

Date: 22 February 2012
To: Roads and Maritime Services
From: Bruce Ramsay
Re: Submission of 12 December 2011

My submission represented preliminary work and investigations into a southern Berry route.

To clarify the costings provided: I estimated the potential saving in Direct Costs to be up to \$23million. However, if contractor costs and full contingency amounts are included, the potential savings could be up to \$50million.

The costings are preliminary, without the design and structural investigations that are required as a next step. I felt the initial costings were potentially commercially sensitive. However in the interest of transparency, note they are now attached.

Bruce Ramsay.

NSW Government - Transport.
Roads & Marine Services.
Berry Office.
Berry NSW.
12th December 2011.

Attention: The Project Director. (Mr. S. Zhivanovich).

Dear Steve,

**Re - RMS Public Meeting, 6th December 2011.
Foxground and Berry bypass alignment.
Community Response.**

Please refer to the attached document for inclusion in the above Community Response.

This submission has been presented due to the large amount of Community dissatisfaction with the preferred Northern Option. This was evident from the number of questions & objections at the above public meeting.

As such I was approached after the meeting by a number of the residents to review a possible Southern Option, in the light of the objections forthcoming from the preferred Northern Option.

This Southern Option alleviates virtually all of the concerns to the Northern Option that were voiced at the public meeting.

It also meets with the needs of the RMS by removing all of the Northern alignment complexities that impinge on the community which have resulted in the large urban design considerations & expenditures, that are needed to alleviate these problems, especially issues of safety, access, noise and visual impairment.

You will note from the enclosed Southern Option alignment, that it extends between Ch15000 through to the intersection with the existing Princes Highway at Croziers Rd.,.

This represents an increase of length covered by the bypass over the

Northern alignment (Schofields Ln., - Croziers Rd.,) of 1,270m.

In order to make a meaningful direct cost comparison between the two options, the Northern Option alignment, commencing at Ch15000, has been extended a further 1,270m to the same termination point as the Southern Option at Croziers Rd.,

One of the “spin-off” benefits that this 1,270m long extension provides, is it now eliminates all the road access problems relating to Huntingdale Park Estate, Victoria St., Hitchcocks Ln., Schofields Ln., Andersons Ln., Mullers Ln., & Croziers Rd., as well as the Kangaroo Valley Rd., interchange. It also removes the noise problem at the BUPA Aged Care Facility.


Previously the bypass was within 70m of this facility.

NOTE:-This alternative Southern Option has been presented in the full knowledge, of the current RMS mandate to consider the Preferred Northern Option only at this stage & the pending Transport Minister announcement on the 20th December 2011.

However this case presented for the Southern Option is **too** overwhelming in it's simplicity and economic advantage not to be seriously considered at this point in time. It represents a **WIN/WIN** situation for all parties concerned.

I trust that the Minister will make his judgement on the way forward in the full light of this proposal.

Yours sincerely,



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THE BERRY BYPASS

Southern Option (B.R.5) versus Northern Option.

SYNOPSIS

Note:- The Southern Option at this point in time is not the RMS Preferred Option, but it is far superior to the Northern Option in all major aspects - environmental, social, technical & financial - in that it meets the desired needs of almost all parties - a **Win/Win** for all. (Refer attached Horizontal Alignment for Southern Option details.)

The major components of the comparison are as follows:-

1) NOISE & SOUND.

The horizontal alignment is a minimum 880m to the south of the existing Princes Highway (Queen St.,) through the Berry township, with a nearest point to the southern boundary of the township (at the Masonic Village) of 470m.

In comparison the Preferred Northern Option is 270m to the north of Queen St., with a nearest point at North St., of approx 45m - variable.

As such the residents of the Berry township, whether they reside on either the southern or northern side of Queen St., have a far superior buffer zone with the Southern Option (B.R.5). This buffer zone is a minimum of 425m metres greater than the northern buffer zone. As such there will not be a requirement for any sound attenuation noise walls or low noise asphalt surfacing of the road.

2) VISUAL IMPACT.

The horizontal alignment of the Southern Option is generally unseen from the Berry township, therefore visual impact is negligible. The escarpment & rural scene is not adversely impacted as it is with the Northern Option.

