F3 TO SYDNEY ORBITAL LINK STUDY
value management workshop No.1 record

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in association with
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Preface

This Value Management Workshop record presents the findings of a Value Management Workshop held in June 2002 as part of the F3 to Sydney Orbital Link Study. The Study applied strategic analysis to the assessment of corridor types and feasible route options to determine an acceptable and preferred option which best satisfies National Highway objectives.

A number of specific routes and associated engineering details such as interchange and ventilation layouts were developed and analysed during the course of the Study, for the purpose of determining feasibility and assessing the options. The specific routes and details described in this document should be seen in this context.

It may be necessary to read sections from the Main Report and Working Papers listed below to gain a more complete understanding of the information being reported in this record:

Value Management Workshop No.2 Record, September 2003
Draft Options Development Report, October 2002
Working Paper No 1: Community Consultation Report
Working Paper No 4: Traffic and Transportation Report
Working Paper No 7: Economics Report

Access to the Main Report is available via the study website at:

Details on how to gain access to the Working Papers can be found on the study website.

If Government decides to further develop the recommended option from this Study, an EIS concept proposal including a route alignment and other details will be developed for further assessment. Community consultation will continue through each stage of project development.
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Appendix A List of participants
Executive Summary

Project Background

Sinclair Knight Merz (SKM) has been engaged to undertake a study investigating possible National Highway links between the F3 and the Sydney Orbital. There is a need to investigate short-term options (2010 - 2020) and longer term options (2020 - 2050) giving a time horizon for the study of some 50 years.

Preliminary investigations and studies undertaken by the project team facilitated the development of a “long list” of feasible options. The study is now poised to move into a more detailed investigation of options. Accordingly, it is necessary to reduce the long list of options to a more manageable number that can be the subject of more detail analysis and evaluation.

It was against this background that this strategic review of feasible options workshop was convened. The purpose was to develop a shared understanding of the work completed to date and to provide the framework to enable participants to narrow the available options to be taken forward to the next stage of the study. The session enabled the participants to articulate their concerns and to highlight the important issues that need to be considered. It provided the project team with the stakeholder input that is so vital to developing the most cost effective and widely supported options.

The process was an effective means to advance the study by recording the major issues articulated by those in attendance. It also facilitated the generation of ideas aimed at improving the option that will ultimately be implemented. In order to ensure that broad ranging factors were considered, the group comprised key internal project stakeholders and the study team members. The full list of participants is included in Appendix A to the record.

The review workshop was held over a single day on Wednesday, 26 June 2002, at the Duxton Hotel, Milsons Point. At the beginning of the session, team members made brief presentations to update all participants on the current status of the study. A summary of these presentations may be found in Chapter 2.

As part of the analysis phase, the objectives for the workshop were clarified and agreed. In addition, the objectives underpinning the Sydney Orbital to F3 Link were revisited and confirmed. Participants’ assumptions were reassessed. The relative merits of the available options were analysed to assist with the selection of the most appropriate options to bring forward to the next stage of the study. The results of this analysis forms Chapters 3 & 4 of this document.

Key outcomes from workshop

Having worked through the review process there was general consensus regarding the way forward. The following outcomes emerged:

- It was recognised that no single option could satisfy all project objectives. A staged solution will be required.

- It was recognised that the current study boundaries preclude the detailed investigation of options that could provide alternative strategic solutions to Sydney’s long-term traffic problems, e.g. Putty Road route.

- It was recognised that establishing the viability of achieving 8 lanes on the F3 is critical. The result of this investigation may affect the option ultimately recommended.

- A short list of options was agreed by the participants to take forward to the next stage of the study. Refer to Sections 3.6, 3.8 & 3.10 of this record for details.
- It was agreed to consult with RTA in connection with the feasibility of staging the westerly route options, specifically with regard to the proposed arterial roads to service new release areas within the Northwest sector.

- The study will consider the strategic need for other long-term options raised in the public consultation. This is currently outside the scope of the study.

- It was recommended that discussions be initiated with PlanningNSW regarding regional strategies, such as the possible expansion of Newcastle CBD and the likely number of Central Coast residents who could work in Newcastle. At the same time, the study team will brief PlanningNSW on project / study status.

- It was agreed that as part of the study significant public transport improvements (public transport only option) rather than long-term road solutions would be considered.

- It was agreed to reassess projected public transport usage in view of current proposals for the Parramatta-Chatswood rail route and possible north and west links.

- It was agreed to investigate the feasibility of limiting the F3 to a maximum of 6-lanes and using excess capacity of the existing Pacific Highway.

