GREAT WESTERN HIGHWAY SAFETY UPGRADE – MOUNT VICTORIA VILLAGE

Submissions report

OCTOBER 2014

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Roads and Maritime Services

Great Western Highway safety upgrade – Mount Victoria village

Submissions report
October 2014
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Executive summary

The proposed safety upgrade

In July 2012 the Australian and New South Wales governments announced a $250 million revised package of road safety work to improve safety and travel conditions along the Great Western Highway between Katoomba and Lithgow.

As part of this package, Roads and Maritime Services propose to carry out safety upgrades through Mount Victoria village in the Blue Mountains. The upgrades are proposed for three sections of the highway:

- Section 1: From 400 m west of Browntown Oval to about 240 m west of Victoria Falls Road
- Section 2: From about 200 m east of Harley Avenue to about 20 m east of Station Street
- Section 3: From about 90 m west of Station Street in the centre of Mount Victoria village to immediately west of Mount York Road.

The assessment of the proposed safety upgrade is documented in the Mount Victoria village safety upgrade review of environmental factors (REF) (Roads and Maritime, 2013a).

The REF was placed on public display between 25 November 2013 and 7 February 2014 at four locations between Katoomba and Lithgow. It was also placed on the Roads and Maritime website and made available for download.

Roads and Maritime accepted written submissions until 28 February 2014. It received 20 written submissions from the community, two submissions from government agencies, one submission from Blue Mountains City Council and one submission from the Mount Victoria Community Association.

Issues raised in submissions

Submissions received between November 2013 and February 2014 raised the following issues:

- The status of the overall upgrade of the highway
- The justification and funding allocation for the proposal
- The scale and scope of the proposal
- The proposed intersection arrangements
- The proposed service road
- Impacts on village character, heritage and visual amenity
- Impacts on private property
- Impacts on pedestrian and cyclist facilities
- Development of a biodiversity offset strategy
- Road safety.

Refinements to the proposal in the REF

After the display of the REF, Roads and Maritime began the detailed design of the proposal.
This included refining the design of the service road in Section 2 in response to community comments. The refinements aimed to reduce the overall scale of the service road and the visual impact of the retaining wall.

Roads and Maritime also became aware from the submissions that there was significant community interest in the proposed intersection upgrades in Section 3, and developed two more options for the section.

Due to these proposed design changes, Roads and Maritime decided it would be in the public interest to again consult with the community. In July 2014, Roads and Maritime issued a community update with further information on:

- The proposed service road in Section 2
- The removal of the proposed water quality basin in Section 2
- The options for the intersection upgrades in Section 3.

The consultation period was between 14 July 2014 and 25 July 2014. Roads and Maritime accepted written submissions for this second round of consultation until 31 July 2014 (six days after the official closing date). It received 82 submissions during the consultation period – 81 from the community and one from Blue Mountains City Council.

During this period of consultation, the same general issues were raised as those raised in the first round of consultation. Additional issues included:

- Preferences for the intersection upgrades in Section 3
- Maintenance of assets.

This report summarises the issues raised by the community in submissions received during both consultation periods and provides responses to them. It also provides a description of the proposed changes and an assessment of the potential environmental impact of changes to the proposal. Lastly, this report presents revised safeguards for managing these impacts.

**Conclusion**

The proposed safety upgrades, including the refinements documented in this submissions report, meet the project objectives, while effectively minimising environmental impacts and considering community issues.
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Appendix A Community updates
Appendix B Submissions received during consultation and where issues are addressed in the report
Appendix C Work near Caltex Service Station, Mount Victoria
1 Introduction and background

1.1 Purpose of this report
This submissions report relates to the Mount Victoria Village safety upgrade review of environmental factors (REF) document prepared for the Great Western Highway upgrade at Mount Victoria village (Roads and Maritime, 2013a). This report should therefore be read in conjunction with the REF document.

1.2 The proposal
Roads and Maritime Services proposes to carry out safety upgrades along three sections of the highway through Mount Victoria village in the Blue Mountains, New South Wales (‘the proposal’) (refer to Figure 1-1). As shown in Figure 1-2 these sections extend for about 2.3 km. The three sections are:

- Section 1: From 400 m west of Browntown Oval to about 240 m west of Victoria Falls Road
- Section 2: From about 200 m east of Harley Avenue to about 20 m east of Station Street
- Section 3: From about 90 m west of Station Street in the centre of Mount Victoria village to immediately west of Mount York Road.

The proposal does not represent a major upgrade, but rather work to improve local road safety. The key elements of the proposal include:

- Widening the highway shoulders by up to about 3 m on each side of the road
- Moving the highway about 20 m to the north-east between Mount Piddington Road and Hooper Street to improve the road alignment
- Upgrading seven intersections, including:
  - Dedicated right-turn bays at Harley Avenue, Mount Piddington Road, Kanimbla Valley Road and Selsdon Street
  - Dedicated left turn bay at Mount York Road with the use of line marking
  - Basic right turn at Victoria Falls Road
  - Left in /left out only at Hooper Street and Cecil Road with the use of appropriate sign posting and line marking.
- Providing a new service road to improve and provide safe access to private properties on the southern side of the highway between Cecil Road and Mount Piddington Road
- Providing a pedestrian refuge in the central median near Selsdon Street and improving connectivity through additional footpaths within the proposal area
- Building four retaining walls up to 5.5 m high and up to 230 m long
- Building two culverts and upgrading existing drainage infrastructure
- Providing water quality basins at up to three locations
- Providing temporary construction facilities, including construction compounds and stockpile sites along its length
- Providing tie-ins with the existing pavement and highway levels at the end of each section.
1.3 REF display and consultation

Roads and Maritime placed the REF on public display between 25 November 2013 and 7 February 2014. Roads and Maritime accepted submissions until 28 February 2014 (21 days after the closing date). A copy of the community update issued before the public display is included in Appendix A.

The REF was displayed at four locations, as detailed in Table 1-1. It was also placed on the Roads and Maritime internet website and made available for download. The display locations and website link were advertised in the Blue Mountains Gazette and Lithgow Mercury.

In addition to the public display, an invitation to comment and an electronic copy of the REF was emailed to the following identified stakeholders:

- Blue Mountains City Council
- Lithgow City Council
- NSW Department of Primary Industries
- Office of Environment and Heritage
- NSW National Parks and Wildlife Service
- Sydney Catchment Authority
- Hawkesbury Nepean Catchment Authority
- NSW Trains (formerly RailCorp)
- Bathurst Police
- NSW Rural Fire Service and NSW Fire Brigades.

Table 1-1 Display locations of the REF

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<td>Lithgow City Council</td>
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<td>Lithgow NSW 2790</td>
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<td>Mount Victoria General Store and Newsagency</td>
<td>109 Great Western Highway</td>
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<td></td>
<td>Mount Victoria NSW 2786</td>
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<td>Hartley Valley Lolly Shop</td>
<td>2297 Great Western Highway</td>
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<td></td>
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1.4 Detailed design and subsequent consultation

After the display of the REF, Roads and Maritime worked on the detailed design of the proposal. This included refining the design of the service road in Section 2 in response to the issues raised in submissions (refer to Chapter 3). The refinements aimed to reduce the visual impact of the service road retaining wall, and the overall scale of the service road.

Roads and Maritime also made other refinements to the design, such as removing the proposed water quality basin in Section 2. (More detailed investigations into water quality impacts and management determined that it was no longer required. This change would further reduce the scale of the proposal).
Roads and Maritime also became aware from the submissions that there was significant community interest in the proposed intersection upgrades in Section 3. Specifically, a large number of the submissions suggested alternative options for the intersection upgrades in Section 3. In response, Roads and Maritime developed two more options for Section 3:

- Option 1: Left in / left out movements only at Cassilis Street and Selsdon Street at the highway
- Option 2: Close Cassilis Street and Selsdon Street at the highway.

Due to these proposed design changes, Roads and Maritime decided it would be in the public interest to consult with the community. In July 2014, it provided further information to the community via a community update newsletter on:

- The refinements made to the proposed service road design in Section 2
- The removal of the proposed sediment basin in Section 2
- The three options for intersection upgrades in Section 3 (the newsletter asked people to choose a preferred option).

A copy of the community update is provided in Appendix A.

### 1.5 Content of this submissions report

This submissions report:

- Provides an overview of the submissions received (Chapter 2)
- Summarises issues raised in the written submissions, and provides responses to each issue (Chapter 3)
- Describes the recent refinements to the proposal, and assesses the environmental impact of these refinements (Chapter 4)
- Lists new or revised environmental management and mitigation measures (Chapter 5).
2 Overview of issues raised

A total of 106 submissions were received in response to the display of the environmental assessment comprising four government agency submissions and 102 submissions from the community.

Appendix B lists the respondents and each respondent’s allocated submission number. Appendix B also indicates where the issues from each submission have been addressed in Chapter 3 of this report.

This chapter provides an overview of the issues raised by the community, stakeholders and government agencies.

2.1 Government agency submissions

2.1.1 State Government

The Heritage Council of NSW (Heritage Council) noted that Roads and Maritime should carry out in full all the recommendations in the Mount Victoria village safety upgrade REF.

The Office of Environment and Heritage (OEH) indicated its preference for a consolidated offset strategy for the Great Western Highway between Katoomba and Lithgow, based on OEH offset principles (refer to the OEH website http://www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm).

2.1.2 Blue Mountains City Council

The main issues raised by Blue Mountains City Council included:

- The status of the overall upgrade of the Great Western Highway between Mount Victoria and Lithgow
- Concern about the scope and scale of the proposal
- Request to review detailed road, drainage and urban design plans (including replanting and retaining wall treatments) after they are completed and available for review
- Maintenance of assets to be handed over to council after construction
- Access for pedestrians and cycles
- Specific queries about intersection treatments
- Heritage character and landscape character and visual amenity impacts
- Vegetation removal.

On 23 May 2014, Roads and Maritime met with Blue Mountains City Council to discuss progress of the design and how Roads and Maritime had considered council’s submission. Items that were discussed included urban design (including artist’s impressions for the service road), footpaths and community feedback.

On 7 August 2014, Roads and Maritime met again with Blue Mountains City Council to discuss its submission during the second round of consultation for the proposal. This submission focused on design changes.

Roads and Maritime is committed to ongoing consultation with council to respond in further detail to any queries or concerns.
2.2 Community submissions

The main comments received from community members in written submissions included:

• The status of the overall upgrade of the Great Western Highway between Mount Victoria and Lithgow
• The strategic need for the proposal
• The scale and scope of the proposal
• The treatment of intersections along the highway
• Detail of the service road in Section 2, including visual amenity issues
• Preference for various options in Section 3 of the proposal
• Ongoing consultation with the community
• Access to private properties along the highway
• Pedestrian and cyclist access along the highway.

On 14 April 2014, Roads and Maritime met with the Mount Victoria Community Association to respond to its concerns with the REF. The Association's primary concern is the scope and scale of the proposal. It presented an alternative proposal to Roads and Maritime for consideration. This is responded to in Section 3.1.

On 29 July 2014, Roads and Maritime met again with the Mount Victoria Community Association to discuss the second round of consultation for the proposal.

Roads and Maritime is continuing to engage with the Association to respond in detail to its alternative proposal.
3 Response to issues

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and Roads and Maritimes response to these issues forms the basis of this chapter.

3.1 Proposal justification

Overall upgrade of the Great Western Highway between Mount Victoria and Lithgow

Submission numbers

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<tr>
<td>10 – Individual</td>
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<td>19 – Blue Mountains City Council</td>
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Issue description

Several respondents raised concerns about the adequacy of the proposal. They stated that the safety upgrade proposals were not sufficient to meet the needs of all highway users, including motorists and heavy vehicles. The respondents stated that a new highway is required to meet the traffic load, meet the needs of motorists and avoid the issues associated with maintenance.

The respondents raised the following specific issues:

- Queried whether the overall upgrade of the Great Western Highway between Mount Victoria and Lithgow would proceed (including the Mount Victoria/Victoria Pass and River Lett Hill bypasses)
- Queried where the Federal Government money assigned to the overall upgrade would be reallocated
- Requested that the funding allocated to the upgrades should be reallocated to the bypass.

Blue Mountains City Council suggested that the overall upgrade comprising the Mount Victoria Pass and railway bridge bypass should be prioritised to address safety issues at these locations. Council also requested a copy of the proposed program for the overall upgrade.

Response

The overall concept design for the long-term upgrade of the Great Western Highway between Mount Victoria and Lithgow was completed in 2013. (The concept design and associated proposed road boundaries were recently provided to Blue Mountains City Council and Lithgow City Council for inclusion in their local environmental plans.)

When the cost of the concept design was estimated, it was found that the total cost of the ultimate project would be higher than anticipated because of local topographical and geotechnical complexities, which would require the use of tunnels and viaducts...
along the route. The high cost estimate for the ultimate project means that funding is not available to carry out the highway upgrade in one stage.

