

## 4. Project development and alternatives

This chapter describes the process undertaken to assess preliminary route options to determine a preferred route, and describes the development of the concept design.

DGRs	Where addressed
<b>Project justification:</b>	
Describe the alternatives considered and justification for the preferred project taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i> and the following:	Chapters 4, 12
<ul style="list-style-type: none"> <li>The environmental, social and economic impacts of the project.</li> </ul>	Sections 12.1, 12.2
<ul style="list-style-type: none"> <li>The suitability of the site.</li> </ul>	Sections 12.1, 12.2
<ul style="list-style-type: none"> <li>Whether or not the project is in the public interest.</li> </ul>	Sections 12.1, 12.2, 12.3

### 4.1 Development and evaluation of route options

The process followed in developing and evaluating the route options is summarised below and further detailed in the *Hume Highway Upgrade Tarcutta Bypass: Preferred Option Report* (RTA 2008b), the *Hume Highway Upgrade Tarcutta Bypass: Preferred Option Report — Addendum* (RTA 2008c).

#### 4.1.1 Preliminary route options

During 2006, a newsletter was distributed to the Tarcutta community proposing the upgrade of the Hume Highway. In that same year, selected landowners were contacted regarding the commencement of biodiversity investigations. During March 2007, an information session was held inviting comments from community members. Issues regarding access to the village, access to properties and local roads and the impacts of a bypass on business were raised.

During this stage, the RTA investigated five preliminary route options for the provision of a dual carriageway bypass at Tarcutta. These were:

- Option 1: a bypass on the eastern side of Tarcutta which rejoined the existing highway near the intersection with Humula Road (eastern bypass).
- Option 2: a longer eastern bypass which rejoined the existing highway approximately 750 metres south of Option 1 (far-eastern bypass).
- Option 3: a bypass on the western side of Tarcutta (western bypass).
- Option 4: a modified western bypass that crossed the highway north of Mates Gully Road intersection and rejoined the existing highway south of Humula Road intersection (modified western bypass).
- Option 5: a central option that utilised the existing highway corridor through the village of Tarcutta (central option).

Figure 4-1 shows the preliminary route options.

In May 2007, a second community information session was held to report back on issues raised at the previous session and to present each of the preliminary route options developed.