- It was agreed that the option of upgrading existing roads, rather than creating new corridors, would be assessed.

An important task undertaken by the group in bringing the workshop to a conclusion was the preparation of an action plan that was intended to advance the study and to realise the objectives of the workshop. The items included in the action plan resulted from issues raised, from group discussions and from the recommendations made.

The action plan generated by the group is included in Chapter 7 of the record.
1

Introduction

1.1 Value management rationale

The workshop utilised a structured process to ensure that key issues were identified and that the option(s) ultimately chosen will allow project objectives to be fully achieved and will address emerging needs and priorities to the greatest possible extent. The session was non-adversarial and cooperative with a genuine focus on finding the best options to bring to the next stage of the study.

The process facilitated an open and full exchange of information by enabling all stakeholders to articulate concerns, to explore options and to appreciate the key issues associated with selecting short list of options that will deliver the greatest benefits to the community in both the short and longer terms.

1.2 Workshop methodology

It should be noted that preparation work prior to the session forms an integral part of the process and has a major bearing on the results achieved. Detailed information regarding the status of the various studies / investigations was circulated to participants prior to the workshop. This was done in the hope that the process of options selection would be streamlined if all participants had digested this information in advance of the workshop.

The session was structured to obtain optimum outcomes by highlighting the critical issues that need to be addressed in selecting the options to include on the shortlist. Tierney Page Kirkland’s (TPK) role was to manage the workshop process. Declan Tierney facilitated the session with technical support provided by Michiko de Solom.

Central to the success of the workshop was the inclusion of key study team members and internal stakeholders with direct interest in the directions ultimately chosen. A full list of participants is provided in Appendix A.

The session was held over a single day on Wednesday, 26 June 2002, in the Duxton Hotel, Milsons Point.

After presentations that provided a background to the project, the workshop methodology confirmed the
- project objectives, and
went on to revisit and confirm the
- assumptions / givens; and
finally the process enabled participants
- to have input to the option selection process, and
- to suggest ideas to improve the routes ultimately recommended.

The session concluded with the preparation of an action plan, which is included in Section 8 of the record.
1.3 Value management workshop record

The information contained in this record has been distilled from the pre-workshop briefings and the data generated during the session itself. The record seeks to provide an overview of the workshop methodology and documents the data generated during the session.

It is hoped that this document will help establish the basis for decisions on study content and direction and will be a useful aid during the subsequent phases of the study.
2

Information Phase

2.1 Information gathering

The initial stage of the workshop was used to answer queries and to address any critical aspects raised by participants. It also provided an opportunity to update those present on current thinking and to provide an overview of the options that are considered feasible. This sharing of information helped ensure that everyone involved enjoyed a common understanding of the current status of the study and it created the platform for decision making and option selection that occurred later in the session.

The essence of the information presented follows.

2.2 Key Issues – Peter Prince

Mr Prince welcomed the participants to the workshop and thanked everyone for taking the necessary time from their busy schedules.

He briefly outlined the purpose of the background information folder which was circulated to participants prior to the workshop. He explained that the document would grow. Papers to be inserted between separators would be forwarded as they become available.

The study report will address the following key areas:

2.2.1 Political Commitment

We know that a political commitment supporting the project exists. Construction of the new link between the F3 and the Sydney Orbital is to commence in 2007 to coincide with the completion of Western Sydney Orbital. As a result of recent announcements, community expectations in respect of a project commencement and relief from traffic congestion will have been heightened.

It is important therefore to bear this in mind when selecting options and assessing the status of those options. Clearly, the ability to economically deliver the required up front benefits – primarily, the relief of Pennant Hills Road, will be a key selection criterion.

2.2.2 Mutually Exclusive Project Objectives

It was recognised at a previous workshop that the objectives set for this project have a degree of mutual exclusivity built into them. There is a need not only to assess and evaluate a route that will relieve traffic on Pennant Hills Road but will also address longer term factors such as Sydney’s growth, growing traffic demand, accessibility to and from Sydney. (Study horizon 40 – 50 years).

2.2.3 Capacity of F3

Understanding and accounting for the constraints imposed by the F3 corridor is central to the development of feasible options. The corridor has a limited capacity and this factor needs to be fully considered.
2.2.4 Compare Like with Like

It is essential to compare like options with like. When comparing easterly options against westerly ones, for example, the effects of widening the F3 and M2 need to be included over the life of the project ie over 40 years.

2.2.5 Bridges versus Deep Tunnels

This issue is very important with the community and cannot be understated. Schemes that are in the pipeline, such as the Chatswood - Epping railway through Lane Cove National Park have raised community concerns regarding a low-level bridge structure.