For example, strategic cost estimates prepared in 2009 suggest that the cost to build just the tunnel bypass of Mount Victoria would be between $0.9 and $1.1 billion. This means that funding for the tunnel bypass is not available in State and Federal budgets, and it is uncertain when this funding will become available.

In September 2011, the NSW Government engaged Evans and Peck to carry out an independent review of the proposed upgrades of the Great Western Highway west of Katoomba. The review was initiated after concerns were raised by some community members about the environmental, cultural, social and economic impacts of the upgrade projects and to ensure the best value for money from the $250 million committed by the Australian and NSW governments to the overall upgrade project.

As a result of the review, the NSW and Australian governments agreed on a revised program of work between Katoomba and Lithgow. The program of work includes:

- Finalising the concept design and road boundaries for upgrading the highway between Mount Victoria and Lithgow
- A three-lane upgrade at Forty Bends
- An enhanced safety work program
- Using remaining funds (from the $250 million committed) to carry out safety upgrades between Katoomba and Mount Victoria.

For these reasons, the Mount Victoria village safety upgrade proposal focuses on the most effective use of available funds to deliver necessary safety improvements through the corridor.

At this stage, it is unknown when the overall concept design and associated bypass of Mount Victoria village would be built. The timing for the project would depend on the availability of funding. Roads and Maritime will consult with council, stakeholders and the broader community if a decision is made to progress the long-term upgrade proposal.

**Strategic need for the proposal**

*Submission numbers*

46 – Individual
78 – Individual
98 – Individual

*Issue description*

A respondent suggested that only minimal work is required given the low accident history on this section of the Great Western Highway. It was also stated that the proposal does not address the real safety issue associated with heavy vehicles traveling through the village, and are a costly option.

A respondent stated that the proposal does not address the volume and type of traffic that passes through the village. It was stated that all the options for Section 3, including the REF concept design, would exacerbate the situation which would increase risk to personal safety.
Response

Section 2.1.3 of the REF outlines the need and justification for the proposal, including crash data. Crash data reveal that there were 34 crashes on the highway between Browntown Oval and Victoria Street at Mount Victoria in the five-year period between July 2007 and June 2012. This included one fatal crash and 12 injury crashes on the length of road that is the subject of the REF. This crash history underpins the justification for the proposal, which was designed to ensure the most effective use of available funds.

As outlined in Section 2.3 of the REF, the objectives of the proposal are to:

- Improve safety for all road users in Mount Victoria village and cater for a mix of motorists, cyclists and pedestrians
- Be sensitive to the area’s natural environment, heritage and local communities
- Maintain the integrity and qualities of Mount Victoria as a village in the Greater Blue Mountains World Heritage Area.

These objectives are also consistent with the overall objectives of the Great Western Highway upgrade program, which are to:

- Improve road safety
- Improve freight efficiency
- Cater for the mix of through, local and tourist traffic
- Be sensitive to the area’s natural environment, heritage and local communities.

The upgrade would cater for the current volume and mix of traffic that passes through Mount Victoria village, including trucks. Heavy vehicle traffic through Mount Victoria village would only be substantially reduced once the ultimate upgrade has been constructed.

A discussion on the cost of the proposal is provided in Section 3.1.

Alternative route for Great Western Highway

Submission numbers
10 – Individual

Issue description

The respondent:

- Expressed concern that a Great Western Highway alternative option was not considered during the planning phase for the Hartley Valley and Mount Victoria village proposal
- Disagreed that a new highway into Hartley Valley and through Lithgow would serve the purpose of an inter-regional highway
- Suggested that the highway should avoid local connections where speed and safety are compromised
- Stated that a Newnes Plateau route would be preferable to a route through Mount Victoria, Hartley Valley, Lithgow and Marrangaroo
- Suggested that the Golden Highway be considered for a widening upgrade as an alternative route to the Central West.
Response

Roads and Maritime selected the upgrades associated with the Mount Victoria village proposal with a focus on making best use of available funding to implement necessary safety improvements to the Great Western Highway corridor. As a result, it did not consider alternative alignments as part of the proposal.

In addition, an upgrade of the Golden Highway would not address the current safety issues associated with the Mount Victoria village section of the highway, which is the key objective of the proposal.

Investigations for the overall upgrade of the Great Western Highway between Mount Victoria and Lithgow (between 2008 and 2013) considered a range of alternative alignments, including the Newnes Plateau route. This process culminated in a concept design in 2013 that largely follows the existing alignment of the highway, with bypasses at Mount Victoria and River Lett Hill. This still represents the ultimate long-term scheme for this section of the highway. Accordingly, the proposed road boundaries were provided to the Blue Mountains City Council and Lithgow City Council for consideration when funding becomes available in the future.

Safety benefits

Submission numbers

19 – Blue Mountains City Council

Issue description

Blue Mountains City Council requested Roads and Maritime to indicate the level of safety benefits the proposal is expected to deliver. Blue Mountains City Council requested that detail be provided on which alternative safety measures were explored and why they were found to be unsuitable.

Response

Although not quantified at this stage, it is expected that the proposal would reduce turning and rear-end crashes as a result of improved turning conditions at the following roads:

- Victoria Falls Road
- Harley Avenue
- Mount Piddington Road
- Hooper Street
- Kanimbla Valley Road
- Selsdon Street
- Mount York Road.

The proposal is also expected to reduce rear-end and head-on crashes at the Mount Piddington curve by flattening the curve and providing improved sight distance.

Alternatives and options considered are outlined in Section 2.4 of the REF. The feasibility of these options was considered in the Mount Victoria Village Safety Upgrade Feasibility Report (Roads and Maritime, 2012). It was found that the
preferred option would best meet the project objectives while minimising environmental and socio-economic impacts.

**Alternative proposal**

**Submission numbers**

22 – Mount Victoria Community Association
95 – Individual

**Issue description**

The Mount Victoria Community Association expressed concern about the scale and scope of the proposal. The Association presented an alternative proposal that it stated would provide the safety benefits required for Mount Victoria village while reducing the scale. The key aspects of the proposal include:

- A right turn from the highway onto Harley Avenue, with new traffic lights
- A left-in left-out treatment at Mount Piddington Road
- Removal of the shared user zone/service road between Cecil Road and Hooper Street
- Traffic lights at the highway intersection with Hooper Street, including a pedestrian crossing on the eastern approach to the intersection
- A dedicated right-turn lane onto Grand View Road
- No upgrades at any other intersection in Section 3 (other than Grand View Road), as there is no evidence that safety upgrades are required
- Improvements to private driveways at 111 and 113 Great Western Highway
- Additional pedestrian connectivity throughout the proposal area
- Replacement of the footpath between the highway and the Gatekeepers Cottage with a pedestrian railway underpass
- Installation of a speed camera east of Mount Victoria village.

Another respondent suggested that Roads and Maritime consider an alternative proposal which would involve adjusting the main village intersection from Station Street to Mount Piddington Road, with Mount Piddington Road extending further north through to Harley Avenue. The respondent suggested that this alternative would improve safety by funnelling all local traffic to a central point where it can safely join the highway.

**Response**

Roads and Maritime reviewed the feasibility of the alternative proposal provided by the Mount Victoria Community Association. The outcomes of the review were presented to the Association during a meeting on 14 April 2014. A summary of the outcomes of the review is provided below.

**Right turn from the highway onto Harley Avenue, with new traffic lights**

The footprint required for this scenario would be substantially larger than the existing proposal. This is because the service road and retaining walls would still be required and additional space (to meet design standards for heavy vehicles) would be necessary to accommodate turning lanes at the traffic lights. This increased footprint would require additional property acquisition and have potential heritage impacts.

The installation of traffic lights would also result in potential congestion and conflicts with the Station Street traffic lights. In addition, traffic numbers, flows, conflicts, crash
statistics and pedestrian movements at this intersection do not justify the installation of traffic lights.

**Left-in left-out treatment at Mount Piddington Road**

One of the goals of the proposal is to improve safety at the bend of the highway near Mount Piddington Road. The process of ‘straightening out the curve’ governs the size of the footprint at this location. Accordingly, a left-in left-out treatment at Mount Piddington Road would only result in a marginal reduction of the overall footprint. There is sufficient space at this location to provide safe turning lanes at Mount Piddington Road.

In addition, limiting turns at Mount Piddington Road (as suggested in the alternative proposal) would have a number of adverse flow-on effects to the local road network due to the relocation of turning traffic.

**Removal of the shared user zone/service road between Cecil Road and Hooper Street**

Roads and Maritime recognises that the removal of the service road would reduce the land acquisition required for the proposal. It therefore investigated an alternative approach to eliminate the service road by removing the right turn into Harley Avenue, while providing a smaller curve improvement through the highway bend at Mount Piddington Road. This would result in:

- A requirement to provide a longer right-turn lane into Station Street that extends past Hooper Street
- Potential blockage of the westbound highway traffic. The space restrictions to the east of Station Street would mean that no shoulder would be provided near the right-turn lane. Should the right-turn bay be full, or if any vehicle using the right-turn bay were not positioned far enough to the right, the rear of the vehicle would potentially block westbound through traffic
- A requirement for linemarking to improve the difficult right turn into Station Street for heavy vehicles
- A requirement to close Hooper Street to all movements except left-out
- No space for a road shoulder between Station Street and Mount Piddington Road
- Substandard geometry and speed between Harley Avenue and Hooper Street. As a result, the sight distance would remain substandard at these intersections.

In light of these considerations, the service road remains the most appropriate solution.

**Traffic lights at the highway intersection with Hooper Street, including a pedestrian crossing on the eastern approach to the intersection**

This location does not have sufficient space to allow the installation of full movement traffic signals. Should an intersection be built, it would not be wide enough to provide long enough turning lanes, resulting in potential blockages of through traffic. The intersection would also further shorten the right turn into Station Street.

As traffic lights at this intersection are not feasible, a pedestrian crossing with traffic lights would not be installed at this location.
Dedicated right-turn lane onto Grand View Road
A dedicated right-turn lane onto Grand View Road was also suggested in other submissions to the REF (refer to Section 3.4). As a result, Roads and Maritime refined this suggestion to also include:

- Placing right-turn lanes at Burwood Road and Fairy Dell Road
- Closing access to Cassilis Street and Selsdon Street
- Signposting Kanimbla Avenue to left-in / left-out access only
- Strip acquisition from seven additional properties between Fairy Dell Road and Burwood Road.

This alternative proposal would reduce the width of the footprint for the eastern half in Section 3, but would require additional property acquisition. This alternative proposal was distributed to the community for comment in July 2014. The outcomes of this consultation process are discussed in Section 3.2.

No upgrades at any other intersection in Section 3 (other than Grand View Road)
Roads and Maritime does not support the alternative proposal to upgrade Grand View Road only and leave the other intersections in Section 3 without an upgrade. This is because it would not address the safety issues at these other intersections.

In contrast, the concept assessed in the REF would reduce conflict points along the highway, which would improve safety for both local and through traffic. For instance, it would be safer to have dedicated turn lanes, left-in left-out or closing intersection points than intersections where all turns and movements are permitted (as suggested in the alternative proposal).

Improvements to private driveways at 111 and 113 Great Western Highway
These properties are outside the proposal area (between Section 2 and 3) and would not be directly affected by the proposal. They would therefore not require alternative access arrangements. Residents in this area should direct their queries about adjustments to access to Blue Mountains City Council.

Additional pedestrian connectivity throughout the proposal area
Roads and Maritime has considered the footpath arrangement proposed by the Mount Victoria Community Association. It is feasible to provide links between the various sections of the proposal to improve pedestrian connectivity. Roads and Maritime will incorporate additional paths next to the westbound lane between Section 1 and 2 and between Section 2 and 3. The locations of these paths are described in Section 4.1.7. Any additional pedestrian connections would need to be addressed by Blue Mountains City Council.

In response to removing the path near the Gatekeepers Cottage and replacing it with a pedestrian railway underpass:

- Irrespective of where formal footpaths are placed, a barrier along the top of the fill embankment near the Gatekeepers Cottage is required. The barrier is required because of the proximity of the building to the edge of the road, the building’s position below road level and the nature of the bend along this section of the highway. A path behind the barrier can be accommodated within this area, and improve safety for pedestrians through to Browntown Oval
- A footpath under the railway line is not feasible as part of the safety upgrades, due to the local topography and the cost and technical challenges of creating a path under an operational rail line. The low number of pedestrians using this
route makes it particularly hard to justify this suggestion, and the existing pedestrian bridge provides an adequate and appropriate pedestrian route. Further discussion on this footpath is provided in Section 3.5.

