



Transport
Roads & Maritime
Services



Additional crossing of the Clarence River at Grafton

Route Options Development Report
Technical Paper – Strategic Cost Estimates

SEPTEMBER 2012





M a c D o n a l d
I n t e r n a t i o n a l
c o n s u l t i n g e n g i n e e r s

Report Number: SC090010 / Final RODR

Main Road 83 Summerland Way,

**Additional Crossing of the Clarence River at
Grafton**

Route Options Development Report -
Technical Paper: Strategic Cost Estimates

Prepared for:
Arup on behalf of Roads and Maritime Services

Date: August, 2012

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Limitations Statement

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1. Executive Summary

Arup commissioned MacDonald International on behalf of the NSW Roads and Maritime Services (RMS) to undertake route option strategic cost estimates as part of the investigations for an additional crossing of the Clarence River at Grafton.

A summary of the strategic cost estimates for each of the six options is provided in the following table. The estimated costs for the Project* are as follows:

| Route Option | Estimated Total Costs (including Contingency) |
|---------------------|--|
| Option E | \$ 215,000,000 |
| Option A | \$ 231,000,000 |
| Option C | \$ 231,000,000 |
| Option 11 | \$ 210,000,000 |
| Option 14 | \$ 304,000,000 |
| Option 15 | \$ 340,000,000 |

Note: The above costs exclude Goods and Service Tax (GST).

The estimate is in Quarter 2 dollars, 2012.

Above figures are rounded to the nearest million dollars.

Further details of estimated costs are included in Appendices 1-6.

*Project costs include:

- Concept development costs;
- Detailed design and documentation costs;
- Property acquisition costs;
- Utility adjustment costs;
- Infrastructure construction costs, and
- Handover costs.

2. Introduction

Roads and Maritime Services (RMS) is currently undertaking investigations to identify an additional crossing of the Clarence River at Grafton to address short-term and long-term transport needs. Arup (on behalf of RMS) has engaged MacDonald International to prepare strategic cost estimates.

Since the early 1970s there have been various discussions and studies into an additional crossing of the Clarence River near Grafton. A number of these studies have been carried out during the past ten years and provide the background to the current investigation.

In December 2010, RMS commenced a revised process to work more closely with the community to determine the preferred location for an additional crossing. As part of this revised process, a series of public surveys, community forums and meetings with residents and community groups have been held and various studies and project documents released for public viewing and comment.

In June 2011, RMS released the *Feasibility Assessment Report*, which describes the assessment undertaken by RMS on the 41 route suggestions identified by the community following the announcement of the revised process in December 2010. The report identifies 25 preliminary options within five strategic corridors to go forward for further engineering and environmental investigation.

Between June 2011 and January 2012, RMS carried out investigations in the Grafton area and surrounds to identify constraints relevant to an additional crossing of the Clarence River. The outcomes of these investigations, community comment and a community and stakeholder evaluation workshop provided the inputs to the selection of the short-list of options.

In January 2012, six route options to be investigated further as part of the process to identify a location for the crossing were announced. The short-listed options were identified in the *Preliminary Route Options Report – Final* (January 2012) which also provided details of the technical investigations undertaken on the 25 preliminary options and the process to select the short-listed options.

This technical paper is an attachment to the Route Options Development Report and will be used to describe the strategic cost estimates for these six short-listed route options. The cost estimates will be used as part of the input into selection of a recommended preferred option.

A summary of the six short listed options is given below:

| OPTION | LOCATION |
|--------|---|
| E | Cowan Street, South Grafton to Villiers Street, Grafton. |
| A | New bridge parallel to and immediately upstream of the existing bridge connecting Bent Street, South Grafton and Fitzroy Street, Grafton. |
| C | Junction of Pacific Highway and Gwydir Highway, South Grafton to Pound Street, Grafton. |
| 11 | Existing Pacific Highway north of South Grafton to Fry Street, Grafton. |
| 14 | Existing Pacific Highway north of South Grafton to North Street, Grafton via Kirchner Street. |
| 15 | Existing Pacific Highway north of South Grafton to Summerland Way north of Grafton, via Kirchner Street. |

2.1. Supplied Information

Appendix 7 outlines the documentation issued by Arup that forms the basis of the strategic estimates.

2.2. Limitations of Estimate

The estimates are limited by the:

- Details provided in the reviewed documents.
- Assumptions and allowances contained in section 4 of this report.

Despite these limitations, the methodology used is considered suitable for this stage of the process for a comparative assessment of the six route options.

3. Basis of the Estimate

The estimated project costs were calculated using the following procedure:

- The documents provided were reviewed.
- Quantities used were determined from the drawings provided and from information supplied by Arup. The quantities supplied by Arup were:
 - Earthworks quantities except for unsuitable material and select material
 - Embankment lengths of levee bank raising
 - Pile Lengths as identified in the Route Options Development Report – Technical Paper: Geotechnical Report
 - Option C drainage as discussed in the Route Options Development Report
- Standard RMS Pay Items were used in the estimates.
- Direct Cost Item Rates were developed using first principles, resource based, estimating methods using Benchmark Estimating Software. This required the assessment of resource quantities, resource costs and production rates to determine a Direct Cost Item Rate. Once the Direct Cost Item Unit Rates were finalised they were then marked up by 35% for Preliminaries, Contractor's Contingency, Profit and Overheads. This mark up is standard practice for the purposes of strategic cost estimation.
- For each of the bridge options and types a detailed costing was undertaken including quantity take off and first principles estimating.
- A project contingency was calculated on an individual item basis.
- The RMS Concept Estimate Subsidiary spreadsheet was then completed for the proposed bridge and road works and a Summary Sheet was then completed.

4. Strategic Cost Estimate Items

The following outlines the basis on which the major elements of the project have been estimated. The Strategic cost estimates, which are made up of the following elements, are detailed in Appendices 1 to 6.

4.1. Project Development

As outlined in the RMS Project Estimating Manual version 2.0, these costs include activities in the option investigation, concept design, design development and approval stages of the project. The following allowances have been made for project development based on information provided by Arup.

- Route/Concept/EIS \$12 million excluding contingency lump sum allowance for all options. (Based on current spend plus forecast cost to complete).
- Project Management Services 3% of Route / Concept / EIS
- Sponsor (RMS internal client) 10% of Project Management Services
- Community Liaison \$1.2 million excluding contingency lump sum allowance for all options.

4.2. Investigation and Design

For the purposes of preparing the estimates, it has been assumed that the works will be provided by a Design and Construct contract, and this is reflected in the allowances that have been made. The Investigation and Design costs include all activities in the detailed design and implementation stage from the end of the design development to the approval phase (with the exception of property acquisition and public utilities).

The following allowances have been made for investigation and design.

- Investigation & Design approximately 2- 4% of Construction Costs (common cost \$2.1 million for each option)
- Project Management Services 3% of Investigation & Design
- Sponsor (RMS internal client) 10% of Project Management Services

4.3. Property Acquisition

Property Acquisition costs were developed by Arup in consultation with RMS Property Services, Northern Region, and are based on recent property sales in Grafton. The acquisition costs reflect full or partial acquisition according to the indicative road boundaries shown on the drawings. The costs take into account the location, existing land use, development of property including buildings, land zoning and any impacts on property access. The costs for each option include contingency allowances. Allowance has also been made for acquisition costs to be reduced by the re-sale of any residual land which is acquired as part of a full property acquisition but not required to be retained by RMS as part of the road reserve. In addition to the actual acquisition costs, allowance has been made for the following RMS related costs:

- Professional Services for property 7% of Acquisition Cost
- Project Management Services 3% of Professional services for Property
- Sponsor (RMS internal client) 10% of Project Management Services

4.4. Public Utility Adjustments

Public utility adjustment costs were based on plans supplied by Arup. The major utilities that are likely to be affected by the works were identified in terms of their length and size, and costed accordingly. These major utilities included watermains ($\geq 300\text{mm}$ diameter), sewer mains ($\geq 300\text{mm}$ diameter), fibre optic cables and low and high voltage electrical cables (underground and overhead). This information was based on Dial Before You Dig searches. General allowances have also been included in all options for adjustments to other minor services.

4.5. Construction

Bridges and viaducts

| Option | Bridge Construction | Viaduct Construction |
|------------------|---|--|
| Option E | 618m Launched box girder over river | 68m of 1500mm deep super T over land. |
| Option A | 471.27m Balanced cantilever box girder over river | 145m of 1200 deep super T over land |
| Option C | 457.45m Balanced cantilever box girder over river | 64m of 1500 deep super T over land and 58m of 1200 deep super T over land |
| Option 11 | 387.2m Launched box girder over river | 340m of 1500 deep super T over land and 110m of 1500mm deep super T over land. |
| Option 14 and 15 | 617m Launched box girder over river | 918m of 1500 deep super T over land |

For each of the bridge options a detailed costing was undertaken including quantity take off and first principles estimating. The pile lengths used in the estimates were based on the Table 5 information supplied in the Geotechnical Report. As only limited field investigations have been carried out to date the contingency allowances for substructure costs have been adjusted accordingly.

Pavements

An allowance has been included to reconstruct all areas of existing pavement within the limits of the pavement works as detailed on the drawings. The pavement design is based on the following details below:

- 40mm thick wearing course AC14 dense graded asphalt;
- 2 x 80mm thick intermediate course of AC20 dense graded asphalt;
- 250mm thick layer of lean mix concrete, and
- 300mm thick select layer (gravel).

For Option A an allowance has been included to resheet and re-linemark the existing bridge to convert it from 2 lanes to 1 lane southbound.

G1 – Job Specific Requirements

Retaining Walls – The estimates include the construction of retaining walls for the lowering of Villiers Street to provide additional clearance under the railway line for all options. The estimate includes an allowance for existing retaining walls to be demolished and new ones built.

Traffic Signals (Supply and Installation of signal hardware) – based on the supplied plans an allowance has been made for new traffic signals at the intersections indicated. Different rates have been applied for T intersections and crossroads.

Noise mitigation to Buildings – based on the information supplied by Arup for the numbers and types of buildings an allowance proportional to the number of receivers which exceed the criteria has been made for each option.

Levee Banks – based on flood modelling, minor raising of levee bank levels has been allowed based on heights and lengths supplied by Arup (in accordance with the Technical Paper: Flooding).

Bridge Barriers – Option A - as the existing bridge is being converted from 2 lanes to 1 lane southbound an allowance has been made to construct new traffic safety barriers. These are located in front of existing barriers between the bridge and viaduct and in front of the existing concrete parapets on the approach viaducts. This avoids altering the external appearance of the heritage structure.

G2 – Primary Testing

Primary testing is based on percentage of 2% of all construction costs (excluding utilities). Primary Testing (including sampling) includes:

- a) (Compaction and moisture testing of layers of earthworks (including foundation preparation and backfill for structures, culverts and pipes) and unbound and bound base and subbase pavement layers;
- b) Properties of materials and layers for earthworks and backfill listed in (a) above;
- c) Properties of unbound and bound base and subbase materials;
- d) Surface characteristics, including deflection testing of earthworks and pavement layers; and,

- e) Proportion and/or spread rates of additives and strength of stabilised earthworks and unbound and bound base and subbase pavement layers
- f) Pavement Compressive Strengths, Density, etc

G4 – Principal’s Project Accommodation

The allowance for maintenance of Principal’s Project Accommodation is based on the following durations:

- Option E – 120 weeks
- Option A – 115 weeks
- Option C – 115 weeks
- Option 11 – 120 weeks
- Option 14 – 130 weeks
- Option 15 – 130 weeks

G10 – Control of Traffic

Control of traffic at this early stage is based on percentages of construction costs taking into account the complexity of the work involved.

G36 – Environmental Protection (Management System)

The estimates include allowances for building condition inspections where considered appropriate and for the monitoring of the following environmental factors:

- Air Pollution;
- Ground vibration, and
- Noise.

G38 – Environmental Protection (Soil and Water Management Plan)

An allowance has been made to install, maintain and remove silt traps where considered appropriate, and for the provision and removal of temporary sediment control fencing. An allowance for Site Water Quality Monitoring is included in the estimate.

R11 – Stormwater

All Options include Gross Pollutant Traps (GPT's) for the treatment of stormwater discharge into the river.

Option C includes measures for 20 year flood immunity. An allowance has been made for a Pumping Station, a detention basin and three gated flap culverts.

All Options – an allowance has been made for new stormwater drainage under SA type kerb on new roads and widenings with inlets pits spaced at approximately 50 metre centres.

R44 – Earthworks

Quantities were supplied by Arup from their design model of the project. These quantities have been supplemented with an allowance for unsuitable material at 10% of the cut to fill volume. The volumes also take into account the boxing out of new pavement in the areas where new road is constructed over the existing pavement.

Cut to spoil for all options has been allowed to be disposed of offsite.

As advised by Arup, contaminated material in the South Grafton former rail yard (Manildra lease) has been allowed to be removed and disposed offsite and replaced with suitable material for Option C only.

Ground Improvements and Settlement Treatments

As per section 5.4 of the Geotechnical Report some of the options may require Ground Improvements and Settlement Treatments. The following summarises the treatments that have been included in the different options.

- Options E, A and C have no settlement treatments included.
- Option 11 Northern Bridge Approach - The estimate makes an allowance for the soft clay to be removed to avoid excessive settlement. The removed material is replaced by imported general fill material.
- Option 14 and 15 Southern and Northern Bridge Approaches - The estimates make allowances for Ground Improvements to address embankment settlements. The treatments are a 600mm thick bridging layer (rock) with a geotextile on the top and bottom of the layer.

R106 – Sprayed Bituminous Surfacing

An allowance has been included for the use of 7 mm aggregate in the spray seals.

R132 – Safety Barriers

An allowance has been included for safety barriers for roadworks in this section only, as safety barriers on Bridges and Viaducts are covered under Bridgeworks.

R151 – Street lighting

As is normally the case for strategic estimates no details were provided for street lighting. The estimates allow for new streetlights in areas of new roads, bridges and where pavement is reconstructed, based on provisional 50 metre spacing between streetlights.

R179 – Landscape Planting

Due to the limited landscaping details we have included lump sum amounts for landscape planting to cover planting of trees and shrubs. All Options include an allowance for turfing and topsoiling along batters.

4.6. Handover/Finalisation Costs

Finalisation costs are those incurred by RMS when delivery of a new asset causes the management of either an old asset (previously the responsibility of the RMS) or part of the new asset to be transferred to a body other than the RMS (eg. local council). Finalisation also includes project data and reporting.

The following allowances have been made for the RMS handover costs.

- Project Management Services 3% of Infrastructure costs
- Sponsor 10% of Project Management Services
- PAI* Insurance 0.55% of Infrastructure & Utility costs

PAI is Principal Arranged Insurance which is insurance for the works paid for by RMS.

5. Contingencies

As referred to in the RMS Project Estimating Manual version 2 ‘Contingency’ is generally defined as an unforeseen event or risk. For estimating purposes, however, RMS refers to contingency as ‘the sum of money allocated for dealing with unforeseen events, including those such as the final quantities are more than anticipated’. Current RMS guidelines state that the contingency allowance applied to Strategic Estimates is typically in the range of 35% to 70% and is dependent upon the degree of certainty with the item rate, quantity and design detail envisaged. An increase in the degree of certainty in item rate, quantity and design will result in a reduction in the contingency applied to the Strategic Estimate.

MacDonald International has included a contingency sum based on an assessment of the risk involved with each item in the estimate. For example, the bridges have a 40% contingency in each option; whereas earthworks items are more uncertain and generally have a 50% contingency in each option. The estimates generally make an allowance for the uncertainty regarding the bridge pier foundation conditions in the river, due to the limited information available from physical site investigations.

The details of the contingencies applied are in Appendices 1 to 6. The weighted project contingency for each option is as follows:

- Option E - 42%
- Option A - 43%
- Option C - 42%
- Option 11 - 42%
- Option 14 - 41%
- Option 15 - 41%

6. Indicative Stage 1 Costs

The Route Options Development Report (RODR) includes in Chapter 4 the indicative extent of road network upgrades and intersection improvements that might be constructed initially. For each option these works are referred to as indicative Stage 1 construction works, and represent the scope of works likely to be necessary to allow each option to function adequately for about 10 years after opening of the new bridge to traffic. Figures showing the indicative extent of the Stage 1 construction works are included in Chapter 4 of the RODR.

