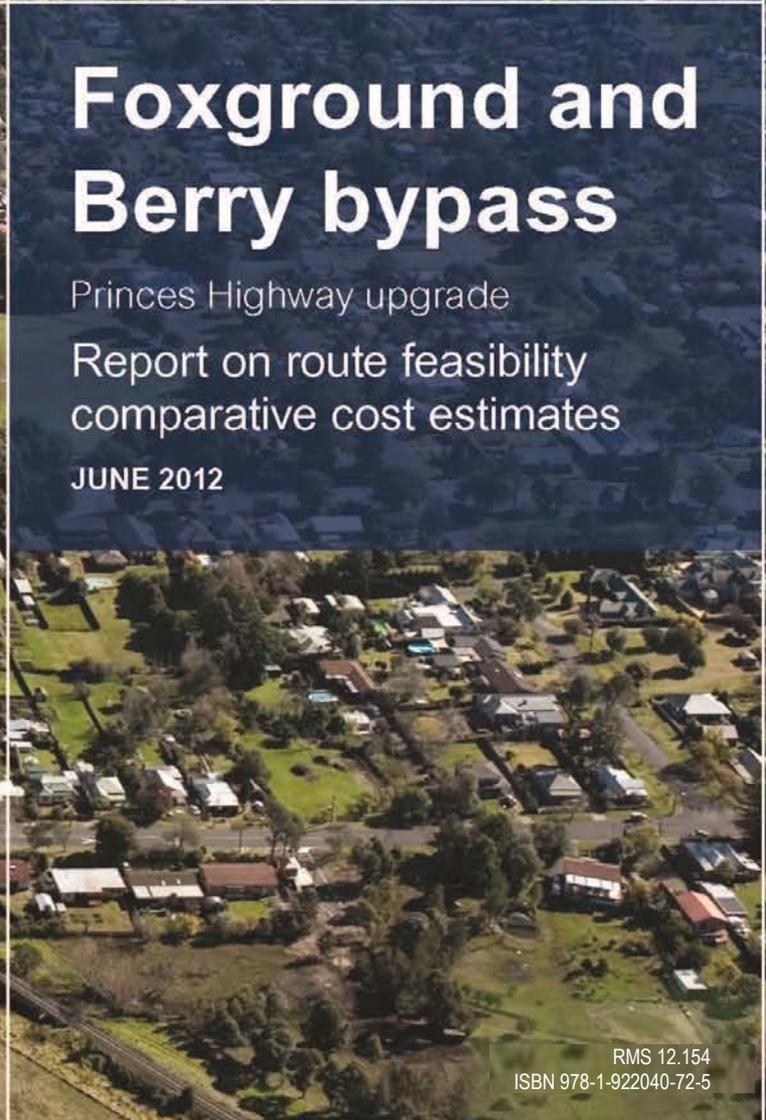




Transport
Roads & Maritime
Services



Foxground and Berry bypass

Princes Highway upgrade

Report on route feasibility
comparative cost estimates

JUNE 2012

Executive summary

The development of route options for the Princes Highway upgrade program began in March 2006, with a preferred 11.6km Foxground and Berry Bypass route including a bypass to the north of Berry, announced by Roads and Maritime Services (RMS) in December 2011. In February 2012 RMS was directed by the Minister for Roads and Ports to undertake a cost evaluation of a southern Berry bypass route following a suggestion submitted by a community member in December 2011.

The December 2011 community submission claimed to provide a cost saving of \$23 million in direct costs and numerous qualitative benefits to Berry over the northern bypass route. The proposal claimed that the southern route is a true bypass as opposed to the northern route which divides the older part of Berry from the new development area to the northwest. In February 2012 this claim was expanded further stating a potential cost saving of up to \$50 million could be achieved if the contractor costs and a full contingency were included.

RMS formed a group of technical experts to investigate a southern suggestion. RMS prepared two route feasibility cost estimates for the Foxground and Berry Bypass project, one incorporating a bypass to the north of Berry and one incorporating a bypass to the south, as shown in Figure 1. This report documents these investigations to develop the design of the southern route and perform technical and construction investigations to sufficiently undertake a like-for-like cost comparison with the northern route. The investigation process was carried out between February 2012 and June 2012. This work was witnessed and reviewed by an independent review team to ensure the process was thorough and impartial during the assessment of technical criteria and construction methodologies.

