scoring Matrix

The workings for the relative assessment are shown below.

	B	C	D
A	**1A**	**1A**	**3D**
	B	**2B**	**1D**
		C	**1D**
			D

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 Environmental Performance using the paired comparison methodology indicated that the ***"Impact on Threatened Species"*** was the most important criteria followed by the ***"Impact on water courses and aquatic environment"*** and ***"Impact on fauna habitat and vegetation"*** on the next level of importance. ***"Impact on wildlife corridors"*** although important was not considered as important as the other criteria when compared in pairs and scored least, a zero.

Functional Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A	Long term function, safety, flexibility, capacity	1½ A	50
B	Safety (including dangerous good & tunnels)	1½ B	50
C	Travel time and efficiency	Zero	Zero
	Total	**3**	**100**

Scoring Matrix

The workings for the relative assessment are shown below.

	B	C
A	**A/B**	**1A**
B		**1B**
	C	

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 ***"Long term function, safety, flexibility and capacity"*** and ***"Safety (including dangerous goods and tunnels)"*** were equally the most important criteria.
"Travel time and efficiency" although important was not considered as important as the other criteria when compared in pairs and scored least, a zero.

Note: The breakdown of the criteria proved a useful basis for more robust discussion under each of these criteria headings.

Socio-economic Assessment Criteria

No	Assessment	Raw Score	Relative Weightings
A	Impact on local air quality	1.5A	3.6
B	Impact of traffic noise	10B	24.4
C	Extent of community severance	6.5C	15.8
D	Impact on Aboriginal heritage	8D	19.5
E	Impact on European heritage	Zero	Zero
F	Impact on existing land use and business	5.5F	13.4
G	Impact on future land use planning	2G	4.9
H	Effects on landscape and visual amenity	3.5H	8.5
I	Impact on agricultural business/viability	4 I	9.9
	Total	**41**	**100**

Scoring Matrix
The workings for the relative assessment are shown below.

	B	C	D	E	F	G	H	I
A	**1B**	**A/C**	**1D**	**1A**	**1F**	**1G**	**1H**	**1I**
B		**2B**	**1B**	**2B**	**1B**	**1B**	**1B**	**1B**
		C	**1D**	**2C**	**1C**	**1C**	**1C**	**1C**
			D	**2D**	**1D**	**1D**	**1D**	**1D**
				E	**1F**	**1G**	**1H**	**1I**
					F	**2F**	**1F**	**F/I**
						G	**1H**	**1I**
							H	**H/I**
								I

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 Socio-economic Performance using the paired comparison methodology indicated that the ***"Traffic noise"*** was the most important criteria followed by ***"Aboriginal heritage impacts", "Community severance"*** *and* ***"Existing land use impacts"*** on the next level of importance followed by the ***"Impact on agriculture business"*** *and* ***"Visual amenity"*** with ***"Future land use planning impacts"*** *and* ***"Local air quality"*** on the next level of importance. ***"Local traffic access and movement impacts"*** and ***"Amenity effects"*** followed as the next level of importance. ***"European heritage impacts"*** although important was not considered as important as the other criteria and scored least, a zero.

A summary of the weightings of the assessment criteria within the triple bottom line categories as determined by the group appears below.

Assessment Criteria					
Functional		**Environmental**		**Socio-economic**	
Criteria	**Wt**	**Criteria**	**Wt**	**Criteria**	**Wt**
Long term function, safety, flexibility, capacity	50%	Impact on water courses/aquatic environment	22%	Impact on local air quality	3.6%
Safety (including dangerous good & tunnels)	50%	Impact on fauna habitat/vegetation	22%	Impact of traffic noise	24.4%
Travel time and efficiency	0	Impact on wildlife corridors	0	Extent of community severance	15.8%
		Impact on threatened species	56%	Impact on Aboriginal heritage	19.5%
				Impact on European heritage	0
				Impact on existing land use and business	13.4%
				Impact on future land use planning	4.9%
				Effects on landscape and visual amenity	8.5%
				Impact on agricultural business/viability	9.9%

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 route option evaluation, the group was in a position to broadly review the route options located within the Inner Corridor.

These weighted assessment criteria were used to evaluate the various route options for the project.

Appendix 3. Route Option Review and Recommendation

Route Option Review and Recommendation

Route Option Presentations

The Study Team led by Tim Paterson, Project Manager, Connell Wagner and Barry Hancock, Design Manager, Connell Wagner presented key investigations to the group on route options identified within the Inner Corridor. These route options are detailed further in the Strategy Report . In short they consist of:

- **Option IS1** – A bypass corridor which passes through the Boambee Valley, and an eastern low point in Roberts Hill ridge before reaching the Bennetts Road area;
- **Option IS2** – A bypass corridor which arcs out further West as it passes through the Boambee Valley, tunnels through Roberts Hill ridge before reaching the Bennetts Road area;
- **Option IN1** – A bypass corridor which runs north from Bennetts / Coramba Roads before arcing through Spagnolos Road, across the rail line then adjacent to the rail corridor on the Southern slopes of a large knoll and down through Gatelys Road ridge to meet up with the existing highway at Korora
- **Option IN2** – A bypass corridor which runs from Bennetts / Coramba Roads before arcing through Spagnolos Road and then bridging across the rail line before sweeping around the Northern slopes of a large knoll and down through Gatelys Road ridge to meet up with the existing highway at Korora.

It was acknowledged that whichever preferred option moved forward for further analysis in the next stage of development, there would be a level of fine tuning and improvement undertaken on the option.

The short-listed route options for the Inner Corridor **IS1, IS2, IN1** and **IN2** are shown in **Figure 1**.

Shortlisted Option Comparison of Key Elements

Material presented by Barry Hancock outlining the option comparisons of key elements can be found in the report entitled *Coffs Harbour Highway Planning – Coffs Harbour Section, Strategy Report, February 2004*

The key points and tables presented appear in **Appendix 4**.

Overall Investigation Process and Key Findings

Material presented by Tim Paterson outlining the investigation of options and of key findings can be found in the Strategy Report and accompanying specialist working papers.

The key points and tables presented appear in **Appendix 4**.

Coffs Harbour City Council Views

The Strategic Planner for Coffs Harbour City Council, Rick Bennell provided commentary on each of the route options from a Council planning perspective. His slides have been included in this report. See **Appendix 4**

Assessment of Route Options

Having reviewed the route options and discussed their advantages and disadvantages in relation to the presentations and the investigations detailed in the Strategy Report and Working Papers, the group was in a position to evaluate the route options against the weighted assessment criteria developed in this workshop.

The group (in three separate focus groups) individually evaluated the route options using the weighted assessment criteria in each of the three bottom line categories. One focus group evaluated the route options against the functional assessment criteria, whilst a second focus group evaluated the route options against the environmental assessment criteria and the third focus group evaluated the route options against the socio-economic assessment criteria.

The options were evaluated on a qualitative basis of how well each option met each category's assessment criteria on a scale of Excellent **(E)**, Very Good **(VG)**, Good **(G)**, Fair **(F)** or Poor **(P)**. At times the actual naming on the scale may not have reflected the focus group's perceptions but they recognised the important factors in the process were: (1) the discussion that takes place in deciding the relative performance of each option under the criteria and (2) the relative "scoring" of each aspect between options – much more important than the names assigned.

Once the qualitative evaluation was completed, the evaluation was scored using the weightings of the criteria. A ranking was then established for each route option for that category. Each focus group discussed their findings and then recorded their observations and conclusions.

The findings of each focus group were presented to the whole group (ie. all VM workshop attendees) for discussion, amendment (if necessary) and finally group endorsement as to an agreed assessment to assist the group move forward. These findings, as agreed by the whole group are presented below (incorporating all amendments).

Evaluation of Route Options against Functional Assessment Criteria

OPTIONS			Functional Criteria									
	Assessment Criteria		A	B	C							
	ASSIGNED WEIGHT											
	WT		50	50	0							
S1	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		**200**	**200**								**400**
S2 **With tunnel**	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		**150**	**150**								**300**
N1 **Without tunnel**	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		**100**	**100**								**200**
N2 **Without tunnel**	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		**200**	**200**								**400**
N1 **With tunnel**	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		**150**	**100**								**250**
N2 **With tunnels**	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		**200**	**150**								**350**

Key Observations on Functional Considerations

- Minor differences across options IS1 and IS2 (tunnel, incident management, flexibility)
- Horizontal alignment for IN2 was considered superior to IN1
- The vertical alignment of IN2 was improved with tunnels, however this may impact on the capacity to manage incidents

- IS1 provides an opportunity to assist progress of Council's desired local ring-road system across Roberts Hill ridge
- Option IN1 proximity to residential areas (existing, released and proposed) and the existing rail corridor was considered a serious hazardous materials risk
- Extra travel time on IN2 (20 seconds) is diminished by the overall alignment of IN1 (vertical & horizontal)
- Travel time and efficiency for all options was greatly improved compared to the existing highway
- Acknowledged that there is concern about the terminology used to describe the project as a bypass. The terminology could be revisited to consider titles such as deviation, upgrade etc

Evaluation of Route Options against Environmental Assessment Criteria

OPTIONS	Assessment Criteria		A	B	D	C						
			Environmental Criteria									
			ASSIGNED WEIGHT									
	WT		22	22	56	0						
IS1	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		**44**	**66**	**168**							**278**
IS2	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		**66**	**88**	**224**							**378**
IN1	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		**88**	**66**	**168**							**322**
IN2	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		**88**	**88**	**224**							**400**

Key Observations on Environmental Considerations

- Coffs Creek included in assessment of southern options, IS1 and IS2;
- Looked at wildlife corridors and koala management -
  - IS2 appears to have lesser impacts on corridors;
  - IN2 appears to have lesser impacts with the tunnel option
- Option IN1 would impact on remnant vegetation in rail corridor
- Assumption made regarding compensation for habitat loss
- Northern options (IN1 & IN2) assumes tunnel;
- Corridor considerations reinforce rankings

Evaluation of Route Options against Socio-economic Assessment Criteria

	Socio Economic Criteria										
	Assessment Criteria		Local air quality	Traffic noise	Degree com. severance	Impact Aboriginal heritage	European heritage	Urban land use + business	Future land use planning	Landscape + visual amenity	Agri business viability	
			ASSIGNED WEIGHT									
OPTIONS	WT		3.6	24.4	15.8	19.5	0	13.4	4.9	8.5	19.9	
IS1	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		**3.6**	**24.4**	**47.4**	**58.5**	**0**	**40.2**	**9.8**	**17**	**19.9**	**220.8**
IS2	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		**7.2**	**73.2**	**47.4**	**79.2**	**0**	**40.2**	**19.6**	**25.5**	**59.7**	**352**
IN1	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		**3.6**	**24.4**	**15.8**	**39.6**	**0**	**13.4**	**4.9**	**17**	**59.7**	**178.4**
IN2	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		**10.8**	**73.2**	**47.4**	**39.6**	**0**	**53.6**	**19.6**	**34**	**19.9**	**298.1**

Key Observations on Socio-economic considerations

- The proximity of a route option to any urban development was a strong factor in the focus group's response under any criteria
- This difficulty of separating consideration of a single criteria, like traffic noise, saw implications and perhaps double counting across a few criteria
- Discussion on future urban development potentials influenced many recommendations beyond its category
- Planning considerations should be tested more fully before a decision on the preferred route is integrated into a long term DCP - opportunities and constraints for Council's planning need resolution as a result of the potential route options, particularly IS1 & IS2
- The Inner Bypass corridor is seen by some as creating a western rim to Coffs Harbour development including the CHCC strategic planning staff
- The western most inner bypass routes create greater flexibility for planning and design for the Coffs Harbour Basin as seen by CHCC planners
- Grade line, cuts and fills were important factors in discussion and subsequent ratings of options

- Generally all routes create major concerns in banana growing areas, due mostly to buffer zone – this potential impact is a worrying loss for the industry
- Noise into the rural residential hills adjacent to option IN2 effects fewer people but there is higher difficulty in achieving mitigation -it is impossible to solve at the source, ie at the road
- Discussion on options IN1 and IN2 concerning existing, approved development resulted in option IN1 being seen to have substantially greater, adjacency problems

Tunnels in the Option – Observations

- Option IS2 can only exist if it includes a tunnel approximately 500 metres in length
- It would be a substantial cost imposition to include any additional local road options within a tunnel for a highway route option
- Tunnels on option IN2 allow lower grade lines over option IN1
- Aboriginal cultural considerations of view and axis line importance from ridge line to headland would suggest a preference for tunnels (two tunnels in option IN2 and one in option IN1) rather than cuttings
- Tunnels improve visual aesthetics
- Tunnels minimise the loss of banana lands, and reduce climate and inter valley climate changes that are predicted to accompany major cuttings between sub-valleys in this local area

Sensitivity Testing

The group was concerned that the relatively low weighting of the "Local Air Quality" criteria may skew the overall results. So a sensitivity assessment was carried out.

