

SUMMARY OF THE QUESTIONS AND COMMENTS ABOUT THE INVESTIGATIONS INTO THE SOUTHERN ROUTE OPTION MADE BY THE SOUTHERN ROUTE PROPONENTS AT THE 3 JULY 2012 MEETING WITH THE PROJECT TEAM.

This table has been developed and then updated (as of 17 July 2012) as a summary of the questions and comments about the investigations into the southern route option made by the proponents of that route.

This table was initially developed for the 3 July 2012 meeting as a guide to the discussions held between the review team experts and the proponents. This table has been updated to provide more detail in a clearer format for most of the issues and questions raised by the proponents.

On 3 July 2012, additional information was provided to the proponents (and published on the website 10 July 2012) and is reflected in this table.

Concern	Southern Route Proponent Position	RMS Position	Action identified to close gap (from meeting of July 3 between project team and Stuart Coughlan and Bruce Ramsay)
Property acquisition details	List the number of properties along the northern route, each with an acquisition value next to it.	<p>Under the privacy legislation RMS is not free to give out Lot and DP numbers of properties or names of property owners. The cost estimates of individual property acquisition purchases and sales are commercially sensitive and necessarily confidential.</p> <p>The no. of properties included in each cost category for each route was provided to SC at Project Office on 29/06/12. The policy and underlying rationale was also explained at this meeting.</p> <p>Additional comment (16.07.12): Although a list of property owners with LOT & DP numbers cannot be released, on review a simple list of property Lot & DP numbers without reference to owners can be provided.</p>	<p>The figures don't make sense if they are being looked at holistically according to the number of hectares in the subject area.</p> <p>Additional action: RMS will develop a narrative to explain how the sums are reached, without divulging the Lot and DP numbers (see below – added 120712)</p>
	<p>Additional clarification around specific questions provided 060712:</p> <p>Table on Page 98 - numbers don't make sense and are biased against the Southern option</p> <p>For the Southern route, 22 properties would be sold at an average price of \$470k. For the Northern route 4</p>	<p>The property calculations include:</p> <ul style="list-style-type: none"> • properties that have been purchased and are required; • properties that have been purchased and would require resale in part or in the whole (depending on which route is selected); and • properties that would need to be purchased. <p>Properties impacted by the proposed</p>	<p>As noted above and at the meeting, individual property details cannot be provided.</p> <p>Additional action: Nil</p>

	<p>properties would be sold at an average price of \$800k</p> <p>For the Southern route, 29 properties would be bought at an average price of \$413k. For the Northern route 32 properties would be bought at an average price of \$230k</p> <p>Are all of the 9 properties already purchased that would not be sold for the Southern route situated in the common area before the routes split? There only appears to be four or five properties in this area? There appears to be nothing like 29 properties in the area designated for the Southern route - how is this number derived?</p>	<p>road boundaries for both routes were identified and then assessed to determine whether a partial acquisition was appropriate or a total purchase was required.</p> <p>Each acquisition was then valued by property valuation experts on a case by case basis taking into account the area required, current use, zoning and future use, the current market and the market conditions expected at the time of future sales.</p> <p>Tables were then drawn up showing;</p> <ul style="list-style-type: none"> • current purchases, which are identical for both routes as they are unavoidable (or sunk) project costs at this point in time • purchases required for each route, and • re-sales of residues for each route including, for the southern route, whole properties purchased under the RMS Preferred Option Policy (covering hardship) which would not be required for the southern route. <p>Note that property valuation is not based on an average cost per Ha, and the affected properties extend beyond the nominal footprint of the alignment.</p>	
	<p>Property purchases to date should not be held as a sunk cost against the southern route</p>	<p>The estimate for the southern suggestion includes a credit for the resale of properties already purchased for the northern preferred route. The estimate for each route includes all property acquisition costs incurred to date.</p> <p>The property equation includes total costs (acquisitions and disposals) on both alignments.</p> <p>The contingency applied to property acquisition costs has been determined in consultation with the independent reviewer.</p> <p>The details of the methodology used for</p>	<p>Note that the sunk costs are included in the overall costings but that there is a credit for the resale of properties.</p> <p>Additional action: nil</p>