Install a speed camera east of the Mount Victoria village centre
The existing spread of speed cameras between Katoomba and Lithgow is adequate for managing speed enforcement along this section of the Great Western Highway. Roads and Maritime will continue to work with Blue Mountains City Council and NSW Police to address speeding on the highway.

Alternative proposal to adjust the village intersection to Mount Piddington Road
Roads and Maritime considered an alternative proposal to adjust the village intersection by including traffic lights and safe turning lanes at all legs of the intersection to Mount Piddington Road. However, this alternative proposal was discounted because:

- It would result in a substantially greater footprint than is currently proposed and require additional property acquisition on both sides of the highway
- The topography is steep in this area, and substantial fill, batters or additional retaining walls would be required to achieve safe approaches to the intersection, especially at the extension of Mount Piddington Road
- The scale of the intersection would be such that it would dominate the approach to Mount Victoria.

3.2 Need and options considered
There was a strong response to the three options in Section 3, namely, the concept design (as outlined in the REF), Option 1 and Option 2. Council and community responses are addressed separately, below.

Council preferences for Section 3 options

Submission numbers
104 – Blue Mountains City Council

Issue description
Blue Mountains City Council indicated partial support for Option 2 in Section 3. Specifically, Council supports the closure of Cassilis Street, but does not support the closure of Selsdon Street. Selsdon Street provides direct access to The Grange, and closing this road would result in adverse impacts for traffic travelling to and from The Grange, and would cause amenity, maintenance and access issues on adjoining local roads.

Because of these concerns, Council recommended that Roads and Maritime consider a combination of the three options, namely:

- Providing protected right-turn bays at Fairy Dell Road, Grand View Road and Burwood Road as per Option 2
- Closing Cassilis Street as per Option 2
- Allowing for all movements at Selsdon Street, and providing a westbound acceleration lane which would be allowed for with the closure of Cassilis Street, as per Option 1
- Retaining the pedestrian refuge as per the current concept.
Council also queried the proposed extent of widening of the road corridor in Section 3.

Response

Roads and Maritime considered council’s feedback on the upgrade in Section 3. However, it found that council’s suggestion for a composite of the three options is not feasible due to the combined cost of earthworks together with the additional acquisition required to achieve protected right-turn bays at Fairy Dell Road, Grand View Road and Burwood Road.

Roads and Maritime also considered council’s comments on reducing the scale of the upgrade where possible. Accordingly, the concept design has focused on safety improvements within the existing road reserve to reduce impact on properties as much as possible. Opportunities were identified to further reduce the scale and the proposal footprint as part of the detailed design. Design refinements are described in Section 4.1.

Community preferences for Section 3 options

Submission numbers

<table>
<thead>
<tr>
<th>Submission number</th>
<th>Individual 45</th>
<th>Individual 68</th>
<th>Individual 88</th>
</tr>
</thead>
<tbody>
<tr>
<td>23 – Individual</td>
<td>45 – Individual</td>
<td>68 – Individual</td>
<td>88 – Individual</td>
</tr>
<tr>
<td>27 – Individual</td>
<td>49 – Individual</td>
<td>71 – Individual</td>
<td>91 – Individual</td>
</tr>
<tr>
<td>31 – Individual</td>
<td>53 – Individual</td>
<td>75 – Individual</td>
<td>95 – Individual</td>
</tr>
<tr>
<td>32 – Individual</td>
<td>54 – Individual</td>
<td>76 – Individual</td>
<td>96 – Individual</td>
</tr>
<tr>
<td>34 – Individual</td>
<td>55 – Individual</td>
<td>77 – Individual</td>
<td>97 – Individual</td>
</tr>
<tr>
<td>36 – Individual</td>
<td>57 – Individual</td>
<td>80 – Individual</td>
<td>100 – Individual</td>
</tr>
<tr>
<td>38 – Individual</td>
<td>61 – Individual</td>
<td>82 – Individual</td>
<td>102 – Individual</td>
</tr>
<tr>
<td>41 – Individual</td>
<td>64 – Individual</td>
<td>84 – Individual</td>
<td></td>
</tr>
<tr>
<td>42 – Individual</td>
<td>65 – Individual</td>
<td>85 – Individual</td>
<td></td>
</tr>
<tr>
<td>43 – Individual</td>
<td>66 – Individual</td>
<td>86 – Individual</td>
<td></td>
</tr>
<tr>
<td>44 – Individual</td>
<td>67 – Individual</td>
<td>87 – Individual</td>
<td></td>
</tr>
</tbody>
</table>

Issue description

Seventy-one respondents stated their preferences for the alternative options developed by Roads and Maritime for Section 3. A number of respondents also provided reasons for why options were preferred over others or suggested variations to each option. Table 3-1 summarises the reasons why options were or were not preferred over others, while Table 3-2 outlines the variations to each option that were identified in the community feedback.
### Table 3-1 Preferences for options in Section 3 of the proposal

<table>
<thead>
<tr>
<th>Option</th>
<th>Number of respondents who stated preferences for option</th>
<th>Reasons why the option was preferred</th>
<th>Reasons why the option was not preferred</th>
</tr>
</thead>
</table>
| Concept design  | 65/71 (79.2% of all respondents, including those without a preference) | • Provides safety benefits  
• Maintains or improves traffic flow  
• Improves local road layout  
• Improves intersections that are used most by local residents and considered to be key intersections  
• Reduces congestion on the highway at intersections to local roads by providing turning lanes  
• Improves visual amenity of Mount Victoria  
• Improves access to schools, fire brigade and residences and accommodation via key intersections  
• Provides turning lanes into Selsdon Street and Kanimbla Valley Road, which are considered to be key intersections  
• Allows all turning movements at Kanimbla Valley Road  
• Provides safety improvements with minimal interference with private properties  
• Does not close any intersections or roads  
• Improves safety for some private property access  
• Builds on existing traffic arrangement  
• Is the simplest option | • Allows for potential rear-end collisions for vehicles turning right onto Selsdon Street, particularly during school peak hours, where queued traffic may extend onto the highway. |
<table>
<thead>
<tr>
<th>Option</th>
<th>Number of respondents who stated preferences for option</th>
<th>Reasons why the option was preferred</th>
<th>Reasons why the option was not preferred</th>
</tr>
</thead>
</table>
| Option 1 | 6/71 (8.5% of all respondents, including those without a preference) | • Provides pedestrian crossings  
• Provides better access to private property for some residents  
• Improves safety at the intersections being upgraded  
• Improves turning arrangements at Grand View Road  
• Provides more pedestrian crossings than the concept design  
• Reduces the potential for vehicular conflict at Selsdon Street. | • Is not an appropriate use of funds  
• Does not maintain traffic flow  
• Does not provide safe access for Kanimbla Valley Road residents  
• Does not allow for turning movements of large buses or coaches  
• Blocks Selsdon Street, which is not viable as it provides access to schools, residences, sewage pump station and the fire brigade  
• Removes the right turn from the highway onto Selsdon Street, which is inconvenient for residents  
• Results in flow-on traffic to other local streets, causing congestion and reducing safety for pedestrians. This applies especially to Grand View Road and Victoria Street  
• Results in flow-on traffic to Burwood Road, Montgomery Street and Monmouth Street, which are too narrow and have turns that are too tight for buses  
• Makes the highway a barrier for movement between the north and south of the village  
• Forces motorists to use Burwood Road, where the line of sight is poorer than that at Selsdon Street  
• Provides an ambiguous and potentially unsafe situation where right-turning traffic onto Burwood Road would oppose right-turning traffic from Grand |
<table>
<thead>
<tr>
<th>Option</th>
<th>Number of respondents who stated preferences for option</th>
<th>Reasons why the option was preferred</th>
<th>Reasons why the option was not preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>View Road</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Causes confusion and inconvenience as a result of partial road closures</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Removes right turns from Kanimbla Valley Road</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Results in right turns from Hooper Street, which are less safe than right from other local roads.</td>
</tr>
</tbody>
</table>
| Option 2 | 1/71 (1% of all respondents, including those without a preference) | • Provides turning lane onto Grand View Road  
• Provides more pedestrian crossings than the concept design. | • Is not an appropriate use of funds  
• Does not maintain traffic flow  
• Does not provide safe access for Kanimbla Valley Road residents  
• Blocks Selsdon Street, which is not viable as it provides access to schools, residences, sewage pump station and the fire brigade  
• Removes the right turn from the highway onto Selsdon Street, which is inconvenient for residents  
• Blocks Cassilis Street, which is not viable  
• Results in flow-on traffic to other local streets, causing congestion and reducing safety for pedestrians. This applies especially to Grand View Road and Victoria Street  
• Results in flow-on traffic to Burwood Road, Montgomery Street and Monmouth Street, which are quieter local streets, and are also too narrow and have turns that are too tight for buses  
• Makes the highway a barrier for movement between the north and south of the village |
<table>
<thead>
<tr>
<th>Option</th>
<th>Number of respondents who stated preferences for option</th>
<th>Reasons why the option was preferred</th>
<th>Reasons why the option was not preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Forces motorists to use Burwood Road, where the line of sight is poorer than that at Selsdon Street</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Results in the closure of roads and intersections, which is not supported by respondent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provides ambiguous and potentially unsafe situation where right-turning traffic onto Burwood Road would oppose right-turning traffic from Grand View Road</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Causes confusion and inconvenience as a result of partial road closures</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Results in right turns from Hooper Street, which are less safe than right from other local roads.</td>
</tr>
</tbody>
</table>

Note: One respondent voted for both Option 1 and 2 hence total count of votes is 72 for 71 respondents.

Table 3-2 Suggested variations to options, or comments on the options

<table>
<thead>
<tr>
<th>Options for Section 3</th>
<th>Suggested variations to options, or comments on them</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current concept</td>
<td>• Include protected right-turn bays from highway onto Fairy Dell Road, Grand View Road and Burwood Road</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Include a protected right-turn bay from highway into Grand View Road that accommodates 8 cars</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Provide a waiting area or a turning lane in the centre of the highway for turns out of Grand View Road, Selsdon Street and Kanimbla Valley Road onto the highway</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Include protected turning lanes and waiting bays on the highway</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• All of these variations to the concept design would require a larger footprint and additional property acquisition, and would also have increased impact on landscape character and visual amenity.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• An upgrade of all intersections in Section 3 would require increased property acquisition and earthworks.</td>
<td></td>
</tr>
<tr>
<td>Options for Section 3</td>
<td>Suggested variations to options, or comments on them</td>
<td>Response</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>for all streets</td>
<td>• Provide a pedestrian refuge between Burwood Road and Fairy Dell Road.</td>
<td>• The design of the Grand View Road, Kanimbla Valley Road and Selsdon Street intersections is such that a waiting area in the centre of the highway would not be necessary. The improvement in sight distance at these intersections would allow motorists to select an appropriate turning opportunity in traffic (refer to Section 3.5).</td>
</tr>
<tr>
<td>• Do not block off Cassilis Street</td>
<td></td>
<td>• Cassilis Street would not be closed as part of the proposal.</td>
</tr>
<tr>
<td>• Provide a right-turn lane onto Kanimbla Valley Road</td>
<td></td>
<td>• A right-turn lane onto Kanimbla Valley Road would be provided as part of the proposal.</td>
</tr>
<tr>
<td>• Include a wider shoulder for eastbound vehicles to overtake right-turning traffic into Grand View Road</td>
<td></td>
<td>• The proposal would provide widened shoulders for vehicles to overtake right-turning traffic onto Grand View Road from the highway.</td>
</tr>
<tr>
<td>• Provide a right-turn lane into and out of Cassilis Street</td>
<td></td>
<td>• The volume of traffic using Cassilis Street does not warrant a dedicated right-turn lane on the highway. A dedicated right-turn lane at this location would also require a larger footprint and property acquisitions.</td>
</tr>
<tr>
<td>• Provide a pedestrian refuge east of Kanimbla Valley Road</td>
<td></td>
<td>• A safe pedestrian refuge could not be provided east of Kanimbla Valley Road, as it would interfere with the sight distance of vehicles turning right from Selsdon Street.</td>
</tr>
<tr>
<td>• Close the access to Burwood Road and Cassilis Street</td>
<td></td>
<td>• Burwood Road and Cassilis Street intersections are safe operating intersections that would meet design standards as part of the proposal. They do not need to be closed.</td>
</tr>
<tr>
<td>Options for Section 3</td>
<td>Suggested variations to options, or comments on them</td>
<td>Response</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------</td>
<td>-----------</td>
</tr>
</tbody>
</table>
| Option 1              | • Include an ‘exception for emergency vehicles’ sign at Selsdon Street intersection  
                         • Widen Montgomery Street to accommodate increased traffic flows  
                         • Include a right-turn bay into Kanimbla Valley Road  
                         • Do not block off Cassilis Avenue or Kanimbla Valley Road. | • Variations for these options were not investigated as these options were not preferred. |
| Option 2              | • Include an ‘exception for emergency vehicles’ sign at Selsdon Street intersection  
                         • Widen Montgomery Street to accommodate increased traffic flows  
                         • Do not block off Cassilis Avenue or Kanimbla Valley Road. |           |
Four respondents indicated that they did not support any of the proposed options in Section 3, as outlined in Table 3-3.