Based on the extent of Stage 1 works shown in Chapter 4 of the RODR, Stage 1 cost estimates have been prepared for each option and are shown in Appendix 7 – Indicative Stage 1 Costs. These estimates allow for the full length of the bridge and approach viaducts. Other costs have been proportioned according to the approximate scope of the Stage 1 works. Property acquisition costs for the Stage 1 works only include the acquisition that would be necessary to construct the Stage 1 works.

7. Conclusion

The strategic cost estimates for the Project* are as follows:

| Route Option | Estimated Total Costs (including Contingency) |
|---------------------|--|
| Option E | \$ 215,000,000 |
| Option A | \$ 231,000,000 |
| Option C | \$ 231,000,000 |
| Option 11 | \$ 210,000,000 |
| Option 14 | \$ 304,000,000 |
| Option 15 | \$ 340,000,000 |

Note: The above costs exclude Goods and Service Tax (GST).

The estimate is in Quarter 2 dollars, 2012.

Above figures are rounded to the nearest million dollars.

Further details of estimated costs are included in Appendices 1-6.

*Project costs include:

- Concept development costs;
- Detailed design and documentation costs;
- Property acquisition costs;
- Utility adjustment costs;
- Infrastructure construction costs, and
- Handover costs.

Appendix 1 - Option E Strategic Cost Estimate

| | | | | | | |
|---|--|----------------|-------------------------------|---|---|---|
| Project: MR 83 Summerland Way - Additional Crossing of the Clarence River at Grafton | | | Prepared by: | | MacDonald International | |
| Option E - Route Options Development Report | | | | | 49 Berry Street | |
| | | | DRAFT 6 | | Nowra | |
| | | | | | Ph (02) 44230566 Fax (02) 44233228 | |
| Project No: SC090010 | | Summary | Date: | 19/07/12 | Estimate Type: | Strategic |
| | | | | | | |
| Item | Base Estimate (excluding contingency) | % | Contingency Amount | Estimate (including contingency) | % of Total Estimate | Comments / Assumptions |
| 1. Project Development | | | | | | |
| 1 (a) Route / Concept / EIS | \$12,000,000 | 25% | \$3,000,000 | \$15,000,000 | | Lump sum allowance for all options |
| 1 (b) Project Management Services | \$360,000 | 25% | \$90,000 | \$450,000 | | 3% of Route / Concept / EIS |
| 1 (c) Sponsor | \$36,000 | 25% | \$9,000 | \$45,000 | | 10% of Project Management Services |
| 1 (d) Community Liaison | \$1,200,000 | 25% | \$300,000 | \$1,500,000 | | 10% of Route / Concept / EIS |
| Sub total | \$13,596,000 | 25% | \$3,399,000 | \$16,995,000 | 7.9% | |
| 2. Investigation and Design | | | | | | |
| 2 (a) Investigation and Design | \$4,200,000 | 40% | \$1,680,000 | \$5,880,000 | | 2-4% of Construction Cost (common cost for all options) |
| 2 (b) Project Management Services | \$126,000 | 40% | \$50,400 | \$176,400 | | 3% of Investigation and Design |
| 2 (c) Sponsor | \$12,600 | 40% | \$5,040 | \$17,640 | | 10% of Project Management Services |
| Sub total | \$4,338,600 | 40% | \$1,735,440 | \$6,074,040 | 2.8% | |
| 3. Property Acquisitions | | | | | | |
| 3 (a) Acquire Property | \$18,740,000 | 57% | \$10,770,000 | \$29,510,000 | | |
| 3 (b) Professional Services for Property | \$1,311,800 | 50% | \$655,900 | \$1,967,700 | | 7% of Acquire Property Cost |
| 3 (c) Project Management Services | \$39,354 | 50% | \$19,677 | \$59,031 | | 3% of Professional Services for Property |
| 3 (d) Sponsor | \$3,935 | 50% | \$1,968 | \$5,903 | | 10% of Project Management Services |
| Sub total | \$20,095,089 | 57% | \$11,447,545 | \$31,542,634 | 14.7% | |
| 4. Public Utility Adjustments | | | | | | |
| 4 (a) Adjust Utilities | \$1,750,000 | 50% | \$875,000 | \$2,625,000 | | |
| 4 (b) Project Management Services | \$52,500 | 40% | \$21,000 | \$73,500 | | 3% of Utility Costs |
| 4 (c) Sponsor | \$5,250 | 40% | \$2,100 | \$7,350 | | 10% of Project Management Services |
| Sub total | \$1,807,750 | 50% | \$898,100 | \$2,705,850 | 1.3% | |
| 5. Construction | | | | | | |
| 5 (a) - 5 (c) Infrastructure | \$106,457,285 | 41% | \$43,486,387 | \$149,943,671 | | |
| 5 (d) Project Management Services | \$3,193,719 | 40% | \$1,277,487 | \$4,471,206 | | 3% of Infrastructure |
| 5 (e) Sponsor | \$319,372 | 40% | \$127,749 | \$447,121 | | 10% of Project Management Services |
| 5 (f) PAI Insurance | \$595,140 | 40% | \$238,056 | \$833,196 | | 0.55% of Infrastructure + Utility Costs |
| Sub total | \$110,565,515 | 41% | \$45,129,679 | \$155,695,194 | 72.6% | |
| 6. Handover | | | | | | |
| 6 (a) Refurbish Old Route | \$0 | 40% | \$0 | \$0 | | |
| 6 (b) Project data & Completion Review | \$1,064,573 | 40% | \$425,829 | \$1,490,402 | | 1% of Construction Cost |
| 6 (c) Project Management Services | \$31,937 | 40% | \$12,775 | \$44,712 | | 3% of Project Data Costs |
| 6 (d) Sponsor | \$3,194 | 40% | \$1,277 | \$4,471 | | 10% of Project Management Services |
| Sub total | \$1,099,704 | 40% | \$439,882 | \$1,539,585 | 0.7% | |
| TOTAL | \$151,502,658 | 42% | \$63,049,645 | \$214,552,303 | 100% | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-------------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| 4. Public Utility Adjustments | | | | | | | | |
| 4.1 Water | 1 | LS | \$700,000 | \$700,000 | 50% | \$350,000 | \$1,050,000 | |
| 4.2 Sewer | 1 | LS | \$50,000 | \$50,000 | 50% | \$25,000 | \$75,000 | |
| 4.3 Electricity | 1 | LS | \$700,000 | \$700,000 | 50% | \$350,000 | \$1,050,000 | |
| 4.4 Communications | 1 | LS | \$300,000 | \$300,000 | 50% | \$150,000 | \$450,000 | |
| Public Utility Adjustments Sub total | 1 | item | | \$1,750,000 | 50% | \$875,000 | \$2,625,000 | |
| 5. Construction | | | | | | | | |
| BG -Bridgeworks Generally | | | | | | | | |
| River Bridge 618m Launched box girder | 9826 | m2 | \$6,450 | \$63,377,700 | 40% | \$25,351,080 | \$88,728,780 | |
| Viaduct 68m of 1500 deep super T over land | 1081 | m2 | \$3,650 | \$3,945,650 | 40% | \$1,578,260 | \$5,523,910 | |
| BG - Bridge Works Generally Sub total | 1 | item | | \$67,323,350 | 40% | \$26,929,340 | \$94,252,690 | |
| G1 Job Specific Requirements | | | | | | | | |
| G1P1 Traffic Signals | 1 | LS | \$400,000 | \$400,000 | 50% | \$200,000 | \$600,000 | |
| G1P2 Noise Mitigation to Buildings | 1 | LS | \$1,254,000 | \$1,254,000 | 50% | \$627,000 | \$1,881,000 | |
| G1P3 Retaining Walls | 135 | m2 | \$986 | \$133,110 | 50% | \$66,555 | \$199,665 | |
| G1P4 Levee Bank Works | 1 | LS | \$600,000 | \$600,000 | 50% | \$300,000 | \$900,000 | |
| Job Specific Requirements Sub total | 1 | item | | \$2,387,110 | 50% | \$1,193,555 | \$3,580,665 | |
| G2 Primary Testing | | | | | | | | |
| G2P1 Primary Testing | 1 | LS | \$2,087,398 | \$2,087,398 | 40% | \$834,959 | \$2,922,357 | |
| Primary Testing Sub total | 1 | item | | \$2,087,398 | 40% | \$834,959 | \$2,922,357 | |
| G4 - Principal's Project Accommodation | | | | | | | | |
| G4P1 Establishment of Principal's Project Accommodation | 1 | LS | \$100,000 | \$100,000 | 40% | \$40,000 | \$140,000 | |
| G4P2 Maintenance of Principal's Project Accommodation | 120 | week | \$800 | \$96,000 | 40% | \$38,400 | \$134,400 | |
| G4P4 Removal of Principal's Project Accommodation | 1 | LS | \$10,000 | \$10,000 | 40% | \$4,000 | \$14,000 | |
| Principal's Project Accommodation Sub total | 1 | item | | \$206,000 | 40% | \$82,400 | \$288,400 | |
| G10 Control of Traffic | | | | | | | | |
| G10 Control of Traffic | 1 | LS | \$2,000,000 | \$2,000,000 | 40% | \$800,000 | \$2,800,000 | |
| Control of Traffic Sub total | 1 | item | | \$2,000,000 | 40% | \$800,000 | \$2,800,000 | |
| G36 Environmental Protection (Management System) | | | | | | | | |
| G36P1 Environmental Protection | 1 | LS | \$200,000 | \$157,579 | 40% | \$63,032 | \$220,610 | |
| Environmental management Sub total | 1 | item | | \$157,579 | 40% | \$63,032 | \$220,610 | |
| G38 Soil and Water Management (SWMP) | | | | | | | | |
| G38P1 Soil and Water Management | 1 | 1 | \$250,000 | \$250,000 | 40% | \$100,000 | \$350,000 | |
| Soil and water management Sub total | 1 | item | | \$250,000 | 40% | \$100,000 | \$350,000 | |
| G40 Clearing and Grubbing | | | | | | | | |
| G40P1 Clearing and Grubbing | 1 | LS | \$190,000 | \$190,000 | 40% | \$76,000 | \$266,000 | |
| Clearing and Grubbing Sub total | 1 | item | | \$190,000 | 40% | \$76,000 | \$266,000 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|----------|--|-------------|--------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R11 Stormwater Drainage | | | | | | | | |
| R11P2(a) Excavation for Stormwater Drainage Structures - RCP | 11613 | m3 | \$31 | \$360,005 | 40% | \$144,002 | \$504,008 | |
| R11P5.1 375mm dia RCP | 1134 | m | \$230 | \$260,820 | 40% | \$104,328 | \$365,148 | |
| R11P5.2 450mm dia RCP | 3316 | m | \$280 | \$928,480 | 40% | \$371,392 | \$1,299,872 | |
| R11P5.3 600mm dia RCP | 1421 | m | \$382 | \$542,822 | 40% | \$217,129 | \$759,951 | |
| R11P7.1 Inlet Pits Type SA | 189 | ea | \$4,600 | \$869,400 | 40% | \$347,760 | \$1,217,160 | |
| R11P7.2 Gross Pollutant Traps | 2 | ea | \$80,000 | \$160,000 | 40% | \$64,000 | \$224,000 | |
| Stormwater drainage Sub total | 1 | item | | \$3,121,527 | 40% | \$1,248,611 | \$4,370,138 | |
| R15 Kerbs and Gutters | | | | | | | | |
| R15P1.1 Type SA | 9473 | m | \$74 | \$701,002 | 40% | \$280,401 | \$981,403 | |
| R15P1.2 Type SF | 5385 | m | \$38 | \$204,630 | 40% | \$81,852 | \$286,482 | |
| R15P2 Pedestrian/ Pram Ramp | 64 | ea | \$600 | \$38,400 | 40% | \$15,360 | \$53,760 | |
| R15P1.4 Vehicular Kerb Crossing | 76 | ea | \$1,800 | \$136,800 | 40% | \$54,720 | \$191,520 | |
| Kerbs and Gutters Sub total | 1 | item | | \$1,080,832 | 40% | \$432,333 | \$1,513,165 | |
| R33 Trench Drains | | | | | | | | |
| R33 Trench drain construction | 9473 | m | \$87 | \$824,151 | 40% | \$329,660 | \$1,153,811 | |
| Trench Drains Sub total | 1 | item | | \$824,151 | 40% | \$329,660 | \$1,153,811 | |
| R44 Earthworks | | | | | | | | |
| R44P1.1 Removal And Stockpiling of Topsoil | 20655 | m3 | \$45 | \$929,459 | 50% | \$464,730 | \$1,394,189 | |
| R44P2.1 Earthworks Excavation Cut to Fill | 26834 | m3 | \$33 | \$885,522 | 50% | \$442,761 | \$1,328,283 | |
| R44P2.2 Earthworks Excavation Cut to Spoil | 32115 | m3 | \$79 | \$2,537,085 | 40% | \$1,014,834 | \$3,551,919 | |
| R44P4 Unsuitable Material | 6550 | m3 | \$83 | \$543,650 | 50% | \$271,825 | \$815,475 | |
| R44P5.2 Selected Material Imported from beyond the Limits of Works Area | 24764 | m3 | \$110 | \$2,723,985 | 50% | \$1,361,993 | \$4,085,978 | |
| Earthworks Sub total | 1 | item | | \$7,619,701 | 47% | \$3,556,142 | \$11,175,843 | |
| R82 Lean Mix Concrete Subbase | | | | | | | | |
| R82P1 Supply and Place Concrete in Subbase | 20636 | m3 | \$250 | \$5,159,063 | 40% | \$2,063,625 | \$7,222,688 | |
| Lean Mix Concrete Subbase Sub total | 1 | item | | \$5,159,063 | 40% | \$2,063,625 | \$7,222,688 | |
| R106 Sprayed Bituminous Surfacing | | | | | | | | |
| R106P1.1 Seal over Subbase | 82545 | m2 | \$6 | \$495,270 | 40% | \$198,108 | \$693,378 | |
| R106P1.1 Seal over Select | 82545 | m2 | \$6 | \$495,270 | 40% | \$198,108 | \$693,378 | |
| Sprayed Bituminous Surfacing Sub total | 1 | item | | \$990,540 | 40% | \$396,216 | \$1,386,756 | |
| R116 Asphalt | | | | | | | | |
| R116P1.1 14mm Dense graded Asphalt (40mm Thick) | 8746 | tonnes | \$250 | \$2,186,544 | 40% | \$874,618 | \$3,061,162 | |
| R116P1.2 20mm Dense graded Asphalt (160mm Thick) | 31697 | tonnes | \$240 | \$7,607,347 | 40% | \$3,042,939 | \$10,650,286 | |
| Asphalt Sub total | 1 | item | | \$9,793,891 | 40% | \$3,917,556 | \$13,711,448 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|----------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R132 Safety Barriers | | | | | | | | |
| R132P3 Construction of Post and Rail Safety Barrier Systems | 578 | m | \$133 | \$76,874 | 40% | \$30,750 | \$107,624 | |
| R132P8.1 Construction of End Treatments (TT) | 2 | ea | \$1,418 | \$2,836 | 40% | \$1,134 | \$3,970 | |
| R132P8.1 Construction of End Treatments (MELT) | 2 | ea | \$4,725 | \$9,450 | 40% | \$3,780 | \$13,230 | |
| R132P9 Construction of Transitions | 4 | ea | \$3,000 | \$12,000 | 40% | \$4,800 | \$16,800 | |
| Safety Barriers Sub total | 1 | item | | \$101,160 | 40% | \$40,464 | \$141,624 | |
| R141 Pavement Markings | | | | | | | | |
| R141 Pavement Marking - Waterborne | 1 | item | \$36,000 | \$36,000 | 40% | \$14,400 | \$50,400 | |
| Pavement Markings Sub total | 1 | item | | \$36,000 | 40% | \$14,400 | \$50,400 | |
| R142 Raised Pavement Markers | | | | | | | | |
| R142P1 Raised Pavement Markers | 1 | item | \$4,000 | \$4,000 | 40% | \$1,600 | \$5,600 | |
| Raised Pavement Markers Sub total | 1 | item | | \$4,000 | 40% | \$1,600 | \$5,600 | |
| R143 Signposting | | | | | | | | |
| R143P1 Signposting | 1 | item | \$15,000 | \$15,000 | 40% | \$6,000 | \$21,000 | |
| Signposting Sub total | 1 | item | | \$15,000 | 40% | \$6,000 | \$21,000 | |
| R151 Street Lighting | | | | | | | | |
| R151P8 Supply and Install Street Lights on Roads | 190 | ea | \$7,500 | \$1,425,000 | 50% | \$712,500 | \$2,137,500 | |
| R151P9 Supply and Installation of Street Lights on Bridge | 14 | ea | \$10,000 | \$140,000 | 50% | \$70,000 | \$210,000 | |
| Street Lighting Sub total | 1 | item | | \$1,565,000 | 50% | \$782,500 | \$2,347,500 | |
| R173 General Concrete Paving | | | | | | | | |
| R173P1.1 General Concrete Paving - Raised Medians | 5419 | m2 | \$82 | \$444,358 | 40% | \$177,743 | \$622,101 | |
| R173P1.2 General Concrete Paving - Shared footpath/Cycleway | 2634 | m2 | \$110 | \$289,740 | 40% | \$115,896 | \$405,636 | |
| General Concrete Paving Sub total | 1 | item | | \$734,098 | 40% | \$293,639 | \$1,027,737 | |
| R179 Landscape Planting | | | | | | | | |
| R179P6.2 Trees and Shrubs - Individual Planting | 1 | LS | \$55,000 | \$55,000 | 40% | \$22,000 | \$77,000 | |
| R179P8 Turf Underlay | 39295 | m2 | \$9 | \$353,655 | 40% | \$141,462 | \$495,117 | |
| R179P9 Turfing for Lawn Areas along Medians and Roadsides | 39295 | m2 | \$10 | \$392,950 | 40% | \$157,180 | \$550,130 | |
| Landscape Planting Sub total | 1 | item | | \$801,605 | 40% | \$320,642 | \$1,122,247 | |
| R201 Fencing | | | | | | | | |
| R201P1 Rural Fencing - Wire | 500 | m | \$17 | \$8,500 | 40% | \$3,400 | \$11,900 | |
| R201P13 Removal of Existing Fencing | 130 | m | \$6 | \$780 | 40% | \$312 | \$1,092 | |
| Fencing Sub total | 1 | item | | \$9,280 | 40% | \$3,712 | \$12,992 | |
| Total (Excluding Utilities) | | | | \$106,457,285 | 41% | \$43,486,387 | \$149,943,671 | |

