

# **SPORTSMANS CREEK NEW BRIDGE DEVELOPMENT AND ASSESSMENT OF OPTIONS**

## **INTERNAL TECHNICAL WORKSHOP 1 AUGUST 2013**

### **SUMMARY REPORT**

*Prepared for:*

**Roads and Maritime Services**

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**16 August 2013**

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# 1 Introduction

## 1.1 BACKGROUND TO THE INTERNAL TECHNICAL WORKSHOP

This report sets out the objectives, methodology and outcomes of the Internal Technical Workshop for facilitated and hosted by Kellogg Brown & Root Pty Ltd (KBR) as part of the delivery of services for the Sportsmans Creek new bridge project for Roads and Maritime Services (Roads and Maritime).

The project scope of services includes the provision of all activities required to complete the investigation, design and community consultation to enable a preferred option to be recommended. Specifically, the services include:

- Stakeholder and community consultation.
- Geotechnical investigations.
- Environmental investigations.
- Identification of feasible concept options.
- Strategic concept designs.
- Urban design.
- Traffic Studies and modelling.
- Cost estimating.
- Selection of the preferred concept option.
- Determine the road boundaries for the preferred concept option.
- Hydrology Investigation.
- Noise study and modelling.

## 1.2 PROJECT OBJECTIVES

The approach to delivering the project and developing the assessment criteria for the workshop is founded on Roads and Maritime primary objectives.

These objectives include:

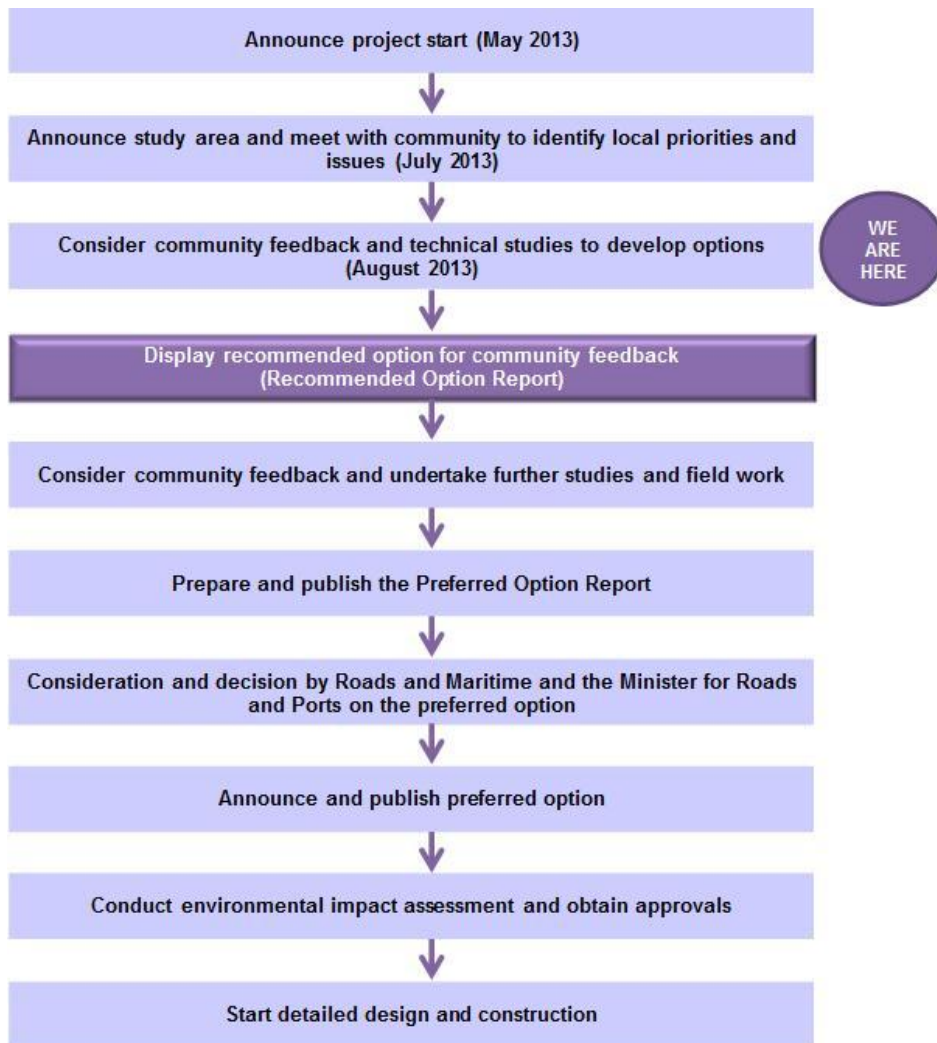
- Construct a new bridge over Sportsmans Creek, Lawrence.
- Achieve demolition of the existing timber bridge structure.
- Identify concept options within the study area and select a preferred option.
- Prepare detailed design and procure delivery to achieve construction completion by June 2016 (including demolition of existing timber bridge).

- Upon completion of construction the new infrastructure is to be fully handed over as an asset to Clarence Valley Council for maintenance and ongoing control.
- Coordinate construction traffic to minimise its impact and damage to the existing structure and to make allowance for potential maintenance works that may need to be conducted during the course of this project. This may include width and load restrictions in the event of Bailey support systems or other control measures being imposed on the existing timber structure as deemed necessary.
- Improve traffic efficiency.
- Enhance road safety for all road users over the length of the project – reduce the potential for road crashes and injuries on the bridge and approaches including connecting intersections; improve safety for pedestrians and cyclists
- Support regional and local economic development – provide for commercial transport including cane harvest vehicles; provide improved opportunity for economic and tourist development for Lawrence
- Involve all stakeholders and consider their interests – develop solutions that address community expectations for the project; integrate input from local communities into the development of the project through the implementation of a comprehensive program of community consultation and participation.
- Provide value for money – maximise the use of existing infrastructure where possible.
- Minimise impacts on the environment – minimise the impacts on; the social environment; heritage; natural environment; provide an aesthetically pleasing structure that fits sensitively into the built natural and community context; minimise the impacts of road traffic noise on existing noise sensitive receivers; minimise flooding impacts caused by the project.
- Facilitate agreement for the proposed reclassification of roads within the study area with the relevant stakeholders. It is noted that the reclassification processing will be administered by Assets, Northern, once an agreed outcome has been negotiated.

### **1.3 WORKSHOP CONTEXT AND OBJECTIVES**

The workshop is a key step in delivering the Recommended Option Report, as required under the Roads and Maritime Scope of Work and Technical Criteria (SWTC) Section 5.2. This workshop summary forms part of the above report, as an appendix.

The Recommended Option Report is the first key delivery phase of the above project, as outlined Figure 1.1 on the following page.