It is to be expected that similar issues will be relevant to this project. When comparing a bridge with deep tunnel solutions, robust estimates of whole of life costs will be factored into the evaluation. (Refer to Appendix D of the Background Information for a note outlining life cost estimates).

2.2.6 Need for Vision

Finally, the need for vision cannot be exaggerated. As a team we are responsible for creating a solution that will meet the community's transportation needs well into the future. We are not seeking just a link to relieve Pennants Hills Rd, we must grasp the opportunity as planners and engineers, to look to the future. In this light, one must question the wisdom in strategic terms of having a single access into Sydney based on the F3 corridor. Accordingly, there could be value in reconsidering the boundaries of the study area.

2.3 Feasible Options – Eric Shegog

Mr Shegog outlined the work underway or completed that supported the development of options to be presented. He referred participants to the background information recently distributed. It contains more detailed information than can be presented in the time available and it was assumed that all participants were familiar with its contents.

Planning data, transport demand projections have been gathered, interchange and network connection options have been considered. In addition, the assessment of social impacts, environmental factors and feedback from the community has directed thinking. The results have influenced the development of the options that will be presented.

It was pointed out that the “lines on drawings” represented corridors NOT routes. Many of the options discussed have sub options for example bridges versus tunnels, and so forth.

Mr Shegog went on to describe each of the options being put forward. The essence of the information provided is shown below.

2.3.1 Option 1 - M2 at Marsfield to F3 at Wahroonga

- Generally follows Option A alignment from the 1999 Study
- 6.3km - 3 lane twin tunnel
- Will result in 6% grade in the tunnel under river
- Major waterway crossing - Lane Cove river
- Will require upgrade of M2 & F3 beyond 2020

2.3.2 Option 2 - M2 tunnel to F3 at Wahroonga

- 8.8km - 3 lane twin tunnel
• Access to/from M2 either side of existing tunnel
• Major waterway crossing - Lane Cove River and Devlins Creek
• 3km of 4.5% gradient and 1km of 5%.
• Will require upgrade of M2 & F3

2.3.3 Option 3 - M2 at Pennant Hills Road to F3 at Wahroonga
• 9.8km - 3 lane twin tunnel
• Alignment along (under) Pennant Hills Road – average depth 25m
• Maximum gradient 1.5%
• No major waterway crossings
• Will require upgrade of M2 & F3

2.3.4 Option 4 - M2 at Pennant Hills Road to F3 at Asquith
• 11.6km of 3 lane twin tunnel (possibly 2 tunnels)
• Bridge over Waitara Creek
• Alignment along Pennant Hills Road then via Hornsby CBD
• Gradient 1.5% - 5%
• No other major waterway crossings
• Will require upgrade of M2 & F3

2.3.5 Option 5 - M2 at Windsor Road to F3 at Mt Colah
• Total length of 17.2km
• 8km twin tunnel
• 4.7km surface road through park
• 4.5km twin tunnel at Asquith
• Alignment via Cherrybrook, Berowra Valley Regional Park & Asquith
• Major waterway crossing – high level bridge at Berowra Creek
• Maximum gradient is 3.5% from Asquith to Mt Colah
• Will require upgrade of F3

2.3.6 Option 6 - M2 at Windsor Rd to F3 at Mt Colah via Round Corner
• Total length of 18km
  • 5.5km twin tunnel
  • 8km surface road
  • 4.5km twin tunnel
• Alignment via Castle Hill, Round Corner, Tunks Ridge, Berowra Valley Regional Park & Asquith
• Major waterway crossing - Berowra Creek
• 1km of 4% grade at Glenhaven and 3km of 3% at Asquith
• Will require upgrade of F3

2.3.7 Option 7 - SO at Quakers Hill Parkway to F3 at Mt Colah
• Total length of 28km
• 23.5km surface road
  • 4.5km twin tunnel in Mt Colah / Asquith
• Alignment via Quakers Hill, Kellyville, Round Corner, Tunks Ridge, Berowra Valley Regional Park & Asquith
• Major waterway crossings - Eastern Creek, Berowra Creek
• 3km of 3% grade through Glenhaven and 2km of 3% at Asquith
• Will require upgrade of F3

2.3.8 Option 8 - SO at Quakers Hill Parkway to F3 at Mt White via Dural
• Total length of 59km
• Twin tunnels below Marramarra National Park (Hawkesbury crossing)
• Alignment via Quakers Hill, Kellyville, Round Corner, Dural, Glenorie, Canoelands & Mt White
• Major waterway crossings - Eastern Creek, Hawkesbury River
• Maximum gradient 2% over 6km in Cattai Creek area 2.5% over 4km in the Mt White area
• No upgrade of M2 or F3 required