Appendix 2 - Option A Strategic Cost Estimate

| | | | | | | |
|---|----------------------------------|-----------------|---------------------------------|-----------------------------|---|---|
| Project: MR 83 Summerland Way - Additional Crossing of the Clarence River at Grafton | | | Prepared by: | | MacDonald International | |
| Option A - Route Options Development Report | | | | | 49 Berry Street | |
| | | | DRAFT 6 | | Nowra | |
| | | | | | Ph (02) 44230566 Fax (02) 44233228 | |
| Summary | | | | | | |
| Project No: SC090010 | Date: | 19/07/12 | Estimate Type: Strategic | | | |
| | | | | | | |
| Item | Base Estimate (excluding) | % | Contingency Amount | Estimate (including) | % of Total Estimate | Comments / Assumptions |
| 1. Project Development | | | | | | |
| 1 (a) Route / Concept / EIS | \$12,000,000 | 25% | \$3,000,000 | \$15,000,000 | | Lump sum allowance for all options |
| 1 (b) Project Management Services | \$360,000 | 25% | \$90,000 | \$450,000 | | 3% of Route / Concept / EIS |
| 1 (c) Sponsor | \$36,000 | 25% | \$9,000 | \$45,000 | | 10% of Project Management Services |
| 1 (d) Community Liaison | \$1,200,000 | 25% | \$300,000 | \$1,500,000 | | 10% of Route / Concept / EIS |
| Sub total | \$13,596,000 | 25% | \$3,399,000 | \$16,995,000 | 7.4% | |
| 2. Investigation and Design | | | | | | |
| 2 (a) Investigation and Design | \$4,200,000 | 40% | \$1,680,000 | \$5,880,000 | | 2-4% of Construction Cost (common cost for all options) |
| 2 (b) Project Management Services | \$126,000 | 40% | \$50,400 | \$176,400 | | 3% of Investigation and Design |
| 2 (c) Sponsor | \$12,600 | 40% | \$5,040 | \$17,640 | | 10% of Project Management Services |
| Sub total | \$4,338,600 | 40% | \$1,735,440 | \$6,074,040 | 2.6% | |
| 3. Property Acquisitions | | | | | | |
| 3 (a) Acquire Property | \$32,070,000 | 55% | \$17,710,000 | \$49,780,000 | | |
| 3 (b) Professional Services for Property | \$2,244,900 | 50% | \$1,122,450 | \$3,367,350 | | 7% of Acquire Property Cost |
| 3 (c) Project Management Services | \$67,347 | 50% | \$33,674 | \$101,021 | | 3% of Professional Services for Property |
| 3 (d) Sponsor | \$6,735 | 50% | \$3,367 | \$10,102 | | 10% of Project Management Services |
| Sub total | \$34,388,982 | 55% | \$18,869,491 | \$53,258,473 | 23.1% | |
| 4. Public Utility Adjustments | | | | | | |
| 4 (a) Adjust Utilities | \$2,200,000 | 50% | \$1,100,000 | \$3,300,000 | | |
| 4 (b) Project Management Services | \$66,000 | 40% | \$26,400 | \$92,400 | | 3% of Utility Costs |
| 4 (c) Sponsor | \$6,600 | 40% | \$2,640 | \$9,240 | | 10% of Project Management Services |
| Sub total | \$2,272,600 | 50% | \$1,129,040 | \$3,401,640 | 1.5% | |
| 5. Construction | | | | | | |
| 5 (a) - 5 (c) Infrastructure | \$101,996,729 | 41% | \$41,811,209 | \$143,807,938 | | |
| 5 (d) Project Management Services | \$3,059,902 | 40% | \$1,223,961 | \$4,283,863 | | 3% of Infrastructure |
| 5 (e) Sponsor | \$305,990 | 40% | \$122,396 | \$428,386 | | 10% of Project Management Services |
| 5 (f) PAI Insurance | \$573,082 | 40% | \$229,233 | \$802,315 | | 0.55% of Infrastructure + Utility Costs |
| Sub total | \$105,935,703 | 41% | \$43,386,798 | \$149,322,502 | 64.8% | |
| 6. Handover | | | | | | |
| 6 (a) Refurbish Old Route | \$0 | 40% | \$0 | \$0 | | |
| 6 (b) Project data & Completion Review | \$1,019,967 | 40% | \$407,987 | \$1,427,954 | | 1% of Construction Cost |
| 6 (c) Project Management Services | \$30,599 | 40% | \$12,240 | \$42,839 | | 3% of Project Data Costs |
| 6 (d) Sponsor | \$3,060 | 40% | \$1,224 | \$4,284 | | 10% of Project Management Services |
| Sub total | \$1,053,626 | 40% | \$421,450 | \$1,475,077 | 0.6% | |
| TOTAL | \$161,585,511 | 43% | \$68,941,220 | \$230,526,731 | 100% | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-------------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| 4. Public Utility Adjustments | | | | | | | | |
| 4.1 Water | 1 | LS | \$600,000 | \$600,000 | 50% | \$300,000 | \$900,000 | |
| 4.2 Sewer | 1 | LS | \$100,000 | \$100,000 | 50% | \$50,000 | \$150,000 | |
| 4.3 Electricity | 1 | LS | \$800,000 | \$800,000 | 50% | \$400,000 | \$1,200,000 | |
| 4.4 Communications | 1 | LS | \$700,000 | \$700,000 | 50% | \$350,000 | \$1,050,000 | |
| Public Utility Adjustments Sub total | 1 | item | | \$2,200,000 | 50% | \$1,100,000 | \$3,300,000 | |
| 5. Construction | | | | | | | | |
| BG -Bridgeworks Generally | | | | | | | | |
| River Bridge 471.27m Balanced cantilever box girder | 8341 | m2 | \$5,900 | \$49,211,900 | 40% | \$19,684,760 | \$68,896,660 | |
| Viaduct 145m of 1200 deep super T over land | 2567 | m2 | \$2,950 | \$7,572,650 | 40% | \$3,029,060 | \$10,601,710 | |
| BG - Bridge Works Generally Sub total | 1 | item | | \$56,784,550 | 40% | \$22,713,820 | \$79,498,370 | |
| G1 Job Specific Requirements | | | | | | | | |
| G1P1 Traffic Signals | 1 | LS | \$600,000 | \$600,000 | 50% | \$300,000 | \$900,000 | |
| G1P2 Noise Mitigation to Buildings | 1 | LS | \$858,000 | \$858,000 | 50% | \$429,000 | \$1,287,000 | |
| G1P3 Retaining Walls | 135 | m2 | \$986 | \$133,110 | 50% | \$66,555 | \$199,665 | |
| G1P4 Levee Bank Works | 1 | LS | \$850,000 | \$850,000 | 50% | \$425,000 | \$1,275,000 | |
| G1P5 Barrier Upgrade on Existing Bridge | 1 | LS | \$1,110,000 | \$1,110,000 | 50% | \$555,000 | \$1,665,000 | |
| Job Specific Requirements Sub total | 1 | item | | \$3,551,110 | 50% | \$1,775,555 | \$5,326,665 | |
| G2 Primary Testing | | | | | | | | |
| G2P1 Primary Testing | 1 | LS | \$1,999,936 | \$1,999,936 | 40% | \$799,974 | \$2,799,910 | |
| Primary Testing Sub total | 1 | item | | \$1,999,936 | 40% | \$799,974 | \$2,799,910 | |
| G4 - Principal's Project Accommodation | | | | | | | | |
| G4P1 Establishment of Principal's Project Accommodation | 1 | LS | \$100,000 | \$100,000 | 40% | \$40,000 | \$140,000 | |
| G4P2 Maintenance of Principal's Project Accommodation | 115 | week | \$800 | \$92,000 | 40% | \$36,800 | \$128,800 | |
| G4P4 Removal of Principal's Project Accommodation | 1 | LS | \$10,000 | \$10,000 | 40% | \$4,000 | \$14,000 | |
| Principal's Project Accommodation Sub total | 1 | item | | \$202,000 | 40% | \$80,800 | \$282,800 | |
| G10 Control of Traffic | | | | | | | | |
| G10 Control of Traffic | 1 | LS | \$3,000,000 | \$3,000,000 | 40% | \$1,200,000 | \$4,200,000 | |
| Control of Traffic Sub total | 1 | item | | \$3,000,000 | 40% | \$1,200,000 | \$4,200,000 | |
| G36 Environmental Protection (Management System) | | | | | | | | |
| G36P1 Environmental Protection | 1 | LS | \$220,000 | \$157,579 | 40% | \$63,032 | \$220,610 | |
| Environmental management Sub total | 1 | item | | \$157,579 | 40% | \$63,032 | \$220,610 | |
| G38 Soil and Water Management (SWMP) | | | | | | | | |
| G38P1 Soil and Water Management | 1 | LS | \$230,000 | \$230,000 | 40% | \$92,000 | \$322,000 | |
| Soil and water management Sub total | 1 | item | | \$230,000 | 40% | \$92,000 | \$322,000 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|--|---|-------------------------------|--|--|--|---|--|----------|
| | | | | | % | Amount | | |
| G40 Clearing and Grubbing G40P1 Clearing and Grubbing | 1 | LS | \$500,000 | \$500,000 | 40% | \$200,000 | \$700,000 | |
| Clearing and Grubbing Sub total | 1 | item | | \$500,000 | 40% | \$200,000 | \$700,000 | |
| R11 Stormwater Drainage R11P2(a) Excavation for Stormwater Drainage Structures - RCP R11P5.1 375mm dia RCP R11P5.2 450mm dia RCP R11P5.3 600mm dia RCP R11P7.1 Inlet Pits Type SA R11P7.2 Gross Pollutant Traps | 13318 1302 3802 1629 217 2 | m3 m m m ea ea | \$31 \$230 \$280 \$382 \$4,600 \$80,000 | \$412,855 \$299,460 \$1,064,560 \$622,278 \$998,200 \$160,000 | 40% 40% 40% 40% 40% 40% | \$165,142 \$119,784 \$425,824 \$248,911 \$399,280 \$64,000 | \$577,997 \$419,244 \$1,490,384 \$871,189 \$1,397,480 \$224,000 | |
| Stormwater drainage Sub total | 1 | item | | \$3,557,353 | 40% | \$1,422,941 | \$4,980,294 | |
| R15 Kerbs and Gutters R15P1.1 Type SA R15P1.2 Type SF R15P2 Pedestrian/ Pram Ramp R15P1.4 Vehicular Kerb Crossing | 10862 7028 32 86 | m m ea ea | \$74 \$38 \$600 \$1,800 | \$803,788 \$267,064 \$19,200 \$154,800 | 40% 40% 40% 40% | \$321,515 \$106,826 \$7,680 \$61,920 | \$1,125,303 \$373,890 \$26,880 \$216,720 | |
| Kerbs and Gutters Sub total | 1 | item | | \$1,244,852 | 40% | \$497,941 | \$1,742,793 | |
| R33 Trench Drains R33 Trench drain construction | 10862 | m | \$87 | \$944,994 | 40% | \$377,998 | \$1,322,992 | |
| Trench Drains Sub total | 1 | item | | \$944,994 | 40% | \$377,998 | \$1,322,992 | |
| R44 Earthworks R44P1.1 Removal And Stockpiling of Topsoil R44P2.1 Earthworks Excavation Cut to Fill R44P2.2 Earthworks Excavation Cut to Spoil R44P4 Unsuitable Material R44P5.2 Selected Material Imported | 16585 15831 51394 7470 26548 | m3 m3 m3 m3 m3 | \$45 \$33 \$79 \$83 \$110 | \$746,321 \$522,423 \$4,060,126 \$620,010 \$2,920,308 | 50% 50% 40% 50% 50% | \$373,160 \$261,212 \$1,624,050 \$310,005 \$1,460,154 | \$1,119,481 \$783,635 \$5,684,176 \$930,015 \$4,380,461 | |
| Earthworks Sub total | 1 | item | | \$8,869,188 | 45% | \$4,028,581 | \$12,897,769 | |
| R82 Lean Mix Concrete Subbase R82P1 Supply and Place Concrete in Subbase | 22124 | m3 | \$250 | \$5,530,886 | 40% | \$2,212,354 | \$7,743,240 | |
| Lean Mix Concrete Subbase Sub total | 1 | item | | \$5,530,886 | 40% | \$2,212,354 | \$7,743,240 | |
| R101 Cold Milling R101 Cold Milling | 4582 | m2 | \$9 | \$41,238 | 40% | \$16,495 | \$57,733 | |
| Cold Milling Sub total | 1 | item | | \$41,238 | 40% | \$16,495 | \$57,733 | |
| R106 Sprayed Bituminous Surfacing R106P1.1 Seal over Subbase R106P1.1 Seal over Select | 88494 88494 | m2 m2 | \$6 \$6 | \$530,965 \$530,965 | 40% 40% | \$212,386 \$212,386 | \$743,351 \$743,351 | |
| Sprayed Bituminous Surfacing Sub total | 1 | item | | \$1,061,930 | 40% | \$424,772 | \$1,486,702 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|----------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R116 Asphalt | | | | | | | | |
| R116P1.1 14mm Dense graded Asphalt (40mm Thick) | 9813 | tonnes | \$250 | \$2,453,140 | 40% | \$981,256 | \$3,434,396 | |
| R116P1.2 20mm Dense graded Asphalt (160mm Thick) | 33982 | tonnes | \$240 | \$8,155,623 | 40% | \$3,262,249 | \$11,417,872 | |
| Asphalt Sub total | 1 | item | | \$10,608,763 | 40% | \$4,243,505 | \$14,852,268 | |
| R132 Safety Barriers | | | | | | | | |
| R132P1 Removal of Safety Barriers | 286 | m | \$32 | \$9,152 | 40% | \$3,661 | \$12,813 | |
| R132P3 Construction of Post and Rail Safety Barrier Systems | 729 | m | \$133 | \$96,957 | 40% | \$38,783 | \$135,740 | |
| R132P8.1 Construction of End Treatments (TT) | 1 | ea | \$1,418 | \$1,418 | 40% | \$567 | \$1,985 | |
| R132P8.1 Construction of End Treatments (MELT) | 2 | ea | \$4,725 | \$9,450 | 40% | \$3,780 | \$13,230 | |
| R132P9 Construction of Transitions | 6 | ea | \$3,000 | \$18,000 | 40% | \$7,200 | \$25,200 | |
| Safety Barriers Sub total | 1 | item | | \$134,977 | 40% | \$53,991 | \$188,968 | |
| R141 Pavement Markings | | | | | | | | |
| R141 Pavement Marking - Waterborne | 1 | item | \$75,000 | \$75,000 | 40% | \$30,000 | \$105,000 | |
| Pavement Markings Sub total | 1 | item | | \$75,000 | 40% | \$30,000 | \$105,000 | |
| R142 Raised Pavement Markers | | | | | | | | |
| R142P1 Raised Pavement Markers | 1 | item | \$4,000 | \$4,000 | 40% | \$1,600 | \$5,600 | |
| Raised Pavement Markers Sub total | 1 | item | | \$4,000 | 40% | \$1,600 | \$5,600 | |
| R143 Signposting | | | | | | | | |
| R143P1 Signposting | 1 | item | \$40,000 | \$40,000 | 40% | \$16,000 | \$56,000 | |
| Signposting Sub total | 1 | item | | \$40,000 | 40% | \$16,000 | \$56,000 | |
| R151 Street Lighting | | | | | | | | |
| R151P8 Supply and Install Street Lights on Roads | 218 | ea | \$7,500 | \$1,635,000 | 50% | \$817,500 | \$2,452,500 | |
| R151P9 Supply and Installation of Street Lights on Bridge | 13 | ea | \$10,000 | \$130,000 | 50% | \$65,000 | \$195,000 | |
| Street Lighting Sub total | 1 | item | | \$1,765,000 | 50% | \$882,500 | \$2,647,500 | |
| R173 General Concrete Paving | | | | | | | | |
| R173P1.1 General Concrete Paving - Raised Medians | 7540 | m2 | \$82 | \$618,280 | 40% | \$247,312 | \$865,592 | |
| R173P1.2 General Concrete Paving - Shared footpath/Cycleway | 3507 | m2 | \$110 | \$385,770 | 40% | \$154,308 | \$540,078 | |
| General Concrete Paving Sub total | 1 | item | | \$1,004,050 | 40% | \$401,620 | \$1,405,670 | |
| R179 Landscape Planting | | | | | | | | |
| R179P6.2 Trees and Shrubs - Individual Planting | 1 | LS | \$45,000 | \$45,000 | 40% | \$18,000 | \$63,000 | |
| R179P8 Turf Underlay | 33912 | m2 | \$9 | \$305,206 | 40% | \$122,083 | \$427,289 | |
| R179P9 Turfing for Lawn Areas along Medians and Roadsides | 33912 | m2 | \$10 | \$339,118 | 40% | \$135,647 | \$474,765 | |
| Landscape Planting Sub total | 1 | item | | \$689,325 | 40% | \$275,730 | \$965,054 | |
| Total (Excluding Utilities) | | | | \$101,996,729 | 41% | \$41,811,209 | \$143,807,938 | |