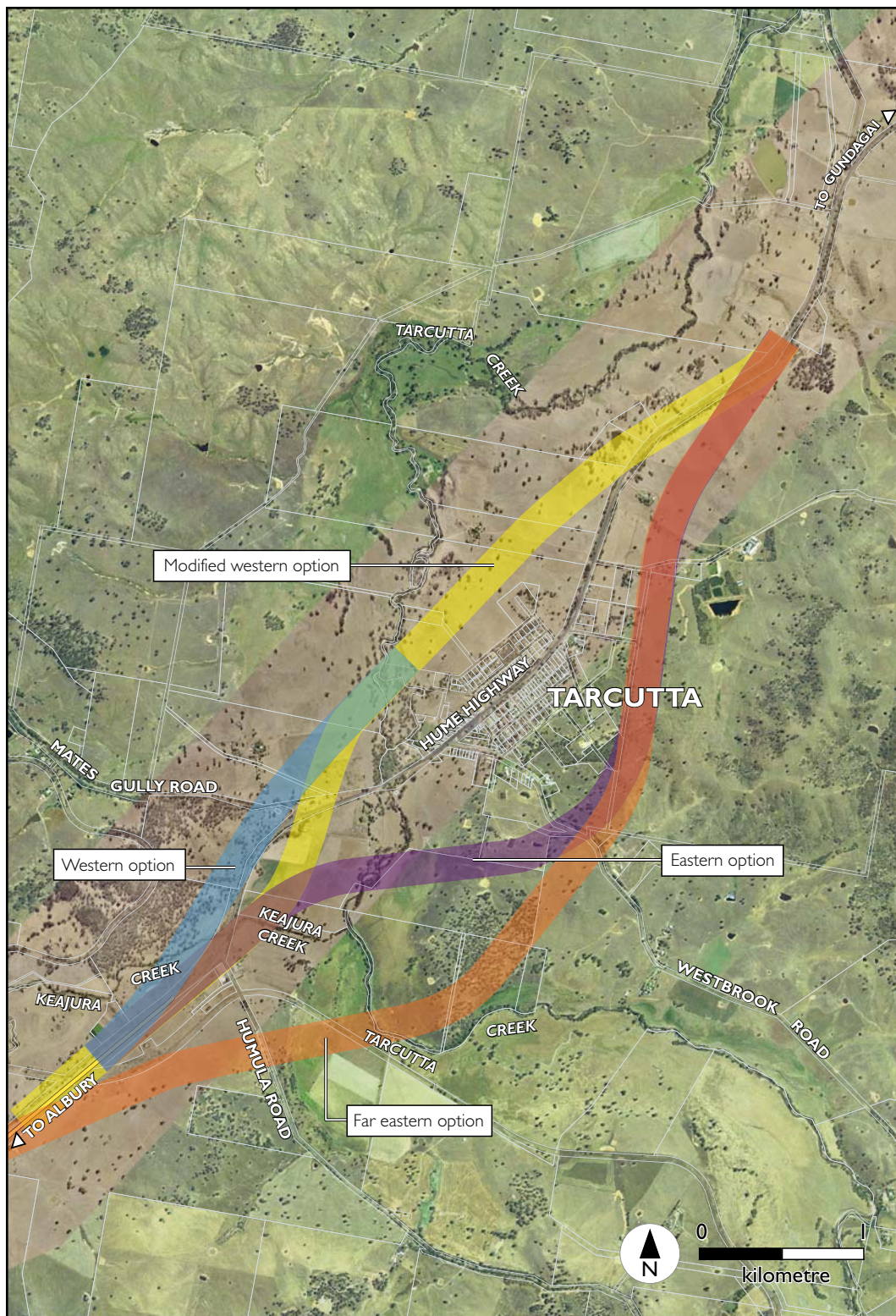


Figure 4-1 Preliminary route options

#### *4.1.2 Options assessment workshop*

In June 2007, an options assessment workshop was attended by community and stakeholder representatives. The workshop was undertaken to examine the preliminary route options and to recommend a preferred option for further investigation by the RTA.

In presenting the project background and summary of route option evaluations, the RTA outlined the results of a design review of the five preliminary route options that had been undertaken, and recommended that three options not proceed. These were:

- Option 2: this option has likely significant flora and fauna and threatened ecological community impacts; in particular the presence of threatened squirrel gliders along the corridor, and its greater length compared to other options.
- Option 4: this option has potential engineering and constructability constraints in comparison to Option 1 and 3, and the need to construct across the existing highway while maintaining traffic flow.
- Option 5: investigations into this option indicated that there would be significant property acquisition and amenity issues for adjacent residences and businesses. To manage pedestrian safety, a speed limit of 80 kilometres per hour would need to be enforced through Tarcutta village, which would be the only location on the upgraded Hume Highway with this speed limit. A dual carriageway through the centre of the Tarcutta would further divide the village, causing significant difficulty for maintaining linkages east and west of the road. As such, this option was recommended not to proceed.

Option 1 and Option 3 were further progressed. These were compared and assessed. Option 3 was preferred as it was considered to:

- Offer a better overall value for money solution and have a higher benefit cost ratio than Option 1 due to the shorter travel distance.
- Be safer than Option 1 from a road user perspective.
- Operate and function in a way that would better support the existing truck facility in Tarcutta.
- Perform better from a social impact perspective.
- Require less private property acquisition.

The decision by the workshop participants to progress Option 3 to the next stage of planning was subject to:

- Considering outcomes of Aboriginal heritage studies.
- Providing flood mitigation measures.
- Resolving vehicular access to one property.
- Resolving private property issues for water supply and cattle access for affected landowners.

Various opportunities to improve the preliminary concept designs were also recommended by the group, which the RTA indicated would be pursued during design development.

#### *4.1.3 Preliminary environmental investigations*

As part of further concept design development of the options, preliminary environmental investigations were undertaken for Option 1 and Option 3 between late 2007 and February 2008. A number of technical studies were carried out, including Aboriginal and

non-Aboriginal heritage, noise, hydrology and flooding, social and economic, water access and quality, and landscape and visual. Biodiversity investigations were undertaken in late 2006.

In addition to the preliminary environmental investigations, a number of technical and constructability issues were investigated.