		<p>determining property costs are included in the TIG report. The IR advised the inclusion of sunk costs for both routes was appropriate for a like for like comparison.</p> <p>This is standard practice across all RMS and government projects and this approach facilitated an 'apples v. apples' analysis.</p>	
	<p>Additional clarification sought (16.0712):</p> <ul style="list-style-type: none"> • Why has the information requested suddenly become subject to privacy legislation when it was freely available from RMS for the preceding twelve months? • What is the precise reference under privacy legislation that prevents RMS providing the information? • The list of properties distributed last year shows that 37 properties had been purchased. More have been purchased since then. Why does the report only show that 31 properties have been purchased to date? 	<p>The issue is around commercial sensitivity rather than privacy legislation specifically. Individual valuations cannot be disclosed, but RMS can give Lot & DP numbers. The net number of properties acquired after allowance for re-sale of residual properties is 59 and 38 for northern and southern routes respectively.</p>	<p>Additional action: (170712)</p> <p>RMS preparing a response using Lot and DP numbers</p>
	<p>Additional clarification sought (15.0712): Explanation of where the 29 properties are that are required to be purchased for the Southern route.</p>		<p>Additional action: (170712)</p> <p>RMS preparing a response based on Lot and DP numbers</p>
Availability of surplus fill	<p>In Aug 2011 RMS advised surplus fill available from Toolijooa and southern embankment was conceived to take advantage of this material. Now a 600,000 m3 deficit to be imported at cost. Need to break out the quantities and costs for the bypass section (Chainage 14500 to 20600 for North & South) only and remove the common costs for the route from Toolijooa to Berry</p>	<p>There is no excess material from the Toolijooa cut. The volume of material to be won/removed from the Toolijooa Cut is required in the adjacent fills/embankments. If this material won/removed from the cut was instead used for the Southern bypass alignment, then material would need to be imported for use in the fills/embankments in the northern section of the project adjacent to the</p>	<p>The fill situation changed as the design of the southern option developed through the process. RMS acknowledges that this was not properly communicated to the community generally nor Bruce Ramsay individually. There was no malice intended in this.</p> <p>There is a disagreement on the scope of the southern alignment. It should be noted that the details of the</p>

		<p>Toolijooa cut.</p> <p>Additional design development work has been completed to optimise the earthworks to achieve a balanced outcome and to achieve the best cost outcome. The cost to import fill for the southern alignment has been largely replaced by additional material won on site.</p> <p>Areas considered were:</p> <ol style="list-style-type: none"> 1. Reduction of embankment fill material by steepening batter slopes and by lowering vertical alignment 2. Increase of material production by flattening batters and widening cutting slopes 3. Examining localised adjustments to the vertical alignment to generate fill 	<p>scope of the review, as defined by the Minister, were published on the website in February.</p> <p>BR has limited his calculations to the limited scope (as had been previously done for the Northern alignment in 2011) but as the design developed it was clear that the routes needed to be considered holistically to ensure that there was like for like comparison. The TIG was tasked with preparing a comparative cost estimate within the context of the whole Foxground to Berry upgrade. This approach was endorsed by the independent reviewer.</p> <p>There is agreement that there needs to be a balanced cut and fill approach but the delivery of this is different in the BR and RMS designs because of the different approach to the scope.</p> <p>Additional action: (see meeting request below)</p>
Island embankment	The TIG has underestimated cost savings of this item	Further details have been provided to show the reasons for difference between TIG cost estimates and BR's cost estimates. TIG has priced a conforming design with inclusion of all costs to replace the viaduct including pavements, drainage, bridge abutments, temporary access, and other costs to complete the embankment.	Additional action: Nil
	There is a figure of \$2.2million for 'Island embankment'. Where is the supporting analysis for this figure which Bruce projected to be \$33million saving? No need to use separate piles.	<p>An island embankment has been assessed as a provisional item for the southern suggestion. A detailed cost breakdown was provided to SC on 29/6/12.</p> <p>The projected cost saving by BR does not support a conforming design allowing for all site constraints, nor does it adequately include for the full cost of earthworks, pavements, bridge abutments, temporary access and other</p>	<p>RMS policy is to use separate piled abutments on bridges (not sill beams). This has been policy for some 10 years.</p> <p>Additional action: Nil</p>