The weightings of the "Local Air Quality" (3.6%) and Aboriginal Heritage Impacts" (19.5%) criteria were reversed with the results as set out below. They did not alter the rankings for this category:

Option	Initial Score	Sensitivity Test Score	Ranking
IS1	**220.8**	**189**	**2**
IS2	**352**	**319**	**1**
IN1	**178.4**	**195**	**2**
IN2	**298.1**	**313**	**1**

The group was satisfied the relativity of ranking the route corridors did not need to be changed based on this criteria sensitivity testing.

Summary of Route Option Evaluation

A summary of the rankings of the route options against the various triple bottom line categories together with the cost estimates appears below.

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 category, the options were considered equally ranked as the difference in score was not considered significant enough to differentiate between them.

	Category and Ranking				
Option	**Functional**	**Environmental**	**Socio-Economic**	**Cost ($M)**	**BCR**
IS1	1	2	2	100	Not Discussed
IS2	2	1	1	165	
IN1	2	2	2	135-185	
IN2	1	1	1	140-230	

Recommending a Preferred Route Corridor

As a result of the work undertaken, the group (which was then divided into five focus groups) was asked "Which route option would you prefer as the direction to move forward and the reasons why". However, the preference is "subject to" the issues identified below being addressed.

The focus group conclusions were unanimous and so their responses have been consolidated under the two sections of the route corridor: the South and the North:

In the Southern portion, we recommend Option IS2

Because:

- Socio economic advantages over IS1 particularly in terms of visual impacts and noise impacts
- Environmental advantages over IS1
- IS2 ranks higher in 2 of 3 categories and the group felt on balance these were more important than functional
- IS2 option has less impact
- As design progresses, technology and design improvements could provide cost savings, especially in the cost of tunnel construction
- Provides less disruption to existing and future Council planning goals

Subject to:

- Appropriate consideration and acknowledgement of the impacts on banana growers businesses
- Immediate action by Council to reassess its planning for West Coffs Harbour/North Boambee
- Immediate action by Council and DIPNR to establish a documented route corridor in the DCP
- Resolving access for dangerous goods, there is a preference for inclusion of tunnels in the solution
- Tunnel feasibility
- Funding availability
- Community acceptance

But with the following concerns:

- Concern exists that additional cost of IS2 (+$65M) may not merit the benefits
- Over time as the design progresses, technology and design improvements may provide cost savings, especially in the cost of tunnel construction (this has been the case over recent years)

In the Northern portion, we recommend Option IN2

Because:

- Overwhelming advantages over the three assessment criteria categories
- Separation from residential areas and rail
- IN2 is more compatible with Council's strategic land use objectives
- IN2 option has less general impact and any noise impacts on lesser numbers
- Improved functional performance ie. horizontal/vertical grades, etc
- IN1 would impact adversely on flora and fauna habitats
- Council's planning and zoning is further developed near IN1

Subject to:

- The relevance of the Indigenous Cultural concerns about disruption to ridge line and view lines in Options IN1 & IN2 validating the need for one or both tunnels
- Resolving access for dangerous goods, there is a preference for inclusion of tunnels in the solution
- Appropriate consideration and acknowledgement of the impacts on banana growers businesses
- Noise mitigation at residences in the valley regarding IN2
- Immediate action by Council to reconsider planning issues
- Immediate action by Council and DIPNR to establish a documented route corridor in the DCP
- Tunnel feasibility and inclusion
- Funding availability
- Community acceptance

Across the Corridor: Other Observations & Ideas offered by the Workshop Group

- Need to reserve the corridor as a matter of urgency
- Tunnels preferred for:
  - *Environmental impact reductions*
  - *Aboriginal heritage*
  - *Agriculture impact reductions (banana industry and other agricultural industry)*
  - *It reduces grades*
- Satisfactory incident response management systems need to be integrated into the management of the solution
- The project title should be reviewed – perhaps it might be called a "deviation" or something else rather than a bypass (and this should be developed through the community and the Council)
- Progress of the highway planning should be done in conjunction with a revisiting of Coffs Harbour urban planning
- Funding assistance should be sought to assist Council's need to revisit its current urban planning – this assistance should be sought through RTA
- Implications of the preferred route option on banana growers needs to be considered – it should be broadened to impacts beyond just "direct effects" and it should include implications on business operations by requirements such as "no spray, buffer zones", etc;
- Urgent clarification of the 150m vs 300m buffer zone for aerial spraying
- It should be noted that the VM workshop group was asked to select a preferred route within the Inner Corridor only

Where to From Here?

At the conclusion of the workshop, Bob Higgins, General Manager, Pacific Highway Office, RTA reiterated his opening comments and outlined where things go from here including:

- RTA will assemble all the material produced on this project and the Sapphire / Woolgoolga section of the strategy including:
  - All route options and assessments to-date
  - Community liaison and participation
  - April 2003 VMS outputs
  - August 2004 VMS on the inner bypass corridor options at Coffs Harbour and the options C, C1 and E routes near Woolgoolga
- All of this data will be packaged under a covering report by RTA and supplied to the Minister for Roads for his decision on the route option he will approve
- Then RTA, DIPNR and Coffs Harbour City Council will need to pursue planning activities to formally establish a route corridor reservation which will guide local planning decisions while the project awaits priority funding

Finally Bob extended his appreciation to everyone for participating and contributing in the VMS workshop. He undertook to maintain the forward progress and rate of enthusiasm he had promised so that the material can be with his Minister as soon as practical.

The workshop closed at 5.00pm August 3rd, 2004.

Appendix 4. Other Material presented in the Workshop

Presentation by Barry Hancock, Design Manager, Connell Wagner

North / South Combination	Option	Tunnel Proposals / Options	Length of Tunnel (m)	Total Length of Tunnel (m)
IS1 and 1N2	No Tunnel	–	–	–
IS1 and 1N2	2 Tunnels	Shephards Lane Ridge Gatelys Road Ridge	340 415	755
IS1 and 1N1	No Tunnel	–	–	–
IS1 and 1N1	1 Tunnel	Gatelys Road Ridge	390	390
IS2 and 1N2	1 Tunnel	Roberts Hill Ridge	560	560
IS2 and 1N2	3 Tunnels	Roberts Hill Ridge Shephards Hill Ridge Gatelys Road Ridge	560 340 415	1315
IS2 and 1N1	1 Tunnel	Roberts Hill Ridge	560	560
IS2 and 1N1	2 Tunnels	Roberts Hill Ridge Gatelys Road Ridge	560 390	950

Route Component	Tunnel Options	Estimated Cost ($M)
IS1	No Tunnel	$100 M
IS2	1 Tunnel mandatory	$165 M
IN1	No Tunnels	$135 M
IN1	1 Tunnel optional	$185 M
IN2	No Tunnels	$140 M
IN2	2 Tunnels optional	$230 M
Minimum Cost		
IS1 and IN1	No Tunnels	$235 M
Maximum Cost		
IS2 and IN2	3 Tunnels	$395 M

Inner South 1 and Inner South 2

From:	Englands Road to Coramba Road
Length:	4.6km
Common Features:	Interchanges at Englands Road and Coramba Road
	Possible half interchange at North Boambee Road
	Alignment identical for first 2km
	Traffic functionality identical
Discerning Features	IS2 further west in North Boambee valley
	IS1 affects possible future school site
	IS1 crosses Roberts Hill ridge in lowest saddle – cut 25m
	IS1 possible fauna overpass (cut/cover) at this location
	IS2 crosses same ridge approximately 750m further west
	IS2 requires theoretical cutting depth of 103 m
	IS2 would require a driven tunnel of 560m to avoid this cut
	IS2 tunnel is main cost differential
	IS1 estimated at $100M
	IS2 estimated at $165M

Inner North 1 and Inner North 2

From:	Coramba Road to Korora Hill
Length:	6.4km – 7.0km
Common Features:	Interchanges at Coramba Road and Pacific Highway
	Possible half interchange at Mackays Road
	Both routes require major earthworks on ridgelines
	Shorter driven tunnels are possible alternatives
	Traffic functionality identical
Discerning Features	IN2 further west, north of Coramba Road
	IN2 passes over railway with high bridge
	IN2 passes through valley, screened by major ridgeline
	IN1 affects future residential sites
	IN1 crosses railway in a cutting and follows railway
	IN1 more exposed to residential areas – visual / acoustic
	IN1 and IN2 different alignments through West Korora
	IN1 estimated at $135M or $185M with 1 optional tunnel
	IN2 estimated at $140M or $230M with 2 optional tunnels

Presentation By Tim Paterson, Connell Wagner

Comparative Assessment - Inner South Options

	IS1	IS2
	Cut and cover tunnel likely	560m tunnel
PLANNING (WP1)		
Traverses the following zones	▪ 1A Rural Agriculture ▪ 2A Residential Low Density ▪ 4A Industrial ▪ 5A Special Uses Community Purposes – school ▪ 5A Special Uses - classified road ▪ 6C Open Space Private Recreation ▪ 7A Environmental Protection Habitat and Catchment ▪ 7B Environmental Protection Scenic Buffer Impact on current stage of North Boambee release area – limited opportunity to replan for compatible land use outcomes	▪ 1A Rural Agriculture ▪ 4A Industrial ▪ 5A Special Uses Community Purposes – school ▪ 7A Environmental Protection Habitat and Catchment ▪ 7B Environmental Protection Scenic Buffer Impacts on later stage North Boambee release area – opportunity for replanning to achieve compatible development
HERITAGE (WP7A/7B)		
Non Indigenous	▪ Proximate to Roberts Hill Lookout	▪ No implications for Roberts Hill Lookout
Indigenous	▪ Higher potential to contain significant archaeological sites	▪ Lower potential to contain significant archaeological sites

