A New South Wales Government Initiative

RTA

Gerringong to Bomaderry

Princes Highway upgrade

GERRINGONG AND BERRY PREFERRED ACCESS ARRANGEMENTS REPORT / JUNE 2009

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Executive Summary

In March 2006, the NSW Government launched a study to investigate feasible options to upgrade the Princes Highway over a distance of approximately 30 kilometres between Gerringong and Bomaderry. Following technical and environmental investigations and an extensive community involvement program, a preferred option was announced by the New South Wales Government on 13 October 2008.

The community feedback received during the display of route options highlighted the importance of the access arrangements to the community for Gerringong and Berry. As a result the RTA committed to a public display of the short-listed access options for each town, followed by an Access Value Management Workshop to assist with the development and selection process of the access arrangements for the two towns.

In order to identify the most appropriate connections of Gerringong and Berry to the preferred option, the project team studied social, economic, environmental and engineering aspects of each town. A number of preliminary access options were devised and evaluated against the project objectives and criteria.

A set of short-listed arrangements for each town were publicly displayed for community and stakeholder feedback from 13 October 2008 to 13 November 2008. The community response to the display led to a number of alternative arrangements and revisions being considered prior to the Access Value Management Workshop.

The Access Value Management Workshop was held in November 2008 and involved key stakeholders and community members. The project team distilled the outcomes of the workshop, community feedback and technical studies and progressed the design of the recommended access arrangements to concept design standard.

This report is a summary of design developments for the access arrangements for Gerringong and Berry undertaken since the Access Value Management Workshop.

1.0 Introduction

The preferred option for the Princes Highway upgrade between Gerringong and Bombaderry (herein referred to as the upgrade) services two significant regional towns – Gerringong and Berry. In the vicinity of Gerringong the upgrade is essentially located on the existing highway alignment which currently bypasses the town of Gerringong. In contrast, the existing highway currently passes through the centre of Berry and the upgrade will bypass Berry to the north of the town.

In order to identify the most appropriate connections of Gerringong and Berry to the preferred option, the project team studied social, economic, environmental and engineering aspects of each town. A number of preliminary access options were developed and evaluated against the project objectives and criteria. A set of short-listed arrangements were publicly displayed for each town from 13 October 2008 to 13 November 2008.

Three combinations of movements at Gerringong were presented to the community for comment. Each arrangement formed a total access solution for the town. Nine separate individual movements were presented for Berry. These included entry and exit ramps at the eastern and western ends of the town and central to the town.

The community response to the public displays led to a number of alternative arrangements and revisions for Gerringong being considered prior to the Access Value Management Workshop held in Nowra on 19 November 2008.

2.0 Access value management workshop outcomes

The Access Value Management Workshop brought together a range of stakeholders, including community participants, Council, various agencies and organisations as well as the project study team and the RTA, to review the access options for Gerringong and Berry and recommend a preferred direction in which the arrangement for each town should progress. A full report of the Access Value Management Workshop can be viewed or downloaded at http://www.rta.nsw.gov.au/gerringongtobomaderry.

The recommended further investigations and developments resulting from the Access Value Management Workshop are described below.

2.1 Gerringong

The Access Value Management Workshop participants considered the three publicly displayed access arrangements for Gerringong:

- G1 – access at Bridges Road, Belinda and Fern Streets closed.
- G2 – access at Belinda Street and Fern Street.
- G3 – on-ramp only at Belinda Street; northbound on and off-ramp at Bridges Road; southbound off ramp at Fern Street.

In addition to the three publicly displayed options three alternative arrangements were presented as result of community feedback during the display period.

One arrangement, termed G3/5 was a derivative of G/3 with an additional off ramp at Belinda Street.

Two additional arrangements were derivatives of the displayed G2 arrangement and were termed G2/6 and G2/8. The '6' and '8' referred to the number of movements provided by the arrangement. G2/6 provided four movements at the southern end of the town and two north facing movements at the northern end of town. G2/8 provided the same four movements at the southern end of town and four movements at the northern end of town.