		costs to complete the embankment.	
Vertical alignment for balanced earthworks	Why did the TIG include a balanced earthworks for southern option into the costs	A balanced earthworks outcome was the most cost effective solution, to avoid the high cost of importing large volumes of fill material.	There is agreement that there needs to be a balanced cut and fill approach. Additional action: Nil
	Need to understand alignment issues and what was taken from Bruce Ramsay's design changes and incorporated into the costings.	BR design changes incorporated: <ul style="list-style-type: none"> • Lower vertical alignment and reversed intersection arrangement at southern interchange (Adjustment Sum) • Realignment at Northern Interchange (Adjustment Sum) • Alignment deviation south of STP (Adjustment Sum) • Island embankment 350m length (Adjustment Sum) 	Additional action: Nil
	There is a figure of \$22million for 'Changes to vertical alignment to generate extra fill'. Where is the supporting analysis for this figure?	A detailed cost breakdown was provided to SC on 29/6/12.	Additional action: Nil
Local Roads	Need a breakdown of costing analysis for local roads presented in a similar format to the Evans & Peck report in February 2012. That is, road, area, rate, cost.	A detailed cost breakdown was provided to SC on 29/6/12.	Additional action: Nil
	Why are the areas for Austral park Rd and Tindalls Lane higher for the Southern route	Southern Route quantities are from design model adjusted for balanced earthworks, with changes to cut profile at these locations impacting local roadwork scope by approx 10%.	Additional action: Nil
	Why has the rate reduced from \$150 to \$80	The rate was previously based on full depth pavement similar to main carriageway, subsequently reduced in line with more appropriate pavement design on local roads. This is the correct number.	Additional action: Nil
	Why Croziers Rd, Mullers Lane, Andersons Lane and Hitchcocks Lane are missing	These minor local road intersections were not separately itemised in the design model quantity output.	Additional action: Nil
The length of the Berry bridge (northern option)	It is incorrect, it should be longer	AECOM confirmed that flooding impacts at the western abutment of the northern bridge are acceptable for the current design. The concept design was further examined by the TIG and has been accepted by the Independent Reviewer.	Additional action - Nil

Level of information provided on the web	The information most critical to the decision making process does not appear anywhere in the mass of data and reports on the RMS website	The cost information is provided in summary format in the Executive Summary of the Report, and in more detail in Section 7 of the report. The provisional items are described in detail in Section 4.4 of the Report, and costs provided in Section 7.3.2 of the Report. Further cost breakdown for the base estimate is provided in Appendix H of the Report. Detailed costs for the base estimate direct costs are provided as supplementary financial information on the RMS website. The southern route design development is outlined in Section 4 of the report and the investigation of flooding and geotechnical impacts on the design are detailed in Section 5. Additional cost details for local roads, Berry Bridge, Adjustment Sums (2) and imported fill were provided on request on 29/6/12.	Additional action: RMS accept that there is a great deal of technical information and, in an effort to make this more comprehensible, this gaps table will go onto the web once completed together with all additional information provided to SC and BR since the announcement of the decision.
Access to engineers	More access required to help better understand the impacts of the different approaches to costings on the Southern option presented	Meeting with design team held at Project office on 29/6/12 and a further two meetings have been held.	BR's design was evaluated and AECOM's design model re-engineered to capture benefits and achieve improved design and cost outcomes. For example, additional fill costs in the revised BR design were mitigated. Additional action: Nil
The detail of the construction program	Need to see the drawings used to derive the quantities	Drawings and assumptions from road geometry review were presented at the meeting of 3 July by RMS road design engineer. He advised that Bruce's drawings had 100m intervals between cross sections, which are too far apart (even for a concept estimate) to determine accurate quantities and that when a more suitable model was created using Bruce's raw data, many of the references were incorrect which led to (large) discrepancies re cost.	Additional action: BR has requested an additional meeting with the cost estimator and design engineer to get a more detailed understanding of specific elements of the concept design that were rejected. This request has been recorded and will be considered in the context of further requests for 'big ticket' information from BR and SC
Contingency amounts	The figures quoted for the cost comparisons are distorted by the	The uplift multiplier on direct costs for each of the estimates to determine the	The estimate has been prepared according to RMS guidelines, property