LAND USE (WP6)	IS1	IS2
Land use traversed (m)	Rural Agriculture – 2293 Rural Residential – 0 Industrial – 503 Road – 550 Open space recreation – 399 Environment Protection – 657 Special use school – 229 Tunnel – 0	Rural Agriculture – 1672 Rural Residential – 392 Industrial – 503 Road – 550 Open space recreation – 0 Environment Protection – 778 Special use school – 0 Tunnel – 560
Banana Properties	Affects consolidated banana growing area on favourable north facing slopes. 6 banana / horticultural properties affected. Impact increased through creation of cutting of ridge	Affects consolidated banana growing area on favourable north facing slopes with farm packing sheds and water supplies down the slope. 3 banana / horticulture properties affected
Ag land directly affected all class Current banana land ***Total property affect***	27.94ha 4.46ha 10 properties total / partial acquisition	22.06ha 1.23ha 16 properties total / partial acquisition
BANANA LANDS		
Banana spray affected (5m)	4.7 ha	2.2 ha
Banana spray affected (150m)	25.5 ha	9.4 ha
Banana spray affected (300m)	52.6 ha	17.0 ha

VISUAL	IS1	IS2
	Cutting / cut & cover on Roberts Hill Ridge – high visibility to many residential areas in west CH Major visual feature in emerging North Boambee Valley development	Tunnel under Roberts Hill Ridge – minor visual impact for west CH Major visual feature for later stage North Boambee Valley development
SOCIO ECONOMIC (WP6)		
Community cohesion	▪ Low adverse	▪ Low adverse
Amenity effects	▪ high adverse	▪ moderate adverse
Access and movement patterns local traffic	▪ high beneficial	▪ high beneficial
Access and movement patterns through traffic	▪ high beneficial	▪ high beneficial
Rural land use and property	▪ moderate adverse	▪ moderate adverse
Urban land use and property	▪ low beneficial	▪ low beneficial
Business activity	▪ low beneficial	▪ low beneficial
Tourism	▪ low beneficial	▪ low beneficial
NOISE & VIBRATION (WP4)		
	▪ See noise contour maps	▪ Greater opportunities for noise mitigation ▪ See noise contour maps

FLORA & FAUNA (WP5)	IS1	IS2
	▪ Passes through a 240m wide tract of remnant bushland ▪ Passes through a number of primary koala habitats ▪ 0.2ha less secondary koala habitat affected than IS2 - Negligible difference ▪ Similar impact on koala movement corridors to IS2 ▪ Greater impact on wildlife linkage than IS2 as it crosses a large corridor to the south of Coramba Rd ▪ 0.6h greater clearance of vegetation with very high ecological significance than IS2	▪ Tunnel passes beneath a wider remnant of bushland than IS1 (470m) this remnant may provide habitat for more forest dependent fauna (significant impacts if cut and cover installation method used) ▪ Lower impact than IS1 on primary koala habitat (0.6ha less than IS1 due to tunnel) ▪ 0.2ha more secondary koala habitat affected than IS1. Negligible difference ▪ Similar impact on koala movement corridor to IS1 ▪ Lesser impact on wildlife linkages than Option IS1 as it maintains a large corridor to the south of Coramba Road ▪ 0.6h less clearance of vegetation with very high ecological significance than IS1
Removal of habitat of ecological significance (5m construction buffer)		
Very High significance	6.1 ha	6.1 ha (5.2ha with tunnel)
High significance	0.5 ha	0.5 ha
Moderate significance	0.0025 ha	0.084 ha
Primary Koala Habitat and wildlife linkages	4.8 ha	4.2 ha
Coastal vegetation species	0.95 ha	0.93 ha
Aquatic habitat species		
Mesic community species	2.64 ha	2.3 ha
Forest fauna (total)	4.45 ha	4.09 ha
Vegetation with winter flowering species	3.11 ha	3.22 ha

Presentation by Tim Paterson (continued)

Comparative Assessment - Inner North Options

	IN1	IN2
	1 tunnel possible	2 tunnels possible
PLANNING (WP1)		
	Traverses the following zones: ▪ 1A Rural Agriculture ▪ 2A Residential Low Density ▪ 5A Special Uses Community Purposes – School ▪ 5A Special Uses Community Purposes – Railway ▪ 5A Special Uses - Classified road ▪ 6C Open Space Private Recreation ▪ 7A Environmental Protection Habitat and Catchment ▪ 7B Environmental Protection Scenic Buffer ▪ 8 – National Parks and Reserves	The route traverses the following zones: ▪ 1A Rural Agriculture ▪ 2A Residential Low Density ▪ 5A Special Uses Community Purposes – School ▪ 5A Special Uses Community Purposes – Railway ▪ 5A Special Uses - Classified road ▪ 6C Open Space Private Recreation ▪ 7A Environmental Protection Habitat and Catchment ▪ 7B Environmental Protection Scenic Buffer ▪ 8 – National Parks and Reserves

LAND USE (WP6)	**IN1**	**IN2**
Land use traversed (m)	***Rural Agriculture – 5660*** Railway – 82 Road – 295 Environment Protection – 440	Rural Agriculture – 6110 Railway – 163 Road – 307 Environment Protection – 359
Agric Properties affected	Up to 12 banana / mixed horticulture (most of plantings on upper slopes would be unaffected)	6 banana plantations crossed south of the railway line , north the ag land turns to grazing with small areas of avocado on steeply terraced slopes.
Ag land directly affected (all) Current banana land ***Properties affected***	 45.53 ha 31.92 ha 24 total / partial acquisition	 51.72 ha 42.29 ha 30 total / partial acquisition
BANANAS		
Banana spray affected (5m)	31.9 ha	39.3 ha
Banana spray affected (150m)	127.6 ha	163.4 ha
Banana spray affected (300m)	161.6 ha	225.8 ha

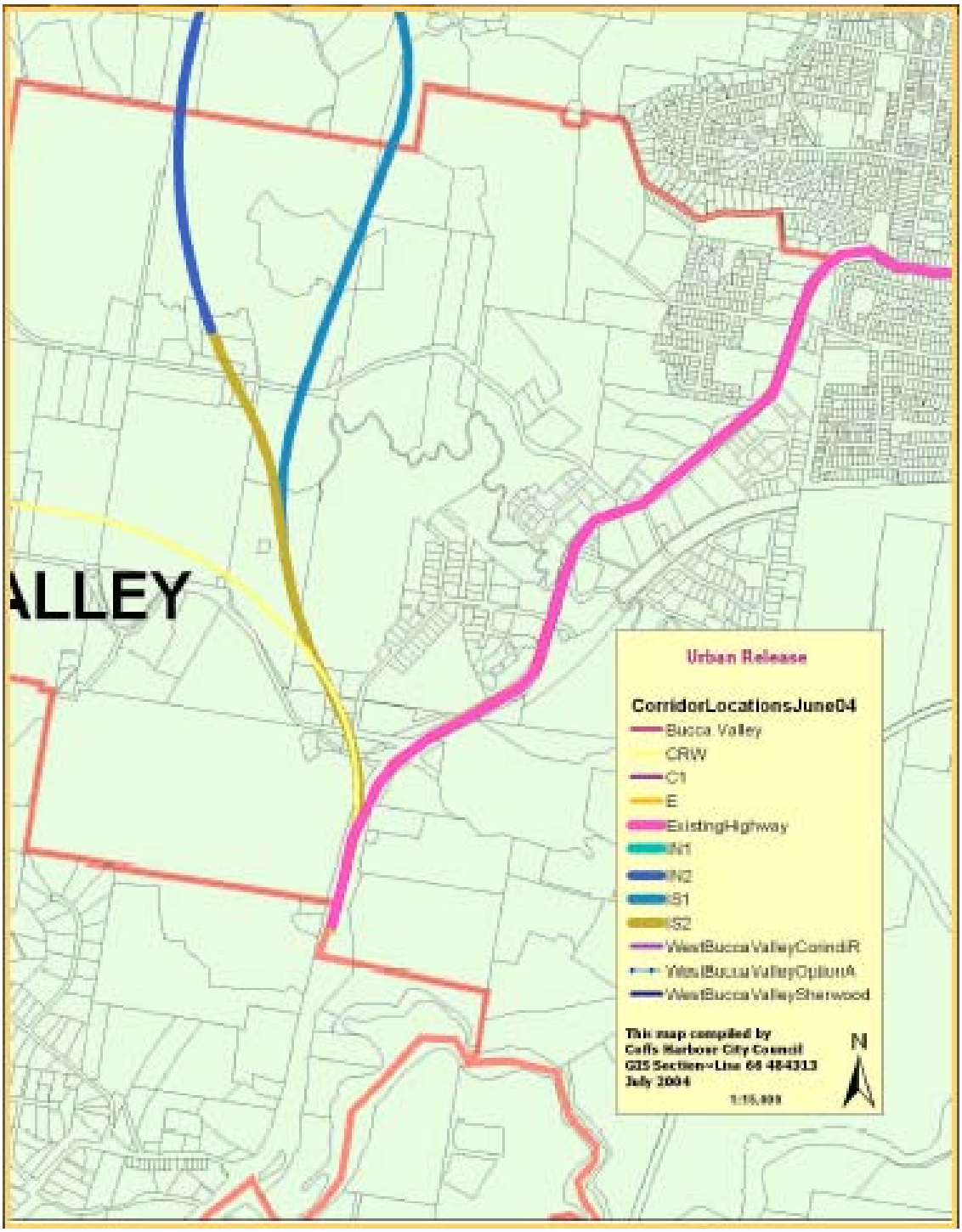
VISUAL	IN1	IN2
	Highly visible to many residential areas of west CH	Less visible to residential areas of west CH
SOCIO ECONOMIC (WP6)		
Community cohesion	▪ Low adverse	▪ Low adverse
Amenity effects	▪ high adverse	▪ moderate adverse
Access and movement patterns local traffic	▪ high beneficial	▪ high beneficial
Access and movement patterns through traffic	▪ high beneficial	▪ high beneficial
Rural land use and property	▪ moderate adverse	▪ high adverse
Urban land use and property	▪ low beneficial	▪ low beneficial
Business activity	▪ low beneficial	▪ low beneficial
Tourism	▪ low beneficial	▪ low beneficial
TRAFFIC NOISE		▪
	▪ See noise contour maps	▪ Greater opportunity for noise mitigation ▪ See noise contour maps
HERITAGE		
Non Indigenous (WP7B)	No discernible difference	No discernible difference
Indigenous (WP7A)	Higher potential to contain archaeological sites	Lower potential to contain archaeological sites

FLORA & FAUNA (WP5)	IN1	IN2
	▪ less removal of winter flowering trees ▪ lesser impact on threatened species associated with aquatic habitats ▪ O.5ha less clearance of vegetation of very high ecological significance than Option IN2	▪ more removal of winter flowering trees ▪ greater impact on threatened species associated with aquatic habitats ▪ 0.5ha greater clearance of vegetation of very high ecological significance than Option IN1
Primary koala habitat removal	Same as IN2	Same as IN1
Ecological habitat removal		
Very High significance	3.3 ha	3.8 ha
High significance	0.6 ha	1.7 ha
Moderate significance	0.0025 ha	0
Coastal vegetation species	0.95 ha	0.76 ha
Aquatic habitat species		
Mesic community species	2.64 ha	2.59 ha
Forest fauna (total)	4.45 ha	4.20 ha
Vegetation with winter flowering species	3.11 ha	2.68 ha

Data by Rick Bennell, Strategic Planner – Coffs Harbour City Council

Coffs Harbour Inner Bypass Corridor Options: Southern Portion

Plan presented by Rick Bennell – option IS1 (generally green & brown) & option IS2 (generally darker blue & brown)