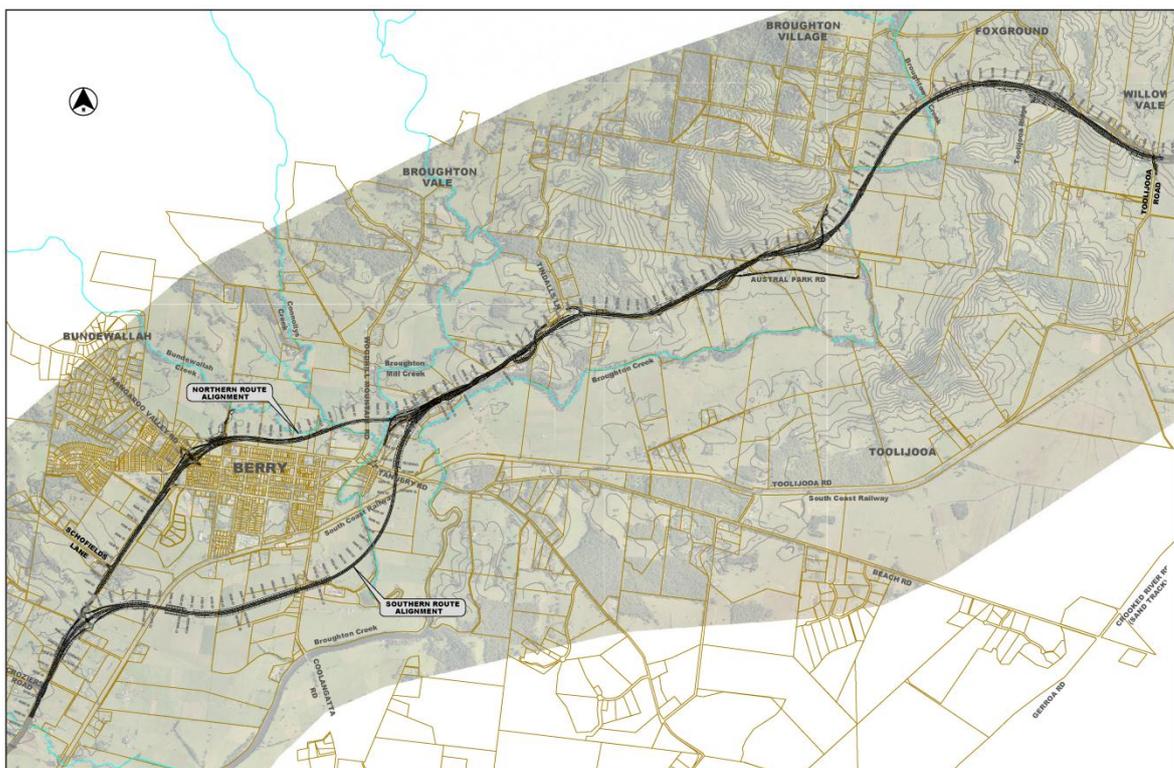


Figure 1 Northern route and southern route comparison

The investigation has produced two strategic cost estimates of the whole Foxground and Berry Bypass project cost, the first with the cost of the northern route and the second with the cost of the southern route. Incorporating the southern route requires that the overall length of the 11.6km Foxground and Berry Bypass section be extended by approximately 1.2km to 12.8km, re-joining the Princes Highway alignment at Croziers Road. To ensure like-for-like comparisons for the purposes of the investigation, the northern route is extended to the same end point.

Prior to this investigation the Foxground and Berry Bypass project, incorporating the bypass to the north of Berry, had been developed to concept design level. Therefore much of the investigation focused on preparing information for the southern route sufficient to a level comparable with the Foxground and Berry Bypass concept design, to produce a similar standard cost estimate.

The investigations produced a strategic cost estimate of \$545m (May 2012) for the Foxground and Berry Bypass proposal incorporating the northern route. The cost estimate for the Foxground and Berry Bypass project incorporating the southern route suggestion is \$711m (May 2012). The main variances between the cost estimates are summarised below in Table 1.

Table 1 Northern and southern cost estimate summaries

Item Description	Northern Route	Southern Route	Difference
Structures	\$138m	\$183m	\$45m
Earthworks	\$97m	\$238m	\$141m
Pavements	\$67m	\$63m	-\$4m
Balance of construction costs	\$151m	\$118m	-\$33m
Land acquisitions	\$24m	\$23m	-\$1m
Project management and design	\$68m	\$86m	\$18m
TOTAL	\$545m	\$711m	\$166m

Note: Above amounts are inclusive of contingency allowances

Proposed amendments to the "base case" designs raised during the investigation process were included where feasible. In other cases these amendments were assessed as provisional items to allow for investigation and costing within the time available.

Provisional item costs addressed during the investigation process are summarised in Table 2, with details of the provisional items provided in Table 3. These items have been classed as either adjustment sums or provisional sums. Adjustment sums were calculated for items assessed as likely to be in the next stage of the design development and are included in the project estimate. Provisional sums were calculated for items that are discretionary, requiring more design development and further consideration and are not included in the project estimate.