	<p>inclusion of massive mark-up and contingency amounts which are biased against the Southern route. They amount to 139% for the Northern route and 151% for the Southern route.</p> <p>Additional comment (6/7/12): The uplift multiplier amounts are incorrect as property acquisition costs should have been added to the base. The correct amounts are 2.235 and 2.37.</p>	<p>Project Cost is: Northern 2.46 Southern 2.52 (exclusive of Adjustment Sums and Provisional Items) There is no distortion; the same uplift multiplier on direct cost is applied to the Provisional Items and Adjustment Sums, i.e. 2.46 for Northern and 2.52 for Southern. The cost estimates have been prepared in accordance with RMS estimating guidelines for strategic estimates.</p>	<p>acquisition costs are client costs and do not form part of direct costs. Additional action: Nil</p>
	<p>Only direct costs are relevant. Using the RMS Direct Costs (including the Provisional Items) the overall difference in Total Direct Costs is only \$29million or 11%.</p>	<p>Inclusion of client costs, design costs, contractor's indirect cost, margin, and contingency in the project cost estimate, in addition to direct costs, is standard estimating practice in preparing infrastructure project estimates. The format adopted to report the estimate is in accordance with RMS estimating guidelines and consistent with estimating practices across industry. It is both appropriate and necessary to compare strategic cost estimates inclusive of all costs & risk allowance.</p>	<p>Additional action: Nil</p>
	<p>Additional comment (6/7/12): A figure of \$49million has been quoted. How is this derived?</p>	<p>When comparing direct costs in the estimate including Adjustment Sums (direct cost component) and Provisional Items (direct cost component) and property acquisition, the difference in costs is \$49million (or 19%), not \$29million.</p> <p>With contingency and all relevant mark-ups included (applying the 2.46 multiplier) the minimum cost difference is \$120million.</p>	<p>Additional information sent 9.7.12 Additional action: Nil</p>
Provisional sums	<p>The comparison is further distorted by the exclusion of \$18million of Provisional Items from the Northern route total.</p>	<p>The four provisional items for the northern route generate provisional sums totaling \$20.7M. These Provisional Item costs have been provided to assist in deciding whether any one or all of them should be</p>	<p>Additional clarifications provided 100712 and 120712: Adjustments to Kangaroo Valley Road interchange, split ramps' at \$15.8M and 'Adjustments to Kangaroo Valley Road interchange, Northbound offload under</p>

		<p>included as part of the northern bypass route. Unless they are included their costs are not added to the total cost for this route.</p> <p>The Independent Reviewer recommended items not directly impacting the feasibility of a route should remain listed as provisional items. Currently only the KVR Interchange extended ramp is included in the northern route estimate. The alternative split ramps at KVR interchange are excluded by the extended ramp option. The Pedestrian Bridge & land for future 2nd ramp at Woodhill Mountain Rd are not directly impacting feasibility and unlikely to proceed.</p>	<p>Kangaroo Valley Road' at \$5.2M are alternative treatments of the same interchange and as such are mutually exclusive. Both items were included in the maximum value of provisional items for the northern route. This is a double counting and the maximum value was amended by excluding the value of the lower cost item, reducing the maximum value from \$25.9M to \$20.7M.</p> <p>Additional action: Nil</p>
	<p>Additional comment (6/7/12): What is the analysis supporting the 'Reroute alignment south of STP' +\$9.6million.</p>	<p>Additional advice provided (9/7/12): The direct cost total amount of \$3.8m needs to be multiplied by a factor of 2.52 to achieve the \$9.6m 'Sell Rate' of the TIG report.</p>	<p>Additional action: Nil</p>
Adjustment Sums	<p>Additional question 060712: What were the amendments to the Adjustment Sums and the Provisional Items?</p>	<p>Additional clarifications provided</p> <p>100712: the table that shows the base cost and has explained that a multiplier is then applied to cover contractor costs, client cost and contingency provided)</p> <p>120712: No amendments were made to the valuation of any particular adjustment or provisional sum, the amendments were to do with the double counting of adjustment and provisional sums.</p> <p>For adjustment sums 'Realignment of northern interchange' at \$2.3M and 'Adjustment to southern interchange' at \$15.1M were both about reducing the earthworks deficit. 'Changes to vertical alignment to generate extra fill material' at \$55.1M provided a balanced earthworks for the entire southern route and included the costs of the first two items.</p> <p>Initially the cost of the first two items was added to the cost of all the other</p>	