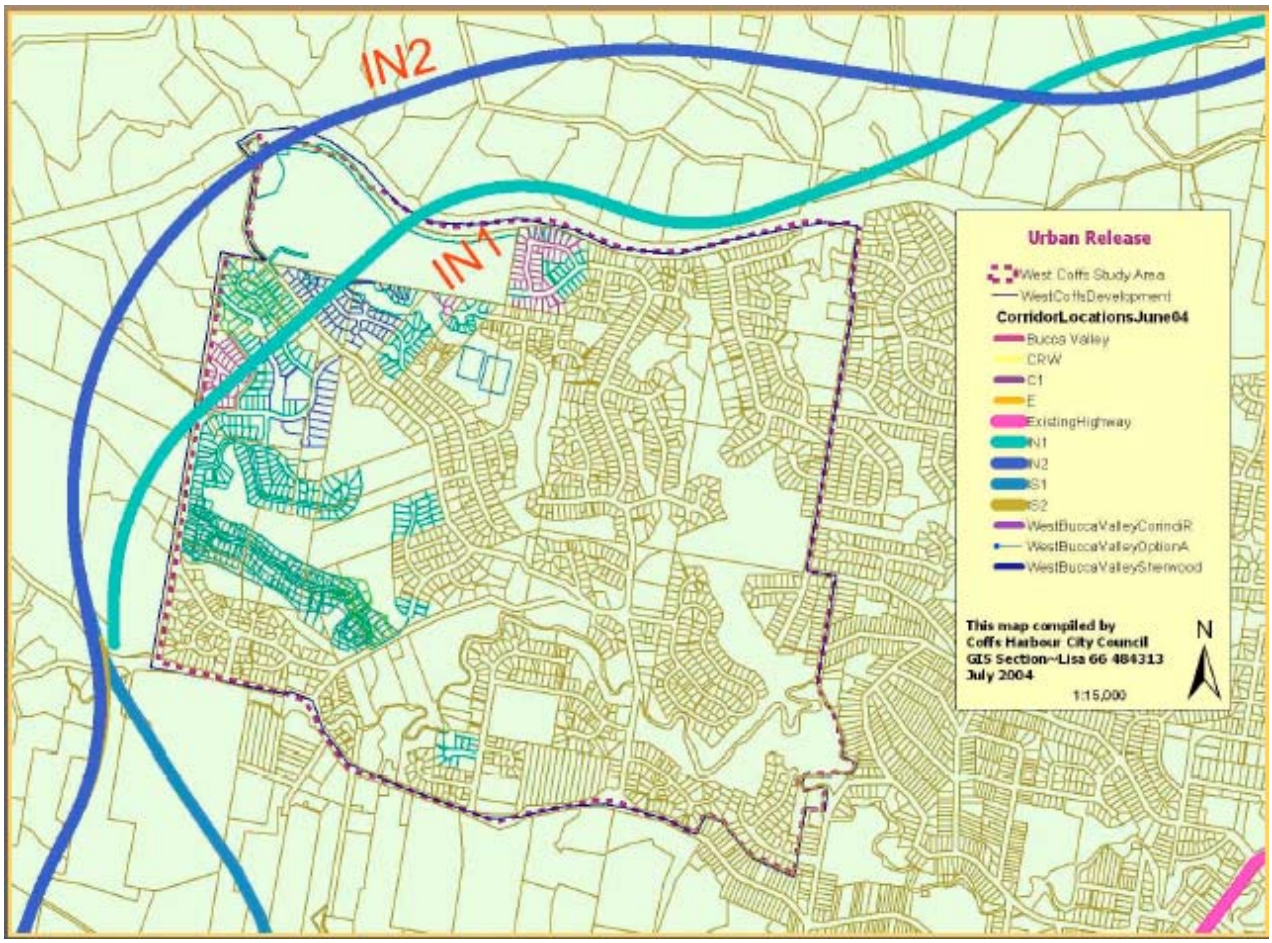


Notes:

1. ***The legend in this scanned plan exists because it was taken from an old presentation;***
2. ***The plan does not clarify the full scope of the option lengths, particularly to the North;***
3. ***Please refer to Figure 1 earlier in the report for an accurate description of the routes.***

Coffs Harbour Inner Bypass Corridor Options: Northern Portion

Plan presented by Rick Bennell – option IN1 (generally green) & option IN2 (darker blue)



Notes:

(1) The legend in this scanned plan exists because it was taken from an old presentation;
(2) The plan does not clarify the full scope of the option lengths, particularly to the North;
(3) Please refer to Figure 1 earlier in the report for an accurate description of the routes.

Coffs Harbour, Highway Planning Strategy

Impacts on Future Urban Release Areas (CHCC View)

Southern (Coffs Harbour) Section

North Boambee Valley

Urban Release Area

Option Inner South 1 (IS 1)

- Deviates from south of Englands Road
- Traverses residential areas - acoustic impacts need noise control devices
- Isolates stages two and three of the North Boambee Valley Release Area from Stage 1 (already zoned)

- Council would need new strategic plan and Developer Contributions Plan for area
- Council costings, time and resources to prepare new plan not allocated in budget
- Stage 1 predicts 2,980 persons or 1,150 lots;
- contributions based on this population
- Reduction of lots would increase per capita of contributions or reduce level of services/facilities
- Route passes directly through proposed school site
- New (reduced) population may not support proposed school
- Route dissects proposed sporting facility
- Impact on new Waste Technology facility
- Interchange at Englands Road required
- Significant impact on major koala corridor

Inner South 2 (IS 2)

- Similar issue as IS 1
- Located further from existing residential areas
- Less impact on North Boambee Stage 1
- Major impact on North Boambee Stage 2 and Stage 3 as it directly traverses them
- Future population reduced from 9,350 to 3,870 - loss of planned 2,109 extra dwellings (currently a potential loss of between $20m and $26m in contributions (total water/sewer and Section 94))
- Avoids relocation of new school
- Would reduced numbers be sufficient to support school?
- Acoustic impacts on area - need for noise control devices
- Less impact on koala corridor
- Greater impact on banana plantations

Inner North 1 (IN 1)

- Currently some 280 residential lots approved/pending in vicinity of Shepherds Lane
- Result in significant loss of future residences
- Council would need new strategic plan and contributions plan
- Costing, time and resources to amend Plans not in budget
- Significant acoustic impacts on residences in valley below Sealy Look out
- Limits extension of future West Coffs Urban Release Area identified in 1996 Urban Development Strategy

Inner North 2 (IN 2)

- Preferred as it minimises impacts on existing and proposed residences in West Coffs
- Knoll land form reduces acoustic imp acts on nearby residences
- Provides more room for grade separation of Mackays Road and North Coast Railway line

Appendix C

Sapphire to Woolgoolga section value management workshop report prepared by ACVM (August 2004)

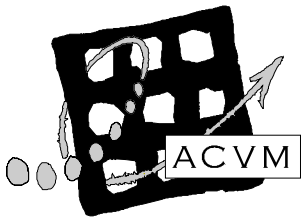
Coffs Harbour Highway Planning

WOOLGOOLGA – NORTHERN SECTION

SUPPLEMENTARY OPTIONS EVALUATION WORKSHOP

Value Management Workshop Report

August 2004



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Summary 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. An agreement between the NSW and Commonwealth Governments to upgrade the Pacific Highway has led to an upgrade program to eliminate accident blackspots, provide dual carriageway conditions, improve traffic flows and reduce travel times over a ten year period which ends in 2006.

The section of the highway (subject of this project) between Sapphire and Woolgoolga (known as the Northern Section of the Coffs Harbour Highway Planning Strategy) is largely a single carriageway with limited overtaking opportunities. The highway has many key intersections with various local roads serving coastal and rural residential communities. A number of these intersections present safety and operational concerns to the public.

The population along the north coast of NSW, in particular along the northern beaches of Coffs Harbour is increasing at a high rate. The associated increase in local traffic using the Pacific Highway is leading to further safety concerns. Moreover, the through traffic volumes are expected to increase as the Pacific Highway Upgrade Program continues and the overall highway standard improves.

These increases (in both local and through traffic volumes) are anticipated to lead to more traffic conflicts and increased congestion, with the associated risk of increased accidents. The highway will continue to be used by the current mix of traffic (ie. heavy and light vehicles, etc). Also an increase in traffic volumes could lead to increased road traffic noise levels and impact on the local amenity.

Investigations to upgrade the Northern Section commenced in June 2001. The RTA commissioned Connell Wagner (the Study Team) to investigate potential route options for the upgrade of the Pacific Highway between Sapphire and Woolgoolga (including possible bypasses) and recommend a preferred option to upgrade the highway for consideration by the NSW Minister for Roads.

Investigations indicated that this project (Sapphire to Woolgoolga) could be divided into two sub-sections – the Sapphire to Moonee section and the Moonee to Woolgoolga section. The upgrading of the existing highway was found to be the only feasible route option for the Sapphire to Moonee section.

Five route options were identified for the Moonee to Woolgoolga section. The preferred option for this section (as well as the other sub-section) is required to meet the future transport needs for the highway whilst balancing the social, ecological, engineering and cost factors.

A Value Management Workshop (VMW) was undertaken in April 2003 to identify assessment criteria and evaluate these five options to recommend (on balance) a preferred direction to move forward and progress the project. The April 2003 workshop recommended Options C and D move forward to progress the project.

Since that time, further work on the Northern Section of the Coffs Harbour Highway Planning Strategy was postponed until investigations within the Southern Section were progressed to ensure that issues relating to the whole project could be considered.

In the meantime, the following events took place:

- Option D (being the upgrade of the existing highway through Woolgoolga) was not considered an acceptable option due to its social and economic impacts on the township of Woolgoolga
- Option A was not favoured due to its severe environmental (biophysical) and Aboriginal heritage impacts, poor functional performance, high cost and value for money.
- Options B1 and B2 did not merit further consideration due to the need to protect valuable agricultural land in this locality
- In response to a request from Coffs Harbour City Council (CHCC), and in conjunction with CHCC, two new options were developed. These options being Option C1 – a modification of Option C, which minimises impacts on the South Woolgoolga Urban Investigation Area, and, Option E – developed to minimise impacts on residential and agricultural lands
- Investigations showed that the Coastal Ridge Way Proposal had major (biophysical) impacts, poor functional performance, high cost and poor value for money
- While route options within Council's preferred corridor have the lowest socio-economic impacts, the feasibility assessment showed that they also have major adverse impacts and were not considered to be viable options for the Highway Planning Strategy

With Option C1 and Option E now developed, there was a need to assess these additional options to determine whether they would change the recommendation as to the preferred option to move forward for the Northern Section.