**Table 3-3 No support for options**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Suggested variations to options, or comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the options would improve traffic flow.</td>
<td>Improvements to traffic flow are discussed in Section 3.4 and 3.5.</td>
</tr>
<tr>
<td>Minimal work is required as there is no accident history in Section 3.</td>
<td>The crash history and strategic need for the proposal are discussed in Section 3.1.</td>
</tr>
<tr>
<td>All options would compromise the integrity of the village, as the highway would become a dominating barrier to north–south traffic movements.</td>
<td>The highway would facilitate local movements by improving intersections, as discussed in Section 3.4.</td>
</tr>
<tr>
<td>None of the options would solve the issue associated with the volume and type of traffic that passes through the village. The options and the current concept would exacerbate the situation, which results in increased risk to personal safety.</td>
<td>The strategic need for the proposal is discussed in Section 3.1.</td>
</tr>
</tbody>
</table>

**Response**

Responses to submissions are provided in Table 3-2 and Table 3-3.

The concept design is based on detailed investigations and community consultation. The outcomes of the consultation process in July 2014 confirmed that the current concept is the appropriate solution that best meets both the project objectives, design requirements and community expectations.

The concept design would improve traffic flow by reducing congestion along the highway associated with through traffic waiting for turning traffic. The safety benefits of the proposal are outlined in Section 3.1.

The concept design involves the least number of partial road closures out of all of the options.

It should be noted that Hooper Street is in Section 2, and is not part of the Section 3 options. Roads and Maritime considers a right turn from Hooper Street is unsafe and as such, the proposal involves limiting turns at Hooper Street to left-in / left-out movements only. Safe right turns could still be made from Kanimbia Valley Road and Mount Piddington Road. Cecil Road would also be limited to left-in / left-out turns for the same reason. Any inconvenience caused by these changes would be justified by the safety benefits associated with reducing traffic movement at these streets, particularly as alternative right turns are provided at adjacent streets.
3.3 Consultation

Adequate representation from road users during consultation

Submission numbers
10 – Individual

Issue description
The respondent expressed concern that road users were not adequately represented during the planning meetings. The respondent also expressed that ongoing regional consultation with Roads and Maritime and the Department of Planning and Infrastructure (now Planning and Environment) was not available.

Response
Roads and Maritime has carried out a thorough consultation process with the community, including road users.

In September 2011, the NSW Government engaged Evans and Peck to carry out an independent review of the proposed upgrades of the Great Western Highway west of Katoomba. As a result of the review, the NSW and Australian governments agreed on a revised program of work to be delivered between Mount Victoria and Lithgow. In developing this program, Roads and Maritime consulted extensively with the Blue Mountains and Lithgow communities to ensure it understood road-user and community concerns and issues. A summary of these meetings is available on the Roads and Maritime website: http://www.rms.nsw.gov.au/roadprojects/projects/western_region/mt_victoria_lithgow/project_documents/index.html.

In addition, Roads and Maritime:

- Held public forums during the display of the REF, which were open to all members of the community
- Set up a project hotline and email address to give road users and community members the opportunity to consult with the project team
- Consulted with relevant agencies and stakeholders during development of the proposal, and will continue to do so during detailed design and construction.

At this stage, the Department of Planning and Environment is not an affected stakeholder and, accordingly, is unlikely to become involved with the proposal or consult with the community.

Difficulty in understanding content, scale and history of proposal

Submission numbers
19 – Blue Mountains City Council

Issue description
Blue Mountains City Council raised the following issues:

- Concern that the REF display package included technical plans, which are difficult to interpret, and a lengthy and detailed set of documents
• Concern about the disjointed nature of the proposal
• Concern about the lack of clear communication of the scale of work proposed in Mount Victoria village, and a suggestion that artist’s impressions would be the most effective way to communicate the proposal
• Concern about the changes to the proposal and the length of time since the last community update was issued in October 2012.

Response

Length and technical content of the REF display package
In addition to providing public information, the purpose of the REF package is to meet statutory commitments under environmental legislation. As a result, the document needs to be comprehensive. To help the community understand the REF, Roads and Maritime provided a community update simplifying the details of the proposal and containing key information. It also held staffed displays during the 10-week display period so the project team could explain the REF to members of the public. A staffed freecall hotline was also available to help residents or other stakeholders with any queries about the proposal.

The disjointed nature of the proposal area
The focus of the proposal is on safety upgrades in Mount Victoria village. The sections identified for specific works are those regarded as currently posing substantial safety risks. A planning workshop was held to review the proposed approach (Roads and Maritime, 2013) and confirmed the scope as presented in the REF. The work is clearly and comprehensively articulated in the REF.

Communication of the scale of work
The scale of work is clearly articulated in chapters 3 and 6 of the REF, as well as in the Landscape Character and Visual Impact Assessment Technical Report (Appendix I of the REF). Detailed cross sections of the proposal are also provided in Section 4.2.6 of this report.

Artist’s impressions of the proposed retaining wall between Mount Piddington and Cecil Road were prepared for the REF (refer to Section 6.6 of the REF). Additional artist impressions were prepared for meetings with council to communicate the proposal and the refinements that occurred during detailed design. These artist impressions were provided to the public in the July 2014 community update for feedback and are included in this submissions report in Section 4.2.

Change in proposal since last community update
A community update was issued during investigations, about 15 months before the REF was released, with another released to coincide with the REF. The 15-month delay was due to the amount of work carried out in the intervening period, particularly in reducing impacts on private properties next to the Great Western Highway. The proposal has evolved during project development to respond to community concerns. A summary of this process has been provided in Section 2.4 of the REF, which is available on the Roads and Maritime website at http://www.rms.nsw.gov.au/projects/western-nsw/katoomba-lithgow/project-documents/mount-victoria-ref.html.

Ongoing consultation with Council

Submission numbers
19 – Blue Mountains City Council
104 – Blue Mountains City Council
Issue description

Blue Mountains City Council acknowledged the commitment of Roads and Maritime in consulting with council. Council also identified opportunities for further consultation and review of the proposal, including:

- A project meeting with Roads and Maritime (this was held in late March 2014)
- Review of the detailed design at the 80 per cent completion stage (this has since occurred)
- Review of finalised operational water quality measures
- Review of the planting, retaining wall and fencing material palette
- Review of the urban design and landscaping plans.

Council stated that it looked forward to working in partnership with Roads and Maritime on the resolution of the issues identified in its submission.

Response

Roads and Maritime looks forward to working with council to achieve an appropriate outcome for the safety of Mount Victoria village. In relation to council’s comments:

- Roads and Maritime made the detailed road and drainage design available to council at the 80 per cent completion stage. Council’s submission after the July 2014 consultation period included its comments on the 80 per cent design
- Operational water quality measures are being finalised and will be made available to council when completed
- The planting, retaining wall and fencing material palette (and other finishes) are being developed during detailed design and will consider council’s preferred palette, as provided in its submission
- The urban design and landscaping plans are being prepared and will be issued to council for information when complete.

Consultation with the community

Submission numbers

12 – Individual
60 – Individual
63 – Individual
82 – Individual
94 – Individual
98 – Individual

Issue description

These respondents expressed the following concerns:

- A respondent requested more time for discussion within the submissions timeframe because the REF display occurred over the holiday period. The respondent indicated that because officials and the general public have had long absences, they should not be held to a deadline. The respondent also indicated that they understood that further public meetings would be called
- A respondent expressed concern about the additional round of consultation for the options in Section 3. The respondent:
− Stated that the Mount Victoria Community Association was not consulted about persons or groups proposing changes to the initial plans for the proposal
− Expressed concern that Roads and Maritime consulted with individuals who claimed to represent the community
− Expressed concern that money was being inappropriately used in holding an additional round of consultation
− Stated that they would contact the NSW Ombudsman to complain about the consultation process carried out by Roads and Maritime

• A respondent expressed concern that any community feedback would be superfluous because the final plan for the project has already been confirmed before any public meetings
• A respondent noted that they did not receive the community update until 24 July 2014. The respondent noted that the project manager provided the respondent with additional copies of the update which the respondent distributed to their neighbours
• A respondent requested the July 2014 community update be provided in larger print
• A respondent requested that a public meeting be held, as insufficient information about the impact of the safety treatments was available.

Response

Roads and Maritime takes consultation seriously and has consulted in good faith. In relation to the respondents’ comments:

• Recognising that the proposal was to be displayed over the school holidays, Roads and Maritime extended the REF display period from the standard four-week period to 10 weeks (from 25 November 2013 to 7 February 2014). Additional time for submissions was provided as part of the consultation period, with Roads and Maritime accepting late submissions until 28 February 2014 (a total of 13 weeks)
• In July 2014, Roads and Maritime returned to the community to consult. Given the changes to the retaining wall design in Section 2 and the community interest expressed in Section 3, it was considered appropriate to provide the community with an opportunity to express their views. The proposed amendments were an outcome of Roads and Maritime’s normal consultation process, and were addressed accordingly
• Roads and Maritime considered all submissions from all stakeholders as part of the consultation processes for both consultation periods (November 2013 – February 2014 and July 2014)
• Roads and Maritime provided the July 2014 community update to the relevant respondent in larger print directly after the request. Roads and Maritime also provided additional copies of the July 2014 community update to respondents who said they did not receive a copy
• The consultation process for the proposal was carried out in accordance with Community Engagement and Communications: A Resource Manual for Staff (Roads and Maritime, 2012). The consultation processes in November 2013 – January 2014 and July 2014 were scheduled so that community feedback could be considered before the road design is finalised
• Information on the impacts of the safety treatment were provided in Chapter 6 of the REF. Impacts subsequently identified during detailed design were assessed and are documented in Section 4.2 of this report.
At this stage, no further public meetings will be called as adequate opportunity was provided for face-to-face consultation throughout the development of the proposal. However, any additional feedback about the proposal can be directed to the Katoomba to Lithgow project team on 1800 035 733 or via email on K2Lupgrade@rms.nsw.gov.au.

3.4 Proposal description

General scale of proposal

Submission numbers

11 – Individual
14 – Individual
19 – Blue Mountains City Council
91 – Individual
101 – Individual

Issue description

Blue Mountains City Council expressed concern about the scale of the proposal, particularly the service road in Section 2.

Submissions from respondents also expressed concern that the service road would be too large and have a high cost that is disproportionate for the limited number of people who would use it.

One respondent expressed concern that the character of the village would be lost due to the scale of the upgrade. Another rejected the proposal and associated options due to the scale of the upgrade and resultant dominance of through traffic.

Response

In terms of scale, the proposal focuses on safety improvements in Mount Victoria village, and the changes proposed are the minimum permitted by design standards while still improving safety. Roads and Maritime believes that the concept design reflects the appropriate design response to address the safety issues identified through Mount Victoria village.

Roads and Maritime recognises community concern about village character and revised the proposal to lessen its scale and extent to reduce impact on the village character, as discussed in Section 4.2.6. The impacts of the proposal on landscape character and visual amenity are discussed in Section 6.6 of the REF and Sections 3.7 and 4.2.6 of this submissions report.

Roads and Maritime has kept the service road as the appropriate response for Section 2 (refer to Section 3.4 for a detailed justification for the service road). Roads and Maritime carried out a technical and risk assessment of the service road and reduced the scope of the work to the minimum acceptable standard in order to reduce the footprint and associated impact of the service road. The proposal in Section 3 has also been selected to provide the most safety benefits while minimising scale.
Clarifications of proposal area and scope

Submission numbers
19 – Blue Mountains City Council
91 – Individual

Issue description
Blue Mountains City Council requested more detail on the extent of the construction envelope in the REF.

Council also requested confirmation that no work would occur between Cecil Road and the Toll House.

Another respondent expressed concern that their residence was not included in the proposal area.

Response
The REF assesses the potential environmental impacts within the construction envelope (termed the 'proposal area' in the REF). As identified in Section 1.1.3 of the REF, the proposal area encompasses the concept road design, including the realigned highway, batters, cuts and embankments. It also includes the construction footprint (which is 5 m from all design features), construction site compounds, stockpile sites and any other areas that would be temporarily disturbed such as construction basins and access tracks. All assessments and calculations, including vegetation clearing and visual amenity, were based on the proposal area, and are documented in the REF.

Roads and Maritime confirms that no work would occur between Cecil Road and the Toll House for this proposal.