		adjustment sums. This was a double counting of their costs and so the total value of the adjustment items was reduced from \$68.6M to \$51.2M.	
Response to BR's rebuttal of TIG's assertions around the proposal being non compliant	The curve at the northeast approach between CH15000 to CH 16000 is a constant radius curve of 600m radius (conforming to RMS requirements for a minimum radius curve) - it is not a compound curve as indicated by the RMS.	Drawings provided by Bruce Ramsay appear to be a compound curve but geometric details have not been provided. Due to the tight time frame to complete the concept drawings, minimum 600m curves are currently used for the northern option, however provision is made for minimum 750m radius curves to be adopted in detail design. There is no cost impact.	Computer model generated alignment document provided to BR. Additional action: Nil
	The TIG changed the original concept design alignment at the second crossing point of the railway. BR revised concept design was changed to blend in with this alignment; as such a very small compound curve was the result. However the RMS should have re-engineered this to meet with their requirement. As previously stated by the RMS, they will use their best engineering endeavours to ensure conformity with their design standards. The cost of making this adjustment to the horizontal alignment is not significant, as it does not result in an increase of the alignment length. A compound curve exists on the Northern Option and is incorporated within the Berry Bridge, spanning over Woodhill Mountain Road.	There are no compound curves used on the northern option. The BR alignment was retained to be consistent with the quantities that were provided.	Additional action: Provide reference to the "AUSTRROAD GUIDE TO ROAD DESIGN" addressing compound curves. Put on website
	The proposed alignment runs externally along the southern boundary of the sewerage treatment plant. It does not affect the operation of the plant in any way. As previously mentioned the design provides for future flood protection to the plant.	Assumption was made that the sewerage plant included the pond and the alignment was close to the plant. No cadastral boundary was shown around this section which has tight constraints. The batter Interface presented on the plan encroaches on the sewerage infrastructure (assuming the pink shading represents the road	Additional action: BR has requested an additional meeting with the cost estimator and design engineer to get a more detailed understanding of specific elements of the design that were rejected.

		<p>footprint). State Highway standard roads require clearance of 10m to 15m from batter interface to the proposed boundary. This allows provision of drainage, access for maintenance, landscaping, services, future widening, etc This 180m deviation of the southern alignment adds \$9.6 million to the cost of the southern route (Table 2 exec summary TIG report)</p>	
	<p>The TIG have stated that the "bridge crossing would likely require supports within the creeks riparian area", The second viaduct would require bridge supports within the riparian area of Broughton Mill Creek. This is normal practice for any bridge crossing a creek or river. It is also the case for the Berry Bridge on the Northern Option where it crosses Broughton Mill Creek & Bundawallah Creek.</p>	<p>This statement was intended to highlight one of the differences between southern alignments and point out that a more extensive level of environmental consideration will need to be undertaken due to the close proximity of Mr Ramsay's alignment to the riparian area than the current TIG alignment.</p>	<p>Additional action: Nil</p>
	<p>The proposed alignment runs longitudinally in the region of Broughton Mill Creek. The proximity varies from about 300m to within 10m at the armoured reinforced earth southern abutment. The armoured abutment is founded at RL 4.0-5.0m which is above the creek bank (riparian area.)</p>	<p>The TIG refers to "Broughton Creek" between station 15700 and 15850. BR refers to "Broughton Mill Creek" between station 17000 and 17250. This statement was intended to highlight another of the differences between southern alignments and point out that a more extensive level of environmental consideration would need to be undertaken due to the close proximity of the BR alignment to the riparian area than the current TIG alignment.</p>	<p>Additional action: Nil</p>
	<p>The revised concept design is based on the RMS criteria as laid down for the Northern Option and subsequent information as presented by RMS & AECOM. If this concept design does not conform to RMS standards then the Northern Option design will not conform either, as the criteria for both</p>	<p>The Northern Alignment does comply with RMS vertical alignment design standards. No vertical alignment was provided in the folder that was submitted by Mr Ramsay on 30/04/2012. RMS attempted to replicate the vertical alignment based on cross sections</p>	<p>Additional action: Nil</p>