The route options (Options C, C1 and E) being considered at this workshop (shown in **Figure 1**) can be described as:

- **Option C** – A route that traverses close to the main Woolgoolga urban area. It leaves the existing highway about one kilometre south of Woolgoolga (near Graham Drive North) and rejoins the highway near the Safety Beach Drive intersection. The highway from Moonee to the start of Option C would be duplicated to a new dual carriageway standard.
- **Option C1** – A modification of Option C. At its southern end, Option C1 detours around and to the west of the South Woolgoolga Urban Investigation Area and traverses the western side of the dam near Woolgoolga Creek Road before rejoining the initial Option C alignment near Woolgoolga Creek. At a point north of Woolgoolga Reservoir, Option C1 takes a north-easterly route along the eastern boundary of the Country Club Estate and rejoins the Pacific Highway north of Safety Beach Drive. A grade separated interchange is proposed at Bark Hut Road instead of Safety Beach Drive
- **Option E** – A route developed by the RTA and CHCC to reduce impacts on zoned and potential urban/residential lands in west and south Woolgoolga and to reduce impacts on the banana growing properties to the west of Sandy Beach. Option E leaves the Pacific Highway at the same location as Option C1 and veers in a north westerly direction to closely follow the previous Option B alignment to the west of Woolgoolga. Option E then rejoins the existing highway just south of Arrawarra Creek

A VMW was seen as the tool to bring together the same stakeholder participants (or their interests) to review the further investigations undertaken (outlined in Supplementary Route Options Report – February 2004) and on the balance of issues and evaluation of the additional options against the previously agreed assessment criteria, determine a preferred direction to move forward and progress the project.

The outcomes of the VMW are seen as one further input into the final decision by the Minister for Roads on a preferred route.

The Australian Centre for Value Management (ACVM) was commissioned by Connell Wagner to facilitate and report on the workshop which was attended by a range of stakeholders on **4th August 2004**. A list of participants who attended the workshop can be found in **Appendix 1**.

Workshop Objectives

The objectives of the workshop, as presented to the participants, was to bring together key stakeholders to:

- ***Recap on the findings of the Value Management Workshop undertaken in April 2003***
- ***Obtain a common understanding of the work undertaken and options developed since that workshop (Options C1 & E)***
- ***Evaluate Options C1 and E using the assessment methodology adopted***
- ***Recommend a preferred option 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 evaluation from a functional base (ie. what must the project achieve to be successful, how well do the options achieve this?).

During the workshop, the "Journey so far" was presented together with a review of the project objectives and a recapping of the work undertaken in the April 2003 workshop including the development and weighting of assessment criteria (**Appendix 2**).

The additional options (which were devised to meet the project objectives and address the problems identified with the earlier options) were reviewed by the group (**Appendix 3**).

Using this information, the group evaluated the additional route options using the assessment criteria. The result of the evaluation indicated that **Options E** performed, on balance, better than Options C and C1 against the criteria and compared satisfactorily in terms of cost estimates and benefit-cost ratio (BCR). However, it was acknowledged that Option E needed to satisfactorily address the issues raised during the workshop (**Appendix 3**).

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

Workshop Outcomes

By the end of the workshop, the participants had:

- **Reviewed** the work undertaken in the April 2003 workshop including the "Problem Situation", the Project Objectives (what the project must achieve to be successful), the development and weighting of the assessment criteria and the evaluation of the shortlisted options (being Options A, B1, B2, C and D) (see **Appendix 2**)
- **Agreed** to use the same assessment categories (being ***functional, environmental and socio-economic performance***), assessment criteria and weightings used in the April 2003 workshop to evaluate Option C1 and Option E against Option C with sensitivity testing on the outcome by varying the weightings of rural land impacts and amenity effects in the socio-economic category
- **Reviewed** the additional options tabled for the project (Options C1 and E) and obtained an understanding of their relative merits and weaknesses (see **Appendix 3**).
- **Evaluated** Options C1 and E using the three categories of assessment criteria (functional, environmental and socio-economic performance) against Option C and ranked the performance of each option. The options were also considered in terms of the estimated cost and their benefit-cost ratio (BCR) (see **Appendix 3**)
- **Indicated** that as a result of undertaking the evaluation, Option E performed, on balance, better than the other options and it should be taken forward to progress the project because:
  - On balance, it has fewer impacts on the Woolgoolga community
  - It is likely to have a higher degree of community acceptance
  - It delivers the best socio-economic benefits overall (noting that there will be impacts on banana growers, on agriculture and potential environmental impacts)
  - Other criteria are approximately in balance for the options (ie. functionality, cost and BCR)
  - The cost premium for Option E is at an acceptable level
  - It better provides for future urban growth and will have less severance impact on existing (and future) communities
  - There are no known environmental fatal flaws with the option at this stage
  - It permits greater variety of options/flexibility for CHCC in future planning and development of the Woolgoolga urban area
  - It improves road safety and noise impacts for Mullaway and Safety Beach

  However this is subject to the following issues being addressed:
  - Appropriate mitigation and management measures being implemented to address the environmental issues (eg. vegetation removal, wildlife corridors, visual amenity, loss of habitat, etc)
  - Addressing the noise issues and planning the best available noise mitigation within the design elements
  - Resolution of a more sustainable development strategy for Woolgoolga by Council (ie. a strategic review of land use east of Option E)
  - Investigation of opportunities to mitigate/minimise rural land impacts (including compensation and adjustment to agribusinesses)
  - Resolution of property access issues to the west of Option E
  - Community acceptance of the preferred direction
- **Acknowledged** that for some participants, a preference could not be drawn, however some conclusions drawn by them from the workshop included:
  - Option C1 is seen as having considerable urban issues
  - Option E is seen as having considerable visual amenity and rural land impact issues
- **Drew** the following conclusions as a result of the workshop:
  - The vast majority of participants recommended Option E as the preferred direction to progress the project as a result of deliberations undertaken during the workshop
  - There is no perfect solution but on balance the group attempted to resolve the issues with the best possible outcome in mind
  - The group found it difficult for some criteria to evaluate the options when considering the ratings of Option C from the previous workshop
  - There was difficulty in visualising a green backdrop Option E without potential visual scars on the landscape
  - Both Option C1 and Option E were believed to be improvements on Option C

  - The group recognised the difficulty in evaluating the conflict of issues between Option C1 – potential urban impacts and Option E – potential rural, environmental and visual impacts

- **Were presented** with the next steps in the process to progress the project as:
  - A report of the workshop will be prepared by ACVM outlining the process followed and the recommendations made by the workshop group
  - The workshop report, together with technical reports, community consultation comments and submissions on all the options for this Northern Section (being Sapphire to Woolgoolga), as well as the equivalent information for the Southern Section of the Highway around Coffs Harbour, will be forwarded to the Minister for Roads for his consideration and decision on a preferred route
  - Once the decision is made by the Minister for Roads, the preferred route for the Southern Section will go through a process to reserve the route corridor and provide future certainty in planning
  - Once the decision is made by the Minister for Roads for the preferred route in the Northern Section, the route will move to a Concept Design Stage and an Environmental Impact Assessment process
  - Community consultation will continue as the concept is developed and refined, and as the environmental impact assessment for the proposal is undertaken

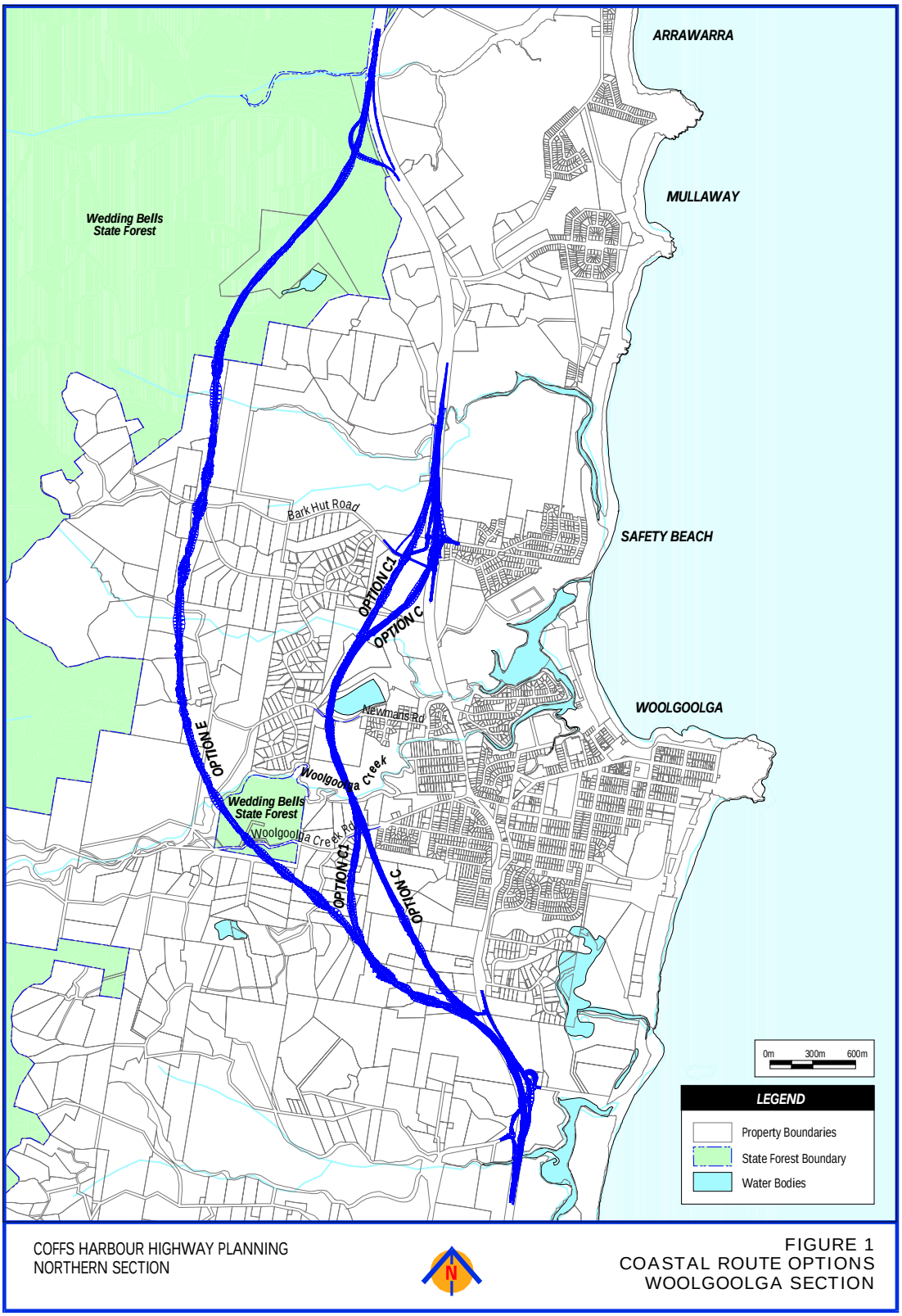

Figure 1: Additional Route Options to be considered in the workshop

Appendix 1. List of Participants

PACIFIC HIGHWAY UPGRADE – WOOLGOOLGA NORTHERN SECTION
SUPPLEMENTARY OPTION EVALUATION WORKSHOP
PARTICIPANTS LIST

Project Stakeholders

Clive Joass	Councillor, Coffs Harbour City Council
Rick Bennell	Planner, Coffs Harbour City Council
Steve Murray	Department of Infrastructure, Planning and Natural Resources
John Finlay	Department of Infrastructure, Planning and Natural Resources
Irwin Perring	Department of Environment and Conservation
Arthur Tsembis	Department of Environment and Conservation (National Parks)
Greg Ireland	Department of Primary Industry, Agriculture
Lisa McGill	Policy, Planning and Economics Branch, NRMA
Gordon Abbott	Woolgoolga Chamber of Commerce
Tony Perkins	Yarrawarra Aboriginal Community
Steve Clemesha	Ulitarra Conservation Society
Stephen Moody	Community Focus Group
Bruce Scanlon	Community Focus Group
John Langhorne	Community Focus Group
Col South	Community Focus Group

Roads and Traffic Authority

Bob Higgins	General Manager, Pacific Highway Office
Chris Clark	Project Development Manager
Scott Lawrence	Environmental Advisor
Wes Stevenson	Route Development Planner
David Corry	Senior Projects Manager, Road Network Infrastructure
Adam Cameron	Project Development Officer

Connell Wagner Study Team

Tim Paterson	Project Manager
Barry Hancock	Design Manager
Mark Syke	Assistant Project Manager
Neil Gross	Noise Specialist, Wilkinson Murray

Workshop Facilitation Team

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

Representatives of other organisations and interest groups were invited but did not attend, including State Forests, Transport Industry and Banana Growers Association.