2.3.9 Option 9 - M2 at Windsor Road to F3 at Mt White
• Total length of 49km
• Twin tunnels up to 6km below Castle Hill (south) & up to 8km below Marramarra National Park (north)
• Alignment via Castle Hill, Round Corner, Dural, Glenorie, Canoelands & Mt White
• Major waterway crossing - Hawkesbury River
• Maximum gradient 4% from Canoelands to Hawkesbury River
• No upgrade of M2 or F3

2.3.10 Option 10 - SO at Dean Park to F3 at Mt White via Riverstone
• Total length 54km
• Twin tunnel below Marramarra National Park
• Alignment via Riverstone, Maraylya, Glenorie, Canoelands & Mt White
• Major waterway crossings - Eastern Creek, Hawkesbury River
• No upgrade of M2 or F3

2.3.11 Option 11 - SO at Dean Park to F3 at Berowra via Riverstone
• Total length 43km
• Twin tunnel below Muogamurra National Reserve
• Alignment via Riverstone, Maraylya, Glenorie & Cowan
• Major waterway crossings - Eastern Creek, Berowra Creek
• Upgrade of F3 required

2.3.12 Option 12 - SO at Sunnyholt Road to F3 at Mt White
• Total length 47km
• Twin tunnel below Marramarra National Park
• Alignment via Parklea, Annangrove, Glenorie, Canoelands & Mt White
• Major waterway crossing - Hawkesbury River
• No upgrade of M2 or F3

2.3.13 Option 13 - M2 at Pennant Hills Road to F3 at Mt Colah via Railway Line
• Total length 13km
• 3 lane twin tunnel below Pennant Hills Road
• Viaduct over existing rail corridor
• No major waterway crossings
• Major upgrade of M2 & F3

2.3.14 Option 14 - Brooklyn to Somersby via Railway Line
• Alternative crossing of Hawkesbury, east of existing
• Connects F3 at Brooklyn to Gosford area

2.3.15 Option 15 - SO at Dean Park to F3 North of Mt Ku-ring-gai
• Total length 34km
• Alignment via Schofields, Annangrove, Middle Dural, Galston & Mt Ku-ring-gai
• Major waterway crossings - Eastern Creek, Berowra Creek
• Upgrade required for F3

2.3.16 Option 16 - SO at Dean Park to F3 at Mt White via Annangrove
• Total length 51 km
• Twin tunnel below Marramarra National Park
• Alignment via Schofields, Kellyville, Annangrove, Glenorie, Canoelands & Mt White
• Major waterway crossings - Eastern Creek, Hawkesbury River
• No major upgrade of M2 or F3

2.3.17 Option 17 - SO at Kings Langley to F3 at Mt Colah via Round Corner

• Total length 23 km
• Alignment via Kings Langley, Glen Haven, Middle Dural, Galston and Mt Ku-ring-gai
• Major water crossing – Berowra Creek
• Upgrade required for F3

2.4 Preliminary assessment of Options – Barry Nicholls

Mr Nichols explained that the purpose of his presentation was to summarise the data provided to participants in the background information folder and to go through the preliminary assessment of options undertaken by the project team.

The session provided an opportunity for participants to discuss that assessment and to examine options to arrive at a short list to take forward. The process to date had involved making an assessment of the corridor options against the project objectives. This assessment has been used to group the options depending on their ability to meet particular project objectives.

**Group A - Eastern**

• New integrated transport/National Highway route/tunnel linking F3 at Hornsby with the M2 Tollway.

**Group B - Central**

• New integrated transport/National Highway route from the Orbital to the F3 north of Hornsby and south of the existing Hawkesbury crossing.

**Group C - Western**

• New integrated transport/National Highway route on a second Hawkesbury River crossing linking to the Orbital.

The eastern options may lend themselves to earlier development than the central or western options.
Options in groups

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<tr>
<th>Options</th>
<th>Group A - Eastern</th>
<th>Group B – Central</th>
<th>Group C – Western</th>
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<td>Option 1</td>
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<td>Option 16</td>
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The table below demonstrates the “mutual exclusivity” of objectives mentioned earlier. For example, the Group A options do little in terms of facilitating Sydney’s future growth. On the other hand, Group C options perform highly in respect of improving Sydney’s through traffic and enabling growth.

The table below shows the relative performance of the various options (except for Option 17 which was developed just prior to the workshop?) against consolidated project objectives (L = low, M = medium, H = high, O = no impact).