Appendix 3 - Option C Strategic Cost Estimate

| Project: MR 83 Summerland Way - Additional Crossing of the Clarence River at Grafton | | | Prepared by: | | MacDonald International | |
|---|--|--------------|-------------------------------|---|---|---|
| Option C - Route Options Development Report | | | | | 49 Berry Street | |
| | | | Draft 6 | | Nowra | |
| | | | | | Ph (02) 44230566 Fax (02) 44233228 | |
| Summary | | Date: | 19/07/12 | Estimate Type: Strategic | | |
| Project No: SC090010 | | | | | | |
| | | | | | | |
| Item | Base Estimate (excluding contingency) | % | Contingency Amount | Estimate (including contingency) | % of Total Estimate | Comments / Assumptions |
| 1. Project Development | | | | | | |
| 1 (a) Route / Concept / EIS | \$12,000,000 | 25% | \$3,000,000 | \$15,000,000 | | Lump sum allowance for all options |
| 1 (b) Project Management Services | \$360,000 | 25% | \$90,000 | \$450,000 | | 3% of Route / Concept / EIS |
| 1 (c) Sponsor | \$36,000 | 25% | \$9,000 | \$45,000 | | 10% of Project Management Services |
| 1 (d) Community Liaison | \$1,200,000 | 25% | \$300,000 | \$1,500,000 | | 10% of Route / Concept / EIS |
| Sub total | \$13,596,000 | 25% | \$3,399,000 | \$16,995,000 | 7.3% | |
| 2. Investigation and Design | | | | | | |
| 2 (a) Investigation and Design | \$4,200,000 | 40% | \$1,680,000 | \$5,880,000 | | 2-4% of Construction Cost (common cost for all options) |
| 2 (b) Project Management Services | \$126,000 | 40% | \$50,400 | \$176,400 | | 3% of Investigation and Design |
| 2 (c) Sponsor | \$12,600 | 40% | \$5,040 | \$17,640 | | 10% of Project Management Services |
| Sub total | \$4,338,600 | 40% | \$1,735,440 | \$6,074,040 | 2.6% | |
| 3. Property Acquisitions | | | | | | |
| 3 (a) Acquire Property | \$25,850,000 | 52% | \$13,550,000 | \$39,400,000 | | 7% of Acquire Property Cost |
| 3 (b) Professional Services for Property | \$1,809,500 | 50% | \$904,750 | \$2,714,250 | | 3% of Professional Services for Property |
| 3 (c) Project Management Services | \$54,285 | 50% | \$27,143 | \$81,428 | | 10% of Project Management Services |
| 3 (d) Sponsor | \$5,429 | 50% | \$2,714 | \$8,143 | | |
| Sub total | \$27,719,214 | 52% | \$14,484,607 | \$42,203,820 | 18.2% | |
| 4. Public Utility Adjustments | | | | | | |
| 4 (a) Adjust Utilities | \$3,050,000 | 50% | \$1,525,000 | \$4,575,000 | | |
| 4 (c) Sponsor | \$9,150 | 40% | \$3,660 | \$12,810 | | 10% of Project Management Services |
| Sub total | \$3,150,650 | 50% | \$1,565,260 | \$4,715,910 | 2.0% | |
| 5. Construction | | | | | | |
| 5 (a) - 5 (c) Infrastructure | \$108,431,299 | 42% | \$45,499,721 | \$153,931,020 | | |
| 5 (d) Project Management Services | \$3,252,939 | 40% | \$1,301,176 | \$4,554,115 | | 3% of Infrastructure |
| 5 (e) Sponsor | \$325,294 | 40% | \$130,118 | \$455,411 | | 10% of Project Management Services |
| 5 (f) PAI Insurance | \$613,147 | 40% | \$245,259 | \$858,406 | | 0.55% of Infrastructure + Utility Costs |
| Sub total | \$112,622,679 | 42% | \$47,176,273 | \$159,798,952 | 69.1% | |
| 6. Handover | | | | | | |
| 6 (a) Refurbish Old Route | \$0 | 40% | \$0 | \$0 | | |
| 6 (b) Project data & Completion Review | \$1,084,313 | 40% | \$433,725 | \$1,518,038 | | 1% of Construction Cost |
| 6 (c) Project Management Services | \$32,529 | 40% | \$13,012 | \$45,541 | | 3% of Project Data Costs |
| 6 (d) Sponsor | \$3,253 | 40% | \$1,301 | \$4,554 | | 10% of Project Management Services |
| Sub total | \$1,120,095 | 40% | \$448,038 | \$1,568,133 | 0.7% | |
| TOTAL | \$162,547,238 | 42% | \$68,808,618 | \$231,355,856 | 100% | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-------------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| 4. Public Utility Adjustments | | | | | | | | |
| 4.1 Water | 1 | LS | \$500,000 | \$500,000 | 50% | \$250,000 | \$750,000 | |
| 4.2 Sewer | 1 | LS | \$50,000 | \$50,000 | 50% | \$25,000 | \$75,000 | |
| 4.3 Electricity | 1 | LS | \$1,100,000 | \$1,100,000 | 50% | \$550,000 | \$1,650,000 | |
| 4.4 Communications | 1 | LS | \$400,000 | \$400,000 | 50% | \$200,000 | \$600,000 | |
| 4.4 Utility Relocations under Half Arch | 1 | LS | \$1,000,000 | \$1,000,000 | 50% | \$500,000 | \$1,500,000 | |
| Public Utility Adjustments Sub total | 1 | item | | \$3,050,000 | 50% | \$1,525,000 | \$4,575,000 | |
| 5. Construction | | | | | | | | |
| BG -Bridgeworks Generally | | | | | | | | |
| River Bridge 457.45m Balanced cantilever box girder | 7273 | m2 | \$6,450 | \$46,910,850 | 40% | \$18,764,340 | \$65,675,190 | |
| Viaduct 64m of 1500 deep super T and 58m of 1200 deep super T over land | 1940 | m2 | \$3,150 | \$6,111,000 | 40% | \$2,444,400 | \$8,555,400 | |
| BG - Bridge Works Generally Sub total | 1 | item | | \$53,021,850 | 40% | \$21,208,740 | \$74,230,590 | |
| G1 Job Specific Requirements | | | | | | | | |
| G1P1 Traffic Signals | 1 | LS | \$400,000 | \$400,000 | 50% | \$200,000 | \$600,000 | |
| G1P2 Noise Mitigation to Buildings | 1 | LS | \$946,000 | \$946,000 | 50% | \$473,000 | \$1,419,000 | |
| G1P3 Retaining Walls | 685 | m2 | \$986 | \$675,410 | 50% | \$337,705 | \$1,013,115 | |
| G1P4 Levee Bank Works | 1 | LS | \$950,000 | \$950,000 | 50% | \$475,000 | \$1,425,000 | |
| Job Specific Requirements Sub total | 1 | item | | \$2,971,410 | 50% | \$1,485,705 | \$4,457,115 | |
| G2 Primary Testing | | | | | | | | |
| G2P1 Primary Testing | 1 | LS | \$2,126,104 | \$2,126,104 | 40% | \$850,442 | \$2,976,545 | |
| Primary Testing Sub total | 1 | item | | \$2,126,104 | 40% | \$850,442 | \$2,976,545 | |
| G4P Principal's Project Accommodation | | | | | | | | |
| G4P1 Establishment of Principal's Project Accommodation | 1 | LS | \$100,000 | \$100,000 | 40% | \$40,000 | \$140,000 | |
| G4P2 Maintenance of Principal's Project Accommodation | 115 | week | \$800 | \$92,000 | 40% | \$36,800 | \$128,800 | |
| G4P4 Removal of Principal's Project Accommodation | 1 | LS | \$10,000 | \$10,000 | 40% | \$4,000 | \$14,000 | |
| Principal's Project Accommodation Sub total | 1 | item | | \$202,000 | 40% | \$80,800 | \$282,800 | |
| G10 Control of Traffic | | | | | | | | |
| G10 Control of Traffic | 1 | LS | \$2,000,000 | \$2,000,000 | 40% | \$800,000 | \$2,800,000 | |
| Control of Traffic Sub total | 1 | item | | \$2,000,000 | 40% | \$800,000 | \$2,800,000 | |
| G36 Environmental Protection (Management System) | | | | | | | | |
| G36P1 Environmental Protection | 1 | LS | \$180,000 | \$157,579 | 40% | \$63,032 | \$220,610 | |
| Environmental management Sub total | 1 | item | | \$157,579 | 40% | \$63,032 | \$220,610 | |
| G38 Soil and Water Management (SWMP) | | | | | | | | |
| G38P1 Soil and Water Management | 1 | LS | \$300,000 | \$300,000 | 40% | \$120,000 | \$420,000 | |
| Soil and water management Sub total | 1 | item | | \$300,000 | 40% | \$120,000 | \$420,000 | |
| G40 Clearing and Grubbing | | | | | | | | |
| G40P1 Clearing and Grubbing | 1 | LS | \$460,000 | \$460,000 | 40% | \$184,000 | \$644,000 | |
| Clearing and Grubbing Sub total | 1 | item | | \$460,000 | 40% | \$184,000 | \$644,000 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|--|----------|-------------|-------------|--|-------------|--------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R11 Stormwater Drainage | | | | | | | | |
| R11P2(a) Excavation for Stormwater Drainage Structures - RCP | 14185 | m3 | \$31 | \$439,720 | 40% | \$175,888 | \$615,608 | |
| R11P5.1 375mm dia RCP | 1386 | m | \$230 | \$318,780 | 40% | \$127,512 | \$446,292 | |
| R11P5.2 450mm dia RCP | 4046 | m | \$280 | \$1,132,880 | 40% | \$453,152 | \$1,586,032 | |
| R11P5.3 600mm dia RCP | 1734 | m | \$382 | \$662,388 | 40% | \$264,955 | \$927,343 | |
| R11P6 RC Box Culvert 8cell x 0.5m x 1m | 15 | m | \$9,059 | \$135,882 | 40% | \$54,353 | \$190,235 | |
| R11P7.1 Inlet Pits Type SA | 231 | ea | \$4,600 | \$1,062,600 | 40% | \$425,040 | \$1,487,640 | |
| R11P7.2 Gross Pollutant Traps | 2 | ea | \$80,000 | \$160,000 | 40% | \$64,000 | \$224,000 | |
| R11P7.3 Detention Basin (Provisional Sum) | 1 | PS | \$56,000 | \$56,000 | 40% | \$22,400 | \$78,400 | |
| R11P7.4 Pump Station and Detention Basin (Provisional Sum) | 1 | PS | \$400,000 | \$400,000 | 40% | \$160,000 | \$560,000 | |
| R11P7.4 Outlet Pipes 1050mm dia 3no 250m long | 1 | PS | \$2,812,500 | \$2,812,500 | 40% | \$1,125,000 | \$3,937,500 | |
| Stormwater drainage Sub total | 1 | item | | \$7,180,750 | 40% | \$2,872,300 | \$10,053,050 | |
| R15 Kerbs and Gutters | | | | | | | | |
| R15P1.1 Type SA | 11559 | m | \$74 | \$855,366 | 40% | \$342,146 | \$1,197,512 | |
| R15P1.2 Type SF | 5073 | m | \$38 | \$192,774 | 40% | \$77,110 | \$269,884 | |
| R15P2 Pedestrian/ Pram Ramp | 65 | ea | \$600 | \$39,000 | 40% | \$15,600 | \$54,600 | |
| R15P1.4 Vehicular Kerb Crossing | 60 | ea | \$1,800 | \$108,000 | 40% | \$43,200 | \$151,200 | |
| Kerbs and Gutters Sub total | 1 | item | | \$1,195,140 | 40% | \$478,056 | \$1,673,196 | |
| R33 Trench Drains | | | | | | | | |
| R33 Trench drain construction | 11559 | m | \$87 | \$1,005,633 | 40% | \$402,253 | \$1,407,886 | |
| Trench Drains Sub total | 1 | item | | \$1,005,633 | 40% | \$402,253 | \$1,407,886 | |
| R44 Earthworks | | | | | | | | |
| R44P1.1 Removal And Stockpiling of Topsoil | 31069 | m3 | \$45 | \$1,398,116 | 50% | \$699,058 | \$2,097,174 | |
| R44P2.1 Earthworks Excavation Cut to Fill | 72686 | m3 | \$33 | \$2,398,638 | 50% | \$1,199,319 | \$3,597,957 | |
| R44P3 Imported or Borrowed Material | 62491 | m3 | \$85 | \$5,311,735 | 50% | \$2,655,868 | \$7,967,603 | |
| R44P4 Unsuitable Material | 8076 | m3 | \$83 | \$670,308 | 50% | \$335,154 | \$1,005,462 | |
| R44P5.2 Selected Material Imported | 26449 | m3 | \$110 | \$2,909,412 | 50% | \$1,454,706 | \$4,364,118 | |
| R44P8 Remove and Replace Contaminated Material | 11280 | m3 | \$330 | \$3,722,400 | 50% | \$1,861,200 | \$5,583,600 | |
| Earthworks Sub total | 1 | item | | \$16,410,609 | 50% | \$8,205,305 | \$24,615,914 | |
| R82 Lean Mix Concrete Subbase | | | | | | | | |
| R82P1 Supply and Place Concrete in Subbase | 22041 | m3 | \$250 | \$5,510,250 | 40% | \$2,204,100 | \$7,714,350 | |
| Lean Mix Concrete Subbase Sub total | 1 | item | | \$5,510,250 | 40% | \$2,204,100 | \$7,714,350 | |
| R106 Sprayed Bituminous Surfacing | | | | | | | | |
| R106P1.1 Seal over Subbase | 88164 | m2 | \$6 | \$528,984 | 40% | \$211,594 | \$740,578 | |
| R106P1.1 Seal over Select | 88164 | m2 | \$6 | \$528,984 | 40% | \$211,594 | \$740,578 | |
| Sprayed Bituminous Surfacing Sub total | 1 | item | | \$1,057,968 | 40% | \$423,187 | \$1,481,155 | |
| R116 Asphalt | | | | | | | | |
| R116P1.1 14mm Dense graded Asphalt (40mm Thick) | 9384 | tonnes | \$250 | \$2,345,976 | 40% | \$938,390 | \$3,284,366 | |
| R116P1.2 20mm Dense graded Asphalt (160mm Thick) | 33855 | tonnes | \$240 | \$8,125,194 | 40% | \$3,250,078 | \$11,375,272 | |
| Asphalt Sub total | 1 | item | | \$10,471,170 | 40% | \$4,188,468 | \$14,659,638 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|----------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R132 Safety Barriers | | | | | | | | |
| R132P1 Removal of Safety Barriers | 993 | m | \$32 | \$31,776 | 40% | \$12,710 | \$44,486 | |
| R132P3 Construction of Post and Rail Safety Barrier Systems | 1171 | m | \$133 | \$155,743 | 40% | \$62,297 | \$218,040 | |
| R132P8.1 Construction of End Treatments (TT) | 2 | ea | \$1,418 | \$2,836 | 40% | \$1,134 | \$3,970 | |
| R132P8.1 Construction of End Treatments (MELT) | 2 | ea | \$4,725 | \$9,450 | 40% | \$3,780 | \$13,230 | |
| R132P9 Construction of Transitions | 4 | ea | \$3,000 | \$12,000 | 40% | \$4,800 | \$16,800 | |
| Safety Barriers Sub total | 1 | item | | \$211,805 | 40% | \$84,722 | \$296,527 | |
| R141 Pavement Markings | | | | | | | | |
| R141 Pavement Marking - Waterborne | 1 | item | \$58,000 | \$58,000 | 40% | \$23,200 | \$81,200 | |
| Pavement Markings Sub total | 1 | item | | \$58,000 | 40% | \$23,200 | \$81,200 | |
| R142 Raised Pavement Markers | | | | | | | | |
| R142P1 Raised Pavement Markers | 1 | item | \$4,500 | \$4,500 | 40% | \$1,800 | \$6,300 | |
| Raised Pavement Markers Sub total | 1 | item | | \$4,500 | 40% | \$1,800 | \$6,300 | |
| R143 Signposting | | | | | | | | |
| R143P1 Signposting | 1 | item | \$35,000 | \$35,000 | 40% | \$14,000 | \$49,000 | |
| Signposting Sub total | 1 | item | | \$35,000 | 40% | \$14,000 | \$49,000 | |
| R151 Street Lighting | | | | | | | | |
| R151P8 Supply and Install Street Lights on Roads | 232 | ea | \$7,500 | \$1,740,000 | 50% | \$870,000 | \$2,610,000 | |
| R151P9 Supply and Installation of Street Lights on Bridge | 15 | ea | \$10,000 | \$150,000 | 50% | \$75,000 | \$225,000 | |
| Street Lighting Sub total | 1 | item | | \$1,890,000 | 50% | \$945,000 | \$2,835,000 | |
| R173 General Concrete Paving | | | | | | | | |
| R173P1.1 General Concrete Paving - Raised Medians | 5615 | m2 | \$82 | \$460,430 | 40% | \$184,172 | \$644,602 | |
| R173P1.2 General Concrete Paving - Shared footpath/Cycleway | 4542 | m2 | \$110 | \$499,620 | 40% | \$199,848 | \$699,468 | |
| General Concrete Paving Sub total | 1 | item | | \$960,050 | 40% | \$384,020 | \$1,344,070 | |
| R179 Landscape Planting | | | | | | | | |
| R179P6.2 Trees and Shrubs - Individual Planting | 1 | LS | \$95,000 | \$95,000 | 40% | \$38,000 | \$133,000 | |
| R179P8 Turf Underlay | 56563 | m2 | \$9 | \$509,067 | 40% | \$203,627 | \$712,694 | |
| R179P9 Turfing for Lawn Areas along Medians and Roadsides | 56563 | m2 | \$10 | \$565,630 | 40% | \$226,252 | \$791,882 | |
| Landscape Planting Sub total | 1 | item | | \$1,169,697 | 40% | \$467,879 | \$1,637,576 | |
| R201 Fencing | | | | | | | | |
| R201P1 Rural Fencing - Wire | 1696 | m | \$17 | \$28,832 | 40% | \$11,533 | \$40,365 | |
| R201P13 Removal of Existing Fencing | 492 | m | \$6 | \$2,952 | 40% | \$1,181 | \$4,133 | |
| Fencing Sub total | 1 | item | | \$31,784 | 40% | \$12,714 | \$44,498 | |
| Total (Excluding Utilities) | | | | \$108,431,299 | 42% | \$45,499,721 | \$153,931,020 | |