**Figure 1.1 - Project process to select a preferred option.**

The objective of the workshop was:

“To identify Preliminary Concept Options to be further investigated in the Recommended Concept Options Development phase”

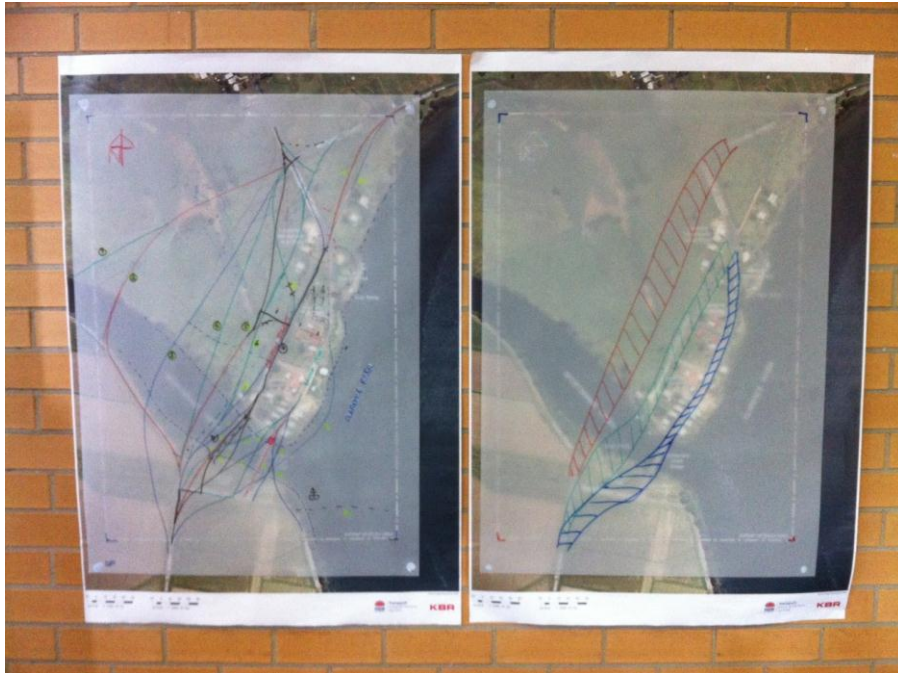
The workshop participants were presented with six preliminary options, derived from initial review processes and were requested to arrive at a shortlist of not more than four options, in accordance with the Roads and Maritime project brief.

#### **1.4 OPTIONS GENERATION**

An initial workshop and site visit was undertaken at Lawrence on 25<sup>th</sup> and 26<sup>th</sup> June 2013 as part of the project site visit and was attended by members of the KBR team and Roads and Maritime. This workshop provided the wider team with an opportunity to identify a variety of route options without consideration of constraints. This exercise identified a significant number of diverse options which were then consolidated into three main corridors.

The outcome of this constraint free option generation is shown below. The options generally fell into three distinct corridors as follows:

- Bridge Street corridor - Bridge crossing centered on the existing Bridge Street.
- Grafton Street corridor - Bridge crossing centered on the existing Grafton Street.
- Western corridor - All options west of Grafton Street



**Figure 1.2 – Drawings from initial workshop in June 2013.**

The workshop group then examined the three corridors to identify issues associated with each corridor. The benefits and drawbacks for each individual corridor were identified as follows:

#### **Bridge Street corridor**

- Road reserve width, property impacts
- Impact on heritage and heritage house beside the existing bridge
- Vertical alignment
- Temporary river crossing (construction staging)
- Noise impacts
- Dogleg access (south)
- Reduced earthworks
- No change, “business as usual”
- Greater impacts on residents and business during construction
- Microbats (staging)
- Avoids powerlines (reduced service impacts)
- Prevent unimpeded access to boat ramp (existing situation)
- High construction impacts on business
- Lower cost impacts on business long term

- Perceived lower cost as shortest option
- Approaches including stonewall demolition
- Transport efficiency limited, with no change to approach roads
- Flooding issues
- Constrained construction site on north side
- Pedestrian facilities on route
- Limited space for pedestrian provision on Bridge Street
- Limits future development

### **Grafton Street corridor**

- Improved road widths/efficiency (less intersections on approach)
- Less construction impacts
- Bats retained in existing structure (through staging)
- Negative impact on existing boat ramp (new ramp required)
- Improves amenity on Bridge Street
- Impacts on Grafton Street (noise, property, etc)
- Longer bridge option and approach
- Utilises existing road
- Simpler construction staging
- Existing detailed geotech – cost saving?
- Powerlines impacted
- Impact on “submarine water main”
- Improved safety
- Higher temptation to speed – need traffic calming?
- Land/cane field impacts
- Decreased prominence of Lawrence tavern
- Impacts on syzygium moriay tree
- Impact on wetland
- Improved Flo Clark Park layout
- Reduced property acquisition
- Opportunity to improve boat ramp for sailboat access
- Allows flexibility to retain northern brick wall, or remove and enhance area
- Impacts at Lawrence General and Liquor Store (opportunity to improve)
- Possibly contaminated site near Store (can be mitigated)

### **Western corridor**

- Ephemeral Wetland impact
- Soft soils (geotech), and acid sulphate soils
- Hydrology/flooding impacts
- Longest options
- Strategic cost excessive. (Can’t go to community with an unaffordable project)
- High visual impact
- Less impact on village during construction
- Less noise impact
- Highest impact on accessibility to village and business
- Vegetation in west more sensitive
- Road reserve available from Rutland. street extension
- Weir road is poorly constructed local road – would need reconstruction

- Greatest land acquisition
- Negative ecotourism impacts
- Most transport efficient
- Allows to retain northern dry stone wall, or remove and make parkland
- Opportunity to retain boat ramp for sailboat access
- Improved Flo Clark Park layout
- Greatest relocation distance (bats)
- Undisturbed site means greater potential for indigenous heritage

Following this workshop, six preliminary options were designed geometrically and alignments developed for each, taking into account feedback from the public consultation held on 19<sup>th</sup> July 2013.

The preliminary options were numbered sequentially and were representative of the three corridors.

The options were as follows:

- Option 1 Western corridor
- Option 2 Grafton Street corridor
- Option 3 Grafton Street corridor
- Option 4 Grafton Street corridor
- Option 5 Bridge Street corridor
- Option 6 Bridge Street corridor

The six preliminary options are shown in figure 1.3 on the following page.