These arrangements were a result of the need to keep heavy vehicles out of Fern Street and community feedback requesting four movements at each end of town. If four movements were not practically achievable at Fern Street then it was considered by the community that at least north facing ramps were required at Fern Street to continue to cater to current and future traffic needs.

A significant factor in the development of the G2/6 and G2/8 arrangements was the need to consider the access solution for the nearby Willowvale and Baileys Roads and Rose Valley Road. The potential integration of these local road accesses would assist with the functionality and value for money assessment of the arrangements. The other significant factor in achieving value for money and lowering project and environmental risk was the potential to locate the northern access at Rose Valley Road and outside the poor ground conditions of Omega Flat where the existing Fern Street junction is located.

The four movements at the southern end of town were located at the junction of Belinda Street and the upgrade. A two-way, two-lane service road connected Willowvale and Baileys Roads to the upgrade at the Belinda Street junction.

The four movements at the northern end of town were located at Rose Valley Road with a service road provided to effectively extend Fern Street to Rose Valley Road. Cost estimates indicated that the four movements at Rose Valley Road, including the two-way, two-lane service road connecting to Fern Street, compared favourably with the cost of providing only two movements at Fern Street.

The G2/8 arrangement was very well received by the Access Value Management Workshop participants. The outcome of the Access Value Management Workshop was a recommendation that this arrangement be progressed. The workshop recommended that further work was required to determine the best arrangement of the service road, the upgraded highway, and the grade-separation of the Rose Valley Road connection. It was also recommended that the significance of the large fig trees in the vicinity of Rose Valley Road be investigated. At Belinda Street the workshop recommended that the arrangement be progressed with further work required to determine the optimum connection to Willowvale Road.

2.2 Berry

Nine separate individual movements were presented to the community. These included entry and exit ramps at the eastern and western ends of the town and central to the town. The community expressed a preference for two movements at each end of town to maintain the existing east-west traffic movements.

The Access Value Management Workshop participants arrived at the same conclusion. To the east of the town the B5 and B7 north-facing ramps were recommended for further development. It was recommended that further development of these ramps include reducing the bulk / footprint and/or cost of this arrangement.

At the western end of town the B2 and B8 south-facing ramps were recommended for further development. It was recommended that further development of the B8 ramp include reducing the impact on Mark Radium Park.

The Access Value Management Workshop also recommended that the issue of flood immunity be further investigated. The recommended B5 and B7 north-facing ramps require a section of the existing highway to be used to exit / enter Berry. This section of the existing highway, in the vicinity of the bowling club, is inundated by flood events of recurrence interval as low as 1 in 5 year.

Three potential solutions to providing flood immune access were postulated:

1) As a potential solution to the northbound on-movement, a naturally flood immune northbound ramp could relatively easily and cheaply be incorporated from Kangaroo Valley Road connecting to the upgrade. Further investigation of this opportunity as a northbound on-movement solution to the flood immunity issue was recommended by the workshop.

2) As a potential solution to the southbound off-movement, the workshop recommended consideration of the relatively easy and cheap to construct B4 ramp with a gated entry for use in times of flood only.

3) As a second potential solution to the southbound off-movement, the workshop recommended consideration of a relatively easy and cheap to construct U-turn facility south of the Kangaroo Valley Road interchange and most likely associated with Schofields Road. The U-turn facility would operate as part of an incident management scheme in times of flood.

3.0 Design development and preferred access options

To facilitate display and consideration prior to the Access Value Management Workshop, the town access options were developed to a preliminary concept design standard. Following the Access Value Management Workshop, the access options have been developed to a concept design standard with a focus on interaction with the wider project and functional tie in to the preferred option alignment. This means that aspects such as constructability and construction staging were considered in more detail. The development of the interchanges is a critical stage from which the remainder of the concept design for the preferred option is further developed.