Appendix 4 - Option 11 Strategic Cost Estimate

| Project: MR 83 Summerland Way - Additional Crossing of the Clarence River at Grafton | | | Prepared by: | | MacDonald International | |
|---|--|--------------|-------------------------------|---|---|---|
| Option 11 - Route Options Development Report | | | | | 49 Berry Street | |
| | | | DRAFT 6 | | Nowra | |
| | | | | | Ph (02) 44230566 Fax (02) 44233228 | |
| Summary | | Date: | 19/07/12 | Estimate Type: Strategic | | |
| Project No: SC090010 | | | | | | |
| | | | | | | |
| Item | Base Estimate (excluding contingency) | % | Contingency Amount | Estimate (including contingency) | % of Total Estimate | Comments / Assumptions |
| 1. Project Development | | | | | | |
| 1 (a) Route / Concept / EIS | \$12,000,000 | 25% | \$3,000,000 | \$15,000,000 | | Lump sum allowance for all options |
| 1 (b) Project Management Services | \$360,000 | 25% | \$90,000 | \$450,000 | | 3% of Route / Concept / EIS |
| 1 (c) Sponsor | \$36,000 | 25% | \$9,000 | \$45,000 | | 10% of Project Management Services |
| 1 (d) Community Liaison | \$1,200,000 | 25% | \$300,000 | \$1,500,000 | | 10% of Route / Concept / EIS |
| Sub total | \$13,596,000 | 25% | \$3,399,000 | \$16,995,000 | 8.1% | |
| 2. Investigation and Design | | | | | | |
| 2 (a) Investigation and Design | \$4,200,000 | 40% | \$1,680,000 | \$5,880,000 | | 2-4% of Construction Cost (common cost for all options) |
| 2 (b) Project Management Services | \$126,000 | 40% | \$50,400 | \$176,400 | | 3% of Investigation and Design |
| 2 (c) Sponsor | \$12,600 | 40% | \$5,040 | \$17,640 | | 10% of Project Management Services |
| Sub total | \$4,338,600 | 40% | \$1,735,440 | \$6,074,040 | 2.9% | |
| 3. Property Acquisitions | | | | | | |
| 3 (a) Acquire Property | \$15,060,000 | 56% | \$8,430,000 | \$23,490,000 | | |
| 3 (b) Professional Services for Property | \$1,054,200 | 50% | \$527,100 | \$1,581,300 | | 7% of Acquire Property Cost |
| 3 (c) Project Management Services | \$31,626 | 50% | \$15,813 | \$47,439 | | 3% of Professional Services for Property |
| 3 (d) Sponsor | \$3,163 | 50% | \$1,581 | \$4,744 | | 10% of Project Management Services |
| Sub total | \$16,148,989 | 56% | \$8,974,494 | \$25,123,483 | 11.9% | |
| 4. Public Utility Adjustments | | | | | | |
| 4 (a) Adjust Utilities | \$750,000 | 50% | \$375,000 | \$1,125,000 | | |
| 4 (b) Project Management Services | \$22,500 | 40% | \$9,000 | \$31,500 | | 3% of Utility Costs |
| 4 (c) Sponsor | \$2,250 | 40% | \$900 | \$3,150 | | 10% of Project Management Services |
| Sub total | \$774,750 | 50% | \$384,900 | \$1,159,650 | 0.6% | |
| 5. Construction | | | | | | |
| 5 (a) - 5 (c) Infrastructure | \$108,095,044 | 42% | \$45,588,939 | \$153,683,982 | | |
| 5 (d) Project Management Services | \$3,242,851 | 40% | \$1,297,141 | \$4,539,992 | | 3% of Infrastructure |
| 5 (e) Sponsor | \$324,285 | 40% | \$129,714 | \$453,999 | | 10% of Project Management Services |
| 5 (f) PAI Insurance | \$598,648 | 40% | \$239,459 | \$838,107 | | 0.55% of Infrastructure + Utility Costs |
| Sub total | \$112,260,828 | 42% | \$47,255,252 | \$159,516,080 | 75.8% | |
| 6. Handover | | | | | | |
| 6 (a) Refurbish Old Route | \$0 | 40% | \$0 | \$0 | | |
| 6 (b) Project data & Completion Review | \$1,080,950 | 40% | \$432,380 | \$1,513,331 | | 1% of Construction Cost |
| 6 (c) Project Management Services | \$32,429 | 40% | \$12,971 | \$45,400 | | 3% of Project Data Costs |
| 6 (d) Sponsor | \$3,243 | 40% | \$1,297 | \$4,540 | | 10% of Project Management Services |
| Sub total | \$1,116,622 | 40% | \$446,649 | \$1,563,271 | 0.7% | |
| TOTAL | \$148,235,788 | 42% | \$62,195,735 | \$210,431,524 | 100% | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-------------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| 4. Public Utility Adjustments | | | | | | | | |
| 4.1 Water | 1 | LS | \$100,000 | \$100,000 | 50% | \$50,000 | \$150,000 | |
| 4.2 Sewer | 1 | LS | \$50,000 | \$50,000 | 50% | \$25,000 | \$75,000 | |
| 4.3 Electricity | 1 | LS | \$300,000 | \$300,000 | 50% | \$150,000 | \$450,000 | |
| 4.4 Communications | 1 | LS | \$300,000 | \$300,000 | 50% | \$150,000 | \$450,000 | |
| Public Utility Adjustments Sub total | 1 | item | | \$750,000 | 50% | \$375,000 | \$1,125,000 | |
| 5. Construction | | | | | | | | |
| BG - Bridgeworks Generally | | | | | | | | |
| River Bridge 387.2m Launched box girder | 6156 | m2 | \$6,150 | \$37,859,400 | 40% | \$15,143,760 | \$53,003,160 | |
| Viaduct 340m of 1500 deep super T over land | 5406 | m2 | \$3,250 | \$17,569,500 | 40% | \$7,027,800 | \$24,597,300 | |
| Viaduct on Land 110m | 1749 | m2 | \$3,250 | \$5,684,250 | 40% | \$2,273,700 | \$7,957,950 | |
| BG - Bridge Works Generally Sub total | 1 | item | | \$61,113,150 | 40% | \$24,445,260 | \$85,558,410 | |
| G1 Job Specific Requirements | | | | | | | | |
| G1P1 Traffic Signals | 1 | LS | \$200,000 | \$200,000 | 50% | \$100,000 | \$300,000 | |
| G1P2 Noise Mitigation to Buildings | 1 | LS | \$2,398,000 | \$2,398,000 | 50% | \$1,199,000 | \$3,597,000 | |
| G1P3 Retaining Walls | 135 | m2 | \$986 | \$133,110 | 50% | \$66,555 | \$199,665 | |
| G1P4 Levee Bank Works | 1 | LS | \$1,050,000 | \$1,050,000 | 50% | \$525,000 | \$1,575,000 | |
| Job Specific Requirements Sub total | 1 | item | | \$3,781,110 | 50% | \$1,890,555 | \$5,671,665 | |
| G2 Primary Testing | | | | | | | | |
| G2P1 Primary Testing | 1 | LS | \$2,119,511 | \$2,119,511 | 40% | \$847,804 | \$2,967,315 | |
| Primary Testing Sub total | 1 | item | | \$2,119,511 | 40% | \$847,804 | \$2,967,315 | |
| G4 - Principal's Project Accommodation | | | | | | | | |
| G4P1 Establishment of Principal's Project Accommodation | 1 | LS | \$100,000 | \$100,000 | 40% | \$40,000 | \$140,000 | |
| G4P2 Maintenance of Principal's Project Accommodation | 120 | week | \$800 | \$96,000 | 40% | \$38,400 | \$134,400 | |
| G4P4 Removal of Principal's Project Accommodation | 1 | LS | \$10,000 | \$10,000 | 40% | \$4,000 | \$14,000 | |
| Principal's Project Accommodation Sub total | 1 | item | | \$206,000 | 40% | \$82,400 | \$288,400 | |
| G10 Control of Traffic | | | | | | | | |
| G10 Control of Traffic | 1 | LS | \$1,500,000 | \$1,500,000 | 40% | \$600,000 | \$2,100,000 | |
| Control of Traffic Sub total | 1 | item | | \$1,500,000 | 40% | \$600,000 | \$2,100,000 | |
| G36 Environmental Protection (Management System) | | | | | | | | |
| G36P1 Environmental Protection | 1 | LS | \$190,000 | \$157,579 | 40% | \$63,032 | \$220,610 | |
| Environmental management Sub total | 1 | item | | \$157,579 | 40% | \$63,032 | \$220,610 | |
| G38 Soil and Water Management (SWMP) | | | | | | | | |
| G38P1 Soil and Water Management | 1 | LS | \$320,000 | \$320,000 | 40% | \$128,000 | \$448,000 | |
| Soil and water management Sub total | 1 | item | | \$320,000 | 40% | \$128,000 | \$448,000 | |

Subsidiary Sheet
Project No: SC090010

DRAFT 6

DRAFT 6

Estimate Stage: Strategic

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|----------|--|-------------|--------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| G40 Clearing and Grubbing | | | | | | | | |
| G40P1 Clearing and Grubbing | 1 | LS | \$80,000 | \$80,000 | 40% | \$32,000 | \$112,000 | |
| Clearing and Grubbing Sub total | 1 | item | | \$80,000 | 40% | \$32,000 | \$112,000 | |
| R11 Stormwater Drainage | | | | | | | | |
| R11P2(a) Excavation for Stormwater Drainage Structures - RCP | 9914 | m3 | \$31 | \$307,321 | 40% | \$122,928 | \$430,249 | |
| R11P5.1 375mm dia RCP | 972 | m | \$230 | \$223,560 | 40% | \$89,424 | \$312,984 | |
| R11P5.2 450mm dia RCP | 2828 | m | \$280 | \$791,840 | 40% | \$316,736 | \$1,108,576 | |
| R11P5.3 600mm dia RCP | 1212 | m | \$382 | \$462,984 | 40% | \$185,194 | \$648,178 | |
| R11P7.1 Inlet Pits Type SA | 162 | ea | \$4,600 | \$745,200 | 40% | \$298,080 | \$1,043,280 | |
| R11P7.2 Gross Pollutant Traps | 1 | ea | \$80,000 | \$80,000 | 40% | \$32,000 | \$112,000 | |
| Stormwater drainage Sub total | 1 | item | | \$2,610,905 | 40% | \$1,044,362 | \$3,655,267 | |
| R15 Kerbs and Gutters | | | | | | | | |
| R15P1.1 Type SA | 8080 | m | \$74 | \$597,920 | 40% | \$239,168 | \$837,088 | |
| R15P1.2 Type SF | 2561 | m | \$38 | \$97,318 | 40% | \$38,927 | \$136,245 | |
| R15P2 Pedestrian/ Pram Ramp | 30 | ea | \$600 | \$18,000 | 40% | \$7,200 | \$25,200 | |
| R15P1.4 Vehicular Kerb Crossing | 99 | ea | \$1,800 | \$178,200 | 40% | \$71,280 | \$249,480 | |
| Kerbs and Gutters Sub total | 1 | item | | \$891,438 | 40% | \$356,575 | \$1,248,013 | |
| R33 Trench Drains | | | | | | | | |
| R33 Trench drain construction | 8080 | m | \$87 | \$702,960 | 40% | \$281,184 | \$984,144 | |
| Trench Drains Sub total | 1 | item | | \$702,960 | 40% | \$281,184 | \$984,144 | |
| R44 Earthworks | | | | | | | | |
| R44P1.1 Removal And Stockpiling of Topsoil | 23311 | m3 | \$45 | \$1,048,986 | 50% | \$524,493 | \$1,573,479 | |
| R44P2.1 Earthworks Excavation Cut to Fill | 44154 | m3 | \$33 | \$1,457,082 | 50% | \$728,541 | \$2,185,623 | |
| R44P2.2 Earthworks Excavation Cut to Spoil | 10324 | m3 | \$79 | \$815,596 | 40% | \$326,238 | \$1,141,834 | |
| R44P3 Imported or Borrowed Material | 157856 | m3 | \$85 | \$13,417,760 | 50% | \$6,708,880 | \$20,126,640 | |
| R44P4 Unsuitable Material | 4906 | m3 | \$83 | \$407,198 | 50% | \$203,599 | \$610,797 | |
| R44P5.2 Selected Material Imported from beyond the Limits of Works Area | 18292 | m3 | \$110 | \$2,012,076 | 50% | \$1,006,038 | \$3,018,114 | |
| Earthworks Sub total | 1 | item | | \$19,158,698 | 50% | \$9,497,789 | \$28,656,487 | |
| R82 Lean Mix Concrete Subbase | | | | | | | | |
| R82P1 Supply and Place Concrete in Subbase | 15243 | m3 | \$250 | \$3,810,750 | 40% | \$1,524,300 | \$5,335,050 | |
| Lean Mix Concrete Subbase Sub total | 1 | item | | \$3,810,750 | 40% | \$1,524,300 | \$5,335,050 | |
| R106 Sprayed Bituminous Surfacing | | | | | | | | |
| R106P1.1 Seal over Subbase | 60972 | m2 | \$6 | \$365,832 | 40% | \$146,333 | \$512,165 | |
| R106P1.1 Seal over Select | 60972 | m2 | \$6 | \$365,832 | 40% | \$146,333 | \$512,165 | |
| Sprayed Bituminous Surfacing Sub total | 1 | item | | \$731,664 | 40% | \$292,666 | \$1,024,330 | |
| R116 Asphalt | | | | | | | | |
| R116P1.1 14mm Dense graded Asphalt (40mm Thick) | 6767 | tonnes | \$250 | \$1,691,772 | 40% | \$676,709 | \$2,368,481 | |
| R116P1.2 20mm Dense graded Asphalt (160mm Thick) | 23413 | tonnes | \$240 | \$5,619,180 | 40% | \$2,247,672 | \$7,866,851 | |
| Asphalt Sub total | 1 | item | | \$7,310,952 | 40% | \$2,924,381 | \$10,235,332 | |