	<p>is the same. As this is a concept design only the level of detail provided does not allow the TIG to come to this conclusion.</p>	<p>provided.</p>	
	<p>The clearance provided is 6.5m as required by Railcorp & the RMS. The concept design documents that were presented to Steve Z. on the 28th March clearly show this. Refer to the longitudinal profile of the bridge and the alignment as presented to Steve Z, (in colour). This same document was also displayed at the public information meeting at the Berry Courthouse on the 8th March 2012.</p>	<p>Levels from the cross sections provided on the 30/04/2012 show a clearance of only 4.3m to railway line. RMS attempted to replicate the vertical alignment based on the cross sections provided. Any attempt to rectify this vertical alignment would have impacted on the quantities and estimates provided by Mr Ramsay.</p>	<p>Computer model generated alignment document provided to BR. Additional action: Nil</p>
	<p>From the information provided to both the RMS & The Independent Review Engineers on the 30th April 2012 - full cross-sections at 100m intervals (approximately 60no.) clearly show a minimum carriageway width of 28.0m which is as per the Northern Option. This width provides for 6 lanes (3 in each direction). BR strategic estimate provides earthworks quantities for both cut & fill for a full 6 lane freeway</p>	<p>A cross section of 28.0m does not comply with the requirement for 6 lanes. The 28.0m shown on the Northern option only caters for 4 lanes. The 28m cross section consists of a 5.0m median, 4 lanes at 3.5m (14.0m), 2 shoulders at 3.0m (6.0m) and 2 verges at 1.5m (3.0m) - a total of 28.0m. This is clearly shown on the typical cross section sheet. Where soft soils are encountered the full width (6 lanes) will be constructed in the current works to prevent future differential settlement and longitudinal cracking in travel lanes.</p>	<p>See above</p>
<p>Additional questions from BR and SC in emails week of 10 July 12</p>			
<p>Environmental costs</p>	<p>Why is Urban Design & Landscaping more for the Southern Proposal when it crosses cow paddocks versus the Northern Option which cuts through urban areas, especially where the Northern Option will require the removal of over 120 no. mature trees (150 years old plus), whereas the Southern Proposal cuts through an environment already degraded by the</p>	<p>Landscaping costs represent approx 3% of total direct costs and are based on m2 area of the alignment footprint to be revegetated. Costs include m2 of batters and medians (derived from the design model) to be topsoiled and maintained for 12 months, with the southern route slightly more than the northern route due to additional height and width of embankments across the floodplain.</p>	<p>Additional action: Nil</p>

	practice of 150 years of farming, with the removal of only approx. 20 mature trees.	Uniform rates have been applied over the full project length for both routes. Landscaping treatment adjacent to North St and Huntingdale Park Road is included separately as planted noise mounds for the northern route. Allowance for removal of 30 mature trees (southern) has been included in the earthworks cost. Allowance for removal of 120 mature trees (northern) was omitted, should be 120@ \$3k = \$360k additional cost.	
	Why are public utilities & environmental costs higher for the Southern Proposal?	Water - allowance included for additional encasement of existing water main at Southern Interchange. Telecomms - adjustment/protection of Telstra FOC allowed 1 no. at KV Rd (northern) and 4 no. sites (southern).	Additional action: Nil
	The earthworks quantities as detailed in the Evans & Peck estimate appear to be grossly in error.	Refer to Item 17 of the meeting notes.	Additional action - Nil
	BR would like to make comparisons of the 2 Bypass Proposals (Chainage 14500 to Chainage 20400) as per the original comparison that the RMS were to carry out.	As noted in the meeting notes – Item 18, “MM stated this would be going backwards and there was no purpose to doing that.”	Additional action - Nil
	BR proposes that he sit down with Glen Smith & their CAD Draughtsman to finalise the horizontal & vertical alignment plus resulting quantities. He proposes propose 1 to 2 days in AECOM's design office.	Refer to Items 23 and 24 of the meeting notes.	Additional action – another two hour meeting at Wollongong RMS office can be arranged once ‘big ticket’ questions are received from SC and BT.