In terms of the locations of the proposed safety upgrades, these were identified after a review of the crash history for the Great Western Highway in Mount Victoria village. Accordingly; the proposal area was selected based on where the number and severity of incidents were greatest along the highway.

Intersections – general

Submission numbers
2 – Individual
7 – Individual
9 – Individual
91 – Individual

Issue description
A number of respondents expressed the following concerns about the proposed treatment of intersections:

- Concern about the curves in the road limiting motorists’ sight distance when turning at intersections
- Concern about the safety of road users making right turns on and off the highway, given that highway motorists are moving at high speeds
• Opposition to closing any roads or intersections
• Concern that the intersections to be upgraded are too concentrated in the east of the village. Residents travelling eastbound from Lithgow would still need to make unsafe turns at Victoria Street and Grand View Road, rather than driving further to Kanimbla Valley Road
• Opposition to any new traffic lights along the highway.

Response

In terms of concerns about safety, the proposed intersection upgrades were designed to meet Roads and Maritime’s safety standards for lane width, dedicated turning lane lengths and sight distance. Following the upgrades, drivers turning at these intersections would have better road conditions – particularly better sight distance – thereby allowing them to select appropriate opportunities to safely join through traffic or turn into local roads.

The NSW Police would manage speed enforcement and appropriate road behaviour once the proposal is built. Roads and Maritime would work together with Blue Mountains City Council and the NSW Police to ensure that appropriate enforcement is carried out in this section of the Mount Victoria village proposal.

Roads and Maritime defined the proposal area after reviewing the crash history for this section of Great Western Highway. The proposal area was selected based on where the number and severity of incidents were greatest along the highway.

In terms of concerns about intersections, Roads and Maritime reviewed the intersections in the proposal area to identify the type of intersection treatments required. The objective was to apply a consistent approach to reduce rear-end collisions while considering budgetary constraints. The treatments considered included:

• Localised widening, which would provide motorists with an option to safely avoid a rear-end collision
• Dedicated turning lanes where traffic volumes or other factors such as poor geometry led to dedicated turning lanes as the preferred outcomes.

The review also identified that no intersections or roads would need to be wholly closed as part of the proposal. To provide right-turn movements, however, the proposal would limit turning movements at minor roads, and provide improved right turns at neighbouring local roads.

Various options for the intersection treatments in Section 3 were developed and provided to the community for comment in July 2014. This led to the selection of a preferred option that would best meet safety requirements and community expectations.

In terms of concerns about traffic lights, no new traffic lights would be installed as part of the proposal.

Responses to specific issues along the highway are provided in the next subsection.
Intersections – specific

Submission numbers

2 – Individual 19 – Blue 41 – Individual 96 – Individual
3 – Individual Mountains City 50 – Individual 104 – Blue
6 – Individual Council 58 – Individual Mountains City
9 – Individual 39 – Individual 80 – Individual Council
14 – Individual 40 – Individual 95 – Individual

Issue description

Victoria Falls Road intersection
Respondents expressed concern about sight distance and turning lanes at Victoria Falls Road and a respondent requested that a turning lane be provided there.

Harley Avenue intersection
Blue Mountains City Council queried whether the footprint at the Harley Avenue intersection could be reduced by installing traffic lights, thereby reducing visual and physical impacts. The respondents also requested that a right-turn lane be provided onto Harley Avenue and that the stop sign at Harley Avenue be replaced with a give way sign, due to the good sight distance to the right.

Hooper Street, Mount Piddington Road and Harley Avenue
Blue Mountains City Council requested that a no right turn sign be erected at the Hooper Street intersection. Other respondents made the following comments about the Hooper Street intersection:

- Suggestion to provide a mirror at Hooper Street (for vehicles turning left and right onto the highway) to address poor visibility
- Concern about the left-hand turn from the highway onto Hooper Street, as sight distance is affected by topography and curves, as well as a hedge
- Request that Hooper Street be restricted to left turn only, or closed to prevent accidents.

Council expressed concern that the 2.5 metre left-turn lanes on the highway into Mount Piddington Road and Hooper Street are not wide enough. A respondent requested that a waiting space in the centre of the highway at Mount Piddington Road be provided to help vehicles turning right. A respondent also requested confirmation that a right-turn lane out of Mount Piddington Road would be provided.

Some respondents stated support for the proposal, particularly the right-turn bays at Harley Avenue and Mount Piddington Road.

Blue Mountains City Council requested that Roads and Maritime consider upgrading the entrance off the Great Western Highway to the Fairy Bower Picnic area (off Mount Piddington Road).

Kanimbla Valley Road and Selsdon Street intersection
Two respondents expressed concern about the location and scale of the Selsdon Street/ Kanimbla Valley Road right-turn bay. A respondent requested a right-turn lane from the highway onto Kanimbla Valley Road. A respondent also requested that a waiting area be provided in the centre of the highway for vehicles turning right out of Kanimbla Valley Road.
Grand View Road and Burwood Road intersections
The respondents made the following comments about the Grand View Road intersection:

- Concern about the right turn into Grand View Road from the highway, where there is insufficient room for other traffic to overtake turning vehicles; and a request to create a right-turn bay on the highway at Grand View/Burwood Road
- Request for a left-turn lane east of Grand View Road for westbound vehicles to safely turn left off the highway
- Comment that it is unclear (in the REF) if the shoulder at the left turn into Grand View Road would be retained or widened
- Request to upgrade the Grand View Road and Burwood Road intersections as is proposed for the Selsdon Street and Kanimbla Valley Road intersections.

Victoria Street intersection
A respondent requested that the Victoria Street intersection be included in the proposal to have a left-in / left-out treatment.

Response

Victoria Falls Road intersection
A basic right turn is proposed at the Victoria Falls Road intersection to provide enough space for vehicles to safely pass around a vehicle waiting to turn right into Victoria Falls Road.

Harley Avenue intersection
Installation of traffic lights at Harley Avenue would dramatically increase the footprint of the proposal at this location and would contribute to congestion between Harley Avenue and Station Street, while increasing visual and physical impacts.

A dedicated right-turn lane is proposed on the highway for motorists turning right onto Harley Avenue. Current road signage along the Great Western Highway is being reviewed during detailed design. It is likely that the stop sign at Harley Avenue would be changed to a give way treatment following construction of the proposal, as sight distances would improve.

Hooper Street, Mount Piddington Road and Harley Avenue
The proposal involves easing the curve between Harley Avenue and Hooper Street and providing shoulders 2.5 to 3.0 m wide in this area. These improvements would improve sight distance for motorists turning into and out of Hooper Street, Mount Piddington Road and Harley Avenue.

The existing left-turn lane from the highway into Mount Piddington Road and Hooper Street is 2.5 m wide, but has a total width of 3.0 m when including the gutter (it was designed to accommodate vehicles with loads). This width is considered adequate given the constraints in this area, including limited space in the road corridor, heritage items, visual amenity considerations and the reduced scale of the upgrade. If a wider lane into these roads were provided, it would require further property acquisitions and a wider footprint.

The improved sight distance at Mount Piddington Road would mean that vehicles turning right from Mount Piddington Road would be able to select an appropriate gap in traffic without needing to wait in the centre of the highway. All turning movements (including right turns) would be allowed at Mount Piddington Road.
Mount Victoria village safety upgrade
Submissions report

Roads and Maritime considers a right turn from Hooper Street to be unsafe. As such, the proposal involves limiting turns at Hooper Street to left-in / left-out movements only, with an appropriate no right-turn sign. Safe right turns can be made from Kanimbla Valley Road and Mount Piddington Road. For motorists turning left in and left out of Hooper Street, the improved geometry would improve sight distance to the east, and would avoid the need for a mirror mounted on the power pole opposite Hooper Street. Nevertheless, this situation would be monitored directly after construction. Should the intended sight line benefits not eventuate, then other feasible alternatives could be considered, including a mirror to help vision to the east.

Hooper Street would not be completely closed as part of the proposal.

The entrance to Fairy Bower Picnic area is outside the area covered by the proposal.

Kanimbla Valley Road and Selsdon Street intersections
Right-turn lanes would be provided on the highway for vehicles to turn onto Kanimbla Valley Road and Selsdon Street. The location of these turning lanes is directly related to the location of the streets. The location of these lanes cannot be adjusted without substantial impact on neighbouring properties and adjacent local roads. These turning lanes were designed to meet design standards, so the scale of these intersections cannot be safely reduced. Similarly, the scale of the intersections cannot be safely increased due to the constraints of the road corridor in this location. These turning lanes, together with a widened shoulder, would markedly improve traffic flows in this area.

The improved sight distance at Kanimbla Valley Road means that vehicles turning right from Kanimbla Valley Road would be able to select an appropriate gap in traffic without needing to wait in the centre of the highway. A gap in the centre of the highway in this location would result in a larger footprint, potential heritage impacts and additional property acquisition.

Grand View Road and Burwood Road intersections
The proposal would provide consistent, widened shoulders on both sides of the highway at Grand View Road and Burwood Road. This would allow through traffic to safely pass vehicles waiting to turn right. Together with the low-speed environment on the highway, this would also make these intersections wide enough for vehicles to safely pass turning vehicles.

Victoria Street intersection
The Victoria Street intersection is outside the proposal area. It is not included in the proposal as the intersection is on a double-laned section of the highway that is wide enough to allow vehicles to safely pass turning vehicles waiting on the highway to turn right onto Victoria Street. Moreover, a review of the crash history between 2008 and 2014 identified that there is no crash history at this intersection that is intersection related. However, to address some of the concerns, Roads and Maritime would install advance intersection warning signs to the east and west of Victoria Street on the Great Western Highway.
Service road

Submission numbers

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<td>16 – Individual</td>
<td>53 – Individual</td>
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Issue description

Revised design of the service road
The respondents expressed the following concerns:

- Concern that an explanation of the service road was not provided in the REF
- Concern that the service road would be too large and have a high cost that is disproportionate for the limited number of people who would use it
- Concern that the service road would have a negative impact on the aesthetic value of the village
- Concern that the service road would be too wide and appear as wide as the highway
- Concern about the danger associated with the service road
- Concern for motorists’ safety when exiting the service road, as the local topography would not allow for full visibility of vehicles entering Mount Piddington Road from the service road
- Concern that under a future government the service road could lead to widening of the highway to four lanes through Mount Victoria village
- Concern that the bypass option for Mount Victoria would be disregarded for the merging of the service lane into a four lane highway, which is an option that would not be welcomed.

A number of suggestions were provided to improve the service road component of the proposal. These included:

- Suggestion that the highway be widened at the curve near Mount Piddington Road so a service road would not be required
- Suggestion to spend the money earmarked for the service road on a bypass via the heritage-listed Coxs Road. This would avoid road work within Mount Victoria village, and the safety hazards associated with a service road
- Suggestion to provide engineered grading of the six driveways onto the highway as an alternative to the service road.

Feedback during the July 2014 consultation period included:

- Positive feedback on reducing the scale of the service road footprint
- Suggestion to further reduce the scale of the footprint by providing rear access behind the properties along the service road
- Request for an explanation of the service road opposite Harley Avenue.

Council also provided feedback on the revised service road design, including:

- Concern that the service road would be too narrow and provide limited to no capacity for turning or passing
- Query whether the service road was reviewed for emergency services access
• Request for information about the proposed management or protection between the service road and the highway for an errant vehicle, specifically a heavy vehicle such as a waste collection truck
• Request for confirmation of the footpaths along the service road and highway.

Cecil Road and Mount Piddington Road
Blue Mountains City Council and another respondent also provided feedback on the new intersections associated with the service road, including:

• Concern that the new intersection close to Cecil Road may be an accident point, due to the potential for conflict between entering and exiting vehicles, and due to its location after the bend and the poor sight distance to and from Cecil Road
• Concern about traffic movements and road safety at the intersections of the service road and Cecil Road and Mount Piddington Road, including the width of the turning lanes
• Suggestion that the service road intersect Mount Piddington Road instead of Cecil Road
• Request that a give way sign on the service road be provided at the Mount Piddington Road intersection.

Response
An explanation of the original design for the service road is provided in Section 3.2.3 of the REF, and a discussion of the potential impacts associated with the service road, including artist’s impressions, are provided in Chapter 6 of the REF. The impact of the service road and the proposal on the village character has been considered and discussed in Section 4.2.6.

Justification for the service road
A number of considerations underpin the need for the proposed service road:

• Curve widening is required at Harley Avenue to provide a right-turn lane from the highway. This lane is particularly important for heavy vehicles as there is insufficient room to turn at Station Street, due to heritage building space constraints
• The widening affects the driveways for residences along the highway. Roads and Maritime has a responsibility to provide equivalent or improved access for affected residences
• An engineered grading for the driveways was investigated but the driveways would have been too steep for safe entrance and exit. Furthermore, the available sight distance from the driveways would not comply with design criteria and would be unsafe
• Realignment of the curve at Harley Avenue to retain the driveways as they are currently would have had impacts on the adjacent heritage listed property
• A service road was therefore selected as the best option to provide acceptable gradients for the driveways as well as providing safe locations for residents to enter and leave the highway (Cecil Road and Mt Piddington Road) with sufficient sight distances.