Subsidiary Sheet
Project No: SC090010

DRAFT 6

DRAFT 6

Estimate Stage:

Strategic

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-----------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R132 Safety Barriers | | | | | | | | |
| R132P1 Removal of Safety Barriers | 650 | m | \$32 | \$20,800 | 40% | \$8,320 | \$29,120 | |
| R132P3 Construction of Post and Rail Safety Barrier Systems | 1738 | m | \$133 | \$231,154 | 40% | \$92,462 | \$323,616 | |
| R132P8.1 Construction of End Treatments (TT) | 2 | ea | \$1,418 | \$2,836 | 40% | \$1,134 | \$3,970 | |
| R132P8.1 Construction of End Treatments (MELT) | 2 | ea | \$4,725 | \$9,450 | 40% | \$3,780 | \$13,230 | |
| R132P9 Construction of Transitions | 8 | ea | \$3,000 | \$24,000 | 40% | \$9,600 | \$33,600 | |
| Safety Barriers Sub total | 1 | item | | \$288,240 | 40% | \$115,296 | \$403,536 | |
| R141 Pavement Markings | | | | | | | | |
| R141 Pavement Marking - Waterborne | 1 | item | \$46,000 | \$46,000 | 40% | \$18,400 | \$64,400 | |
| Pavement Markings Sub total | 1 | item | | \$46,000 | 40% | \$18,400 | \$64,400 | |
| R142 Raised Pavement Markers | | | | | | | | |
| R142P1 Raised Pavement Markers | 1 | item | \$4,000 | \$4,000 | 40% | \$1,600 | \$5,600 | |
| Raised Pavement Markers Sub total | 1 | item | | \$4,000 | 40% | \$1,600 | \$5,600 | |
| R143 Signposting | | | | | | | | |
| R143P1 Signposting | 1 | item | \$15,000 | \$15,000 | 40% | \$6,000 | \$21,000 | |
| Signposting Sub total | 1 | item | | \$15,000 | 40% | \$6,000 | \$21,000 | |
| R151 Street Lighting | | | | | | | | |
| R151P8 Supply and Install Street Lights on Roads | 162 | ea | \$7,500 | \$1,215,000 | 50% | \$607,500 | \$1,822,500 | |
| R151P9 Supply and Installation of Street Lights on Bridge | 17 | ea | \$10,000 | \$170,000 | 50% | \$85,000 | \$255,000 | |
| Street Lighting Sub total | 1 | item | | \$1,385,000 | 50% | \$692,500 | \$2,077,500 | |
| R173 General Concrete Paving | | | | | | | | |
| R173P1.1 General Concrete Paving - Raised Medians | 2624 | m2 | \$82 | \$215,168 | 40% | \$86,067 | \$301,235 | |
| R173P1.2 General Concrete Paving - Shared footpath/Cycleway | 3948 | m2 | \$110 | \$434,280 | 40% | \$173,712 | \$607,992 | |
| General Concrete Paving Sub total | 1 | item | | \$649,448 | 40% | \$259,779 | \$909,227 | |
| R179 Landscape Planting | | | | | | | | |
| R179P6.2 Trees and Shrubs - Individual Planting | 1 | LS | \$105,000 | \$105,000 | 40% | \$42,000 | \$147,000 | |
| R179P8 Turf Underlay | 56720 | m2 | \$9 | \$510,480 | 40% | \$204,192 | \$714,672 | |
| R179P9 Turfing for Lawn Areas along Medians and Roadsides | 56720 | m2 | \$10 | \$567,200 | 40% | \$226,880 | \$794,080 | |
| Landscape Planting Sub total | 1 | item | | \$1,182,680 | 40% | \$473,072 | \$1,655,752 | |
| R201 Fencing | | | | | | | | |
| R201P1 Rural Fencing - Wire | 1660 | m | \$17 | \$28,220 | 40% | \$11,288 | \$39,508 | |
| R201P13 Removal of Existing Fencing | 290 | m | \$6 | \$1,740 | 40% | \$696 | \$2,436 | |
| Fencing Sub total | 1 | item | | \$29,960 | 40% | \$11,984 | \$41,944 | |
| Total (Excluding Utilities) | | | | \$108,095,044 | 42% | \$45,588,939 | \$153,683,982 | |

Appendix 5 - Option 14 Strategic Cost Estimate

| Project: MR 83 Summerland Way - Additional Crossing of the Clarence River at Grafton | | | Prepared by: | | MacDonald International | |
|---|--|--------------|-------------------------------|---|---|---|
| Option 14 - Route Options Development Report | | | | | 49 Berry Street | |
| | | | DRAFT 6 | | Nowra | |
| | | | | | Ph (02) 44230566 Fax (02) 44233228 | |
| Summary | | Date: | 19/07/12 | Estimate Type: Strategic | | |
| Project No: SC090010 | | | | | | |
| | | | | | | |
| Item | Base Estimate (excluding contingency) | % | Contingency Amount | Estimate (including contingency) | % of Total Estimate | Comments / Assumptions |
| 1. Project Development | | | | | | |
| 1 (a) Route / Concept / EIS | \$12,000,000 | 25% | \$3,000,000 | \$15,000,000 | | Lump sum allowance for all options |
| 1 (b) Project Management Services | \$360,000 | 25% | \$90,000 | \$450,000 | | 3% of Route / Concept / EIS |
| 1 (c) Sponsor | \$36,000 | 25% | \$9,000 | \$45,000 | | 10% of Project Management Services |
| 1 (d) Community Liaison | \$1,200,000 | 25% | \$300,000 | \$1,500,000 | | 10% of Route / Concept / EIS |
| Sub total | \$13,596,000 | 25% | \$3,399,000 | \$16,995,000 | 5.6% | |
| 2. Investigation and Design | | | | | | |
| 2 (a) Investigation and Design | \$4,200,000 | 40% | \$1,680,000 | \$5,880,000 | | 2-4% of Construction Cost (common cost for all options) |
| 2 (b) Project Management Services | \$126,000 | 40% | \$50,400 | \$176,400 | | 3% of Investigation and Design |
| 2 (c) Sponsor | \$12,600 | 40% | \$5,040 | \$17,640 | | 10% of Project Management Services |
| Sub total | \$4,338,600 | 40% | \$1,735,440 | \$6,074,040 | 2.0% | |
| 3. Property Acquisitions | | | | | | |
| 3 (a) Acquire Property | \$7,000,000 | 52% | \$3,620,000 | \$10,620,000 | | |
| 3 (b) Professional Services for Property | \$490,000 | 50% | \$245,000 | \$735,000 | | 7% of Acquire Property Cost |
| 3 (c) Project Management Services | \$14,700 | 50% | \$7,350 | \$22,050 | | 3% of Professional Services for Property |
| 3 (d) Sponsor | \$1,470 | 50% | \$735 | \$2,205 | | 10% of Project Management Services |
| Sub total | \$7,506,170 | 52% | \$3,873,085 | \$11,379,255 | 3.7% | |
| 4. Public Utility Adjustments | | | | | | |
| 4 (a) Adjust Utilities | \$1,800,000 | 50% | \$900,000 | \$2,700,000 | | |
| 4 (b) Project Management Services | \$54,000 | 40% | \$21,600 | \$75,600 | | 3% of Utility Costs |
| 4 (c) Sponsor | \$5,400 | 40% | \$2,160 | \$7,560 | | 10% of Project Management Services |
| Sub total | \$1,859,400 | 50% | \$923,760 | \$2,783,160 | 0.9% | |
| 5. Construction | | | | | | |
| 5 (a) - 5 (c) Infrastructure | \$179,349,088 | 42% | \$74,793,260 | \$254,142,349 | | |
| 5 (d) Project Management Services | \$5,380,473 | 40% | \$2,152,189 | \$7,532,662 | | 3% of Infrastructure |
| 5 (e) Sponsor | \$538,047 | 40% | \$215,219 | \$753,266 | | 10% of Project Management Services |
| 5 (f) PAI Insurance | \$996,320 | 40% | \$398,528 | \$1,394,848 | | 0.55% of Infrastructure + Utility Costs |
| Sub total | \$186,263,928 | 42% | \$77,559,196 | \$263,823,125 | 86.9% | |
| 6. Handover | | | | | | |
| 6 (a) Refurbish Old Route | \$0 | 40% | \$0 | \$0 | | |
| 6 (b) Project data & Completion Review | \$1,793,491 | 40% | \$717,396 | \$2,510,887 | | 1% of Construction Cost |
| 6 (c) Project Management Services | \$53,805 | 40% | \$21,522 | \$75,327 | | 3% of Project Data Costs |
| 6 (d) Sponsor | \$5,380 | 40% | \$2,152 | \$7,533 | | 10% of Project Management Services |
| Sub total | \$1,852,676 | 40% | \$741,070 | \$2,593,747 | 0.9% | |
| TOTAL | \$215,416,774 | 41% | \$88,231,552 | \$303,648,326 | 100% | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-------------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| 4. Public Utility Adjustments | | | | | | | | |
| 4.1 Water | 1 | LS | \$100,000 | \$100,000 | 50% | \$50,000 | \$150,000 | |
| 4.2 Sewer | 1 | LS | \$500,000 | \$500,000 | 50% | \$250,000 | \$750,000 | |
| 4.3 Electricity | 1 | LS | \$500,000 | \$500,000 | 50% | \$250,000 | \$750,000 | |
| 4.4 Communications | 1 | LS | \$700,000 | \$700,000 | 50% | \$350,000 | \$1,050,000 | |
| Public Utility Adjustments Sub total | 1 | item | | \$1,800,000 | 50% | \$900,000 | \$2,700,000 | |
| 5. Construction | | | | | | | | |
| BG - Bridgeworks Generally | | | | | | | | |
| River Bridge 617m Launched box girder | 10057 | m2 | \$5,750 | \$57,827,750 | 40% | \$23,131,100 | \$80,958,850 | |
| Viaduct 918m of 1500 deep super T over land | 14964 | m2 | \$3,050 | \$45,640,200 | 40% | \$18,256,080 | \$63,896,280 | |
| Minor Bridge over creek near Prince St | 717 | m2 | \$4,000 | \$2,868,000 | 40% | \$1,147,200 | \$4,015,200 | |
| Minor Bridge over creek near North St | 978 | m2 | \$4,000 | \$3,912,000 | 40% | \$1,564,800 | \$5,476,800 | |
| Minor Bridge over creek - Alumy Creek | 827 | m2 | \$4,000 | \$3,308,000 | 40% | \$1,323,200 | \$4,631,200 | |
| BG - Bridge Works Generally Sub total | 1 | item | | \$113,555,950 | 40% | \$45,422,380 | \$158,978,330 | |
| G1 Job Specific Requirements | | | | | | | | |
| G1P2 Noise Mitigation to Buildings | 1 | LS | \$2,222,000 | \$2,222,000 | 50% | \$1,111,000 | \$3,333,000 | |
| G1P3 Retaining Walls | 135 | m2 | \$986 | \$133,110 | 50% | \$66,555 | \$199,665 | |
| G1P4 Levee Bank Works | 1 | LS | \$850,000 | \$850,000 | 50% | \$425,000 | \$1,275,000 | |
| Job Specific Requirements Sub total | 1 | item | | \$3,205,110 | 50% | \$1,602,555 | \$4,807,665 | |
| G2 Primary Testing | | | | | | | | |
| G2P1 Primary Testing | 1 | LS | \$3,516,649 | \$3,516,649 | 40% | \$1,406,660 | \$4,923,308 | |
| Primary Testing Sub total | 1 | item | | \$3,516,649 | 40% | \$1,406,660 | \$4,923,308 | |
| G4 - Principal's Project Accommodation | | | | | | | | |
| G4P1 Establishment of Principal's Project Accommodation | 1 | LS | \$100,000 | \$100,000 | 40% | \$40,000 | \$140,000 | |
| G4P2 Maintenance of Principal's Project Accommodation | 130 | week | \$800 | \$104,000 | 40% | \$41,600 | \$145,600 | |
| G4P4 Removal of Principal's Project Accommodation | 1 | LS | \$10,000 | \$10,000 | 40% | \$4,000 | \$14,000 | |
| Principal's Project Accommodation Sub total | 1 | item | | \$214,000 | 40% | \$85,600 | \$299,600 | |
| G10 Control of Traffic | | | | | | | | |
| G10 Control of Traffic | 1 | LS | \$1,300,000 | \$1,300,000 | 40% | \$520,000 | \$1,820,000 | |
| Control of Traffic Sub total | 1 | item | | \$1,300,000 | 40% | \$520,000 | \$1,820,000 | |
| G36 Environmental Protection (Management System) | | | | | | | | |
| G36P1 Environmental Protection | 1 | LS | \$220,000 | \$157,579 | 40% | \$63,032 | \$220,610 | |
| Environmental management Sub total | 1 | item | | \$157,579 | 40% | \$63,032 | \$220,610 | |
| G38 Soil and Water Management (SWMP) | | | | | | | | |
| G38P1 Soil and Water Management | 1 | LS | \$370,000 | \$370,000 | 40% | \$148,000 | \$518,000 | |
| Soil and water management Sub total | 1 | item | | \$370,000 | 40% | \$148,000 | \$518,000 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|--|---------------------------------------|--|---|---|--|--|----------|
| | | | | | % | Amount | | |
| G40 Clearing and Grubbing G40P1 Clearing and Grubbing | 1 | LS | \$100,000 | \$100,000 | 40% | \$40,000 | \$140,000 | |
| Clearing and Grubbing Sub total | 1 | item | | \$100,000 | 40% | \$40,000 | \$140,000 | |
| R11 Stormwater Drainage R11P2(a) Excavation for Stormwater Drainage Structures - RCP R11P5.2 375mm dia RCP R11P5.2 450mm dia RCP R11P5.3 600mm dia RCP R11P7.1 Inlet Pits Type SA R11P7.2 Gross Pollutant Traps | 16325 1596 4660 1997 266 1 | m3 m m m ea ea | \$31 \$230 \$280 \$382 \$4,600 \$80,000 | \$506,062 \$367,080 \$1,304,800 \$762,854 \$1,223,600 \$80,000 | 40% 40% 40% 40% 40% 40% | \$202,425 \$146,832 \$521,920 \$305,142 \$489,440 \$32,000 | \$708,487 \$513,912 \$1,826,720 \$1,067,996 \$1,713,040 \$112,000 | |
| Stormwater drainage Sub total | 1 | item | | \$4,244,396 | 40% | \$1,697,759 | \$5,942,155 | |
| R15 Kerbs and Gutters R15P1.1 Type SA R15P1.2 Type SF R15P2 Pedestrian/ Pram Ramp R15P1.4 Vehicular Kerb Crossing | 13314 4312 60 92 | m m ea ea | \$74 \$38 \$600 \$1,800 | \$985,236 \$163,856 \$36,000 \$165,600 | 40% 40% 40% 40% | \$394,094 \$65,542 \$14,400 \$66,240 | \$1,379,330 \$229,398 \$50,400 \$231,840 | |
| Kerbs and Gutters Sub total | 1 | item | | \$1,350,692 | 40% | \$540,277 | \$1,890,969 | |
| R33 Trench Drains R33 Trench drain construction | 13314 | m | \$87 | \$1,158,318 | 40% | \$463,327 | \$1,621,645 | |
| Trench Drains Sub total | 1 | item | | \$1,158,318 | 40% | \$463,327 | \$1,621,645 | |
| R44 Earthworks R44P1.1 Removal And Stockpiling of Topsoil R44P2.1 Earthworks Excavation Cut to Fill R44P3 Imported or Borrowed Material R44P4 Unsuitable Material R44P5.2 Selected Material Imported from beyond the Limits of Works Area R44P7.2 Treatment Type E2 Bridging Layer R44P7.3 Treatment Type E4 and Cutting Type C5 - Geotextile and Geogrid | 51475 81310 185543 9035 27958 8089 13482 | m3 m3 m3 m3 m3 t m2 | \$45 \$33 \$85 \$83 \$110 \$41 \$6 | \$2,316,373 \$2,683,230 \$15,771,189 \$749,905 \$3,075,402 \$331,649 \$80,892 | 50% 50% 50% 50% 50% 50% 50% | \$1,158,187 \$1,341,615 \$7,885,595 \$374,953 \$1,537,701 \$165,825 \$40,446 | \$3,474,560 \$4,024,845 \$23,656,784 \$1,124,858 \$4,613,103 \$497,474 \$121,338 | |
| Earthworks Sub total | 1 | item | | \$25,008,640 | 50% | \$12,504,320 | \$37,512,961 | |
| R82 Lean Mix Concrete Subbase R82P1 Supply and Place Concrete in Subbase | 23299 | m3 | \$250 | \$5,824,625 | 40% | \$2,329,850 | \$8,154,475 | |
| Lean Mix Concrete Subbase Sub total | 1 | item | | \$5,824,625 | 40% | \$2,329,850 | \$8,154,475 | |
| R106 Sprayed Bituminous Surfacing R106P1.1 Seal over Subbase R106P1.1 Seal over Select | 93194 93194 | m2 m2 | \$6 \$6 | \$559,164 \$559,164 | 40% 40% | \$223,666 \$223,666 | \$782,830 \$782,830 | |
| Sprayed Bituminous Surfacing Sub total | 1 | item | | \$1,118,328 | 40% | \$447,331 | \$1,565,659 | |
| R116 Asphalt R116P1.1 14mm Dense graded Asphalt (40mm Thick) R116P1.2 20mm Dense graded Asphalt (160mm Thick) | 10803 35786 | tonnes tonnes | \$250 \$240 | \$2,700,696 \$8,588,759 | 40% 40% | \$1,080,278 \$3,435,504 | \$3,780,974 \$12,024,263 | |
| Asphalt Sub total | 1 | item | | \$11,289,455 | 40% | \$4,515,782 | \$15,805,237 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-----------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R132 Safety Barriers | | | | | | | | |
| R132P1 Removal of Safety Barriers | 300 | m | \$32 | \$9,600 | 40% | \$3,840 | \$13,440 | |
| R132P3 Construction of Post and Rail Safety Barrier Systems | 1900 | m | \$133 | \$252,700 | 40% | \$101,080 | \$353,780 | |
| R132P8.1 Construction of End Treatments (TT) | 5 | ea | \$1,418 | \$7,090 | 40% | \$2,836 | \$9,926 | |
| R132P8.1 Construction of End Treatments (MELT) | 5 | ea | \$4,725 | \$23,625 | 40% | \$9,450 | \$33,075 | |
| R132P9 Construction of Transitions | 4 | ea | \$3,000 | \$12,000 | 40% | \$4,800 | \$16,800 | |
| Safety Barriers Sub total | 1 | item | | \$305,015 | 40% | \$122,006 | \$427,021 | |
| R141 Pavement Markings | | | | | | | | |
| R141 Pavement Marking - Waterborne | 1 | item | \$71,000 | \$71,000 | 40% | \$28,400 | \$99,400 | |
| Pavement Markings Sub total | 1 | item | | \$71,000 | 40% | \$28,400 | \$99,400 | |
| R142 Raised Pavement Markers | | | | | | | | |
| R142P1 Raised Pavement Markers | 1 | item | \$6,000 | \$6,000 | 40% | \$2,400 | \$8,400 | |
| Raised Pavement Markers Sub total | 1 | item | | \$6,000 | 40% | \$2,400 | \$8,400 | |
| R143 Signposting | | | | | | | | |
| R143P1 Signposting | 1 | item | \$15,000 | \$15,000 | 40% | \$6,000 | \$21,000 | |
| Signposting Sub total | 1 | item | | \$15,000 | 40% | \$6,000 | \$21,000 | |
| R151 Street Lighting | | | | | | | | |
| R151P8 Supply and Install Street Lights on Roads | 267 | ea | \$7,500 | \$2,002,500 | 50% | \$1,001,250 | \$3,003,750 | |
| R151P9 Supply and Installation of Street Lights on Bridge | 32 | ea | \$10,000 | \$320,000 | 50% | \$160,000 | \$480,000 | |
| Street Lighting Sub total | 1 | item | | \$2,322,500 | 50% | \$1,161,250 | \$3,483,750 | |
| R173 General Concrete Paving | | | | | | | | |
| R173P1.1 General Concrete Paving - Raised Medians | 5227 | m2 | \$82 | \$428,614 | 40% | \$171,446 | \$600,060 | |
| R173P1.2 General Concrete Paving - Shared footpath/Cycleway | 10707 | m2 | \$110 | \$1,177,770 | 40% | \$471,108 | \$1,648,878 | |
| General Concrete Paving Sub total | 1 | item | | \$1,606,384 | 40% | \$642,554 | \$2,248,938 | |
| R179 Landscape Planting | | | | | | | | |
| R179P6.2 Trees and Shrubs - Individual Planting | 1 | LS | \$135,000 | \$135,000 | 40% | \$54,000 | \$189,000 | |
| R179P8 Turf Underlay | 128633 | m2 | \$9 | \$1,157,697 | 40% | \$463,079 | \$1,620,776 | |
| R179P9 Turfing for Lawn Areas along Medians and Roadsides | 128633 | m2 | \$10 | \$1,286,330 | 40% | \$514,532 | \$1,800,862 | |
| Landscape Planting Sub total | 1 | item | | \$2,579,027 | 40% | \$1,031,611 | \$3,610,638 | |
| R201 Fencing | | | | | | | | |
| R201P1 Rural Fencing - Wire | 1500 | m | \$17 | \$25,500 | 40% | \$10,200 | \$35,700 | |
| R201P13 Removal of Existing Fencing | 820 | m | \$6 | \$4,920 | 40% | \$1,968 | \$6,888 | |
| Fencing Sub total | 1 | item | | \$30,420 | 40% | \$12,168 | \$42,588 | |
| Total (Excluding Utilities) | | | | \$179,349,088 | 42% | \$74,793,260 | \$254,142,349 | |