<table>
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<tr>
<th>Options</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
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<tr>
<td>Improve NH Link F3 to SO</td>
<td>L M M H H H H O H</td>
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<tr>
<td>Improve Safety on extg NH and surrounding corridor</td>
<td>M M M L L L L L L</td>
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<tr>
<td>Sydney through-traffic relief</td>
<td>L L L M H H H H H O H</td>
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<tr>
<td>Reduce arterial road congestion</td>
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<tr>
<td>Enable Sydney’s growth</td>
<td>0 0 0 0 L L M H H M H O H</td>
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<tr>
<td>Improve Port / Market accessibility</td>
<td>H H M M L L L L L L</td>
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<tr>
<td>Enable Public Transport improvements</td>
<td>M M H M H L L L M L H L</td>
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Having completed this assessment, participants recognised that no single option will be capable of meeting all the project objectives. It was agreed that the preferred scheme might need to incorporate a staged approach that will meet growth, safety, traffic demand and other objectives as they emerge.

The next stage of the assessment process involved the evaluation of each option within its group in respect of broad performance criteria. The “♂” was awarded to the best overall performer against each criterion – no attempt was made to quantify differential margins. If options were believed to perform equally, a  ♂ was awarded to each.

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<table>
<thead>
<tr>
<th>Group B Options</th>
<th>5</th>
<th>6</th>
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<th>15</th>
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<tbody>
<tr>
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<td>Urban Development</td>
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<td>Traffic and Transport</td>
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<td>Social &amp; Community</td>
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<tr>
<td>Environmental</td>
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<td>Economic</td>
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<td>Treasury / Government</td>
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<tr>
<td>Overall Feasibility - Rank</td>
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</tbody>
</table>
It was hoped that refinement of this approach would be useful in selecting options to include on the shortlist to bring forward to the next stage of the study.

2.5 Key Points from Presentations

The participants were asked to briefly outline the key points that believed to have been made in the course of presentations. The items identified were as follows:

- Federal Government is committed to start construction in 2007
- No single option can meet all project objectives
- A six lane F3 cannot meet long-term objectives (beyond 2025 increasing congestion forecast Gosford-Hornsby)
- Should an inland route be considered (in light of being visionary)
- The study should consider the full costs of options (lifecycle costs)
- There is a need to be visionary in our thinking
- An interchange with Boundary Road, Pennant Hills might be required to make Option 3 viable
- Impacts on National Parks – need to consider legislative changes to accommodate surface routes
- Many permutations are possible
- Achieving the best possible connection point to the Sydney Orbital is critical
- Ability and extent by which the capacity of F3 can be increased needs to be determined
- Costs of upgrading F3 and M2 must be factored into the assessment of options
• Two objectives identified – relief of Pennant Hills Road and accommodating future growth in Western Sydney
• Will need multiple options or one stageable option to meet all objectives
• Short and long-term objectives need to be taken into consideration.
3

Analysis phase

The analysis phase of the process was used to gain an understanding of the underlying issues and constraints affecting possible proposals and/or options. It enabled participants to clarify objectives, to express concerns and to make suggestions regarding possible directions.

3.1 Review workshop objectives

It was important that participants reached consensus regarding the purpose of the workshop and the desired outcomes. Preliminary objectives were identified prior to the session and these were discussed with the group to gain endorsement.

The participants considered the reasons for conducting the workshop and the outcomes that were expected from the process. The objectives were confirmed to be as follows:

- To update participants on the current status of the study;
- To confirm that the assumptions/givens agreed earlier in the study remain valid;
- To consider the realities of what this study can and cannot deliver;
- To introduce the “long list” options being considered;
- To identify the extent to which each option on the long list meets project objectives;
- To establish and agree a short list of feasible options for further detailed investigation; and
- To generate ideas to improve the short listed options.

3.2 Project objectives

In this segment of the workshop, the objectives underpinning the project were reviewed. In light of the revelation that a degree of “mutual exclusivity” exists between some, it was felt essential to confirm that the original project objectives remain valid and current.

The project objectives were confirmed as being:

- To provide an improved National Highway link between the Sydney Orbital and the F3;
- To improve safety on the National Highway and the surrounding corridor;
- To relieve northern Sydney road network of long-distance (through traffic) volumes, including heavy vehicles;
- To reduce traffic congestion on the northern urban arterial road system, including Pennant Hills Road;
- To enable sustainable future growth of Sydney and its land use demands (for a city of up to 6 million forecast population in 2050);
• To improve accessibility to Sydney markets and major ports from the Central Coast and the Hunter region; and

• To enable improvements to public transport services for long distance and regional travel.