Appendix 2. Recap of Project Information and Analysis

Recap of 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 recapped on the work undertaken in the April 2003 Value Management Workshop on the Pacific Highway Upgrade: Sapphire to Woolgoolga Project (Northern Section). This allowed the workshop group to later to make comparisons between Options C, C1 and E based on the analysis of the project objectives.

The Context of the Project and the Journey so far

In order to allow the participants to obtain an understanding of the background which has lead to this additional workshop, Bob Higgins, General Manager, Pacific Highway (RTA) outlined the project's context within the total Pacific Highway Upgrade Program as well as the "Journey so far".

Key points raised in his presentation included:

- Key features of the Highway Upgrade Program include:
  - The length of the total Pacific Highway Upgrade program is approx. 700 km from Hexham to the Queensland State Border
  - The funding commitment is $2.2 billion over 10 years from the Commonwealth and State Governments combined
  - Currently the Program is in Year 9 of the 10 years. Works underway or about to get underway include Karuah Bypass, Karuah to Buladelah Project, Nabiac Project and the Brunswick to Yelgun Project
  - The Commonwealth Government's recent "Auslink" announcement provides for an increased commitment from the Commonwealth Government in future years. The white paper talks about increasing the Commonwealth from $60M/year to $160M/year on the basis that State Government at least matching that amount. Based on the present State Government funding of $160M/year, the overall funding would increase to around $300M/year
  - There is a need to move the Northern Section of the Coffs Harbour Project (Sapphire to Woolgoolga) forward (as part of the overall Coffs Harbour Highway Planning Strategy) so that it is positioned to take advantage of any increased funding
- The "Journey" so far in the development of a preferred route for the Northern Section includes:
  - April 2003 – the Value Management Workshop was undertaken for the Moonee to Woolgoolga part of the Northern Section of the Coffs Harbour Highway Planning Strategy. As a result of the workshop:
    - Option A was not favoured
    - Options B1 and B2 did not merit further consideration
    - Options C and D were to be further considered
  - From April 2003 to February 2004, the Northern Section was put on hold until planning and investigations within the Southern Section were progressed to ensure that issues relating to the whole project could be considered
  - February 2004 – Release of Community Update No. 4 which reported:
    - The value management workshop outcomes
    - Results of the further investigations on Option D which indicated that it was not an acceptable option due to its social and economic impacts on Woolgoolga.
    - The development of Options C1 and E as potential improvements on Option C and Options B1/B2 as raised by Coffs Harbour City Council
    - Release of outcomes of the study on the Coastal Ridge Way proposal (not favoured)
    - Investigations to proceed into Council's preferred corridor
  - June 2004 – Release of outcomes on the study into Council's preferred corridor (indicating there are no feasible options)
  - Which brings us to today, August 2004 – the undertaking of an additional value management workshop to evaluate:
    - Option C (as the base case being the remaining favoured option from the first workshop in April 2003)
    - Options C1 and E

- The recommendations of the value management workshop are an important input into the process of selecting a preferred route option.

Project Objectives

Chris Clark, Project Development Manager, RTA updated the workshop group on the status of issues required to be addressed in relation to Option C from the April 2003 workshop. Progress had been made on addressing these issues, however, it was acknowledged that some of these issues would be addressed in either the Concept Design or Environmental Impact Assessment stage of the project. He also reminded the workshop group of the project objectives (ie. what the project was to achieve to be successful). These were related under the three categories of functional, socio-economic and environmental objectives and are outlined below.

Overall Objective

- To address the need to upgrade the Pacific Highway between Sapphire and Woolgoolga, while planning for the future traffic needs within the Coffs Harbour urban area

Functional Objectives

- To provide a dual carriageway road with the potential to reduce crash rates to 15 crashes per 100 MVKT over the project length
- To provide a design which would allow signposting at a minimum of 100 km/h in rural areas and 80 km/h in urban areas
- To provide flood immunity on at least one carriageway for a 1:100 year flood event
- To provide a design that minimises vehicle operating costs
- To provide a design that meets or exceeds B-Double requirements including at intersections where required
- To provide a solution at all potential conflict points with local traffic that meets community expectations and maintains local connectivity
- To consider delay management strategies to minimise disruption to local and through traffic and maintain access to affected properties and land during construction
- To maximise the use of the existing road asset where consistent with the project
- To ensure the project outcomes achieve value for money

Socio-economic Objectives

- To integrate the input from local communities into the development of the project through the implementation of a comprehensive program of community consultation and participation
- To provide transport developments that are complimentary with land use
- To ensure the cumulative impacts are assessed and addressed

Environmental Objectives

- To ensure the cumulative impacts are assessed and addressed
- To ensure the best environmental practices are incorporated into the project
- To ensure that RTA Guidelines for managing environmental issues (biodiversity, noise impacts, water quality, acid sulfate soils, etc) are met

Recapping the Work undertaken in the April 2003 VM Workshop

Ross Prestipino, Facilitator ACVM, presented to the participants the workings undertaken at the April 2003 Value Management Workshop. Most of the participants were attendees at the previous workshop or had their organisations represented. The intention of the presentation was to remind the participants of the findings, and that this workshop was another stage of the evaluation process and to seek their concurrence to build on the work already undertaken.

Key points raised were:

- The April 2003 workshop identified the **"Problem Situation"** that the project was to address as:
  - The highway is currently two lanes and single carriageway with limited overtaking opportunities
  - There are a number of key intersections with various local roads serving coastal and rural residential communities as well as a number of private property access points
  - Some of the intersections have poor sight lines, inadequate merging lanes and high accident rates
  - The predicted population growth on the northern beaches and in the LGA in general will result in increased traffic volumes on the road network
  - Through traffic volumes and the mix of traffic types are expected to increase as the Pacific Highway Upgrade Program proceeds leading to more conflict of local and through traffic, congestion and accidents. In particular, heavy vehicles are an issue in the community
  - The amenity of the area as a result of highway (ie. noise, pollution, visual impact, etc) is an issue
  - There are a number of urban bottlenecks (congestion) that need to be addressed
  - The topography of the area is a restricting feature for any option (ie. it is a narrow coastal plain between the ocean and the mountain range)
- Having discussed the problems causing the need for a project, the **"Project Objectives"** (ie. what must the project achieve to be successful) presented earlier were seen as appropriate to address those problems
- At the April 2003 workshop, participants were asked to share with each other what was important to them (from their perspective) about the highway upgrade project. This information together with the project objectives articulated by the RTA, DIPNR (formerly Planning NSW) and by Coffs Harbour City Council were developed into assessment criteria under the categories of Functional, Socio-economic and Environmental performance. These would be used to evaluate the potential route options. After discussion and amendment (where appropriate), the assessment criteria developed under each of the three categories were accepted by the whole workshop group
- Relative weightings for the assessment criteria in each category was undertaken qualitatively by the group using the paired comparison technique. The discussion undertaken during this task 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. A summary of the weightings of the assessment criteria within the three categories as determined by the group appears below.

Assessment Criteria					
Functional		**Environmental**		**Socio-economic**	
Criteria	**Wt**	**Criteria**	**Wt**	**Criteria**	**Wt**
Road safety for all road users	38%	Heritage impacts	19%	Traffic noise impacts	23%
Traffic efficiency and long term functionality	33%	Bio-diversity impacts – direct effect on threatened species	19%	Amenity effects (including visual, excluding noise)	2%
Landscape, urban design and scenic quality (view from the road)	0	Bio-diversity impacts – migratory species	12%	Compatibility with CHCC strategic planning	21%
Constructability	10%	Bio-diversity impacts – key habitat and movement corridors	28%	Rural land impacts	26%
Achievement of early benefit opportunities through staging	19%	Bio-diversity impacts – waterways and aquatic environments	22%	Urban land impacts	19%
		Construction impacts	0	Local traffic access and movement impacts	9%
				Construction impacts on the community	0

- The workshop group (in three focus groups) evaluated the route options qualitatively using the weighted assessment criteria in each of the three categories, separately. Once the qualitative evaluation was complete, the evaluation was scored using the weightings of the criteria that enabled a ranking for each option to be determined within that category. The findings of each focus group were presented to the whole group for discussion, amendment (if required) and finally endorsement as to an agreed assessment to assist the group move forward
- A summary of the rankings of the route options against the various categories (as agreed by the whole group) together with the cost estimates and benefit cost ratios (BCR) presented to the group appears below:

	Category				
Rank	**Functional**	**Environmental**	**Socio-Economic**	**Cost ($M)**	**BCR**
1	C	D	A	C ($239)	D (2.1)
2	D, B1, B2	C	C, D	D ($259)	C (2.0)
3		B1, B2		B2 ($272)	B2 (1.9)
4			B1, B2	B1 ($287)	B1 (1.7)
5	A	A		A ($373)	A (1.1)

- Using this information, the majority of participants could draw the conclusion that Options C and D performed, on balance, better than the other options and should be considered for further investigation because:
  - Options C and D perform well against all the assessment criteria (ranked second or better in each category) and provided a good balance between community and natural environment criteria
  - There is potential to more effectively integrate traffic noise mitigation into a route option solution for Option C or Option D
  - There is minimal land loss and impact on the “ability to farm” the agricultural land which is highly regarded in the area

However this was subject to the following issues being addressed:

- The mitigation of potential bio-diversity impacts on migratory birds, wetland and lowlands rainforest risks
- Managing the noise mitigation issues effectively
- Reviewing Council's strategic plan and resolving the strategic direction for Woolgoolga
- Investigating good urban design outcomes for Woolgoolga
- Resolving the connectivity between rural residential and urban areas
- Refining Option C to minimise impacts on existing landuse zoned 2A (residential) lands within Woolgoolga
- Undertaking a detailed cultural heritage assessment along the route
- Resolving/managing the community's preference and perceptions of the option
- Carefully considering and managing the construction impacts

- As presented in this August 2004 workshop, since the April 2003 workshop, results of further investigations into Option D indicated that it was not an acceptable option and Options C1 and E as raised by Coffs Harbour City Council have been developed as potential improvements on Option C and Options B1/B2

Points of discussion raised by the workshop group as a result of the Recap Presentation included:

- There was some concern about the criteria chosen, the weightings allocated in the April 2003 workshop, and their relevance in assessing the additional options. In particular the relative weighting of amenity effects and rural land impacts in the Socio-economic category. It was explained and accepted by the group that the criteria chosen and weightings undertaken were agreed by the whole workshop group in April 2003 (which consisted of the participants present at this workshop or representatives of their organisations) as a result of robust discussion of the various stakeholder perspectives within the area and were developed (using a paired comparison process) independent of the options being considered. After further discussion and explanations from various participants of their recollections of the previous workshop, this workshop group agreed that for consistency the criteria and weightings should remain the same and in the same categories. However some sensitivity testing should be undertaken on the outcome by varying the weightings of rural land impacts and amenity effects

As a result of the discussions, the proposal was put and accepted by the workshop group to use the same assessment categories, criteria and weightings used in the April 2003 workshop to evaluate Option C1 and Option E against Option C with sensitivity testing on the outcome undertaken by varying the weightings of rural land impacts and amenity effects in the Socio-economic category

Appendix 3. Additional Route Option Evaluation and Recommendation

Additional Route Option Evaluation and Recommendation

Additional Route Option Presentations

The Project Team presented a summary of investigations to the group for the route options being considered (ie. Option C1 and Option E). These options are best described in the Supplementary Options Report (February 2004). In short they consist of:

- **Option C1** – A modification of Option C. At its southern end, Option C1 detours around and to the west of the South Woolgoolga Urban Investigation Area and traverses the western side of the dam near Woolgoolga Creek Road before rejoining the initial Option C alignment near Woolgoolga Creek. At a point just north of Woolgoolga Reservoir, Option C1 takes a north-easterly route along the eastern boundary of the Country Club Estate and rejoins the Pacific Highway north of Safety Beach Drive. A grade separated interchange is proposed at Bark Hut Road instead of Safety Beach Drive
- **Option E** – A route developed by the RTA and CHCC to reduce impacts on zoned and potential urban/residential lands in west and south Woolgoolga and to reduce impacts on the banana growing properties to the west of Sandy Beach. Option E leaves the Pacific Highway at the same location as Option C1 and veers in a north westerly direction to closely follow the previous Option B alignment to the west of Woolgoolga. Option E then rejoins the existing highway just south of Arrawarra Creek

Below is outlined key points made in presentations which supplemented the Supplementary Option Report (February 2004) distributed and/or made available to participants prior to the workshop. Options C1 and E are shown in **Figure 1**.