Appendix 6 - Option 15 Strategic Cost Estimate

| | | | | | | |
|---|--|--------------|-------------------------------|---|---|---|
| Project: MR 83 Summerland Way - Additional Crossing of the Clarence River at Grafton | | | Prepared by: | | MacDonald International | |
| Option 15 - Route Options Development Report | | | | | 49 Berry Street | |
| | | | DRAFT 6 | | Nowra | |
| | | | | | Ph (02) 44230566 Fax (02) 44233228 | |
| Summary | | Date: | 19/07/12 | Estimate Type: Strategic | | |
| Project No: SC090010 | | | | | | |
| | | | | | | |
| Item | Base Estimate (excluding contingency) | % | Contingency Amount | Estimate (including contingency) | % of Total Estimate | Comments / Assumptions |
| 1. Project Development | | | | | | |
| 1 (a) Route / Concept / EIS | \$12,000,000 | 25% | \$3,000,000 | \$15,000,000 | | Lump sum allowance for all options |
| 1 (b) Project Management Services | \$360,000 | 25% | \$90,000 | \$450,000 | | 3% of Route / Concept / EIS |
| 1 (c) Sponsor | \$36,000 | 25% | \$9,000 | \$45,000 | | 10% of Project Management Services |
| 1 (d) Community Liaison | \$1,200,000 | 25% | \$300,000 | \$1,500,000 | | 10% of Route / Concept / EIS |
| Sub total | \$13,596,000 | 25% | \$3,399,000 | \$16,995,000 | 5.0% | |
| 2. Investigation and Design | | | | | | |
| 2 (a) Investigation and Design | \$4,200,000 | 40% | \$1,680,000 | \$5,880,000 | | 2-4% of Construction Cost (common cost for all options) |
| 2 (b) Project Management Services | \$126,000 | 40% | \$50,400 | \$176,400 | | 3% of Investigation and Design |
| 2 (c) Sponsor | \$12,600 | 40% | \$5,040 | \$17,640 | | 10% of Project Management Services |
| Sub total | \$4,338,600 | 40% | \$1,735,440 | \$6,074,040 | 1.8% | |
| 3. Property Acquisitions | | | | | | |
| 3 (a) Acquire Property | \$9,070,000 | 51% | \$4,660,000 | \$13,730,000 | | 7% of Acquire Property Cost |
| 3 (b) Professional Services for Property | \$634,900 | 50% | \$317,450 | \$952,350 | | 3% of Professional Services for Property |
| 3 (c) Project Management Services | \$19,047 | 50% | \$9,524 | \$28,571 | | 10% of Project Management Services |
| 3 (d) Sponsor | \$1,905 | 50% | \$952 | \$2,857 | | 10% of Project Management Services |
| Sub total | \$9,725,852 | 51% | \$4,987,926 | \$14,713,778 | 4.3% | |
| 4. Public Utility Adjustments | | | | | | |
| 4 (a) Adjust Utilities | \$1,850,000 | 50% | \$925,000 | \$2,775,000 | | |
| 4 (b) Project Management Services | \$55,500 | 40% | \$22,200 | \$77,700 | | 3% of Utility Costs |
| 4 (c) Sponsor | \$5,550 | 40% | \$2,220 | \$7,770 | | 10% of Project Management Services |
| Sub total | \$1,911,050 | 50% | \$949,420 | \$2,860,470 | 0.8% | |
| 5. Construction | | | | | | |
| 5 (a) - 5 (c) Infrastructure | \$200,863,186 | 42% | \$84,645,861 | \$285,509,047 | | |
| 5 (d) Project Management Services | \$6,025,896 | 40% | \$2,410,358 | \$8,436,254 | | 3% of Infrastructure |
| 5 (e) Sponsor | \$602,590 | 40% | \$241,036 | \$843,625 | | 10% of Project Management Services |
| 5 (f) PAI Insurance | \$1,114,923 | 40% | \$445,969 | \$1,560,892 | | 0.55% of Infrastructure + Utility Costs |
| Sub total | \$208,606,594 | 42% | \$87,743,224 | \$296,349,817 | 87.2% | |
| 6. Handover | | | | | | |
| 6 (a) Refurbish Old Route | \$0 | 40% | \$0 | \$0 | | |
| 6 (b) Project data & Completion Review | \$2,008,632 | 40% | \$803,453 | \$2,812,085 | | 1% of Construction Cost |
| 6 (c) Project Management Services | \$60,259 | 40% | \$24,104 | \$84,363 | | 3% of Project Data Costs |
| 6 (d) Sponsor | \$6,026 | 40% | \$2,410 | \$8,436 | | 10% of Project Management Services |
| Sub total | \$2,074,917 | 40% | \$829,967 | \$2,904,883 | 0.9% | |
| TOTAL | \$240,253,012 | 41% | \$99,644,976 | \$339,897,988 | 100% | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|-----------|-------------|-------------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| 4. Public Utility Adjustments | | | | | | | | |
| 4.1 Water | 1 | LS | \$100,000 | \$100,000 | 50% | \$50,000 | \$150,000 | |
| 4.2 Sewer | 1 | LS | \$150,000 | \$150,000 | 50% | \$75,000 | \$225,000 | |
| 4.3 Electricity | 1 | LS | \$500,000 | \$500,000 | 50% | \$250,000 | \$750,000 | |
| 4.4 Communications | 1 | LS | \$1,100,000 | \$1,100,000 | 50% | \$550,000 | \$1,650,000 | |
| Public Utility Adjustments Sub total | 1 | item | | \$1,850,000 | 50% | \$925,000 | \$2,775,000 | |
| 5. Construction | | | | | | | | |
| BG -Bridgeworks Generally | | | | | | | | |
| River Bridge 617m Launched box girder | 10,057 | m2 | \$5,750 | \$57,827,750 | 40% | \$23,131,100 | \$80,958,850 | |
| Viaduct 918m of 1500 deep super T over land | 14,964 | m2 | \$3,050 | \$45,640,200 | 40% | \$18,256,080 | \$63,896,280 | |
| Minor Bridge over creek near Prince St | 717 | m2 | \$4,000 | \$2,868,000 | 40% | \$1,147,200 | \$4,015,200 | |
| Minor Bridge over creek near North Street | 707 | m2 | \$4,000 | \$2,828,000 | 40% | \$1,131,200 | \$3,959,200 | |
| Minor Bridge over creek | 204 | m2 | \$4,000 | \$816,000 | 40% | \$326,400 | \$1,142,400 | |
| Minor Bridge over creek | 1,387 | m2 | \$4,000 | \$5,548,000 | 40% | \$2,219,200 | \$7,767,200 | |
| BG - Bridge Works Generally Sub total | 1 | item | | \$115,527,950 | 40% | \$46,211,180 | \$161,739,130 | |
| G1 Job Specific Re 9070000 0.513781698 | | | | | | | | |
| G1P2 Noise Mitigation to Buildings | 4,660,000 | 13730000 | | | | | | |
| G1P2 Noise Mitigation to Buildings | 1 | LS | \$1,320,000 | \$1,320,000 | 50% | \$660,000 | \$1,980,000 | |
| G1P3 Retaining Walls | 135 | m2 | \$986 | \$133,110 | 50% | \$66,555 | \$199,665 | |
| G1P4 Levee Bank Works | 1 | LS | \$850,000 | \$850,000 | 50% | \$425,000 | \$1,275,000 | |
| Job Specific Requirements Sub total | 1 | item | | \$2,303,110 | 50% | \$1,151,555 | \$3,454,665 | |
| G2 Primary Testing | | | | | | | | |
| G2P1 Primary Testing | 1 | LS | \$3,938,494 | \$3,938,494 | 40% | \$1,575,398 | \$5,513,891 | |
| Primary Testing Sub total | 1 | item | | \$3,938,494 | 40% | \$1,575,398 | \$5,513,891 | |
| G4 - Principal's Project Accommodation | | | | | | | | |
| G4P1 Establishment of Principal's Project Accommodation | 1 | LS | \$100,000 | \$100,000 | 40% | \$40,000 | \$140,000 | |
| G4P2 Maintenance of Principal's Project Accommodation | 130 | week | \$800 | \$104,000 | 40% | \$41,600 | \$145,600 | |
| G4P4 Removal of Principal's Project Accommodation | 1 | LS | \$10,000 | \$10,000 | 40% | \$4,000 | \$14,000 | |
| Principal's Project Accommodation Sub total | 1 | item | | \$214,000 | 40% | \$85,600 | \$299,600 | |
| G10 Control of Traffic | | | | | | | | |
| G10 Control of Traffic | 1 | LS | \$1,300,000 | \$1,300,000 | 40% | \$520,000 | \$1,820,000 | |
| Control of Traffic Sub total | 1 | item | | \$1,300,000 | 40% | \$520,000 | \$1,820,000 | |
| G36 Environmental Protection (Management System) | | | | | | | | |
| G36P1 Environmental Protection | 1 | LS | \$180,000 | \$180,000 | 40% | \$72,000 | \$252,000 | |
| Environmental management Sub total | 1 | item | | \$180,000 | 40% | \$72,000 | \$252,000 | |
| G38 Soil and Water Management (SWMP) | | | | | | | | |
| G38P1 Soil and Water Management | 1 | LS | \$540,000 | \$540,000 | 40% | \$216,000 | \$756,000 | |
| Soil and water management Sub total | 1 | item | | \$540,000 | 40% | \$216,000 | \$756,000 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|--|----------|-------------|-----------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| G40 Clearing and Grubbing | | | | | | | | |
| G40P1 Clearing and Grubbing | 1 | LS | \$110,000 | \$110,000 | 40% | \$44,000 | \$154,000 | |
| Clearing and Grubbing Sub total | 1 | item | | \$110,000 | 40% | \$44,000 | \$154,000 | |
| R11 Stormwater Drainage | | | | | | | | |
| R11P2(a) Excavation for Stormwater Drainage Structures - RCP | 19,606 | m3 | \$31 | \$607,787 | 40% | \$243,115 | \$850,902 | |
| R11P5.1 375mm dia RCP | 1,920 | m | \$230 | \$441,600 | 40% | \$176,640 | \$618,240 | |
| R11P5.2 450mm dia RCP | 5,594 | m | \$280 | \$1,566,320 | 40% | \$626,528 | \$2,192,848 | |
| R11P5.3 600mm dia RCP | 2,398 | m | \$382 | \$916,036 | 40% | \$366,414 | \$1,282,450 | |
| R11P7.1 Inlet Pits Type SA | 320 | ea | \$4,600 | \$1,472,000 | 40% | \$588,800 | \$2,060,800 | |
| R11P7.2 Gross Pollutant Traps | 1 | ea | \$80,000 | \$80,000 | 40% | \$32,000 | \$112,000 | |
| Stormwater drainage Sub total | 1 | item | | \$5,083,743 | 40% | \$2,033,497 | \$7,117,241 | |
| R15 Kerbs and Gutters | | | | | | | | |
| R15P1.1 Type SA | 15,984 | m | \$74 | \$1,182,816 | 40% | \$473,126 | \$1,655,942 | |
| R15P1.2 Type SF | 4,436 | m | \$38 | \$168,568 | 40% | \$67,427 | \$235,995 | |
| R15P2 Pedestrian/ Pram Ramp | 38 | ea | \$600 | \$22,800 | 40% | \$9,120 | \$31,920 | |
| R15P1.4 Vehicular Kerb Crossing | 30 | ea | \$1,800 | \$54,000 | 40% | \$21,600 | \$75,600 | |
| Kerbs and Gutters Sub total | 1 | item | | \$1,428,184 | 40% | \$571,274 | \$1,999,458 | |
| R33 Trench Drains | | | | | | | | |
| R33 Trench drain construction | 15,984 | m | \$87 | \$1,390,608 | 40% | \$556,243 | \$1,946,851 | |
| Trench Drains Sub total | 1 | item | | \$1,390,608 | 40% | \$556,243 | \$1,946,851 | |
| R44 Earthworks | | | | | | | | |
| R44P1.1 Removal And Stockpiling of Topsoil | 71,552 | m3 | \$45 | \$3,219,826 | 50% | \$1,609,913 | \$4,829,739 | |
| R44P2.1 Earthworks Excavation Cut to Fill | 91,375 | m3 | \$33 | \$3,015,375 | 50% | \$1,507,688 | \$4,523,063 | |
| R44P3 Imported or Borrowed Material | 316,753 | m3 | \$85 | \$26,924,039 | 50% | \$13,462,020 | \$40,386,059 | |
| R44P4 Unsuitable Material | 10,153 | m3 | \$83 | \$842,699 | 50% | \$421,350 | \$1,264,049 | |
| R44P5.2 Selected Material Imported | 32,581 | m3 | \$110 | \$3,583,866 | 50% | \$1,791,933 | \$5,375,799 | |
| R44P7.2 Treatment Type E2 Bridging Layer | 8,089 | t | \$41 | \$331,649 | 50% | \$165,825 | \$497,474 | |
| R44P7.3 Treatment Type E4 and Cutting Type C5 - Geotextile and Geogrid | 12,550 | m2 | \$6 | \$75,300 | 50% | \$37,650 | \$112,950 | |
| Earthworks Sub total | 1 | item | | \$37,992,754 | 50% | \$18,996,377 | \$56,989,131 | |
| R82 Lean Mix Concrete Subbase | | | | | | | | |
| R82P1 Supply and Place Concrete in Subbase | 27,151 | m3 | \$250 | \$6,787,625 | 40% | \$2,715,050 | \$9,502,675 | |
| Lean Mix Concrete Subbase Sub total | 1 | item | | \$6,787,625 | 40% | \$2,715,050 | \$9,502,675 | |
| R106 Sprayed Bituminous Surfacing | | | | | | | | |
| R106P1.1 Seal over Subbase | 108,602 | m2 | \$6 | \$651,612 | 40% | \$260,645 | \$912,257 | |
| R106P1.1 Seal over Select | 108,602 | m2 | \$6 | \$651,612 | 40% | \$260,645 | \$912,257 | |
| Sprayed Bituminous Surfacing Sub total | 1 | item | | \$1,303,224 | 40% | \$521,290 | \$1,824,514 | |
| R116 Asphalt | | | | | | | | |
| R116P1.1 14mm Dense graded Asphalt (40mm Thick) | 12,294 | tonnes | \$250 | \$3,073,560 | 40% | \$1,229,424 | \$4,302,984 | |
| R116P1.2 20mm Dense graded Asphalt (160mm Thick) | 41,703 | tonnes | \$240 | \$10,008,760 | 40% | \$4,003,504 | \$14,012,264 | |
| Asphalt Sub total | 1 | item | | \$13,082,320 | 40% | \$5,232,928 | \$18,315,248 | |