3.3 Assumptions

In developing any initiative it is necessary to make assumptions. The assumptions listed at the Risk Management workshop were reviewed to confirm that they remain valid or to amend them as appropriate.

The group was invited to add any assumption held regarding the proposed project. Each item was assessed in the light of current knowledge and prerogatives. The assumptions were categorised as being a Fact, a Working Assumption, or Questionable. The items identified by the stakeholders are sorted into these categories below.

**Facts**

- Cost estimates must be reliable and robust
- Long-term vs short-term objectives are significantly different and cannot be met by a single option
- Widening of current F3 needs consideration of major environmental, geographical, social, engineering, financial implications
- Central Coast is a dormitory city of Sydney and large proportion of working population will continue to commute to Sydney in the short-term
- Planned Rail upgrades have been considered in calculating traffic loads
- Traffic modelling considers data only up to 2020
- The study will consider the strategic need for other long-term transport options raised in the public consultation. Detailed examination is outside the scope of the study.
- B-doubles will be permitted on the new route
- Concept design will be undertaken as part of the EIS process (Stage 4, which is not part of the study)
- Stage 3 will identify the general location of the route and Stage 4 would refine the alignment
- If the scope of the study increases the client will be kept fully informed
- Impacts on the road network performance including southern links will be considered in Stage 3
- Impacts on the public transport network performance will be considered in Stage 3
- Community will not tolerate inconsistent information
- Community is concerned with local amenity
- Community is not a single entity
- There will not be a surface route between M2 and F3 along B2/B3 corridors
- Study must be completed by Nov 2002
- Study must be completed within agreed budget
- Study will be influenced by the up coming elections
• Communities suggestions and ideas will be considered
• Individual stake holders have diverse interests and varying expectations
• Program is very tight
• Consultation program very difficult
• The end of Stage 3 will identify a preferred scheme(s) and a route alignment
• There is a community expectation that traffic will reduce on Pennant Hills Rd
• Pennant Hills Rd will not be widened
• No preconceived results exist

**Working assumptions**

• No new technological breakthroughs in the short-term to significantly impact on current road usage patterns
• Impacts on national parks can be resolved
• Inland/Far West route will be given some consideration
• Users will be willing to pay tolls for the infrastructure, assuming there is a benefit
• Current 1% growth for Sydney plus regional growth incl Hunter, Illawarra region will give a projected population of 7 million total by 2040
• Past will be reflected in the future – technological changes will not affect traffic growth to a significant extent.
• Community will accept long tunnels in urban conditions
• Western route will be required within 25 yrs
• At the end of Stage 3 we will have a preferred scheme that meets study objectives.
• The implementation of the transport scheme will be the responsibility of the three levels of govt
• The Stage 3 study will result in preferred scheme (s) with sufficient design detail to enable concept estimates to be prepared such that the actual cost lies within the range of plus 0% and minus 20% of the concept cost estimate in accordance with RTA guidelines. Travel benefits will be established plus or minus 20%
• Construction will commence in 2007
• Cost will not be the only criterion for considering options - potential benefits will be assessed as well as costs.
• An acceptable solution can be found that satisfies the study objectives
• Full Ministerial support will be forthcoming
• Target all affected stakeholders
• High profile study will attract a lot of public pressure to produce results quickly
• Sufficient data available to finalise the study
• Concurrent work activities will occur with good communications within the various disciplines
• The level of detail at end of Stage 3 will allow pricing to the required level of accuracy
• RTA will update economic parameter values
• Approvals will be achieved in the required time frame
• Agreement regarding contents of base case will be reached
• The roles and responsibilities of the consultants, DOTARS and RTA are clear, well understood and agreed

**Questionable**

• Group A tunnels are urban, Group C tunnels are rural
• Dangerous goods will not be permitted to be carried in tunnels
• People will continue to behave and travel as they do now in the long term
• Decision making process in relation to route selection will be seen by the community as being fair and credible
• Stakeholders will have easy access to current and factual information

### 3.4 Assessment of Options

The consultants in attendance were asked to outline the rationale that determined the allocation of stars shown in Section 2.4 above. Following extensive discussion the tables were amended to reflect emerging thinking and prerogatives. The discussions that took place as part of the process were highly informative and raised participants’ knowledge and understanding of the issues most relevant to the selection of options to include on the shortlist. The revised tables are shown below together with the team’s recommended short list options.

As before the ◦ indicates that an option performed best in respect of this criterion.