Option Comparison of Design Elements and Cost Estimates – Barry Hancock, Design Manger, Connell Wagner

Key points made in the presentation are shown below.

A comparison of Option C1 and Option E from Graham Drive North to Mullaway and Arrawarra indicate:

- Length of the Route Options are Option C1 – 6.5 km and Option E – 9.9 km
- Similar features include:
  - Both Options C1 and E are similar to Option C in the southern part of the project (ie. Sapphire to Graham Drive North)
  - Option C1 is an alignment variation on Option C
  - Option E is a combination of Option C and the original Option B routes
  - Both options have the same interchange at south Woolgoolga
- Discerning Features
  - Option C1 passes to west of the dam on Woolgoolga Creek Road
  - Option E trends further west to cross Woolgoolga Creek Road
  - Option E connects to northern section of the previous Option B
  - Option E has a minor alignment modifications north of Bark Hut Road
  - Option C1 is estimated at $100M as a stand alone section (approx $15.3M/km) which amounts to an estimate of the Sapphire to Woolgoolga (Northern Section) being $250M
  - Option E is estimated at $135M for a stand alone section (approx $13.6M/km) which amounts to an estimate of the Sapphire to Woolgoolga (Northern Section) being $265M
  - Option C was estimated as $90M as a stand alone section and as $240M for the Sapphire to Woolgoolga (Northern Section)

Option Comparison of Other Key Elements – Tim Paterson, Project Manager, Connell Wagner

Key points made in the presentation are shown in the table below:

ELEMENTS	Option C	Option C1	Option E
PLANNING			
Zones/Instruments etc	Draft West Woolgoolga DCP South Woolgoolga Urban Investigation Area 1A Rural Agriculture 1B Rural Living 2A Residential Low Density 5A Special Uses Community Purposes – Reservoir 6A Open Space Public Recreation 7A Environmental Protection Habitat and Catchment Zone 7B Environmental Protection Scenic Buffer	Draft West Woolgoolga DCP South Woolgoolga Urban Investigation Area 1A Rural Agriculture 1B Rural Living 2A Residential Low Density 5A Special Uses Community Purposes – Reservoir 6A Open Space Public Recreation 7A Environmental Protection Habitat and Catchment Zone 7B Environmental Protection Scenic Buffer	South Woolgoolga Urban Investigation Area 1A Rural Agriculture 1B Rural Living 1F State Forest 7A Environmental Protection Habitat and Catchment Zone 7B Environmental Protection Scenic Buffer
LAND USE			
Land use traversed (approx. length - m) **Properties Affected** Agric Properties Rural Residential/Other	Rural Living/Rural Ag – 1000m West Woolgoolga DCP – 700m Urban Investigation Area – 1100m Open Space – 1100m Special uses – 200m Road – 3800 Env protection – 50m Approx 28 Approx 16	Rural Living/Rural Ag – 2100m West Woolgoolga DCP – 700m Urban Investigation Area – 300m Open Space – 1100m Special uses – 200m Road – 3100 Env protection – 50m 38 16	Rural Living/Rural Ag – 5400m West Woolgoolga DCP – 0m Urban Investigation Area – 300m Open Space – 0m Special uses – 0m Road - ? Env protection – 100m Rural State Forest – 2900m 35 9
BANANAS (Buffer Zone)			
Banana spray area (5m)	4.9 ha	7.9 ha	12.9 ha
Banana spray area (150m)	36 ha	45.7 ha	62.6 ha
Banana spray area (300m)	71.9 ha	74 ha	116.8 ha

ELEMENTS	Option C	Option C1	Option E
VISUAL			
Visual Impact	Low	Low	Moderate
Visual Sensitivity	Moderate to High	Moderate	Moderate
Scenic Quality	Low to Moderate	Low to Moderate	High
Scenic Management/Urban Design	Moderate to High	Moderate to High	High
SOCIO ECONOMIC			
Community cohesion	Moderate Adverse	Moderate Adverse	Low Beneficial
Amenity effects	Moderate to High Adverse	Moderate to High Adverse	Moderate Adverse
Access and movement patterns local traffic	Moderate to High Beneficial	Moderate to High Beneficial	Moderate Beneficial
Rural land use and property	Moderate Adverse	Moderate Adverse	Moderate to High Adverse
Urban land use and property	High Adverse	Moderate to High Adverse	No impact
Effects on passing Trade	Low Adverse	Low Adverse	Low to Moderate Adverse
Effects on tourism	Moderate Beneficial	Moderate Beneficial	Moderate Beneficial
TRAFFIC NOISE			
	Low to Moderate Adverse	Low to Moderate Adverse	Low Adverse (greater mitigation opportunities)
FLORA & FAUNA			
Vegetation communities of high conservation significance	Comparable to C1	1.576 ha	7.573 ha
Other flora and fauna impacts	Comparable to C1	Lesser potential for impact on key habitats and wildlife corridors Passes through/close to 2 CHCC koala movement corridors 6.3 ha of koala habitat Lesser potential to impact threatened species than Option E Lesser potential for impact on aquatic habitats than Option E	Higher potential impact on key habitats and wildlife corridors Passes through/close to 6 CHCC koala movement corridors 12.9ha of koala habitat Greater potential to impact on threatened species Greater potential for impact on aquatic habitats than Option C/C1
HERITAGE			
Non Indigenous	Low Adverse	Low adverse	Low to moderate adverse
Indigenous	No known impact	No known impact	Low to moderate adverse due to requirement to clear forest

Noise Traffic Impacts – Neil Gross, Noise Specialist, Wilkinson Murray

Key points raised in his presentation included:

- The noise modelling to date is considered of sufficient accuracy to allow comparison between the different options. The study to date is based on a count of houses within 500m of the route options (from aerial photography)
- Houses have been counted where noise levels are greater than $L_{Aeq,15hr}$ daytime 50dBA
- Houses have been counted where noise levels are greater than the Department of Environment and Conservation's Environmental Criteria Road Traffic Noise (ECRTN) base criteria
- The study considered noise level increases and decreases assuming mitigation would be provided where practicable
- A conclusion was reached that in the context of the Options C1 and E (allowing for mitigation); Option C1 and Option C would perform equally in relation to "existing" residences. Option C1 performs marginally better than Option C in terms of planning for future residences. Option E is considered to be better in relation to "existing" residences and marginally better when considering future residential areas near Option E, including provisions for appropriate mitigation when residential density increases (greater opportunities for mitigation exists on Option E)

Council Perspective – Rick Bennell, Strategic Planner, Coffs Harbour City Council

Key points raised in his presentation included:

- Option C1:
  - Traverses the Woolgoolga urban release area
  - Increases visual and acoustic impacts
  - Requires the need for acoustic barriers
  - Reduces the number of viable lots within the West Woolgoolga release area from 330 lots to 139 lots
  - Section 94 funds have been calculated to provide for a proposed bridge. Reduced lot numbers significantly reduces the feasibility of the bridge (ie. an extra $10,000 per lot for the remaining lots)
  - The bridge may still be required despite the revised highway route. The reduction in population would make the bridge too expensive for Council to build without DIPNR/RTA assistance
  - The option restricts the design and location of the collector road system in the release area
  - The option requires the removal of 1.6ha of high conservation vegetation and 6.3ha of primary koala habitat
  - Option C1 traverses critical habitat in the West Woolgoolga release area, Council proposed to protect the habitat in the West Woolgoolga DCP
  - The option severs the Woolgoolga Creek wildlife corridor
  - The option may cause an increase in stormwater discharge into Woolgoolga Creek
  - The option runs parallel to an approved residential subdivision at Safety Beach (visual and acoustic impacts on future residential area)
  - The option has visual impacts on Woolgoolga Creek Road and Woolgoolga Reservoir which will reduce aesthetics in these areas

Points of discussion raised by the group as a result of the Presentation of Route Options included:

- There was some concern about the currency of data being used in the evaluation of options
- There has been a shift of rural land use from banana to blueberry farming because of higher production yields which may impact on rural property values
- There was some difficulty in understanding the meaning of the various values and terms used in the noise study which needs to be better explained when related to the community
- It appears that Option C1 has more urban impacts particularly for future residential releases (noise, severance, local access, community sizing, etc) whereas Option E will have more rural land and environmental impacts (visual, environmental, agri-business, etc)

Assessment of Additional Route Options

Having reviewed the additional route options and discussed their advantages and disadvantages in relation to the presentations and the investigations detailed in the Supplementary Route Options Report (February 2004), the group was now in a position to evaluate the additional options against the weighted assessment criteria developed in the April 2003 workshop.

The group (in three separate focus groups) evaluated the options using the weighted assessment criteria in each of the three categories, separately and using Option C, which was evaluated in the April 2003 workshop as a benchmark. It was noted that in order to evaluate the options in comparison to Option C, the whole of the route (from Moonee to Woolgoolga) needed to be considered with that component of either Option C1 or Option E substituted in each appropriate case.

One focus group evaluated the route options against the functional assessment criteria, whilst a second focus group evaluated the route options against the environmental assessment criteria and the third focus group evaluated the route options against the socio-economic assessment criteria.

The options were evaluated on a qualitative basis of how well each option met each category's assessment criteria on a scale of Excellent **(E)**, Very Good **(VG)**, Good **(G)**, Fair **(F)** or Poor **(P)** in relation to Option C. It should be noted that some focus groups found the scale inappropriate (in terminology) and preferred to use a rating scale of 1 to 5 instead.

Once the qualitative evaluation was completed, the evaluation was scored using the weightings of the criteria. A ranking was then established for each route option for that category. It should be noted that where the difference in score between options was not greater than the highest weighted criteria within that category, the options were equally ranked as the difference in score was not considered significant.

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 as agreed by the whole group are listed below. Conclusions and key observations by the focus group and points of discussion by the whole group (where required) also appear below.

