

# Mt Victoria to Lithgow

## Terms of reference for a strategic comparison of Newnes Plateau alternative route study

### 1. Reason for the study

Feedback from the community at meetings and displays in June 2008 included requests for the viability of an alternative route that may be generally described as the Western Precinct section from the Bells Line of Road Corridor Study Volume 1 Nov 2004 (SKM 2004) to be examined.

Representation were also made by the Member for Macquarie Mr Bob Debus, requesting that the viability of this route be examined as part of the Mt Victoria to Lithgow project.

Under this option proposed by some members of the community, the Western Precinct section would need to be extended to take it generally across the Darling Causeway to Mt Victoria., and beyond to the end of the Soldiers Pinch project at about Browntown Oval intersection.

A four lane divided motorway scenario (Bells Line of Road Corridor Study Volume 1 Nov 2004 (SKM 2004)) is unlikely to be economically justified, so consideration of two lane, three lane, and four lane undivided configurations will be necessary.

The route is described as commencing at Marrangaroo to the west of Lithgow, heading to Newnes Plateau, then to Bell, and across the Darling Causeway to Mount Victoria and to the western end of Soldiers Pinch (an overall length of about 40km).

The initial study area extends from east of Mt Victoria to west of McKanes Falls road on the eastern outskirts of Lithgow, generally bounded by the existing Great Western Highway to the south, and the foothills of the valley to the north (an overall length of about 20km).

### 2. Scope of works:

The RTA requires input from a highly skilled transport planner to assist in a strategic-level comparison of the Newnes Plateau alternative route to a base case within the initial study area. Given that no routes exist in the study area, comparison should be made against a base case described as:

- Minimum three lane configuration with central barrier on the eastern and western steep graded sections.
- Four lanes across the valley.
- Route length of 20km.
- Maximum 6% grades.
- Minimum 450m radius curves.
- Approximately \$450 million.

Transport planning aspects should be considered as the primary focus of the review, with engineering comparisons secondary. It will be necessary to model the benefits of the base case against the quantitative and qualitative aspects of the Newnes Plateau alternative route. The analysis should explicitly consider the relative amount of travel on each of the alternative routes (i.e. traffic diversion) and the economic impacts for each major class of vehicle.

The Bells Line of Road Corridor Study Volume 1 Nov 2004 (SKM 2004) focussed on a four lane motorway design standard for the Western Precinct. As part of this comparison the successful contractor would need to consider not just a 4 lane divided motorway scenario, but also 2 lane, 3 lane, and 4 lane undivided configurations.

The order of modelling and analysis should be staged to compare first the 2 lane, then the 3 lane and finally 4 lane solutions. Clearly it will not be necessary to pursue 3 or 4 lane solutions if the 2 lane alternative is shown to be economically unjustifiable. Cost comparison of these varying configurations is part of the tenderers scope, as is quantifying the cost and complexity of an extension across the Darling Causeway and to Soldiers Pinch east of Mt Victoria as this did not form part for the Bells Line of Road Corridor Study Volume 1 Nov 2004 (SKM 2004).

In addition to various lane configuration scenarios, analysis of how the Newnes Plateau alternative route might be staged (reflecting the lane configurations) should also be addressed by the consultant. There are four obvious sections to address (1) the length of about 2 km from Soldiers Pinch past Mt Victoria to get onto the Darling Causeway (2) the works along the Darling Causeway to Bell (3) from Bell through to Clarence still on generally the existing alignment, then (4) from Clarence through to an interchange at Marrangaroo/Tunnel Hill.

Further, significant costs were identified at a western interchange to handle the tie-ins with the Castlereagh Highway and the Main Western Railway Line. Due consideration of this location should also be a focus.

Note that an adoption of a Newnes Plateau alternative route would not remove the need to maintain the existing Great Western Highway in its current location. It follows that costs to upgrade the Mt Victoria and River Lett Hill areas to make them safe and maintain them into the future must be added to a Newnes Plateau alternative route solution.

In comparing the viability of a Newnes Plateau alternative route to a route through the valley, the comparison would need to consider an analysis of assumed heavy vehicle efficiency gains by staying on the high country as opposed to descending and re-emerging from the valley. What is the desirability and likely levels of adoption of one route over another i.e. would the trucking industry use what may be a flatter but longer Newnes Plateau alternative route?

A suitably experienced sub-contractor is to undertake origin / destination surveys of the subject area to determine the traffic volumes expected to use part, or all of the route. As well as east-west freight movements, there is also freight and tourism heading into the existing Mt Victoria to Lithgow study area and then turning off to proceed south to Oberon (two hard rock quarries, timber and forestry activities) plus tourist traffic to Jenolan Caves.

It will be necessary for the successful tenderer to outline a process by which one can weigh up the competing social/economic/environmental/cultural heritage aspects of the competing routes. By way of some very brief background:

- a. It appears at this early stage that there is significant non-Aboriginal cultural heritage through the valley, and significant Aboriginal cultural heritage on the ridges.
- b. The proposed alignment for the Western precinct had a substantial cost in structures (eg approx \$500 million out of the then \$1.14 billion)

Address the questions of:

- c. What type of reductions in projected costs could be achieved by accepting slightly steeper grades (say 6-8%), and further by adopting a single carriageway compared to the dual carriageway of a motorway standard assessed in the Bells Line of Road Corridor Study Volume 1 Nov 2004 (SKM 2004)?

- d. Would an alignment be possible that reduced the high cost in structures without trading off the gains of a flatter alignment?
- e. What cost reductions could be achieved by having at grade intersections?
- f. Could such intersections be designed without becoming an impediment to priority vehicle movements?
- g. Costs associated with minimal upgrading of existing Great Western Highway alignment to adequately address remaining traffic needs and ongoing maintenance.

It will be necessary to liaise with the RTA to ensure agreement on the cost inputs, which will form the basis of calculations.