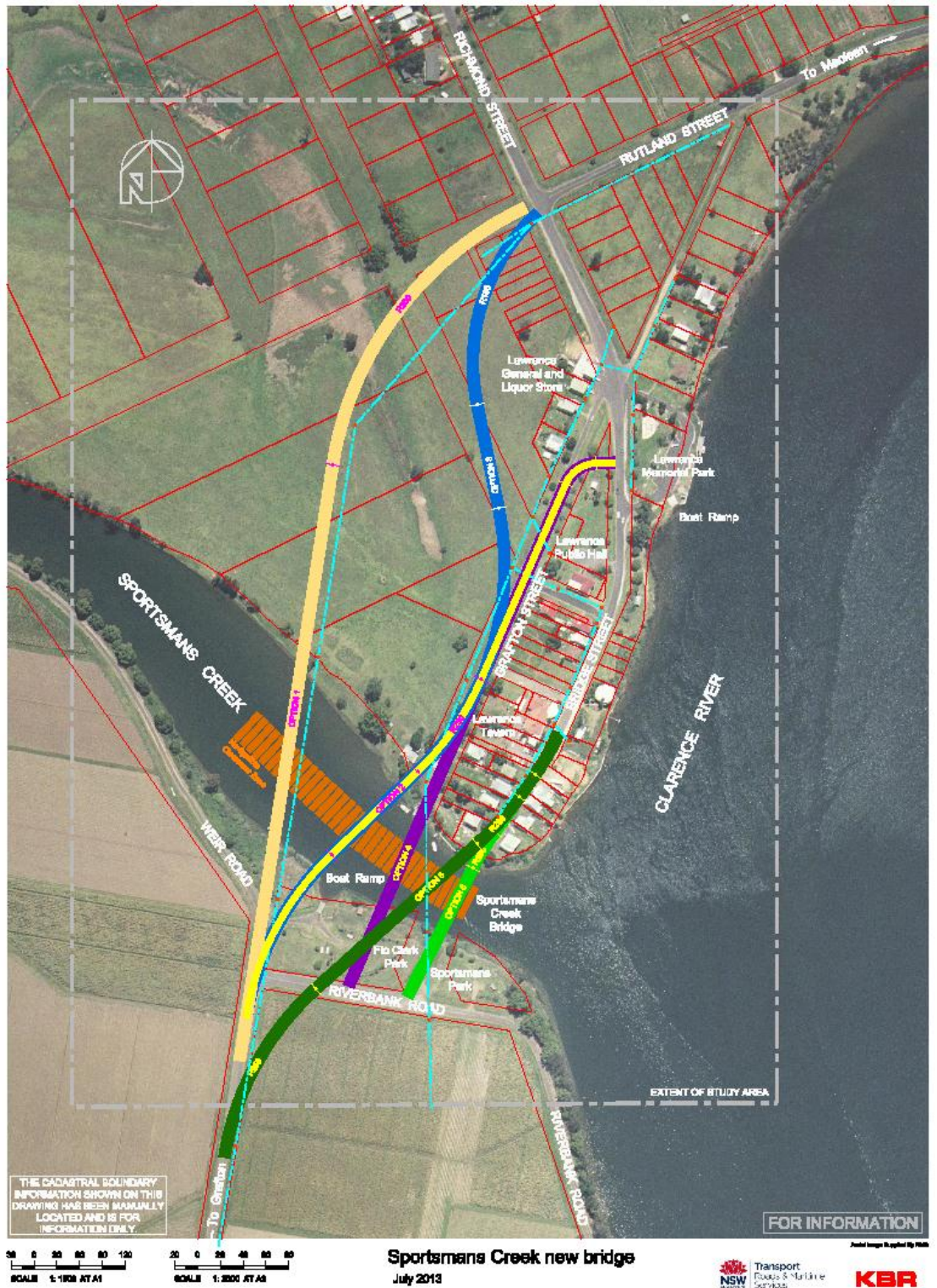


Figure 1.3 – Six preliminary options

## 2 Workshop methodology

### 2.1 WORKSHOP AGENDA, PARTICIPANTS AND ORGANISATION

The workshop was held at KBR's offices in Kent Street, Sydney on 1<sup>st</sup> August 2013. The twenty one participants in the workshop (refer to Appendix A for listing) included members of the KBR project team as well as representatives from Roads and Maritime. The Roads and Maritime Project Manager invited the internal stakeholders and client representatives, to provide appropriate contributions at this stage of the options assessment. Representatives of the Clarence Valley Council were invited, but were unable to attend.

The workshop was organized as per the following agenda:

- Introduction
- Constraints presentations in eight technical areas
- Options Assessment
- Options Shortlisting

Refer to the detailed agenda included in the Introduction Presentation in Appendix B.

### 2.2 OPTIONS ASSESSMENT AND RATING

The methodology for the workshop was developed by KBR, in consultation with Roads and Maritime.

Key features of the methodology included:

- Participants working in groups to develop and agree the rating and shortlisting of options.
- The composition of the groups was predetermined and nominated before the workshop (refer to Appendix A for group composition) to provide a balance between client and consultant representatives, as well as allowing for a spread of multi-discipline expertise.
- Guide notes and scoring sheets were provided summarising the previously issued assessment criteria for use at the workshop (refer to Appendix C). These were broken down to the four higher level objectives only, as 'drilling down' to more detail during the workshop was considered impractical for effective rating to be achieved.
- It was also agreed that Option 4 (refer to Figure 1.3) would be assessed on the basis that the southern tie-in would be a smooth alignment connection to the existing Grafton-Lawrence Road and not a T junction with Riverbank Road.
- Scoring sheets were accompanied by one page guide notes, which highlighted the issues to consider and provided prompts under the four higher level objectives.
- The six preliminary options were illustrated in A1 size on walls, with "Pros & Cons" sheets underneath to allow participants record their opinions of positive and

negative aspects of the options (refer to Appendix D for photographs and transcripts of the “Pros & Cons” recorded).

The workshop was carried out in an open, co-operative and constructive environment.

### **2.3 OPTIONS SHORTLIST**

Ratings were recorded and agreed within the groups under the four higher level objectives. The groups assigned a score a score of one to six for each of the preliminary options in accord with the project objectives. A high score represented a positive rating.

Feedback received during the results review and ‘Sanity Check’ indicated that groups were satisfied that when results from all groups were consolidated, shortlisting of Options 2, 3 and 4 represented the views of the workshop. Option 1 was excluded on the basis of anticipated high project costs predicted to be beyond the financial scope of the project. Strategic estimates are to be prepared to confirm this position.

Based on the assessment rankings, the group agreed on the following shortlist of options:

First preference	Option 2 (Grafton Street corridor)
Second preference	Option 4 (Grafton Street corridor)
Third preference	Option 3 (Grafton Street corridor)

The rating sheets were discussed within the groups and then reviewed by all the participants, to agree the overall rating. There was consistency in most groups’ top rated options (refer to Appendix F for the summary rating sheet).

### 3 Follow-up actions and next steps

The following actions were agreed as a follow-up to the workshop:

- Undertake a preliminary cost estimate for Option 1 to confirm the workshop expectation that this option would result in a high level of project cost.
- Develop intersection design treatments for connection of Options 2 and 4 at Bridge Street.
- It was also agreed that Option 4 (refer to Figure 3.1) should be amended, to show the alignment joining into the existing Grafton to Lawrence Road in a smooth horizontal radius.
- Review freeboard requirements for the new bridge structure.

# **PARTICIPANTS AND WORKING GROUPS COMPOSITION**



## INTERNAL TECHNICAL WORKSHOP

### PARTICIPANTS

NAME	ORGANISATION / ROLE	CLASSIFICATION
Chris Cordwell	KBR / Project Manger	Engineering
John Dooley	KBR / Design Manager	Engineering
Wojtek Zborowski	KBR / Senior Project Manger	Engineering
Kristy Thomas	KBR / Public Liaison	Public Liaison
Lara Mottee	KBR / Environment	Environment
Judy van Gelderen	KI Studio / Urban & Landscape	Urban & Landscape
David Havilah	GeoLINK / Environment	Env. / Heritage / Biodiv.
Nick Poriters	Golders / Geotechnical	Geotechnical
Ronaldo Manahan	GTA / Traffic Assessment	Traffic
Dominic Sburlati	SLR / Noise & Vibration	Noise
Matt Harrison	SLR / Noise & Vibration	Noise
David Andrews	RMS / Project Manger	Project Management
David Pattison	RMS / Project Officer	Project Management
Steve Kreemers	RMS / Senior Project Manager	Project Management
Rachel Sadler	RMS / Community Consultation	Public Liaison
Colin Nunn	RMS / Manager Development, North	Project Management
Steven Mitchelhill	RMS / Assets	Sponsor Rep
Gareth Collins	RMS / Urban Design	Urban Design
Kate Dallimore	RMS / Environmental Officer	Environment
Geoff Kearns	RMS / Geotechnical	Geotechnical
Phanta Khamphouvong	RMS / Bridge Waterways	Bridge Waterways

### APOLOGIES

Tim Jenkins	Clarence Valley Council / Manager Services
Tony Donohue	RMS / Safety
Ian Berger	RMS / Heritage
Greg Collins	RMS / Senior Env Officer

# SCNB INTERNAL TECHNICAL WORKSHOP - Thursday 1 August 2013

## PARTICIPANTS

NO.	NAME	ORGANISATION / ROLE	CLASSIFICATION
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### GROUP 1

1	David Andrews	RMS / Project Manger	Engineering
2	David Havilah	GeoLINK / Environment	Env. / Heritage / Biodiv.
3	John Dooley	KBR / Design Manager	Engineering
4	Wojtek Zborowski	KBR / Senior Project Manager	Engineering
5	Nick Poriters	Golders / Geotechnical	Geotechnical
6	Rachel Sadler	RMS / Community Consultation	Public Liaison
7	Matt Harrison	SLR / Noise & Vibration	Noise