Widening the highway near Mount Piddington Road would not remove the need for the service road. The service road is required to provide safe access for driveways onto the highway as a result of the widening near Harley Avenue.


Revised design of the service road

In response to feedback from the community and Blue Mountains City Council, Roads and Maritime has reduced the scale of the highway, retaining wall and service road between Cecil Road and Mount Piddington Road. The refinements are presented in the community update distributed in July 2014 and in Section 4.1.4 of this report. In summary, the proposal in this area now includes:

- A narrower service road (4.2 m wide instead of 6.0 m wide) with the following features:
  - A speed limit of 10 km/h
  - Provision for pedestrian use as a shared zone
  - Passing bays along the service road to allow for vehicles to pass. However, if parking occurs in these bays, vehicles would not be able to use them for passing. This is considered an acceptable risk in light of the low volume of traffic expected along the service road. It is noted that upgraded driveways for residents along service roads would also provide opportunities for on-site parking
  - Give way signs at the intersections with Cecil Road and Mount Piddington Road
- Replacing the 6.0 m high retaining wall with two smaller retaining walls, separated by plantings
- A 3.0 m left-turn area into Cecil Road, comprising a 2.5 m wide lane and a 0.5 m gutter designed to accommodate vehicles with loads. This width is considered adequate given the constraints in this area, including limited space in the road corridor, heritage items, visual considerations and the attempts to limit the scale of the upgrade. A wider lane would require further property acquisitions and a wider footprint
- A dedicated footpath about 1.5 m wide along the highway between a retaining wall and the highway.

Safety concerns

The revised design addresses safety issues prevalent on this section of the Great Western Highway, while a number of the alternatives presented by respondents would not, and may in fact exacerbate safety issues. Rear access to properties was considered and was discounted on the basis of design feasibility, cost-benefit and impact on biodiversity (refer to Section 3.5).

A review of the service road was carried out to confirm it would be wide enough for emergency services. It was confirmed that the service bay would have sufficient width for a fire truck and ambulance to pass through.

A barrier design next to the service road that is resistant to vehicle strike is currently being investigated in detail design. A full safety barrier would require widening of the footprint by about 1.0 m. A type-F safety barrier or galvanised steel guardrail would also be visually intrusive as it would protrude above the retaining wall. A pedestrian fence would still be required in addition to a safety barrier or galvanised steel guardrail. The designers are working on a single barrier that would perform the dual purpose of restricting pedestrian access to the retaining wall and resisting vehicle strike.

Cecil Road and Mount Piddington Road

The intersections of the service road with Cecil Road in the east and Mount Piddington Road in the west were designed to provide adequate sight distance for
left-in / left-out turns. Left turns from Cecil Road onto the highway would be permitted because sight distance would be improved at this location. This would be achieved by:

- Designing the Cecil Road intersection to the relevant design standards
- The curve at the highway at this point would be flattened, improving highway motorists’ sight distance
- Widened shoulders and clearing to the east of Cecil Road would improve sight distance for turning vehicles and vehicles on the highway.

Roads and Maritime considers that there is low potential for conflict to occur between vehicles entering and exiting the service road or Cecil Road due to low traffic volumes on Cecil Road and the service road.

Coxs Road
There is limited funding available to carry out safety upgrades along the highway. Funding a Coxs Road bypass would divert funds away from other necessary safety upgrades that were identified along this section of the highway.

Future upgrades
Roads and Maritime confirms that the proposal does not pre-empt any future upgrades to the highway.

Maintenance of assets

Submission numbers
104 – Blue Mountains City Council

Issue description
Blue Mountains City Council requested that Roads and Maritime hold further discussions to clarify which assets would be handed over to council. Council specifically expressed concern about:

- Responsibility for the management of the drainage assets within the highway corridor on Roads and Maritime road reserve
- The interface where the proposed drainage design would discharge to council’s drainage assets or public property and potentially cause damage
- The retaining wall near the Gatekeepers Cottage.

Response
Discussions between Roads and Maritime and Blue Mountains City Council are currently being held to agree on the maintenance of assets during operation of the proposal.

Construction of the proposal

Submission numbers
104 – Blue Mountains City Council
**Issue description**

Blue Mountains City Council requested additional information on construction staging. Council indicated that it considers a 3.0 m travelling lane and 0.5 m shoulder to be inadequate during construction.

**Response**

Roads and Maritime is reviewing the construction staging and will provide updated information to council when the review is complete.

**Vertical alignment of the highway**

**Submission numbers**

29 – Individual

**Issue description**

A respondent suggested that the crest on the highway between Selsdon Street and Kanimbla Valley Road be removed to improve sight distance.

**Response**

The proposal would result in a minor reduction of the crest on the highway between Selsdon Street and Kanimbla Valley Road.

However, complete removal of the crest would not be feasible as it would require substantial earthworks, and would increase the footprint of the proposal.

Similarly, reducing the crest may also require retaining walls along this section of highway, and additional property acquisition.

**Upgrade of the Great Western Highway at the bridge over the railway line and Victoria Pass**

**Submission numbers**

9 – Individual
19 – Blue Mountains City Council
20 – Individual

**Issue description**

Blue Mountains City Council and two other respondents expressed concern that the scope of the proposal does not address Victoria Pass or the bridge over the railway line. It was suggested that the approaches to the railway bridge also be realigned.

**Response**

The enhanced safety work program for the upgrade of the Great Western Highway, which includes the proposal in Mount Victoria village, is focused on delivering key safety upgrades within budgetary constraints, as discussed in Section 3.1. In the longer term, the overall concept design for the highway would address the safety issues associated with the pinch point at the bridge over the railway line and Victoria Pass with a bypass.
3.5 Traffic and transport

Increase in traffic volume

*Submission numbers*

19 – Blue Mountains City Council

*Issue description*

Blue Mountains City Council requested that Roads and Maritime confirm the traffic volume increase and associated timeframe that would be accommodated by the proposal, given that one of the objectives is to cater for future traffic flows.

*Response*

The objectives of the proposal are outlined in Section 2.3 of the REF. While the intent of the proposal is to cater for future traffic flows, the project objectives are to improve safety for all road users in a sensitive manner to maintain the integrity and qualities of Mount Victoria as a village. Roads and Maritime believes that the proposal fulfils these project objectives.

Traffic impacts of the proposal

*Submission numbers*

8 – Individual
78 – Individual
98 – Individual
104 – Blue Mountains City Council

*Issue description*

Blue Mountains City Council requested that Roads and Maritime clarify the proposed signposted and design speed limit for the highway section next to the service road. Council stated that Transport for NSW guidelines require that the speed limit of roads adjoining shared zones be less than or equal to 50 km/h.

Other respondents also raised the following issues:

- Concern that the proposal would not address the safety issues associated with trucks passing through the village
- Concern that the improvements to the highway may encourage speeding within Mount Victoria village, and would accentuate the traffic pinch point at the centre of the village
- Concern that the improvements to the highway would increase risk to residents as the road currently acts as a brake to reckless driving
- Suggestion that all traffic/intersection closures should be subject to a traffic analysis to ensure a clear understanding of the potential traffic impacts associated with these changes.

*Response*

The service road would intersect with Cecil Road and Mount Piddington Road, which are local roads with speed limits of 50 km/h. The shared road is removed from the highway by two retaining walls and a vegetated area. The highway in this area is signposted for 60 km/h. The safety of the service road would not be compromised by
the highway speed limit due to the grade and retaining wall separation between it and the highway.

The purpose of the proposal is not to solve the issue associated with the volume and type of traffic that passes through Mount Victoria village. This would be achieved by the ultimate upgrade of the highway (refer to Section 3.1). The proposal does, however, seek to improve road safety for all road users within Mount Victoria village by:

- Improving the road geometry both horizontally and vertically (that is, making the road straighter and flatter)
- Improving intersections between the highway and local connecting roads, and reducing conflict points
- Widening the road shoulders.

The improvement in road geometry and design would improve safety for all road users (including trucks). Leaving the existing highway with a poor alignment or sharper than desirable curves is not an appropriate traffic calming method and would not replace speed enforcement controls established by NSW Police (which would continue to manage speed enforcement on the upgraded highway). Roads and Maritime would work with NSW Police and Blue Mountains City Council to ensure appropriate speeds are enforced on this section of the highway.

A traffic analysis has not been carried out to model intersection closures because the proposal would not close any intersections. While closure of Cassils Street and Selsdon Street was considered as part of Option 2 for Section 3 (presented during consultation in July 2014), this was not investigated further as it was not the preferred option.

**Bus infrastructure**

*Submission numbers*

104 – Blue Mountains City Council

*Issue description*

Blue Mountains City Council queried whether modelling was done on movements and capacity for Mount Piddington Road, as it forms part of a bus route.

Council also requested additional information on the accommodation of existing bus stops and provision of new or improved bus stops.

*Response*

The proposal would not alter the capacity along the highway or on local roads. The proposal would, however, improve the safety of Mount Piddington Road intersection by improving sight distance, and this would be positive for bus services. Roads and Maritime did not model movements and capacity for Mount Piddington Road.

Roads and Maritime is negotiating bus stop arrangements with bus operators and will be confirmed during detailed design. Following negotiations, bus stop locations will be made available to Blue Mountains City Council.
Access to residential properties

Submission numbers

8 – Individual
91 – Individual
95 – Individual
101 – Individual

Issue description

A number of respondents expressed concern about access to specific private properties along the Great Western Highway in Mount Victoria. Key issues raised by these respondents included:

- Request that Roads and Maritime consider its safety obligations to the local community by also providing a service lane to the front or rear of subject properties
- Request that Roads and Maritime consider rear access to subject properties due to the proposal affecting their access.

Response

The properties identified by the respondents are outside the proposal area (between Section 2 and 3) and would not be directly affected by the proposal. They would therefore not require alternative access arrangements. Residents in this area should direct their queries about adjustments to access to Blue Mountains City Council.

Pedestrian and cyclist access

Submission numbers

6 – Individual
13 – Individual
14 – Individual
19 – Blue
Mountains City Council
22 – Mount Victoria
23 – Individual
26 – Individual
28 – Individual
40 – Individual
48 – Individual
95 – Individual
104 – Blue
Mountains City Council

Issue description

Blue Mountains City Council’s submission contained:

- Suggestion that safe and continuous pedestrian and cyclist access should be provided between the proposal sections, and extended to Browntown Oval. Council indicated that the precedent for a continuous pedestrian and cyclist facility upgrade was created by Roads and Maritime elsewhere in the Blue Mountains
- Request that the Roads and Maritime standard of 2.5 m wide pathways should be targeted where possible to enable use as a shared path (Council stated that the proposed formed footpath is shown as 2.0 m wide on the drawings
- Query about lighting of the footpath in Section 1.

The other respondents raised the following issues relating to pedestrian access:
• Query whether a footpath would be provided from Fairy Dell Road to Mount Victoria village and, if provided, whether it would still be on the northern side of the highway
• Request that pedestrian access be provided through town to scenic walks such as Fairy Dell and Victoria Falls Road
• Request for the proposal to include a footpath from Mount York Road to Fairy Dell Road to link with the proposed eastbound footpath from Fairy Dell to Kanimbla Valley Road. This request would be in line with Blue Mountains City Council LEP requirement to ‘promote pedestrian activity along the highway’. It was stated that the footpath would improve the amenity of the village and improve this section of the highway
• Concern that the proposed safety barrier, footpath and pedestrian fence near the Gatekeepers Cottage (Section 1) would be in a dangerous location
• Concern that the proposed pedestrian facilities near the Gatekeepers Cottage do not provide adequate space for pedestrians to cross the old footbridge over the railway line and walk safely next to the westbound lane of the highway
• Concern about the removal of the fence outside of the Gatekeepers Cottage if the pathway is constructed
• Suggestion that the Coxs Road walking track be considered as a safer option to connect Mount Victoria village with Browntown Oval
• Request to connect Fairy Bower Reserve to Browntown Oval via a railway underpass.

The respondents also raised the following issues relating to cyclist access:

• Concerns about cycling access and safety in the eastern part of the proposal area, especially near the rail bridge and in Section 1. These safety concerns include the narrow, uneven shoulders and limited road width in Section 1 and the rail bridge
• Request for the proposal to provide wider shoulders or off-road cycling access from the footpath along Section 1 to the footbridge across the railway
• Request for cycle lanes through Mount Victoria village.

Response

Roads and Maritime is committed to providing safe pedestrian and cyclist access along the proposal.