During this period meetings were held with potentially directly affected property owners on an 'as needed' basis. These meetings provided information to the property owner but also provided the project team with information regarding land-use and preferences. Further targeted consultation was undertaken with milk transporters, agricultural properties and bus operators in the study area to determine if there were specific access requirements that needed to be addressed during the concept design development of the access options. Whilst this was undertaken to inform the development of the wider project, and not specifically required for the development of the town accesses, the information gathered was useful and considered in the development of the town accesses.

3.1 Gerringong

Gerringong access design development progressed on two fronts; the Rose Valley Road / Fern Street arrangement to the north of the town, and the Belinda Street / Willowvale Road arrangement to the south-west.

3.1.1 Rose Valley Road / Fern Street arrangement

Further investigation into the G2/8 arrangement lead to the following design refinements for the Rose Valley Road / Fern Street interchange:

- The upgrade alignment was shifted wholly to the west of the existing highway and the existing highway was incorporated as a southbound off-ramp and service road to connect Rose Valley Road to Fern Street.
- The upgrade alignment was lowered in cut adjacent to Rose Valley Road to reduce visual impact and allow Rose Valley Road to pass over the upgrade via a bridge.
- The existing bus pickup and drop off area was incorporated to retain functionality.
- The proposed Fern Street rail overpass was straightened to improve construction efficiency and minimise time required for temporary closure of Fern Street. The straighter alignment also provides for a more compact and aesthetically less intrusive arrangement with a reduced footprint and land take.

Internal RTA reviews lead to the following further refinements for this arrangement:

- A southbound on-ramp connecting the service road to the upgrade was eliminated due to low demand and an alternative route being available through Gerringong via Fern Street.
- With the removal of the southbound on-ramp it was possible to shift the upgrade alignment closer to the existing alignment to preserve valuable agricultural land.

The preferred access arrangement is shown in **Figure 3.1.**

Figure 3.1: Gerringong preferred access arrangement

3.1.2 Belinda Street / Willowvale Road arrangement

Further investigation into G2/8 lead to the following design refinements for the Belinda Street / Willowvale Road interchange:

- The northbound off-ramp was moved west of Willowvale Road to directly serve Willowvale Road. A two-way two-lane service road was incorporated to connect Willowvale and Baileys Roads to Belinda Street.
- An underpass was provided to service Baileys Road, integrating with the Crooked River Bridge and retaining an existing cattle underpass in the single structure.
- Consideration was given to locating the two-way service road connecting Belinda Street to Willowvale Road on southern side of upgrade and possible reduction in land take on agricultural land to the north. A reduction in land take was not realised and inherent safety issues associated with this design meant that this refinement was not favoured.

3.2 Berry

Berry access design development progressed on the following fronts:

- The B5/B7 ramp arrangement at the eastern end of Berry.
- The ramp arrangement in the vicinity of Kangaroo Valley Road at the western end of Berry.
- Requirements to ensure all four movements into and out of town are above the 1 in 100 year flood level:
  - Existing highway in vicinity of bowling club.
  - Potential inclusion of a gated or un-gated B4 ramp.
  - Potential U-turn facility as part of an incident management scheme.

3.2.1 B5/B7 ramp arrangement

Further investigation into the B5/B7 arrangement lead to the following design refinements:

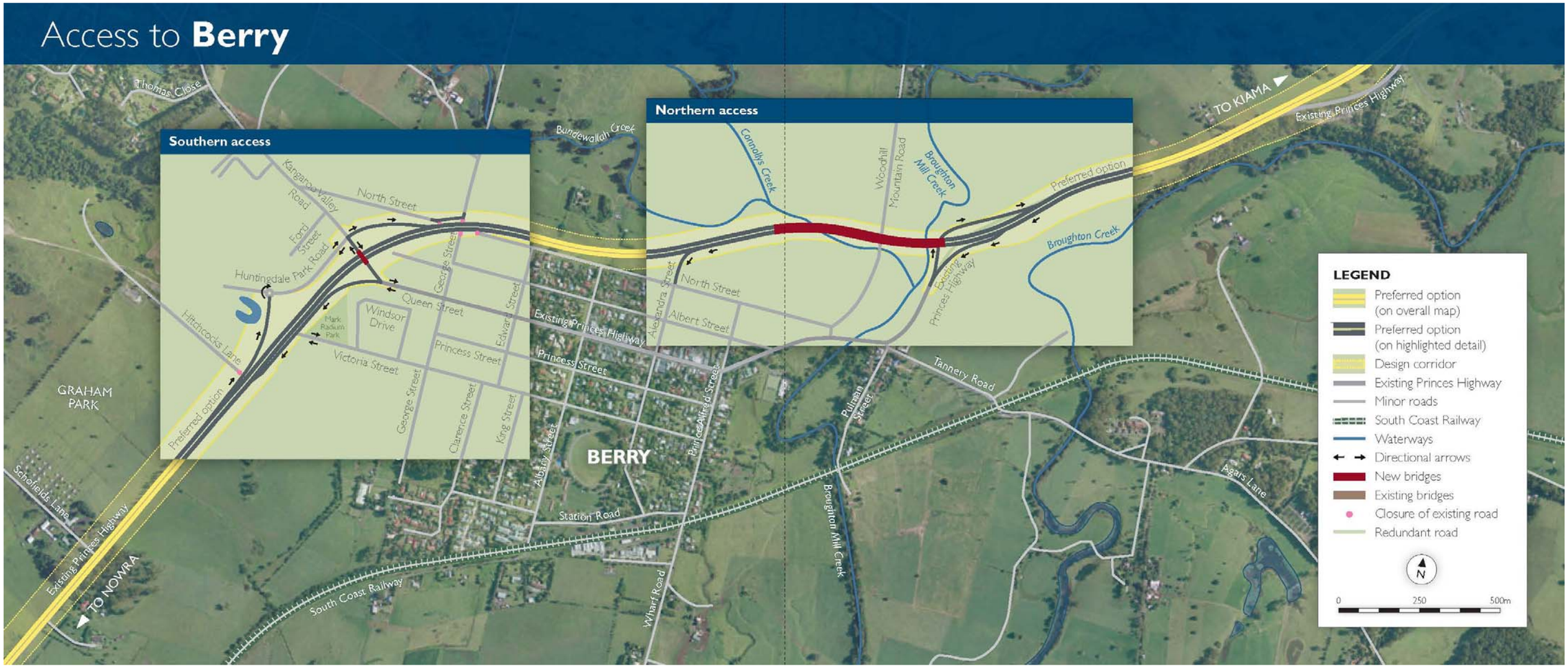
- Strong feedback from the community regarding the footprint of the displayed arrangement lead to the consolidation of the ramps and on-load ramp passing under the upgraded highway.
- Limiting batter extent by investigating retaining structures.

Internal RTA reviews lead to the following further refinements for this arrangement:

- Desire to keep the highway bridge as low as possible in order to minimise visual intrusion meant that the bridge was not raised from the height displayed and the northbound on-ramp now passes under the upgraded highway.

The preferred access is shown in **Figure 3.2**.

Figure 3.2: Berry preferred access arrangement



3.2.2 Kangaroo Valley Road ramp arrangement

Further investigation lead to the following design refinements for the ramp arrangement in the vicinity of Kangaroo Valley Road:

- The southbound on-ramp B8 was shifted to the south of Victoria Street with a one-lane connection from Queen Street. This achieved the aim of minimising direct impact on Mark Radium Park and allowed access to the park to be retained via Queen Street.
- Inclusion of a northbound on-load ramp (B10) as a naturally flood immune means of accessing the upgrade. The inclusion of this ramp also provides a more direct means for residents in the growth areas to the north-west of Berry to access the upgrade without travelling through the town centre.