### GROUP 2

1	Chris Cordwell	KBR / Project Manger	Engineering
2	Judy van Gelderen	KI Studio / Urban & Landscape	Urban & Landscape
3	Ronaldo Manahan	GTA / Traffic Assessment	Traffic
4	David Pattison	RMS / Project Officer	Engineering
5	Kate Dallimore	RMS / Environmental Officer	Environment
6	Kristy Thomas	KBR / Public Liaison	Public Liaison

### GROUP 3

1	Dominic Sburlati	SLR / Noise & Vibration	Noise
2	Steve Kreemers	RMS / Senior Project Manager	Engineering
3	Geoff Kearns	RMS / Geotechnical	Geotechnical
4	Phanta Khamphouvong	RMS / Bridge Waterways	Bridge Waterways
5	Gareth Collins	RMS / Urban Design	Urban Design
6	Steven Mitchelhill	RMS / Assets	Stakeholder

### GROUP 4

1	Greg Collins	RMS / Senior Env. Officer	Environment
2	Lara Mottee	KBR / Environment	Environment
3	David Heins	RMS / Constructability	Constructability
4	Colin Nunn	RMS / Manager Development, North	Stakeholder
5	Ian Berger	RMS / Heritage	Heritage
6	Tony Donohue	RMS / Saftey	Safety

# **WORKSHOP INTRODUCTION AND AGENDA PRESENTATION**



# Sportsmans Creek new bridge

## Internal Technical Workshop

Chris Cordwell

1 August 2013

# Workshop Objective

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To reach agreement on a shortlist of alignment options from the six selected at the Grafton workshop in June.

The purpose of today's ITW is to provide an opportunity to review desktop assessments identifying constraints and issues within the Lawrence study area and to agree a shortlist of not more than 4 alignment options to take forward for further assessment.

# Today's Agenda

## INTRODUCTION

**8:30am to 9:00am**

Welcome  
Today's agenda & housekeeping  
Safety moment & participant introductions  
Project overview – RMS presentation

## CONSTRAINTS

**9:00am to 10:00am**

[PRESENTATIONS]

Socio economic & public liaison (KBR)  
Roads & bridge design (KBR)  
Geotechnical (Golder)  
Urban design/landscape (KI Studio)  
Heritage & biodiversity (GeoLINK)  
Traffic & transport (GTA)  
Noise & vibration (SLR)

Morning Tea

# Today's Agenda

## OPTIONS ASSESSMENT

**10:15am to 11:30am** [GROUP ACTIVITY]

Assessment methodology  
Group assessment of options  
Assessment result compilation

Rest break

**11:45am to 12:45pm**

## OPTIONS SHORTLISTING

Results presentation & 'Sanity Check' review  
Working Lunch  
Agreement on shortlisted options

**12:45pm to 1:00pm**

Wrap up & next steps

# Housekeeping

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- Emergency evacuation
- Bathrooms
- Mobiles off (or on mute)
- Workbook
- Safety Moment

# Introductions

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- Name
- Organisation & your relationship with the project

**ASSESSMENT GUIDE NOTES AND SCORING  
SHEETS**

## INTERNAL TECHNICAL WORKSHOP – GUIDE NOTES

Bridge **should / should not** be in this location because... (highlight your opinion of key pros and cons)

Classification		Issues to Consider
Improve Road Safety	Minimise conflict points between vehicles	Potential conflict points at intersections / road accesses of new road and intersections within the surrounding road network
	Constructability	<ul style="list-style-type: none"> <li>• Issues associated with the construction of the proposed bridge and roadworks, and subsequent impacts on the community and businesses including staging works and traffic management measures</li> <li>• Above issues applicable to the demolition works</li> </ul>
	WHS in construction and maintenance	Minimising the WHS hazards for the construction, operation and maintenance
Improve road transport productivity efficiency and reliability of travel	Reduced travel time	The relative average travel times per vehicle through Lawrence along the new road / bridge crossing alignment
	Increase road network capacity	Traffic connectivity to consider the impacts to intersections, existing driveways, pedestrians and cyclists across the broader road network.
	Business / services patronage	Effect on patronage of businesses (General Store and Tavern). from altered traffic conditions
	Reduced road freight user costs	The relative average travel times for freight vehicles through Lawrence, particularly for the sugar cane transport season traffic increase
	Property access	Any changes to the accessibility / way of entering or exiting a property (particularly access / egress to the Mill)
	Pedestrian & cyclist safety	<p>The pedestrian and cyclist infrastructure provided as part of the new road / bridge in relation to:</p> <ul style="list-style-type: none"> <li>• Connections to key destinations</li> <li>• Likelihood of patronage</li> <li>• Accessibility (DDA compliance)</li> </ul>
Minimise the impact on the natural, cultural and built environment	Visual impact and amenity	<p>Any changes to amenity levels arising from the appearance and functionality of the bridge and associated roads in relation to:</p> <ul style="list-style-type: none"> <li>• Landscape quality</li> <li>• Urban design and planning</li> <li>• Compatibility with significant view sheds and vistas</li> </ul>
	Impact on fauna habitat including threatened species	Wildlife (particularly bats) impacts
	Impact on flora including threatened species	Vegetation impacts



Classification		Issues to Consider
	Aboriginal and European heritage	The relative impact of each crossing in relation to: <ul style="list-style-type: none"> <li>• Heritage items likely to be impacted</li> <li>• Areas of high archaeological potential</li> <li>• Indigenous cultural sites such as ceremonial or dreaming sites.</li> </ul>
	Water quality	The relative impact of each crossing in relation to impacts on water quality
	Air quality	The relative impact of each crossing in relation to impacts on air quality
	Noise & vibration impact	The relative impact of each crossing in relation to: <ul style="list-style-type: none"> <li>• Operational traffic noise levels.</li> <li>• Construction noise, vibration and noise sensitive locations</li> </ul>
	Flooding / Drainage	The relative impact of each crossing in relation to: <ul style="list-style-type: none"> <li>• Changes to the drainage / hydraulics , including any potential velocity increases</li> <li>• Changes to the flooding in the area, including any potential afflux effects on properties</li> </ul>
	Residential and commercial properties impacted	<ul style="list-style-type: none"> <li>• Any changes to worth / market value of a property</li> <li>• Any property resumption impacts</li> </ul>
	Community amenities	Impacts on local community access to the Community Hall, local parks, bus routes etc
Provides Value for Money	Cost benefit ratios.	The relative performance of each crossing in relation to road user costs and benefits (a ratio of total benefits over total costs)
	NPV over 30 years.	The relative performance of each crossing in relation to Net Present Value
	Road user costs and benefits.	The relative performance of each crossing in relation to road user costs and benefits
	Infrastructure operating costs (incl maintenance).	The relative performance of each crossing in relation to infrastructure operating costs
	Comparative project costs	The comparative differences between options at a strategic high level capital cost level.