#### ***4.1.4 Value management workshop***

The results of the preliminary environmental investigations were made available to the community at a drop-in session held in Tarcutta in February 2008. A value management workshop was also held in Tarcutta to discuss and assess the preliminary environmental investigations. Attendees at the value management workshop included community members, representatives from government agencies (Wagga Wagga City Council, Department of Environment and Climate Change (now the Department of Environment, Climate Change and Water), Department of Primary Industries (now the Department of Industry and Investment), Federal Government Department of Infrastructure, Transport, Regional Development and Local Government, Riverina Rural Fire Service and Wagga Wagga Rural Lands Protection Board (now the Hume Livestock Health and Pest Authority District)), and the RTA.

The outcomes of the workshop confirmed that while Option 3 remained the preferred bypass option in comparison to Option 1, a number of issues required more detailed investigation and consideration in further developing the concept design.

Particular concern was raised in regard to the area south of the intersection of the highway with Mates Gully Road regarding biodiversity and Aboriginal cultural heritage. This area comprises an ecotone between three vegetation communities (Box-Gum Woodland, Ironbark and Red Stringybark vegetation communities), threatened Box-Gum Woodland ecological community, good quality fauna habitat and the presence of threatened squirrel gliders. It is also an area of high cultural sensitivity as identified by the Aboriginal knowledge holders. Given the importance of these features, it was considered desirable to minimise impacts on this area as far as possible.

#### ***4.1.5 Further design development of Option 3***

Between February and April 2008, the RTA undertook further investigation and design refinement of Option 3. The design objective was to maintain the existing functionality of the route, while reducing impacts to the west of the existing highway near Mates Gully, as noted in the value management workshop. The revision of Option 3 sought to minimise impacts on the important ecotone between three vegetation communities (and associated threatened ecological communities and fauna habitat), and on Aboriginal cultural heritage issues. The importance of these features led to the development of the revised western option, which crosses to the eastern side of the existing highway south of Tarcutta Creek.

It is recognised that this revised western option is similar to the previously identified Option 4. However, concerns with Option 4 regarding its potential engineering and constructability constraints in comparison to Option 3 were reconsidered. It was determined that, with appropriate engineering solution, this option was buildable.

The revised western option does result in a direct impact on an item of non-Aboriginal heritage. This is the Hambledon Homestead Complex (listed on the Register of the National Estate and the State Heritage Register). There would likely be a direct impact to a portion of the surrounding paddocks, and a brick well and windmill, located within the curtilage of the complex. These impacts are discussed in Section 9.3.

On balance, it was considered that the revised western option should proceed as it results in:

- Avoidance of an area of high Aboriginal cultural sensitivity and another area of archaeological potential.
- A reduction in impacted area (approximately 4 hectares) of threatened Box-Gum Woodland ecological community (listed as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* and endangered under the *Threatened Species Conservation Act 1995*).
- A reduction in impacted area (approximately 4 hectares) of habitat for threatened woodland-dependent fauna species (eg Squirrel Glider, Brown Tree creeper and microbats).
- A reduction (approximately 6 hectares) of land acquisition.

## 4.2 Selection of the preferred option

The revised western option was announced as the preferred route for the Tarcutta bypass on 15 September 2008 by the Federal Government Minister for Infrastructure, Transport, Regional Development and Local Government. The reasons for adopting the revised western option as the preferred route over Option 1 (which was the other short-listed option) include:

- It is the shortest route, and therefore, offers a better overall value-for-money solution.
- It is considered safer from a road-user perspective, as the alignment is flatter and straighter with fewer at-grade intersections.
- It has a smaller geometric 'footprint' and reduces the area of land acquisition required.
- It is closer to, and in viewing distance of, the village of Tarcutta, and therefore, provides a mechanism to continue to attract tourists into the village.
- It avoids potentially significant impacts on biodiversity and Aboriginal cultural heritage areas, particularly near the intersection of Mates Gully Road and the existing Hume Highway.

## 4.3 The concept design

Following announcement of the preferred route and lodgement of the *Hume Highway Upgrade Tarcutta Bypass: Preliminary Environmental Assessment* (RTA 2008a) to the Department of Planning (refer Section 2.3.1), the design for the project was refined to address issues raised through agency submissions, community consultation, detailed environmental investigations (eg Aboriginal and non-Aboriginal heritage, biodiversity, flooding) and other outstanding design issues. This design refinement included:

- Modifications to the northern and southern interchanges.
- Modifications to the horizontal and vertical alignment.
- Development of intersection arrangements with local roads and property accesses.

The outcome of these design refinements was the development of the concept design as presented in this environmental assessment, and described in detail in Chapters 5 and 6.