3) COMMUNITY DISLOCATION.

The Northern Option has been severely criticised for the dislocation it will create to the community of Berry.

It is not a Bypass in true intent and could best be described as a "**Throughway**".

It seriously divides the existing & future residential areas of the township, effectively creating two townships of West Berry and East Berry. The future planned residential development of Berry will occur to the west of the Huntingdale Park Estate. There is current future planning for in excess of 500 new residences, mainly in West Berry.

When it was originally decided to create a Bypass of Berry circa. 1952 (60 years ago), land was set aside in the undeveloped areas bounding the town to provide the necessary corridor. However over the past 60 years development of the township has been approved along and through this corridor, to such an extent, that the corridor has been absorbed into the precincts of the residential areas, hence the above description of a "Throughway".

The final decision makers for the Bypass Corridor **must** take this into account when considering acceptance of responsibility for this Northern Option.

As an example of how such decisions may go wrong - consider the current problems that exist at Nowra - with the absorption into the town of the 1970 Nowra Bypass.

Over the last 40 years development has been approved in close proximity on both sides of

the Bypass (Stockland Mall e.t.c.) plus the South Nowra Industrial/Commercial Zones & the Worrigee residential estates. This has resulted in major traffic congestion (especially during holiday peak periods), due to the need to provide, an overbridge, traffic lights, roundabouts, climbing lanes and passing lanes for traffic movements across the Bypass. As such the Nowra Bypass has not delivered true value to the community - the accepted lifespan for civil engineering facilities is 100 years +, in the Nowra case it was made redundant within 20 years !

We don't want the same thing happening in Berry.

In making decisions relating to cost & value, the true cost must be taken into account - financial, social, environmental & longevity in order to deliver maximum value (& return) for the monies expended.

The accepted definition of value engineering is:-

VALUE = COST + BENEFIT.

This formula can be adjusted to provide a description for both Benefit & Cost:-

(Benefit = Value - Cost) and (Cost = Value - Benefit.)

In the Nowra Bypass case the value has been eroded by more than 80% ! (100 years - 20 years = 80 years.).

4) HISTORIC PRECINCT.

The Southern Option horizontal alignment adjoining the historic precinct on the eastern approach to Berry at Pulman St., has a horizontal buffer zone of 260m, which greatly exceeds the distances at the existing intersection of the Princes Highway/Pulman St., As such the visual and noise impacts will not impact in any serious way on these areas.

5) THE BUPA AGED CARE FACILITY.

The Northern Option may result in major noise impact for the newly constructed BUPA Aged Care Facility as it will pass within 70m.

However the Southern Option has a minimum clearance exceeding 670m to the south of the BUPA facility.

6) THE DAVID BERRY HOSPITAL.

The Southern Option will not have a major noise or visual impact on the David Berry Hospital as it will pass 360m away to the west. The hospital is also heavily screened with thick bushland along the exposed face.

7) FLOOD RISK.

For the Southern Option the Southern Flood Plain which carries both Broughton Mill Creek & Broughton Creek is crossed by a low level viaduct with a length of approx 1,595m. The eastern abutment is located towards the rear of the Mananga Residence boundary line, with the viaduct spanning Tannery Rd., the railway, Broughton Mill Creek and terminating at a western abutment beyond Wharf Rd.,

The remainder of the horizontal alignment will be on an embankment at R.L.4.5m (same height as the rail embankment) running parallel to the rail line and be offset by about 440m to the south of the rail. Due to the existing undulating ground line the proposed embankment may vary in height between 1.0m & 5.0m., similar to the existing rail embankment.

Three further structures (including a second rail overbridge) will be included along this

embankment to facilitate culvert/farm crossings for existing creeks, farm access and overbridges, (Mullers Lane).

In comparison, the Northern Option requires far greater flood protection and cost to mitigate the 1% AEP flood risk to the township.

8) ACID SULPHATE SOILS.

Acid Sulphate Soils have been identified along the southern alignment, as one of the major technical problems which is currently influencing the preference for the Northern Option. Aggressive Acid Sulphate Soils are a consideration in respect of buried concrete structures which come into contact with these soils, however the use of Sulphate Resistant Cements in concrete mix designs are commonly specified by designers to overcome any technical considerations that may be encountered.