The proposal would provide new 1.2 m wide footpaths along the highway for each section of the upgrade except for two sections of path between the Gatekeepers Cottage and Browntown Oval (refer below), as shown in Figure 4-5. Shared road signs would be erected on all sections of path built as part of the proposal. Flag lighting would be provided between the railway bridge and Browntown Oval. Lights would be shaded to avoid impact on nearby residences.

There is insufficient space in the road corridor for 2.5 or 3.0 m wide shared paths through the village. Shared paths would substantially increase the proposal footprint and result in additional property acquisition and heritage impacts.

The proposal would provide consistent widened shoulders 2.5 to 3.0 m wide on both sides of the highway within the proposal area. Cyclist access through Mount Victoria village would be via these shoulders.
A combination of widened shoulders and a formalised footpath near the Gatekeepers Cottage would provide access for cyclists from the Great Western Highway to the footbridge across the Great Western Railway. This would provide an alternative route for cyclists wishing to avoid the railway bridge.

The path near the Gatekeepers Cottage together with the railway bridge would provide pedestrian access between Browntown Oval and the Gatekeepers Cottage. The footpath and associated pedestrian fence near the Gatekeepers Cottage would give pedestrians safe access between the highway and the railway footbridge. The (non-heritage listed) fence between the Gatekeepers Cottage and the highway would be replaced with a safety barrier as part of the proposal, as it would protect pedestrians and the Gatekeepers Cottage from errant cars. There is adequate width to safely accommodate a 1.5 m footpath between the Gatekeepers Cottage and the highway.

Roads and Maritime does not propose to provide an underpass beneath the rail line as proposed by the Mount Victoria Community Association and requested by some respondents. An underpass would:

- Require substantial earthworks, as the railway line is located in a cutting. The pathway would be steep, dark and damp. In topography such as this, an aboveground crossing is preferred for geotechnical reasons
- Impact on groundwater and be subject to flooding during heavy rainfall
- Pose safety risks
- Be extremely costly, due to the earthworks involved, and hence would not represent the most effective expenditure of the limited funds, particularly given the relatively low volumes of pedestrians that would use the underpass.

The scale of the safety upgrade is substantially smaller than that originally planned, and in comparison to other road upgrade projects within the Blue Mountains. Accordingly, off-road or shared footpaths outside the proposal area, including access to scenic tracks, remain a primary responsibility for Blue Mountains City Council.

However, Roads and Maritime is working with council to address the gaps between the proposal sections in order to provide continuous cyclist and pedestrian access along the Great Western Highway. Roads and Maritime is also discussing with council plans for an overall heritage trail, which could cater for off-road cycling.

In addition, in response to community feedback and discussions with council, Roads and Maritime is investigating the provision of extra footpaths along the Great Western Highway. These would be located (refer to Figure 4-5):

- Between Victoria Street and Fairy Dell Road, to tie into the footpaths in Section 3 of the proposal on the southern side of the highway
- About 90 m west of the Caltex Service Station, linking to a pedestrian crossing east of Mount York Road on the northern side of the highway
- Between Cecil Road and Toll Bar House on the southern side of the highway.

### 3.6 Non-Aboriginal heritage

#### General

*Submission numbers*

19 – Blue Mountains City Council
Issue description

Blue Mountains City Council expressed concerns about:

- The adequacy of the non-Aboriginal heritage assessment
- The impact of the proposal on local heritage and the historic character of Mount Victoria village.

Another respondent stated that Roads and Maritime appears to regard heritage as an ‘impediment to progress’, and that the Federal Government has identified the old Post office in Mount Victoria as a building at risk.

Response

The objectives for the proposal include the following:

- Be sensitive to the area’s natural environment, heritage and local communities
- Maintain the integrity and qualities of Mount Victoria as a village in the Greater Blue Mountains World Heritage Area.

As part of the REF, a Statement of Heritage Impact and Landscape Assessment and Visual Impact Assessment (appended to the REF) was prepared, which also sought to identify appropriate management and mitigation measures that would provide opportunities to enhance the interface between the highway and village or reduce any potential impacts.

Casey & Lowe, an archaeology and heritage consultancy, investigated potential impacts on character and heritage. The firm has been heavily involved in the investigations for the Great Western Highway since 2007. It has prepared a number of reports for various stages of the Mount Victoria to Lithgow upgrade, including the preliminary environmental investigations, corridor options investigations and preferred route corridor study. Casey & Lowe therefore has an excellent understanding of character and heritage in the Blue Mountains.

Casey & Lowe engaged Mayne-Wilson & Associates to prepare the visual and curtilage sections of the Statement of Heritage Impact. Warwick Mayne-Wilson prepared the Heritage Council’s curtilage guidelines and has worked extensively on the Mount Victoria to Lithgow project with Casey & Lowe. As a result he is well placed to do this work. Mr Mayne-Wilson worked with close reference to the Landscape Character and Visual Impact Assessment (prepared by Spackman Mossop and Michaels for the REF) but was responsible for all visual impact assessment and curtilage assessment from a non-Aboriginal heritage point of view. This inclusion of a cultural landscape specialist such as Mr Mayne-Wilson is not typical of most REFs and reflects the recognition of the importance of this element for the Mount Victoria Village assessment.

In addition, the Heritage Council has acknowledged the comprehensive and collaborative nature in which Roads and Maritime approached the heritage investigations for the Mount Victoria to Lithgow upgrade project.

The heritage assessment was carried out in accordance with relevant Heritage Council and Heritage Branch Guidelines including the NSW Heritage Manual (Heritage Office and Department of Urban Affairs and Planning, 1996), Assessing...
Heritage Significance (Heritage Office, 2001), Levels of Heritage Significance (Heritage Office, 2008), and Assessing Significance for Historical Archaeological Sites and Relics (Heritage Branch, Department of Planning, 2009). It presents a comprehensive assessment of the potential impacts of the proposal on the local heritage and historic character of Mount Victoria village and provides an appropriate and adequate basis for informed decision making on the proposal, design adjustments and potential safeguards and management measures.

It is important to recognise that the concept design, environmental assessment and detailed design process for this project have overlapped and have been highly iterative, with outputs from each phase informing other stages to achieve the best possible outcomes from a technical, community and environmental perspective. As a result the design has changed substantially through the concept and detailed design phases as a result of this process. The current design reflects a substantially reduced footprint (reduced height of retaining walls and width of shoulders) with a reduction in environmental impacts. Importantly, specialist recommendations provided within the REF have been captured during detailed design and are reflected in the design as it currently stands.

**Impact of the proposal on tourism and heritage**

*Submission numbers*

19 – Blue Mountains City Council

*Issue description*

Blue Mountains City Council expressed concern that the proposal would have a negative impact on tourism and heritage in Mount Victoria village.

*Response*

The potential impacts of the proposal on tourism and heritage are assessed in the REF. Spackman Mossop Michaels (a landscape architecture and urban design consultancy) and Casey & Lowe (an archaeology and heritage consultancy) were appointed to investigate potential impacts on character and heritage, and to ensure the design is in keeping with visual and heritage values. The design was refined to minimise potential impacts.

**Heritage assessment**

*Submission numbers*

19 – Blue Mountains City Council
93 – Individual

*Issue description*

Blue Mountains City Council expressed concern that the REF does not discuss the importance of the highway in contributing to village character. In particular, it does not mention that the highway is part of and contained within a Heritage Conservation Area under the Blue Mountains local environmental plans.

A respondent stated that although many houses in Mount Victoria village have heritage value, the highway has no heritage value and should be brought up to contemporary safety and amenity standards.
Response

It is understood that the Heritage Conservation Area listed in the Blue Mountains Local Environmental Plan 2005 refers to the Central Mount Victoria Urban Conservation Areas. This is discussed in detail in Section 6.3 of the REF and the Non-Aboriginal heritage technical paper (Appendix F of the REF).

In addition, the non-Aboriginal heritage technical paper (prepared by Mayne-Wilson) includes a detailed review of the historic sense of place. Because the proposed changes to the highway within the Heritage Conservation Area are minor, they would not significantly alter the highway’s contribution to the village character.

It is acknowledged that the Great Western Highway plays an important role in the development of the Blue Mountains and accordingly has heritage significance. In designing the safety upgrades, Roads and Maritime has sought to minimise any impact on the heritage character of the village while respecting the heritage value represented by the highway.

Heritage management

Submission numbers
17 – Heritage Council of NSW

Issue description
The Heritage Council of NSW recommends that Roads and Maritime carry out all recommendations contained in the REF to minimise impact on heritage items. The Heritage Council of NSW also request that

Response

Roads and Maritime would ensure that the management measures outlined in Section 6.3.4 of the REF would be carried out at appropriate stages of the proposal’s life cycle.

Opportunities for reciprocity

Submission numbers
19 – Blue Mountains City Council

Issue description
Blue Mountains City Council suggested that the proposal would create opportunities for reciprocation for other properties near the proposal to significantly reduce the impact on the overall village. Council suggested that the reciprocation could include improving the curtilage, setback and screening opportunities of historic properties, and that some land could potentially be added to some historic properties.

Response

The proposal area has been minimised where possible to address concern about scale. Reciprocation and providing setbacks would require additional property acquisition. Moreover, Roads and Maritime investigations have found that no opportunities for reciprocity currently exist in the road corridor for the proposal.
3.7 Landscape character and visual amenity

General

Submission numbers

19 – Blue Mountains City Council

Issue description

Blue Mountains City Council expressed concern about:

- The adequacy of the landscape character and visual impact assessment
- The impact of the proposal on the urban context, built form and streetscape character.

Response

Roads and Maritime appointed Spackman Mossop Michaels, a landscape architecture and urban design consultancy, to investigate the proposal’s potential impact on landscape character and visual amenity. Spackman Mossop Michaels has been heavily involved in investigations for the Great Western Highway since 2008. The firm has prepared a number of reports for various stages of the Mount Victoria to Lithgow upgrade, including the preliminary environmental investigations, corridor options investigations and preferred route corridor study. Accordingly, they are considered to be best placed to carry out the landscape character and visual amenity assessment for the proposal.

The landscape character and visual impact assessment and finalisation of the design have involved an iterative process. This process has enabled the concepts to be refined as they were developed, thereby reducing and mitigating the potential visual impact wherever possible. The assessment was completed in accordance with the Guideline for Landscape Character and Visual Impact Assessment (Roads and Maritime 2013). The assessment involved:

- Carrying out a site visit and field investigation, reviewing relevant literature, analysing aerial photographs and topographic maps to understand the study area
- Reviewing the engineering and urban design and landscape concept designs on a regular basis, and other supporting material, to gain an appreciation of the project
- Defining landscape character through a study area analysis, including a detailed site investigation
- Identifying and describing landscape character zones and evaluating the proposal’s impact on them
- Identifying the visual catchment of the proposal for the visual impact assessment
- Selecting viewpoints within the visual catchment, representing a range of different land uses
- Evaluating the visual impact of the proposal by comparing the sensitivity of viewpoints and magnitude of the impact of the proposal upon them
- Identifying further urban design and landscape opportunities and methods of mitigating adverse visual impact, both within and outside the proposal scope for consideration in the detail design phase of the project.
Accordingly, the report presents a comprehensive assessment of the potential impacts of the proposal on the landscape character and visual amenity of Mount Victoria village. It provides an appropriate and adequate basis for informed decision making around the proposal, design adjustments and potential safeguards and management measures. It is also important to recognise that the design was revised specifically in response to the issues and opportunities identified by Spackman Mossop and Michaels.

Roads and Maritime acknowledges Blue Mountains City Council's comments and concerns and has consulted extensively with council. Much of the design, particularly in Section 2, was modified as a result of this consultation. Roads and Maritime is committed to ongoing consultation during detailed design.

**Landscape character and visual amenity impacts**

**Submission numbers**

13 – Individual  
14 – Individual  
16 – Individual  
19 – Blue Mountains City Council  
92 – Individual  

**Issue description**

Blue Mountains City Council expressed concern about:

- The impact of the proposal on village character, and subsequent impact on tourism in Mount Victoria village  
- Insufficient detail provided in the REF on the nature and scale of relationships between street plantings, open space, buildings and highway, and how the proposal would impact on them.

Respondents expressed concern that the proposal would impact on the character, visual amenity and unique nature of Mount Victoria village. Respondents also expressed concern about the impact of the service road on the historic nature of the village due to:

- The relative height of the service road above the existing highway  
- The negative impact on the rural residential vista which forms the entrance of Mount Victoria village  
- The width of the service road, which would appear almost as wide as the highway.

A respondent requested that urban design and landscaping plans similar to those produced for highway upgrades at Lawson, Wentworth Falls and Hazelbrook be provided for the proposal.

**Response**

The proposal is not a major upgrade of the Great Western Highway within the Mount Victoria village. It is limited in extent and focuses on the minimum footprint required to achieve safety improvements.