| Item | Quantity | Unit | Rate | Estimate (excluding contingency) | Contingency | | Estimate (including contingency) | Comments |
|---|----------|-------------|-----------|--|-------------|---------------------|-------------------------------------|----------|
| | | | | | % | Amount | | |
| R132 Safety Barriers | | | | | | | | |
| R132P1 Removal of Safety Barriers | 300 | m | \$32 | \$9,600 | 40% | \$3,840 | \$13,440 | |
| R132P3 Construction of Post and Rail Safety Barrier Systems | 2,195 | m | \$133 | \$291,935 | 40% | \$116,774 | \$408,709 | |
| R132P8.1 Construction of End Treatments (TT) | 4 | ea | \$1,418 | \$5,672 | 40% | \$2,269 | \$7,941 | |
| R132P8.1 Construction of End Treatments (MELT) | 4 | ea | \$4,725 | \$18,900 | 40% | \$7,560 | \$26,460 | |
| R132P9 Construction of Transitions | 4 | ea | \$3,000 | \$12,000 | 40% | \$4,800 | \$16,800 | |
| Safety Barriers Sub total | 1 | item | | \$338,107 | 40% | \$135,243 | \$473,350 | |
| R141 Pavement Markings | | | | | | | | |
| R141 Pavement Marking - Waterborne | 1 | item | \$64,000 | \$64,000 | 40% | \$25,600 | \$89,600 | |
| Pavement Markings Sub total | 1 | item | | \$64,000 | 40% | \$25,600 | \$89,600 | |
| R142 Raised Pavement Markers | | | | | | | | |
| R142P1 Raised Pavement Markers | 1 | item | \$6,000 | \$6,000 | 40% | \$2,400 | \$8,400 | |
| Raised Pavement Markers Sub total | 1 | item | | \$6,000 | 40% | \$2,400 | \$8,400 | |
| R143 Signposting | | | | | | | | |
| R143P1 Signposting | 1 | item | \$15,000 | \$15,000 | 40% | \$6,000 | \$21,000 | |
| Signposting Sub total | 1 | item | | \$15,000 | 40% | \$6,000 | \$21,000 | |
| R151 Street Lighting | | | | | | | | |
| R151P8 Supply and Install Street Lights on Roads | 320 | ea | \$7,500 | \$2,400,000 | 50% | \$1,200,000 | \$3,600,000 | |
| R151P9 Supply and Installation of Street Lights on Bridge | 31 | ea | \$10,000 | \$310,000 | 50% | \$155,000 | \$465,000 | |
| Street Lighting Sub total | 1 | item | | \$2,710,000 | 50% | \$1,355,000 | \$4,065,000 | |
| R173 General Concrete Paving | | | | | | | | |
| R173P1.1 General Concrete Paving - Raised Medians | 5,677 | m2 | \$82 | \$465,514 | 40% | \$186,206 | \$651,720 | |
| R173P1.2 General Concrete Paving - Shared footpath/Cycleway | 12,852 | m2 | \$110 | \$1,413,720 | 40% | \$565,488 | \$1,979,208 | |
| General Concrete Paving Sub total | 1 | item | | \$1,879,234 | 40% | \$751,694 | \$2,630,928 | |
| R179 Landscape Planting | | | | | | | | |
| R179P6.2 Trees and Shrubs - Individual Planting | 1 | LS | \$250,000 | \$250,000 | 40% | \$100,000 | \$350,000 | |
| R179P8 Turf Underlay | 225,654 | m2 | \$9 | \$2,030,883 | 40% | \$812,353 | \$2,843,236 | |
| R179P9 Turfing for Lawn Areas along Medians and Roadsides | 225,654 | m2 | \$10 | \$2,256,536 | 40% | \$902,615 | \$3,159,151 | |
| Landscape Planting Sub total | 1 | item | | \$4,537,419 | 40% | \$1,814,968 | \$6,352,387 | |
| R201 Fencing | | | | | | | | |
| R201P1 Rural Fencing - Wire | 6,881 | m | \$17 | \$116,977 | 40% | \$46,791 | \$163,768 | |
| R201P13 Removal of Existing Fencing | 2,406 | m | \$6 | \$14,436 | 40% | \$5,774 | \$20,210 | |
| Fencing Sub total | 1 | item | | \$131,413 | 40% | \$52,565 | \$183,978 | |
| Total (Excluding Utilities) | | | | \$200,863,186 | 42% | \$84,645,861 | \$285,509,047 | |

Appendix 7 – Indicative Stage 1 Costs

OPTION E

| No. | Section | Stage 1 Estimate (including contingency) (\$Millions) | Full Estimate including Stage 1 (including contingency) (\$Millions) |
|----------|---|---|--|
| 1 | Project Development | \$6 | \$17 |
| 2 | Investigation and Design | \$5 | \$6 |
| 3 | Property Acquisitions | \$14 | \$32 |
| 4 | Public Utility Adjustments | \$1 | \$3 |
| 5 | Construction | | |
| 5.1 | Roadworks | \$19 | \$55 |
| 5.2 | Bridge over Clarence River | \$89 | \$89 |
| 5.3 | Viaducts | \$6 | \$6 |
| 5.4 | Overpass (above existing roads / creek) | \$0 | \$0 |
| 5.5 | Flood Mitigation (Raising Levees) | \$1 | \$1 |
| 5.6 | Project Management and Insurance | \$4 | \$6 |
| | Sub total | \$119 | \$156 |
| 6 | Handover | \$1 | \$2 |
| | TOTAL | \$146 | \$215 |

OPTION A

| No. | Section | Stage 1 Estimate (including contingency) (\$Millions) | Full Estimate including Stage 1 (including contingency) (\$Millions) |
|------------|---|--|---|
| 1 | Project Development | \$5 | \$17 |
| 2 | Investigation and Design | \$5 | \$6 |
| 3 | Property Acquisitions | \$30 | \$53 |
| 4 | Public Utility Adjustments | \$1 | \$3 |
| 5 | Construction | | |
| 5.1 | Roadworks | \$23 | \$63 |
| 5.2 | Bridge over Clarence River | \$69 | \$69 |
| 5.3 | Viaducts | \$11 | \$11 |
| 5.4 | Overpass (above existing roads / creek) | \$0 | \$0 |
| 5.5 | Flood Mitigation (Raising Levees) | \$1 | \$1 |
| 5.6 | Project Management and Insurance | \$4 | \$6 |
| | Sub total | \$107 | \$150 |
| 6 | Handover | \$1 | \$1 |
| | TOTAL | \$149 | \$231 |

OPTION C

| No. | Section | Stage 1 Estimate (including contingency) (\$Millions) | Full Estimate including Stage 1 (including contingency) (\$Millions) |
|------------|---|--|---|
| 1 | Project Development | \$6 | \$17 |
| 2 | Investigation and Design | \$5 | \$6 |
| 3 | Property Acquisitions | \$34 | \$42 |
| 4 | Public Utility Adjustments | \$3 | \$5 |
| 5 | Construction | | |
| 5.1 | Roadworks | \$52 | \$78 |
| 5.2 | Bridge over Clarence River | \$66 | \$66 |
| 5.3 | Viaducts | \$9 | \$9 |
| 5.4 | Overpass (above existing roads / creek) | \$0 | \$0 |
| 5.5 | Flood Mitigation (Raising Levees) | \$1 | \$1 |
| 5.6 | Project Management and Insurance | \$5 | \$6 |
| | Sub total | \$132 | \$160 |
| 6 | Handover | \$1 | \$2 |
| | TOTAL | \$182 | \$231 |

OPTION 11

| No. | Section | Stage 1 Estimate (including contingency) (\$Millions) | Full Estimate including Stage 1 (including contingency) (\$Millions) |
|------------|---|--|---|
| 1 | Project Development | \$6 | \$17 |
| 2 | Investigation and Design | \$5 | \$6 |
| 3 | Property Acquisitions | \$20 | \$25 |
| 4 | Public Utility Adjustments | \$1 | \$1 |
| 5 | Construction | | |
| 5.1 | Roadworks | \$42 | \$67 |
| 5.2 | Bridge over Clarence River | \$53 | \$53 |
| 5.3 | Viaducts | \$33 | \$33 |
| 5.4 | Overpass (above existing roads / creek) | \$0 | \$0 |
| 5.5 | Flood Mitigation (Raising Levees) | \$2 | \$2 |
| 5.6 | Project Management and Insurance | \$5 | \$6 |
| | Sub total | \$134 | \$160 |
| 6 | Handover | \$1 | \$2 |
| | TOTAL | \$167 | \$210 |

OPTION 14

| No. | Section | Stage 1 Estimate (including contingency) (\$Millions) | Full Estimate including Stage 1 (including contingency) (\$Millions) |
|----------|---|---|--|
| 1 | Project Development | \$11 | \$17 |
| 2 | Investigation and Design | \$5 | \$6 |
| 3 | Property Acquisitions | \$5 | \$11 |
| 4 | Public Utility Adjustments | \$2 | \$3 |
| 5 | Construction | | |
| 5.1 | Roadworks | \$67 | \$94 |
| 5.2 | Bridge over Clarence River | \$81 | \$81 |
| 5.3 | Viaducts | \$64 | \$64 |
| 5.4 | Overpass (above existing roads / creek) | \$14 | \$14 |
| 5.5 | Flood Mitigation (Raising Levees) | \$1 | \$1 |
| 5.6 | Project Management and Insurance | \$9 | \$10 |
| | Sub total | \$236 | \$264 |
| 6 | Handover | \$2 | \$3 |
| | TOTAL | \$262 | \$304 |

OPTION 15

| No. | Section | Stage 1 Estimate (including contingency) (\$Millions) | Full Estimate including Stage 1 (including contingency) (\$Millions) |
|------------|---|--|---|
| 1 | Project Development | \$11 | \$17 |
| 2 | Investigation and Design | \$5 | \$6 |
| 3 | Property Acquisitions | \$5 | \$15 |
| 4 | Public Utility Adjustments | \$2 | \$3 |
| 5 | Construction | | |
| 5.1 | Roadworks | \$67 | \$122 |
| 5.2 | Bridge over Clarence River | \$81 | \$81 |
| 5.3 | Viaducts | \$64 | \$64 |
| 5.4 | Overpass (above existing roads / creek) | \$14 | \$17 |
| 5.5 | Flood Mitigation (Raising Levees) | \$1 | \$1 |
| 5.6 | Project Management and Insurance | \$9 | \$11 |
| | Sub total | \$236 | \$296 |
| 6 | Handover | \$2 | \$3 |
| | TOTAL | \$262 | \$340 |

Appendix 8 - Supplied Information

- Route Option Plans – aerial photograph with concept overlay for each option including proposed bridge longitudinal section schematics.
Revision - final
- Structural Drawings – General bridge arrangement plans;
- Concept Utility Plans for each option;
- Essential Energy Proposed 11Kv Cable Installation Plan;
- Earthworks Quantities;
- Route Options Development Report - Technical Paper: Geotechnical Assessment for Route Options, and
- Route Options Development Report - Technical Paper: Flooding.