**SPORTSMANS CREEK NEW BRIDGE - INTERNAL TECHNICAL WORKSHOP**

**SCORING OPTIONS AGAINST PROJECT OBJECTIVES**

<b>GROUP:.....</b>	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>	<b>Option 4</b>	<b>Option 5</b>	<b>Option 6</b>
<b>Project Objective</b> Improve Road Safety						
<b>Project Objective</b> Improve road transport productivity efficiency and reliability of travel						
<b>Project Objective</b> Minimise the impact on the natural, cultural and built environment						
<b>Project Objective</b> Provides value for money						
<b>Total Score</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Overall Ranking of Option</b>						

Ranking Against Each Objective

**SPORTSMANS CREEK NEW BRIDGE - INTERNAL TECHNICAL WORKSHOP**

**RANKING OF OPTIONS BY ALL GROUPS**

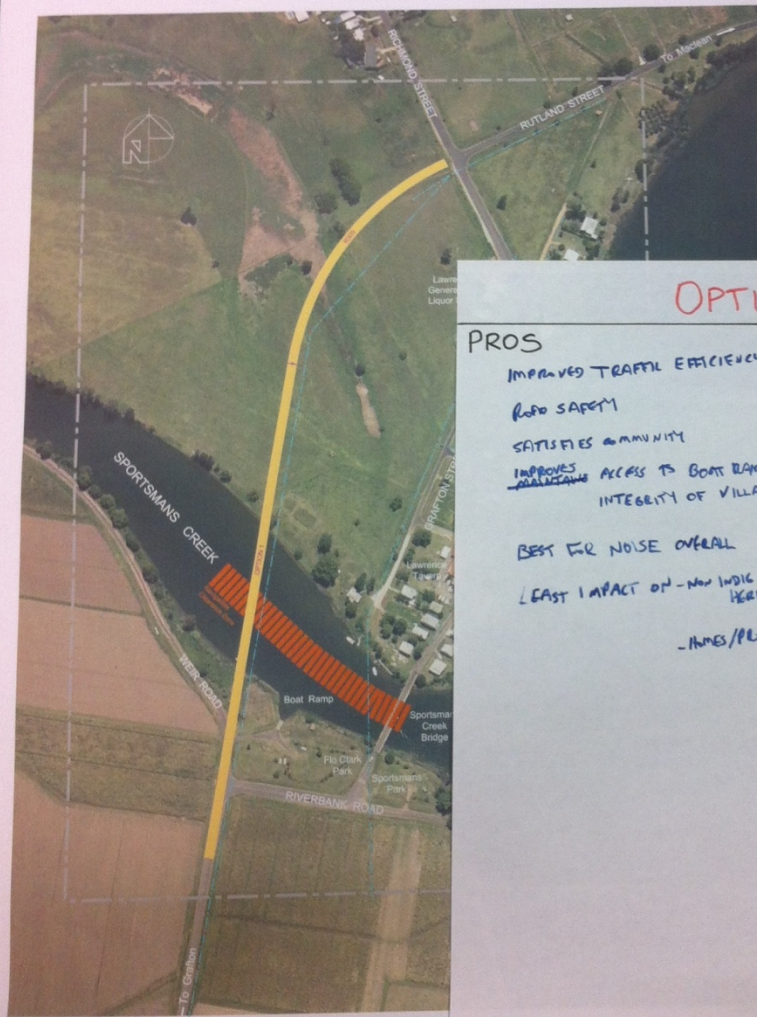
<b>ALL GROUPS</b>	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>	<b>Option 4</b>	<b>Option 5</b>	<b>Option 6</b>
<b>GROUP No. 1</b>						
<b>GROUP No. 2</b>						
<b>GROUP No. 3</b>						
<b>GROUP No. 4</b>						
Total Score	0	0	0	0	0	0
<b>Overall Ranking of Option</b>						

**WORKSHOP PHOTOGRAPHS AND  
SUMMARIES OF 'PROS AND CONS'  
FOR SIX OPTIONS**



**INTERNAL TECHNICAL WORKSHOP – THURSDAY 1<sup>ST</sup> AUGUST 2013**





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 SCALE 1:1000 ATAS

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 SCALE 1:3000 ATAS

Sportsmans Cre  
 July 2013

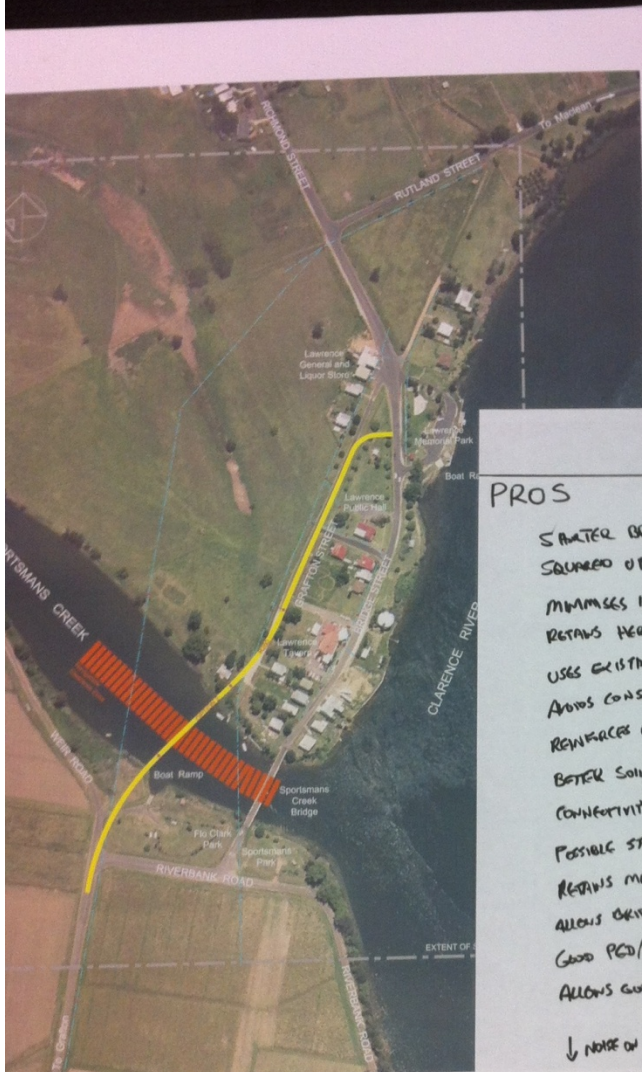
## OPTION 1

### PROS

- IMPROVED TRAFFIC EFFICIENCY - BEST
- ROAD SAFETY
- SATISFIES COMMUNITY
- IMPROVES ACCESS TO BOAT RAMP - SAILING
- INTEGRITY OF VILLAGE
- BEST FOR NOISE OVERALL
- LEAST IMPACT ON - NEW INDIC HERITAGE
- HINES/PLANTY

### CONS

- EMBANKMENT / PLUS D
- LONGEST BRIDGE
- ROADWORKS
- HIGH COST
- IMPACT EPHEMERAL WETLANDS
- LANDSCAPE / VISUAL
- REMOVES PASSING TRADE
- FLOOD IMPACT
- DIFFICULT SOILS / SETTLEMENT
- LONGER TRAVEL DISTANCE TO VILLAGE & BUS & FOR CYCLISTS / PED INTERACTIVITY
- NEW NOISE RECEIVERS
- HIGHEST IMPACT TO ECOLOGY
- LOSE ACCESS TO PARKS / TOILETS
- LAND ACQUISITIONS
- SPEED RISK
- POWER POLE