Internal RTA reviews lead to the following further refinements for this arrangement:

- Re-introduction of ramp B1 to replace ramp B2 primarily because of long term safety concerns over the tight 180 degree turn in the B2 ramp. The future provision of a B1 arrangement is also in accordance with Shoalhaven City Council's May 2003 development approval for the Huntingdale Park Estate.
- Provision of the B1 ramp reduces the size and impact of the bridge carrying Kangaroo Valley Road over the upgrade, reduces the upgrade's impact on Mark Radium Park and reduces the area of new land acquisition required for the northbound offload ramp.

The preferred access is shown in **Figure 3.2**.

3.2.3 Southbound flood immunity

Of the options recommended by the Access Value Management Workshop for further consideration, one aspect to be considered was the feasibility of providing a southbound flood immune connection to the town centre. Three possible solutions were considered:

- Upgrading the existing highway in the vicinity of the bowling club to provide flood immunity.
- Including a U-turn facility on the upgraded highway south of Kangaroo Valley Road in the vicinity of Schofields Lane.
- Introducing a potentially gated ramp B4 in addition to ramp B5.

Upgrading the existing highway

A high level flood modelling exercise was undertaken for the section of highway between the Broughton Mill Creek Bridge and the retail precinct of Berry. The model indicated that the road level would be required to be raised 2.5m over 300m and a bank of culverts or low-level bridge would be required to pass the flood waters.

The following issues with this proposal were identified:

- The existing Broughton Mill Creek Bridge is not affected by flood (even in the Probable Maximum Flood event).
- Flooding over the highway in the vicinity of the bowling club is approximately 2m above existing pavement for 1:100 year event.
- The existing highway would need to be raised approximately 2.5m over a 300m length.
- The entire 300m length would need to be constructed as a bank of culverts or a bridge or a combination of the two.
- A structure of lesser length connected to an embankment would result in unacceptable upstream flooding impacts.

- A structure would have an adverse visual impact on this part of Berry.
- The existing highway's junction with Albert Street would most likely need to closed.
- Raising the existing highway would be detrimental to Smash Repair business and adjacent property (buildings would be about 2.5m below road level – access difficult to provide and visually unappealing).
- The context of Apex Park would be adversely affected.
- It would be difficult to provide access to the bowling club. An under-highway access to the bowling club from Albert Street would be constrained by the very flat ground and drainage difficulties.

An indicative cost for the proposal was devised by comparison with a similar scale bank of culverts recently installed elsewhere by the RTA. The indicative cost is in the order of $3M.

The proposal was not considered further due to poor value for money and adverse impacts on the surrounding land-use. This conclusion was supported by further internal RTA reviews.

U-turn facility

A U-turn facility for southbound traffic in the vicinity of Schofields Lane was considered. A U-turn facility at this location would enable southbound motorists, in times of flood or other traffic incidents, to make a controlled U-turn and enter Berry via Ramp B1 under an incident management plan.

The area in the vicinity of the Schofields Lane junction is the closest suitable site to Berry from which an effective U-turn facility linked to Ramp B1 can be provided.

Traffic movements through a U-turn facility are less efficient and less safe, particularly in adverse weather conditions, than those on a dedicated ramp. Internal RTA reviews concluded that a U-turn facility is less desirable than a Ramp option and the proposal was not considered further.

Inclusion of Ramp B4

The inclusion of Ramp B4, connecting to Alexandra Street, was reconsidered as an option for providing a flood immune southbound entry to the town. The following alternatives were considered:

- Gating the entry so that it would be opened under emergency services control during times of flood and other incidents. This was not considered practicable by emergency services or RTA in light of recent experiences with gated accesses.
- Providing an un-gated entry without signposting.

Internal RTA reviews supported the inclusion of Ramp B4 as a means of addressing the southbound flood immune access to the town. Ramp B4 would not be gated or signposted and Ramp B5 would be signposted as the southbound entry to Berry. This is anticipated to result in low traffic usage of Ramp B4 at other than times of flooding.

The preferred access for addressing southbound flood immunity is shown in Figure 3.2.