Further long term protection of exposed concrete structures may be specified utilising applied sealants to concrete surfaces within affected wet/dry zones. As such the presence of Acid Sulphate Soils is not a valid technical reason to discount the Southern Option.

9) COST COMPARISONS. (True Value).

The Southern Option is estimated to **cost far less** than the Northern Option.

In order to provide a meaningful comparison between the two options, relevant engineering costs have been deduced from information obtained through discussions with the RMS. These are "bulked up costs", which include for the RMS overhead margins, design, site management & risk.

The basis of these costings is as follows:-

Overall RMS preliminary budget for the three stage project, (Gerringong to Bomaderry) is currently set at \$1 Billion for approximately 30 kilometres of 4 lane expressway, with provision for future widening to 6 lanes.

In order to construct a more detailed budget, certain individual cost elements need to be considered and \$ rates deduced. These elements can be deducted from the \$1 Billion budget in order to provide more precise estimating rates for the general roadworks, which form the bulk of the project.

Calculations are as follows:-

Note:- Estimates pertaining to the **Northern Option** are highlighted in **BLUE**.

Estimates pertaining to the **Southern Option** are highlighted in **RED**.

a) General bridging - the RMS advise that their guide budget for 30m span bridges (Super T) is \$2,500/m² of plan deck area.

An estimate of likely bridge deck areas for the total project are as follows:-

Northern Option	= 15,100m ²
Southern Option	= 40,000m ²
Remaining structures (stages 1 & 3)	= 6,500m ²

a.1) Cost of bridging for the **Northern Option (3 stages)** = \$ 54m

a.2) Cost of bridging for the **Southern Option (3 stages)** = \$ 116m

- b) Land acquisitions - Provisional Item - \$15m
- c) Deep cutting (Toolijooa Cut) - Provisional Item - \$50m
- d) Noise walls /earth embankments - Provisional Item - \$10m
- e) Footbridges, farm/cattle access culverts - Provisional Item - \$5m
- f) Access roads - farm & road intersections - Provisional Item - \$5m
- g) Creek diversion & flood mitigation - Provisional Item - \$5m
- h) Landscaping. - Provisional Item - \$2m
- i) Urban design facilitation - Provisional Item - \$5m

Deduct a.1) & b) to i) from \$1Billion, residual amount = \$ 849m
 Net general roadwork remaining (deduct structures) = 29,035 lineal metres.

j) Therefore by deduction the General Roadworks rate = \$29,240 per metre.

Apply the above \$ rates to the **Northern** & **Southern** Options, to obtain the estimate of both the Northern & Southern Bypass Options.

A) Berry Bypass - Northern Option:-

RMS budget current estimate	\$205m
Add Schofields Ln. to Croziers Rd. (1,270m x \$29,240 /m)	37m
TOTAL	<u>\$242m</u>

Note:- For a direct cost comparison with the Southern Option the length of Expressway between Schofields Ln., to Croziers Rd., has been added to the Northern Option.