Sportsman's Creek new bridge  
July 2013

## OPTION 2

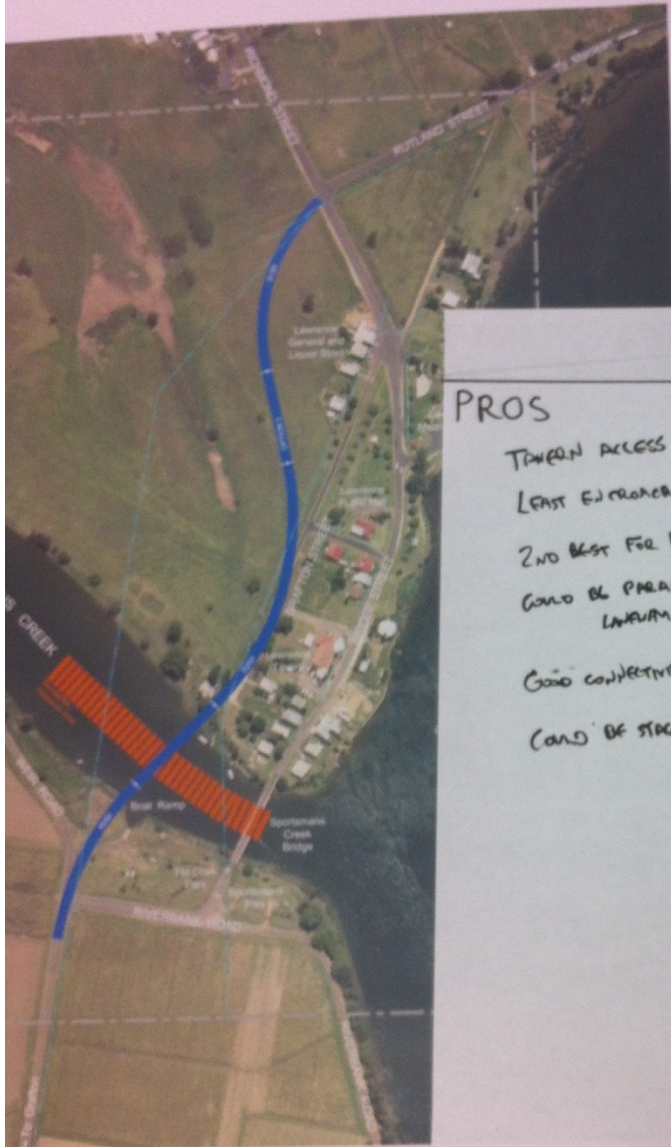
### PROS

- SIMPLER BRIDGE
- SQUARED UP ALIGNMENT
- MINIMISES IMPACT NATURAL VEGETATION
- RETAINS HERITAGE VILLAGE
- USES EXISTING INFRASTRUCTURE
- AVOIDS CONSERVATION AREA
- REINFORCES ORIGINAL TOWN PLAN
- BETTER SOILS THAN OPTION 1
- CONNECTIVITY TO STORE & TOWN
- POSSIBLE STAGED CONSTRUCTION
- RETAINS MAIN VISTAS
- ALLOWS BRIDGE ST TO BE IMPROVED
- GOOD PED/CYCLE CONNECTIVITY
- ALLOWS GOOD ACCESS GRAFFIN ST FROM  
NEAR BRIDGE
- ↓ NOISE ON BRIDGE ST
- ↓ ERO IMPACTS THAN 1

### CONS

- NEW NOISE RECEIVERS
- UNCLEAR ROAD HIERARCHY AT  
NORTH END
- HIGH IMPACT ON PROPERTIES
- LIMITED ACCESS DURING CONSTRUCTION  
(GRAFFIN ST)
- EMPHASIS ON HERITAGE CONSERVATION
- DIRECTS HEADLIGHTS INTO HOMES  
(N-BOUND)
- SIGNIFICANT NOISE ↓ ON BRIDGE ST
- POWER POLE





### OPTION 3

#### PROS

- TOWNSHIP ACCESS
- LEAST ENCROACHMENT INTO HERZOG
- 2ND BEST FOR HWY
- GOOD BE PARALLEL, WITH CONCRETE LANEVAN
- GOOD CONNECTION TO RUTLAND ST
- CONS OF STAGED

#### CONS

- ↓ PASSING TRADE STORE
- IMPACT ON WETLANDS / ECO
- ADDITIONAL ACQUISITIONS
- BIG FOOTPRINT
- ↑ CONSTRUCTION COSTS / LOW USE OF EXISTING RIGHTS
- POLE / INCLUDE POLE UNHEALTHY - NOT MUST.
- KNOW TO TOWN GRID
- POWER POLE





Sportsman's Creek new bridge  
July 2013

## OPTION 4

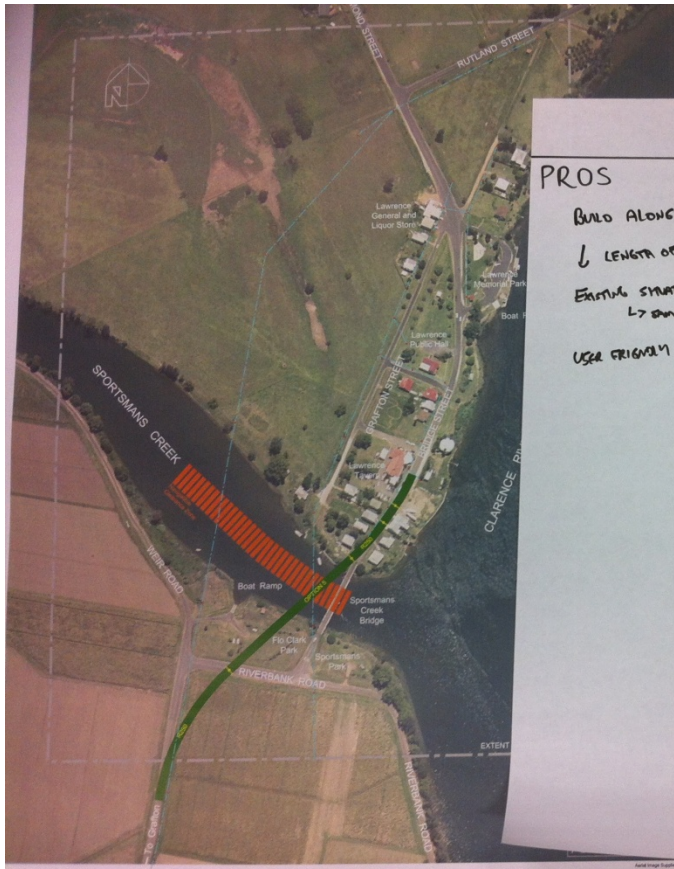
+ SMALL REVERSE CURVE AT SOUTH  
+ PRIOR ROAD AT NORTH?

### PROS

- NATURAL LANDSCAPE IMPACTS
- MINIMUM LAND ACQUISITION
- MINIMUM FLOOD CONSTRAINTS
- GOOD PED/CYCLE CONNECTIVITY
- COMPATIBLE w/ TOWN DEVELOPMENT
- INCL ACCESS TO RIVERFRONT
- MAX BUSINESS PATRONAGE
- ↓ NOISE OVERALL
- COULD OPTIMISE WITH OPTION 5 SOUTH TAIL
- NORTHERN INTEGRATION
- SLOWS NORTH TRAFFIC TO TOWN
- ↓
- FITS HEATFACE GRID FORM
- SHORTER BRIDGE LENGTH
- ↓
- DEGREE: SLOW DOWN SEE VILLAGE
- OPPORTUNITY TO REGENERATE AT STAKE
- HEADLIGHTS PARALLEL TO VILLAGE
- NORTH WINDOWS
- LEAST DISTURBANCE TO OLD SUBURB

### CONS

- AFFECTS PROPERTY ACCESS
- CONSTRUCTABILITY ISSUES - CONTAINED
- CUTS OFF BOAT RAMP - SAILING
- SEVERELY FLOODS PARK
- SOME CONTAMINATED VIEWS
- LONGER TRAVEL TIME
- DISPLACES TRAFFIC TO BACKYARDS/NOISE
- ISOLATES 1 HOUSE ON LEFT
- ↓
- INEFFICIENT ROLLED TRUCKS - SILENT