#### 3.5 Group A Options

<table>
<thead>
<tr>
<th>Group A Options</th>
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3.6 Short listed Group A Options

Due to the excessive capital cost that would be involved in pursuing Option 4 (estimated to be some $400 million more costly than Option 3), the participants decided to short list Option 3 ahead of Option 4. Option 13 was deleted due to its technical difficulty. Options 1 and 2 are quite similar to Option 3 but considerably less expensive. They each have specific benefits.

It was agreed that the remaining options would be subjected to detailed investigation in Stage 3 of the Study.

3.7 Group B Options

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<tr>
<th>Options</th>
<th>5</th>
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<td>Traffic and Transport</td>
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<td>Economic</td>
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3.8 Short listed Group B Options

The participants favoured Option 15 with Options 7 & 17 slightly in arrears. It was recommended that composite options be evaluated further in Stage 3 of the Study.

The short listed options were:

- The Southern portion of Option 17 linking with Option 7.
- Option 15 in full with the “Quakers Hill tail”.
3.9 Group C Options

<table>
<thead>
<tr>
<th>Group C Options</th>
<th>8</th>
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<td>Overall Feasibility - Rank</td>
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* = With Option 8 Tail

3.10 Short listed Group C Options

The group recommended further examination of Option 10 with “Option 8 tail” and Option 8 with Option 17 tail.

Further investigation required into feasibility of an F3 upgrade to 8 lanes. Following this investigation, it will be appropriate to then determine the most appropriate route to take forward as the feasible option at the “top end” of route.
4

Creative phase

4.1 Idea generation

Sections 3 and 4 above summarise the outcomes of the information and analysis phases of the process. The understandings that were developed and the information shared enabled the group to recommend a short list of options that would be taken forward to Stage 3 of the study. It also facilitated the generation of ideas aimed at improving the options chosen, reducing overall cost and developing the optimum solution for the community.

The group was encouraged to come up with ideas as to how problematic issues could be resolved or how shortcomings in the short listed options could be addressed. They were asked to be as wide-ranging as possible in their thinking to ensure a full coverage of all relevant aspects.

The approach involved the recording of any idea, regardless of its apparent likelihood of being implementable. During this phase of the process, the aim was to collect as many ideas as possible without subjecting them to any form of screening or judgement. This occurred in the next segment of the workshop, the judgement phase.

The ideas generated together with the group's assessment of each are included in Chapter 5.
5

Judgement phase

5.1 Judgement of ideas

The ideas for improving the short listed options, generated in the creative phase, were assessed by the group in terms of practicality, viability and cost-effectiveness. Each idea was discussed and rated using the following categories:

*Implement* or *Investigate* or *Not Practical*.

In the interest of clarity, the ideas have been grouped according to these ratings.

<table>
<thead>
<tr>
<th>“CAN WE….?”</th>
<th>Rating</th>
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<tbody>
<tr>
<td>Engage PlanningNSW in dialogue to discuss regional strategy and to provide an update on project / study status.</td>
<td><em>Implement</em></td>
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<tr>
<td>Consider significant public transport options rather than long-term road solutions.</td>
<td><em>Implement</em></td>
</tr>
<tr>
<td>Assess projected public transport usage in view of current proposals for the Parramatta-Chatswood rail route and possible north and west links.</td>
<td><em>Implement</em></td>
</tr>
<tr>
<td>Investigate implications of keeping the F3 to a max 6-lanes and consider using excess capacity of the existing Pacific Highway</td>
<td><em>Implement</em></td>
</tr>
<tr>
<td>Discuss with PlanningNSW the possible expansion of Newcastle CBD to determine the number of Central Coast residents who could work in Newcastle.</td>
<td><em>Implement</em></td>
</tr>
<tr>
<td>Consider the option of upgrading existing roads instead of creating new corridors.</td>
<td><em>Implement</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“CAN WE….?”</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider building the additional Hawkesbury crossing as a first stage of long-term option (from Canoelands Rd to F3).</td>
<td><em>Investigate</em></td>
</tr>
<tr>
<td>If the additional Hawkesbury crossing is built look at minor upgrades required on other roads leading to it.</td>
<td><em>Investigate</em></td>
</tr>
<tr>
<td>Leave the F3 as it is but duplicate to the east at Mt White.</td>
<td><em>Investigate</em></td>
</tr>
<tr>
<td>“CAN WE….?”</td>
<td>Rating</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
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</tr>
<tr>
<td>Have links to the north other than to the F3</td>
<td>Investigate</td>
</tr>
<tr>
<td>Investigate express bus service Gosford-Sydney (investigate Transitway)</td>
<td>Investigate</td>
</tr>
<tr>
<td>Consider shuttle bus service to Hornsby connecting to Rail to Central coast.</td>
<td>Investigate</td>
</tr>
<tr>
<td>Investigate demand management including Car pooling – tidal flow – transit ways.</td>
<td>Investigate</td>
</tr>
<tr>
<td>Investigate ITS/ATMS systems to improve capacity of F3.</td>
<td>Investigate</td>
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<tr>
<td>Investigate land use management on Central Coast.</td>
<td>Investigate</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>“CAN WE….?”</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider double decker F3 and M2</td>
<td>Not practical</td>
</tr>
</tbody>
</table>
Workshop outcomes