B) Berry Bypass - Southern Option:-

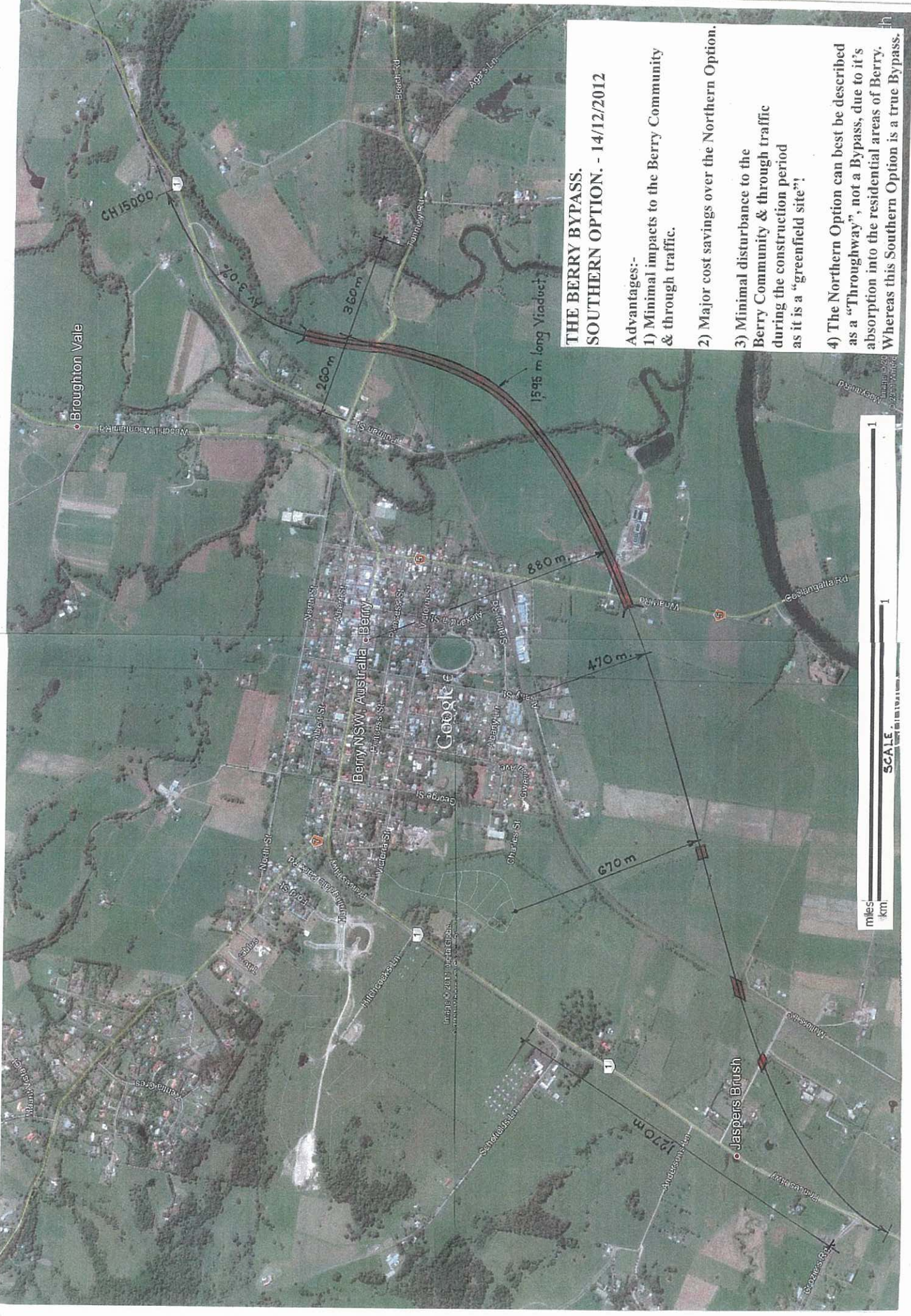
Viaduct (36,685m ² x \$2,500/m ²)	\$ 92m
Secondary bridging (3,335m ² x \$2,500/m ²)	8m
Contingency for bridging	16m
Roadworks (3,100m x \$29,240 per lineal metre)	90m
Contingency for roadworks	13m
TOTAL	<u>\$ 219m</u>

SOUTHERN OPTION - ESTIMATED SAVING:- \$ 23m (incl. contingencies)

10) SUMMARY.

The above estimate for the Southern Option alternative, indicates **major** financial saving over the Northern Option, however the real saving is far, far, greater when consideration is given to the lifetime cost/benefit (100 years +) as outlined in paragraphs **1) to 8)** above.

Should the reader have any queries, comments or requires clarification on any points, please do not hesitate in contacting the author (Bruce Ramsay) at his email - cbr@shoalhaven.net.au



**THE BERRY BYPASS.
SOUTHERN OPTION. - 14/12/2012**

Advantages:-

- 1) Minimal impacts to the Berry Community & through traffic.
- 2) Major cost savings over the Northern Option.
- 3) Minimal disturbance to the Berry Community & through traffic during the construction period as it is a "greenfield site".
- 4) The Northern Option can best be described as a "Throughway", not a Bypass, due to it's absorption into the residential areas of Berry. Whereas this Southern Option is a true Bypass.