## OPTION 5

**PROS**

- BUILD ALONGSIDE EXISTING
- ↓ LENGTH OF WORKS
- EXISTING SITUATION MAINTAINED
- ↳ SOME NOISE RECEIVED
- USER FRIENDLY PED/CYCLISTS

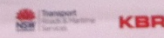
**CONS**

- ~~DESTROY HERITAGE PRESERVE~~
- TAKES HEAVY TRAFFIC THROUGH TOWN
- CONTIGUES TO -
- HIGHER BRIDGE = NO HOME ACCESS
- INSUFFICIENT ROAD WIDTH
- ROAD WORKING
- HIGH SAFETY RISK
- CONTIGUES TO DISCRET-PARK
- VILLAGE TO RIVER
- MAXIMUM CONSTRUCTION NOISE/VIBRATION
- OPERATIONAL NOISE
- DOESNT MET SAFETY OBJECTIVES
- EFFICIENCY
- MAJOR HERITAGE CONSTRAINTS
- PERMITTING
- LAND ACQUISITIONS



0 10 20 30 40 50  
 1:500 AT 41  
 0 10 20 30 40 50  
 1:500 AT 42

Sportsmans Creek new bridge  
July 2013



## OPTION 6

PROS	CONS
<p>MAINTAINS EXISTING CONDITIONS</p> <p>SHORTEST ROUTE</p>	<p>DESTROYS HERITAGE PRECINCT</p> <p>SEVERE CONST. ISSUES</p> <p>HEAVY TRAFFIC THROUGH VILLAGE</p> <p>HIGHER BRIDGE, NO MUNE</p> <p>HIGHEST SAFETY RISK</p> <p>INSUFFICIENT ROAD WIDTH</p> <p>DISECTS PARK</p> <p>DOESN'T MEET SAFETY OBJECTIVES</p> <p>PROHIBITIVE HERITAGE IMPACTS</p>

	off	2	3	4	5	6
G1,	13	17	15	15	6	5
2/	12	20	15	16	8	4
3/	12	15	13	18	1	9
4/	15	18	18	20	5	4
Total	52	70	60	69	30	22
RANK*	4	1	3	2	5	6
	*					



## OPTION 1

PROS	CONS
<ol style="list-style-type: none"> <li>1. Improved traffic efficiency – best option</li> <li>2. Road Safety</li> <li>3. Improves access to boat ramp, sail boats</li> <li>4. Enhances integrity of village</li> <li>5. Best for noise overall</li> <li>6. Least impact on:               <ul style="list-style-type: none"> <li>• Non Indigenous Heritage</li> <li>• Homes/Property</li> </ul> </li> <li>7. Enables Flo Clark Park to be consolidated</li> <li>8. Retains connectivity with Weir Road and Riverbank Road</li> </ol>	<ol style="list-style-type: none"> <li>1. Longest:               <ul style="list-style-type: none"> <li>• Embankment/Flood land crossing</li> <li>• Bridge</li> <li>• Road work</li> </ul> </li> <li>2. High cost – may be prohibitive</li> <li>3. Impacts ephemeral wetlands;</li> <li>4. Landscape/Visual</li> <li>5. Removes passing trade from existing businesses</li> <li>6. Flood Impact – increased afflux may affect homes</li> <li>7. Difficult Soils/Settlement</li> <li>8. Longer travel distance to village for bus and cyclists and pedestrian integration</li> <li>9. New noise receivers on Lawrence Hill</li> <li>10. Highest impact to ecology</li> <li>11. Lose passing access to parks and toilets</li> <li>12. Land acquisitions high</li> <li>13. Speed risk due to horizontal alignment</li> </ol>



## OPTION 2

PROS	CONS
<ol style="list-style-type: none"> <li>1. Shorter bridge</li> <li>2. Squared off alignment</li> <li>3. Minimises impact on ephemeral wetlands</li> <li>4. Retains heritage conservation area of village</li> <li>5. Uses existing infrastructure</li> <li>6. Avoids heritage conservation area</li> <li>7. Reinforces original town plan</li> <li>8. Better soils than Option 1</li> <li>9. Connectivity to store and town maintained</li> <li>10. Provides opportunity for a direct future link to Rutland Street via Option 3 alignment</li> <li>11. Retains main vistas</li> <li>12. Allows Bridge Street to be improved</li> <li>13. Good pedestrian and cycle connectivity</li> <li>14. Allows good access to Grafton Street homes near bridge</li> <li>15. Decrease noise on Bridge Street</li> <li>16. Less environmental impacts than Option 1</li> <li>17. Improves access to boat ramp – sail boats</li> <li>18. Enables Flo Clark Park/Sportsmans Park to be consolidated</li> <li>19. Improves access to allotments in Grafton Street adjoining Sportsmans Creek</li> <li>20. Uses existing road infrastructure Weir Road/ Riverbank Road</li> <li>21. Provides improved view of Flo Clark Park and Clarence River from southern approach</li> <li>22. Maximum business exposure to passing trade</li> <li>23. Opportunity to rejuvenate area in vicinity of Lawrence General and Liquor Store</li> </ol>	<ol style="list-style-type: none"> <li>1. New noise receivers on Grafton Street (due to new traffic on Grafton Street)</li> <li>2. Unclear road hierarchy at northern end</li> <li>3. Impact on properties - acquisition</li> <li>4. Limited access during construction (Grafton Street)</li> <li>5. Encroaches on heritage conservation area - minor</li> <li>6. Potential to direct headlights into homes (north bound)</li> </ol>



### OPTION 3

PROS	CONS
<ol style="list-style-type: none"> <li>1. Tavern Access is maintained (in options 2-6)</li> <li>2. Least encroachment into heritage conservation area</li> <li>3. Second best for transport</li> <li>4. Could be parallel with an additional Grafton Street laneway for local access</li> <li>5. Good connectivity to Rutland Street</li> <li>6. Shorter bridge</li> <li>7. Squared off alignment for bridge</li> <li>8. Retains heritage conservation area</li> <li>9. Avoids conservation area</li> <li>10. Allows Bridge Street to be improved</li> <li>11. Allows good access to Grafton Street homes near bridge</li> <li>12. Decreases noise on Bridge Street</li> <li>13. Less environmental impacts than Option 1</li> <li>14. Improves access to boat ramp – sailing</li> <li>15. Enables Flo Clark Park/Sportsmans Park to be consolidated</li> <li>16. Improves access to allotments in Grafton Street adjoining Sportsmans Creek</li> <li>17. Uses existing road infrastructure Weir Road / Riverbank Road</li> <li>18. Provides improved view of Flo Clark Park and Clarence River from southern approach</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease in passing trade to Lawrence General and Liquor Store</li> <li>2. Impact on wetlands/ecology</li> <li>3. Additional acquisitions required</li> <li>4. Big footprint</li> <li>5. Increased construction costs/low use of existing roads</li> <li>6. Pedestrian/cyclists poor connectivity (not the worst)</li> <li>7. Foreign to town grid layout</li> <li>8. Segmentation of rural land</li> <li>9. No opportunity to improve Lawrence General and Liquor Store / Park access for pedestrian movements</li> <li>10. Construction of new road across wetland areas will increase Afflux, impacting homes and Lawrence General and Liquor Store</li> </ol>