Having worked through the review process there was general consensus regarding the way forward. The following outcomes emerged

- It was recognised that no single option could satisfy all project objectives. A staged solution will be required.

- It was recognised that the current study boundaries preclude the detailed investigation of options that could provide alternative strategic solutions to Sydney’s long-term traffic problems, e.g. Putty Road route.

- It was recognised that establishing the viability of achieving 8 lanes on the F3 is critical. The result of this investigation may affect the option ultimately recommended.

- A short list of options was agreed by the participants to take forward to the next stage of the study. Refer to Sections 3.6, 3.8, & 3.10 of this record for details.

- It was agreed to consult with RTA in connection with the feasibility of staging the westerly route options, specifically with regard to the proposed arterial road to service new release areas within the Northwest sector.

- The study will consider the strategic need for other long-term options raised in the public consultation. This is currently outside the scope of the study.

- It was recommended that discussions be initiated with PlanningNSW regarding regional strategies, such as the possible expansion of Newcastle CBD and the likely number of Central Coast residents who could work in Newcastle. At the same time, the study team will brief PlanningNSW on project / study status.

- It was agreed that as part of the study significant public transport improvements (public transport only option) rather than long-term road solutions would be considered.

- It was agreed to reassess projected public transport usage in view of current proposals for the Parramatta-Chatswood rail route and possible north and west links.

- It was agreed to investigate the feasibility of limiting the F3 to a maximum of 6-lanes and using excess capacity of the existing Pacific Highway.

- It was agreed that the option of upgrading existing roads, rather than creating new corridors, would be thoroughly assessed. (especially western options)
7

Action Plan

An important task undertaken in bringing the workshop to a conclusion was the preparation of an action plan. The items included were developed from issues raised, from discussions within the group and from the recommendations made.

The Action Plan generated is as follows:

<table>
<thead>
<tr>
<th>No</th>
<th>Action</th>
<th>Who</th>
<th>By When</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commence detailed study of agreed Group A options and scope for widening the F3.</td>
<td>Peter Prince</td>
<td>27 Jun 02</td>
</tr>
<tr>
<td>2</td>
<td>Re-present short-list option descriptions to the client for sign off.</td>
<td>Peter Prince / Wayne Trappett / Hari Kishan</td>
<td>5 Jul 02</td>
</tr>
<tr>
<td>3</td>
<td>Organise a meeting with RTA Newcastle re the widening of the F3 and understand the constraints on widening to 8 lanes.</td>
<td>Laszlo Muranyi</td>
<td>12 Jul 02</td>
</tr>
<tr>
<td>4</td>
<td>Organise meeting with PlanningNSW to discuss strategy directions being considered and to provide an update on current status of the F3 to Sydney Orbital Link Study.</td>
<td>Bob Meyer / Peter Prince</td>
<td>12 Jul 02</td>
</tr>
<tr>
<td>5</td>
<td>Revisit the community consultation process and develop a strategy to take the study to the public display of feasible route options.</td>
<td>Jo Moss</td>
<td>12 Jul 02</td>
</tr>
</tbody>
</table>
Appendix A

List of participants
## Participants

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Participant</th>
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<tbody>
<tr>
<td>Department of Transport and</td>
<td>Andy Hrast</td>
</tr>
<tr>
<td>Regional Services</td>
<td>Wayne Trappett</td>
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<td></td>
<td>Ashok Mehta</td>
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<td>John Benac</td>
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<tr>
<td>RTA</td>
<td>Garry Humphrey</td>
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<td></td>
<td>Viv Manwaring</td>
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<td>Steve Arnold</td>
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<td>Hari Kishan</td>
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<td>Bob Meyer</td>
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<tr>
<td>DEM</td>
<td>Carolyn Tallents</td>
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<td>Sinclair Knight Merz</td>
<td>Peter Prince</td>
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<td>Michiko de Solom</td>
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