Evaluation of Additional Route Options against Functional Assessment Criteria

OPTIONS			Functional Criteria: Road safety for all users	Traffic efficiency + LT functionality	Constructability	Opportunity for early benefits						
	Assessment Criteria											
	ASSIGNED WEIGHT											
	WT		**38**	**33**	**10**	**19**						
C	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		**114**	**132**	**20**	**76**						**342**
C1	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		**114**	**132**	**20**	**76**						**342**
E	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		**114**	**132**	**30**	**76**						**352**

Key Observations of the Focus Group

- In terms of the constructability criteria, the longest single length of highway is south of Graham Drive North and this was reflected in the scores
- Road safety related to the safety of users on the proposed road and existing highway
- There is a relationship between traffic volumes and safety
- In terms of south Woolgoolga to Sapphire, the functional values would be the same for all options, which is reflected in the scores
- Avoidance of the intersections at Safety Beach and Mullaway improved road safety for Option E

Evaluation of Additional Route Options against Environmental Assessment Criteria

			Environmental Criteria									
	Assessment Criteria		Heritage impacts	BDI-Threatened species	BDI-Migratory species	BDI-Habitat + movement corridor	BDI-Waterways + aquatic env.					
			ASSIGNED WEIGHT									
OPTIONS	WT		**19**	**19**	**12**	**28**	**22**					
C	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		**57**	**57**	**24**	**84**	**44**					**266**
C1	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		**57**	**57**	**24**	**84**	**44**					**266**
E	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 (3)**
	2		F	F	F	F	F	F	F	F	F	
	1		P	P	P	P	P	P	P	P	P	
	Sub Total		**57**	**38**	**36**	**56**	**55**					**242**

Key Observations of the Focus Group

- Option E was seen as slightly better than Options C and Option C1 in terms of its impact on waterways and aquatic environment and so was assessed as between “fair” and “good” in the evaluation
- Option E has greater impacts on threatened species (due to greater habitat removal) and wildlife movement corridors. It is likely that these impacts could be mitigated if Option E was the preferred option
- For migratory species, Option E performed better than Option C and Option C1 which helped to improve the overall environmental performance of Option E
- Overall the environmental assessment was very close between Options E, C1 and C. However there was a feeling in the focus group that Option C1 and Option C perform better than Option E (mainly due to the less removal of habitat – 6ha as against 30ha of land)
- The comparison of the options was between Options C1, C and E only. Since Option C was benchmarked in its ratings from the previous April 2003 workshop, it was difficult for the focus group to rate Option E lower against certain criteria in the knowledge that Option A (from the previous workshop) was an order of magnitude greater in impact than Option E
- It was noted that construction impacts did not obtain a weighting, however if it had, Option E would have a greater impact than Options C or C1 in terms of environment, soil and water disturbance

Points of note during discussion by the whole group included:

- The group believed the assessment of Option E for “BDI – Migratory Species” impacts was too high and reduced it from “very good” to “good”
- The whole group also believed overall that environmentally Option E did not perform as good as Options C1 and C, and that Option C1 and Option C result in similar environmental impacts - although this was not reflected in the evaluation due to the limitation of the benchmark of Option C from the April 2003 workshop.

- With this in mind, the group acknowledged that the ranking of environmental issues may be skewed because the benchmark rating of Option C did not allow for appropriate differentiation between the options. Therefore two rankings of environmental issues for Option E are taken forward being a rank of "1" and a rank of "3" (indicated by 1 (3) on the table above) and each of these ranks will be considered in the final choice of a preferred route

Evaluation of Additional Route Options against Socio-Economic Assessment Criteria

			Socio-Economic Criteria									
	Assessment Criteria		Traffic noise impacts	Amenity effects excluding noise	Compatibility with strategy planning	Rural land impacts	Urban land impacts	Local traffic access & movement				
			ASSIGNED WEIGHT									
OPTIONS	WT		23	2	21	26	19	9				
C	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		**23**	**8**	**84**	**52**	**57**	**18**				**242**
C1	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		**23**	**8**	**105**	**52**	**38**	**27**				**253**
E	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	*VP	P	P	P	P	P	
	Sub Total		**69**	**6**	**105**	**0**	**95**	**36**				**311**

Key Observations of the Focus Group

- In terms of Noise:
  - There is concern with the application of future mitigation for Option E
  - Perspectives on possible future urban releases clouded considerations
  - There is concern with the "weight of numbers" for receivers in Option C1 as against Option E
- In terms of Amenity Effects:
  - Exhaust gas may impact on tank/dam waters
  - There are air quality implications for both routes (Options C1 and E)
  - Air quality and visual considerations were seen as equal
  - Perspectives on possible future urban growth were raised
  - It was thought that Option E may be seen from Woolgoolga Headland (unsure of impact of cut heights and their visibility)
  - Ranking debate considered the visual impact of green backdrop/cuts
- In terms of Compatibility with CHCC Strategic Planning:
  - Option C1 seems to allow and promote the objective of a compact future urban community

- With respect to Rural Land Impacts:
  - The past assessment of Option C as "fair" at the previous workshop created a limit/constraint for assessing the other options
  - Option E performed substantially poorer than Option C and Option C1. The focus group assessed Option E as zero (ie. "Very Poor" – VP as indicated by the asterisk above). Perhaps a better degree of difference would have been to assess Option E as "minus 1". This would have impacted on the overall score and possibly its ranking
- With respect to Local Traffic Access and Movement:
  - There was a concern at the "faith" required by some focus group participants in the RTA to maintain access in Option E

Points of note during discussion by the whole group included:

- The group believed the assessment of Option E for "Compatibility with CHCC Strategic Planning" was too low and increased it from "good" to "excellent"
- The group believed the assessment of Option C1 for "Traffic Noise Impacts" was too high and reduced it from "fair" to "poor"
- To test the sensitivity of the analysis, the weightings of "Amenity Effects" and "Rural Land Impacts" were swapped and the evaluation re-scored. Although the scores were changed, the overall ranking of options remained the same. Also if the assessment of Option E for Rural Land Impact was changed to less than "Very Poor" (ie. -1), the overall ranking of options remained the same
- The group acknowledged that the criteria had some overlap in it (eg. It was difficult to assess urban land impacts without considering noise and amenity, etc)

Summary of the Route Option Evaluation

A summary of the rankings of the route options against the various qualitative assessment categories together with the cost estimates and benefit cost ratios (BCRs) appear below.

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

	Category				
Option	**Functional**	**Environmental**	**Socio-Economic**	**Cost ($M)**	**BCR**
C	1	1	2	$240	2.0
C1	1	1	2	$250	2.0
E	1	1 (3)	1	$265	1.8

As noted earlier for the Environmental Category for evaluation of options, two rankings of environmental issues for Option E are taken forward being a rank of "1" and a rank of "3" (indicated by 1 (3) on the table above) and each of these ranks are to be considered in the final choice of a preferred route

Recommending A Preferred Direction

As a result of the work undertaken above, the group (in five focus groups) was asked which route option should be recommended as the preferred direction to move forward to progress the project, and the reasons for this recommendation. However, the preference is "subject to" the issues identified below being addressed.

The focus group conclusions are recorded below.

Focus group 1

We prefer Option E as the preferred direction to move forward and progress the project.

Because:

- It has the best chance of community acceptance
- It delivers the best socio-economic benefits overall (noting the impacts on banana growers, the impacts on agriculture and potential environmental impacts)
- The cost premium is at an acceptable level

Subject to:

- Compensation and adjustment to agribusinesses
- Adequate mitigation and management of environmental issues/impacts
- A strategic review of land use east of Option E

Focus group 2

We prefer Option E as the preferred direction to move forward and progress the project.

Because:

- Of the reduced socio-economic impacts of Option E on Woolgoolga
- It better provides for future urban growth and greater flexibility in future planning options
- It is likely to have a higher degree of community acceptance
- There are no known environmental fatal flaws with the option
- Other factors are in balance on all options (ie. functionality, cost and BCR)

Subject to:

- Resolution of any identified environmental issues
- Investigation of opportunities to mitigate/minimise impacts on rural areas
- Resolution of access issues to the west of Option E

Focus group 3

We prefer Option E as the preferred direction to move forward and progress the project.

Because:

- Option C is not favoured by the focus group
- Of the socio-economic concerns of Option C1
- The flexibility for future development/planning allowed by Option E
- Less severance of existing and possible future communities
- Safety and noise benefits for Mullaway and Safety Beach as a result of Option E

Subject to:

- Proper mitigation of environmental impacts and concerns
- Considerations be given to providing fair compensation to farmers due to loss of production

Focus group 4

We prefer Option E as the preferred direction to move forward and progress the project.

Because:

- On balance, it allows fewer impacts on the Woolgoolga community
- It permits greater variety of options/flexibility for CHCC in planning the Woolgoolga Strategic Plan
- It meets the functionality criteria
- It has less community severance
- It improves road safety at Mullaway and Safety Beach intersections

Subject to:

- Appropriate mitigation measures being implemented to address the environmental issues (eg. wildlife corridors, visual amenity, loss of habitat, etc)
- Planning the best available noise mitigation within the design elements
- Appropriate mitigation of rural land impacts

Comment:

- Our decision recognises that the environmental impact, while large, impacts over a relatively short section when the whole upgrade is considered

Focus group 5

This focus group felt a preference could not be drawn. However the focus group drew some conclusions from the work undertaken in the workshop. As a result, the focus group concluded that:

- Some community participants could not maintain the confidence of their reference groups and recommend either option
- Option C1 is seen as having considerable urban issues
- Option E is seen as having considerable visual amenity and rural land impact issues
- A number of the focus group participants could see more benefit overall (on balance) in Option E over Option C1

Subject to:

- Resolution of a more sustainable development strategy for Woolgoolga
- Resolution of the noise implications on Option E
- Community acceptance
- Resolution of rural land implications

Conclusions that the Workshop Group could draw

As a result of the work undertaken during the workshop, the following conclusions could be drawn:

- The vast majority of participants recommended Option E as the preferred direction to progress the project as a result of deliberations undertaken during the workshop
- There is no perfect solution but on balance the group attempted to resolve the issues with the best possible outcome in mind
- The group found it difficult to evaluate the options constrained by the ratings of Option C from the previous workshop
- There was difficulty in visualising a green backdrop Option E without potentially visual scars
- Both Option C1 and Option E were believed to be improvements to Option C
- The group recognised the difficulty in evaluating the conflict of issues between Option C1 – potential urban impacts and Option E – potential rural, environmental and visual impacts

Where to from Here?

At the conclusion of the workshop, Bob Higgins presented the group with the next steps in the process to progress the project. These were recorded as:

- A report of the workshop will be prepared by ACVM outlining the process followed and the recommendations made by the workshop group
- The workshop report, together with technical reports, community consultation comments and submissions on all the options for this Northern Section (being Sapphire to Woolgoolga), as well as the equivalent information for the Southern Section of the Highway around Coffs Harbour, will be forwarded to the Minister for Roads for his consideration and decision on a preferred route
- Once the decision is made by the Minister for Roads, the preferred route for the Southern Section will go through a process to reserve the route corridor and provide future certainty in planning
- Once the decision is made by the Minister for Roads for the preferred route in the Northern Section, the route will move into a Concept Design stage and an Environmental Impact Assessment process to ensure the project is ready to proceed when funding is available
- Community consultation will continue to provide valuable input into the refinement of the concept design, and the environmental impact assessment