## OPTION 4

PROS	CONS
<ol style="list-style-type: none"> <li>1. natural landscape impacts</li> <li>2. heritage constraints</li> <li>3. Flo Clark Park constraints</li> <li>4. Good Pedestrian/Cycle connectivity</li> <li>5. (Options 1-4) Compatible with town development including access to riverfront</li> <li>6. Maximum business exposure to passing trade</li> <li>7. Provides opportunity for a direct future link to Rutland Street via Option 3 alignment</li> <li>8. Slows north traffic to town if existing approach road alignments maintained</li> <li>9. Fits heritage grid form</li> <li>10. Shorter bridge length</li> <li>11. Opportunity to rejuvenate area in vicinity of Lawrence General and Liquor Store</li> <li>12. Headlights parallel to village (not in windows)</li> <li>13. Least disturbance to acid sulphate soils</li> </ol>	<ol style="list-style-type: none"> <li>1. Constructability issues – constrained site</li> <li>2. Cuts off boat ramp to sail boats</li> <li>3. Segments Flo Clark Park</li> <li>4. Isolates one house on left</li> <li>5. Car park for boat ramp reduced – serviceability</li> <li>6. Increased property acquisition of prime cane land on southern approach</li> <li>7. Adversely effects access to Grafton Street properties adjoining Sportsmans Creek</li> <li>8. Southern approach road levels may require the raising of Riverbank Road</li> <li>9. Weir Road intersection to be re-configured</li> </ol>





## OPTION 5

PROS	CONS
<ol style="list-style-type: none"> <li>1. Builds alongside existing alignment</li> <li>2. Decrease length of works required</li> <li>3. Existing situation maintained with respect to noise for residents (noise receivers) along Bridge Street</li> <li>4. User friendly for pedestrian/cyclists</li> </ol>	<ol style="list-style-type: none"> <li>1. Continues to take heavy traffic through town</li> <li>2. Higher bridge – prevents access to one home from road</li> <li>3. Insufficient road width – will require road widening</li> <li>4. High safety risk</li> <li>5. Continues to dissect Flo Clark Park and Bridge Street residents from river foreshore</li> <li>6. Maximum construction/noise/vibration and operational noise due to traffic</li> <li>7. Doesn't meet safety objectives efficiently</li> <li>8. Prohibitive heritage impacts</li> <li>9. Major (unacceptable) land acquisitions</li> <li>10. Major (unacceptable) property purchases and social disruption</li> </ol>



## OPTION 6

PROS	CONS
<ol style="list-style-type: none"> <li>1. Maintains existing conditions</li> <li>2. Shortest route</li> <li>3. Existing situation maintained with respect to noise for residents (noise receivers) along Bridge Street</li> <li>4. User friendly for pedestrians / cyclists</li> </ol>	<ol style="list-style-type: none"> <li>1. Severe construction issues</li> <li>2. Heavy traffic through village</li> <li>3. Higher bridge – prevents access to one home from road</li> <li>4. Highest safety risk</li> <li>5. Insufficient road reserve width to accommodate proposed bridge approach width on northern side</li> <li>6. Dissects Flo Clark park</li> <li>7. Doesn't meet safety objectives</li> <li>8. Prohibitive heritage impacts</li> <li>9. Major (unacceptable) land acquisitions</li> <li>10. Major (unacceptable) property purchases and social disruption</li> <li>11. Alternative crossing required. Temporary bridge and ferry</li> <li>12. Major social disruption if temporary ferry used to maintain access to Grafton during construction – unacceptable to community</li> </ol>

## **GROUP ASSESSMENT RATING SHEETS**

6 is best

**SPORTSMANS CREEK NEW BRIDGE - INTERNAL TECHNICAL WORKSHOP**

**SCORING OPTIONS AGAINST PROJECT OBJECTIVES**

GROUP:.....1.....DANO ANDREWS

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
<b>Project Objective</b> Improve Road Safety	6	4	5	3	2	1
<b>Project Objective</b> Improve road transport productivity efficiency and reliability of travel	4	5	5	5	2	1
<b>Project Objective</b> Minimise the impact on the natural, cultural and built environment	2	4	3	3	1	2
<b>Project Objective</b> Provides value for money	1	4	2	4	1	1

Ranking Against Each Objective

**Total Score**

<b>Overall Ranking of Option</b>						
----------------------------------	--	--	--	--	--	--

13      17      15      15      6      5  
 x      x

6 = ~~best~~ most preferred  
 1 = least preferred

**SPORTSMANS CREEK NEW BRIDGE - INTERNAL TECHNICAL WORKSHOP**

**SCORING OPTIONS AGAINST PROJECT OBJECTIVES**

GROUP:..... 2 .....

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
<b>Project Objective</b> Improve Road Safety	6	4	5	3	2	1
<b>Project Objective</b> Improve road transport productivity efficiency and reliability of travel	4	5	4	3	2	1
<b>Project Objective</b> Minimise the impact on the natural, cultural and built environment	1	6	<del>4</del>	5	2	1
<b>Project Objective</b> Provides value for money	1	<del>5</del>	2	<del>5</del>	<del>2</del>	<del>1</del>

Ranking Against Each Objective

**Total Score**

Overall Ranking of Option	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
---------------------------	----------	----------	----------	----------	----------	----------

12      20      ~~15~~      16      8      4

~~4th~~      1st      ~~3rd~~      2nd      5th      6th

6 = Best  
1 = Worst.

**SPORTSMANS CREEK NEW BRIDGE - INTERNAL TECHNICAL WORKSHOP**

**SCORING OPTIONS AGAINST PROJECT OBJECTIVES**

GROUP:..... 3 .....

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
<b>Project Objective</b> Improve Road Safety	5	3	4	<del>4</del> 3	1	1
<b>Project Objective</b> Improve road transport productivity efficiency and reliability of travel	4	5	4	4	3	2
<b>Project Objective</b> Minimise the impact on the natural, cultural and built environment	2	4	3	5	2	1
<b>Project Objective</b> Provides value for money	1	3	2	6	5	5

SCORE Ranking Against Each Objective

**Total Score**

<b>Overall Ranking of Option</b>	12	15	13	18	11	9
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**SPORTSMANS CREEK NEW BRIDGE - INTERNAL TECHNICAL WORKSHOP**

**SCORING OPTIONS AGAINST PROJECT OBJECTIVES**

GROUP:.....<sup>4</sup>.....

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	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
<b>Project Objective</b> Improve Road Safety	6	5	4	4	2	1
<b>Project Objective</b> Improve road transport productivity efficiency and reliability of travel	6	5	5	5	1	1
<b>Project Objective</b> Minimise the impact on the natural, cultural and built environment	2	5	4	5	1	1
<b>Project Objective</b> Provides value for money	1	3	4	6	1	1

Ranking Against Each Objective

**Total Score**

<b>Overall Ranking of Option</b>						
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15 18 17 20 5 4

## **SUMMARY ASSESSMENT RATING SHEET**



**SPORTSMANS CREEK NEW BRIDGE - INTERNAL TECHNICAL WORKSHOP**

**RANKING OF OPTIONS BY ALL GROUPS**

<b>ALL GROUPS</b>	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>	<b>Option 4</b>	<b>Option 5</b>	<b>Option 6</b>
<b>GROUP No. 1</b>	13	17	15	15	6	5
<b>GROUP No. 2</b>	12	20	15	16	8	4
<b>GROUP No. 3</b>	12	15	13	18	11	9
<b>GROUP No. 4</b>	15	18	17	20	5	4

Total Score

<b>Overall Ranking of Option</b>	52	70	60	69	30	22
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4<sup>th</sup>      1<sup>st</sup>      3<sup>rd</sup>      2<sup>nd</sup>      5<sup>th</sup>      6<sup>th</sup>