Table 2 Northern and southern routes provisional cost items (rounded to \$0.1m)

Item Description	Northern route	Southern route
Base estimate	\$545.4m	\$761.8m
<u>Adjustment sums (required for further design development)</u>		
Reroute alignment south of the sewage treatment plant		\$9.6m
Island embankment		-\$5.6m
Realignment of northern interchange		-\$2.3m
Changes to vertical alignment to generate extra fill material		-\$55.1m
Adjustment to southern interchange		-\$15.1m
Total estimate	\$545.4m	\$710.7m
<u>Provisional sums (discretionary)</u>		
Additional pedestrian bridge	\$4.5m	
Northbound offload ramp to Woodhill Mountain Road	\$0.4m	
Adjustments to Kangaroo Valley Road interchange, split ramps	\$15.8m	
Adjustments to Kangaroo Valley Road interchange, Northbound offload under Kangaroo Valley Road	\$5.2m	
Maximum discretionary cost	\$566.1m	\$710.7m

The **adjustment** sums, if the maximum amount was adopted would **reduce** the total cost of the southern route by **\$51.2m** to **\$710.7m**, but have **no impact** on the **total cost** of the northern route.

The **provisional** sums, if the maximum discretionary cost was adopted would **increase** the potential cost of the northern route by **\$20.7m** to **\$566.1m**, but would have **no impact** on the southern route.

Table 3 Details of provisional items

Community input	Status: * (additional, provisional)	Why	Additional comments
Southern route			
Reroute alignment south of the sewage treatment plant	additional	Likely to be in the next stage of development	<ul style="list-style-type: none"> Aims to minimise bridge length and impacts on local properties and provide flood relief for the sewage treatment plant
Island embankment	additional	Likely to be in the next stage of development	<ul style="list-style-type: none"> Aims to reduce overall capital cost by increasing the length of embankment and reducing the length of bridges
Realignment of northern	additional	Likely to be in the next stage	<ul style="list-style-type: none"> Aims to minimise property impacts on the heritage property "Mananga" and win additional fill

Community input	Status: * (additional, provisional)	Why	Additional comments
interchange		of development	material to address the earthworks imbalance
Changes to vertical alignment to generate extra fill material	additional	Likely to be in the next stage of development	<ul style="list-style-type: none"> ▪ Aims to generate additional fill material to achieve balanced earthworks
Adjustment to southern interchange	additional	Likely to be in the next stage of development	<ul style="list-style-type: none"> ▪ Aims to generate additional fill material by redesigning the southern interchange so that local roads pass over the upgraded highway rather than vice versa
Northern route			
Additional pedestrian bridge at North Street	provisional	Access for North St pedestrians can be provided over the nearby Kangaroo Valley Road bridge	<ul style="list-style-type: none"> ▪ Restores severed access ▪ Would impact northern views ▪ Unlikely to attract the majority of pedestrian traffic ▪ Adds cost
Northbound offload ramp to Woodhill Mountain Road	provisional	Traffic predictions show no warrant for an additional ramp	<ul style="list-style-type: none"> ▪ Would require construction in a flood plain and crosses Bundewallah Creek twice ▪ No value in acquiring land now
Adjustments to Kangaroo Valley Road interchange, relocation of south facing ramps	provisional	Requires more design development	<ul style="list-style-type: none"> ▪ Reduces noise & visual impacts ▪ Preserves Mark Radium Park ▪ Reduces bridge & earthworks by one lane width, slight cost reduction ▪ Effectively relocates one of four ramps ▪ Increases highway footprint ▪ Bigger impact on some properties and impacts additional properties ▪ Requires an additional bridge and one kilometre of two way road, increases cost
(RMS input) Adjustments to Kangaroo Valley Road interchange, locate northbound offload ramp under Kangaroo Valley Road bridge	provisional	Requires more design development	<ul style="list-style-type: none"> ▪ Reduces direct impacts on residences ▪ Intersection located on vacant RMS owned land ▪ No adjustment to Huntingdale Park Road required ▪ Reduces noise & visual impacts ▪ Allows roundabout at Huntingdale Park Rd and Kangaroo Valley Road to be constructed earlier ▪ Reduces or eliminates the need for a noise wall ▪ Requires a longer bridge at Kangaroo Valley Road

Community input	Status: * (additional, provisional)	Why	Additional comments
			<ul style="list-style-type: none"> ▪ Potential greater visual impact of roundabouts ▪ Slightly increased land take from adjacent farms

* All these additional and provisional items with the exception of the one marked RMS input have been suggested by the community. All community suggestions have been accepted as valid except one item which was found to be non-compliant and no improvements or benefits to the existing southern route were able to be derived.

This investigation is to inform the community, RMS and the NSW Government of the cost feasibility of a southern bypass route. If a decision is made by the Minister for Roads and Ports to proceed further in consideration of the southern route, community consultation would continue through the formal environmental assessment planning process where all qualitative issues would be considered.