Impacts of the proposal on the character of Mount Victoria village are assessed in Sections 6.3 and 6.6 of the REF and as part of the Landscape Character and Visual
Amenity Technical Paper (Appendix I of the REF) and the Non-Aboriginal Heritage Technical Paper (the Appendix F of the REF). Aspects such as retaining walls, street plantings, open space, buildings and the highway are also addressed in the Landscape Character and Visual Amenity Technical Paper. These assessments, which were prepared in accordance with Roads and Maritime assessment guidelines, found that the impacts from the proposal on landscape character and visual amenity and non-Aboriginal heritage would not be significant.

Measures to further reduce the impact of the proposal were suggested as part of the landscape character and visual amenity and non-Aboriginal heritage assessments. These measures are being incorporated in detailed design and include the use of a planting palette, a palette for roadside furniture and retaining wall finishes. These measures will be captured within the urban design plans for the project and made available to council for review (as discussed in Section 3.3). Consultation with council staff is continuing, to ensure that the design, structures, materials, plant selection, fences and other road furniture are reviewed during detailed design.

**Revegetation and landscaping**

*Submission numbers*

13 – Individual  
19 – Blue Mountains City Council  
35 – Individual  
40 – Individual  
104 – Blue Mountains City Council

*Issue description*

Respondents provided a number of suggestions for the replanting and revegetation of the highway, including:

- Replicating flora sections on the Lawson and Wentworth Falls Great Western Highway upgrades
- Replanting the highway so it appears to be an avenue of small deciduous trees.

Blue Mountains City Council expressed concern about tree replanting after the proposal is built, specifically concern about:

- Insufficient detail on the importance of species continuity in the REF  
- Incorporation of appropriate measures (such as soil preparation) to ensure long-term healthy plantings with minimal maintenance  
- Suitable selection of plants.

Blue Mountains City Council also requested additional detail about the footpath near the Gatekeepers Cottage, specifically relating to management of privacy and amenity for the residents and to protect property. Council has also requested that detailed urban design and landscaping plans be made available for review, so it can more fully assess the impacts and mitigation measures.

*Response*

Street plantings were assessed as part of the Landscape Character and Visual Amenity Technical Paper (Appendix I of the REF). The REF recognises the
importance of species continuity, and allows for this in the planting palette prepared as part of Technical Paper.

The planting palette is being developed during detailed design with consideration of council’s comments. The planting palette and replanting strategy will consider use of consistent species and styles to provide consistency along the Great Western Highway, while considering the unique characteristics of Mount Victoria. The planting palette will be finalised in discussion with council.

The proposal has sought to retain pre-existing plantings wherever possible. Where this is not possible due to the footprint of the proposal, Roads and Maritime is committed to replanting vegetation along the Great Western Highway within Mount Victoria village. The replanting strategy will consider future maintenance to ensure the correct preparation of soil for planting.

The urban design and landscaping arrangements for the path near the Gatekeepers Cottage are being developed as part of the design. Roads and Maritime would focus on retaining the privacy and amenity for the residents of the Gatekeepers Cottage.

**Retaining wall and safety barrier treatments**

*Submission numbers*

8 – Individual  
13 – Individual  
19 – Blue Mountains City Council  
35 – Individual  
40 – Individual  
104 – Blue Mountains City Council

*Issue description*

A respondent expressed concern that the retaining wall treatments would be out of character with the late 19th century heritage of Mount Victoria village. The respondent noted that there are local and regional examples of appropriate retaining wall treatments including informal stone walls, solid stone blocks or natural stone and sandstone blocks. The respondent also expressed similar concerns about the crash barrier design.

A number of requests for sandstone and other natural rock retaining wall finishes were made during both rounds of community consultation. A number of respondents also provided positive comments on the design and materials for the retaining wall next to the service road, in response to the July 2014 community update.

Blue Mountains City Council expressed support for the use of sandstone on retaining walls that would be visible from the highway.

*Response*

Roads and Maritime notes the support of council and other respondents of sandstone on walls visible from the highway. For retaining walls above and facing the highway, the proposal aims to maintain an exposed natural rock surface for all excavated surfaces where possible. Natural rock and other finishes that are consistent with the village character would be considered for areas that are visible to passing motorists. Specific finishes for retaining walls would be confirmed during detailed design.
Retaining walls located below the highway, facing away from the highway and into the surrounding landscape would not be visible to motorists. Accordingly, they would be composed of reinforced concrete or soldier piled walls with facing panels. They would be grey concrete and designed to match reinforced earth wall panels used elsewhere along the Great Western Highway in the Blue Mountains.

Safety barriers would be designed to meet safety requirements, but the style and type of finishes would be selected to be consistent with the village character while being less visually intrusive wherever possible. Finishes for paving, fencing, planting, lighting, road edges, signage and other streetscape elements are being confirmed during detailed design. These will consider the palettes that are being developed and council’s detailed comments in its submission. These finishes will be presented to council for comment (refer to Section 3.3).

3.8 Biodiversity

Biodiversity offset

Submission numbers

18 – Office of Environment and Heritage

Issue description

The Office of Environment and Heritage (OEH) submission noted that the recommendation for biodiversity offsets in the Biodiversity Technical Paper (Appendix D of the REF) was not included in the main body of the REF. It is therefore unclear whether Roads and Maritime proposes to offset native vegetation losses. The submission also noted that there was no further reference in either the Mount Victoria or Hartley Valley REFs regarding the provision of an offset addressing cumulative impact of the overall Katoomba to Lithgow upgrade of the Great Western Highway.

The Office of Environment and Heritage also stated that it would be preferable to have a consolidated offset for the various safety upgrade proposals between Katoomba and Lithgow, rather than multiple small offsets for each of the highway sections, and recommended that Roads and Maritime develop a consolidated offset strategy that:

- Is supported by a suitable metric and which addresses the OEH document, Principles for Biodiversity Offsets in NSW
- Selects an area that allows further offsetting required for the remaining components of the safety works program.

Response

As outlined in the REF and Biodiversity Technical Paper (Appendix D of the REF), the proposal would not have a significant impact on any Threatened Ecological Communities or species, nor on any Matters of National Environmental Significance. Accordingly, no referral is required in terms of the Environment Protection and Biodiversity Conservation Act 1999, nor is Roads and Maritime required to offset the identified biodiversity impacts associated with the proposal.

Impacts to state listed entities are below the threshold for offsetting under Part 5 of the EP&A Act outlined in Roads and Maritime Services biodiversity offset guidelines.
(RMS 2011). However, Roads and Maritime understands the importance to consider the cumulative biodiversity impacts associated with the upgrade projects along the Great Western Highway between Katoomba and Lithgow (cumulative impacts are assessed in Section 6.15 of the REF).

Given that Roads and Maritime is offsetting biodiversity impacts for the Forty Bends safety upgrade project, there may be an opportunity to simultaneously offset the other safety works projects between Katoomba and Lithgow. Any Offsets would take into account the Principles for Offset in NSW (OEH, 2013).

3.9 Issues outside the proposal area or outside the proposal scope

Trucks parking near Mount York Road

Submission numbers
1 – Individual
1a – Individual
4 – Individual
98 – Individual

Issue description
Respondents raised safety concerns about trucks parking in the 'no standing' area next to Mount York Road (around the Caltex service station). The particular issue is that the trucks and their headlights limit visibility for motorists turning from Mount York Road.

Response
Consultation was carried out with concerned residents and stakeholders about traffic movements and parking around the Caltex service station near Mount York Road. Notes from meetings and the report of the three facilitated workshops relating to the truck parking issue can be found on the Katoomba to Lithgow project documents webpage http://www.rms.nsw.gov.au/roadprojects/projects/western_region/mt_victoria_lithgow/project_documents/index.html.

Recommendations from this consultation were implemented in the design of the highway near the Caltex service station and include:

- Kerb blisters to discourage trucks parking across private accesses opposite the service station
- Linemarking changes to provide a protected left-turn lane into Mount York Road to address the 'no standing' issue between the exit of the service station and the intersection
- Short lengths of kerb and gutter, with some pavement widening, to improve the condition of the shoulders and better formalise the drainage
- A new pedestrian refuge east of Mount York Road, including blisters and signage
- Continuous footpaths on both sides of the highway.
Work to improve facilities for heavy vehicle parking is currently being carried out, including:

- Near Mount Boyce Checking Station on the eastbound side of the highway, where the parking area will be upgraded with toilets, lighting, shelters and rubbish bins
- The gravel area on the westbound side of the highway, opposite Webers Nursery, which will be covered with gravel and sealed.

A figure with details of the work at the Caltex service station is included in Appendix C.

Further details on this aspect of the works can be obtained via the project team on 1800 035 733 (toll free), email K2Lupgrade@rms.nsw.gov.au or visit the website at [http://www.rms.nsw.gov.au/roadprojects/projects/western_region/mt_victoria_lithgow](http://www.rms.nsw.gov.au/roadprojects/projects/western_region/mt_victoria_lithgow).

**Noise associated with truck braking at Victoria Pass**

*Submission numbers*

5 – Individual

*Issue description*

The respondent expressed concern about noise generated by heavy trucks using compression brakes on Victoria Pass, which can affect receivers over 1 km from the pass. The respondent requested further noise reduction strategies at the pass and enforcement to be improved.

*Response*

This issue falls outside of the proposal area, and accordingly is not addressed by the proposal. However, this concern was referred to the noise abatement group within Roads and Maritime for consideration and action.

**Issues on roads connecting to the highway**

*Submission numbers*

25 – Individual
44 – Individual
80 – Individual

*Issue description*

A respondent stated that Grand View Road is too narrow and that their narrow access off Grand View Road is troublesome.

Another respondent noted that trucks of any size should be banned from Harley Avenue, and should instead use the Station Street intersection as this would be safer for all road users. They also noted that Harley Avenue is often full with parked cars.

Another respondent requested that parking signs be installed on Hooper Street to prevent cars parking too close to the highway, which is causing a traffic hazard for outgoing and incoming traffic.
Response

The proposal does not address access from Grand View Road as its predominant purpose is to improve safety on the highway. It is suggested that the respondent discuss this issue in further detail with Blue Mountains City Council.

Harley Avenue is a state classified road which is part of the heavy vehicle route to Lithgow. Trucks are unable to use Station Street to join Darling Causeway due to its acute angles and lack of turning space. An upgrade of the Station Street intersection to allow for trucks would entail a substantial development footprint and would have impacts on heritage buildings in the centre of Mount Victoria, including the Imperial Hotel.

Parking signage is the responsibility of Blue Mountains City Council. Roads and Maritime has forwarded this matter to council to address and respond to directly.

Drainage outside the proposal area

Submission numbers

8 – Individual

Issue description

The respondent noted that a drainage issue is apparent near the Mount Victoria Post Office, outside the proposal area. The respondent noted that a clay stormwater pipe was broken while work was carried out on the footpath. The respondent also requested that the footpath be levelled.

Response

The construction contractor would be required to protect drainage structures during construction for the proposal. The drainage issue raised in this submission is outside the proposal area, and does not relate to Roads and Maritime activities. This matter should be referred to Blue Mountains City Council for action.

Impact of roadwork on Blackheath

Submission numbers

11 – Individual

Issue description

The respondent requested that Blackheath be exempt from roadwork.

Response

The roadwork for this proposal would not affect Blackheath.

Investigations are underway to identify options to upgrade the Great Western Highway between Katoomba and Mount Victoria. Further information regarding the Katoomba to Mount Victoria Great Western Highway upgrade can be obtained from the Katoomba to Lithgow project team on 1800 035 733 or via email on K2Lupgrade@rms.nsw.gov.au.
Relocating power lines underground

Submission numbers
13 – Individual
19 – Blue Mountains City Council
35 – Individual

Issue description
Blue Mountains City Council and a number of respondents requested that power lines along the highway be relocated underground as part of the proposal. A respondent suggested that this would improve visual aesthetics for the village, and contribute to a wider acceptance of the proposal by residents of Mount Victoria.

Response
Roads and Maritime would consider placing electricity underground when new street lighting is installed in the proposal area.

However, Roads and Maritime does not support undergrounding existing electricity throughout the village as it would entail undergrounding the connections for individual properties, which would require substantial earthworks. The cost would be prohibitively expensive, would not provide safety benefits proportional to these costs and would redirect funds that could be used more effectively in providing road safety improvements.

Cyclist access outside the proposal area

Submission numbers
40 – Individual

Issue description
The respondent requested that Roads and Maritime provide cyclist access on Victoria Pass and suggested the provision of wide shoulders on Darling Causeway for cycle lanes.

Response
Cyclist access on the Great Western Highway at Victoria Pass or Darling Causeway does not form part of the safety improvements for the proposal, and Roads and Maritime has no plans to provide cyclist access there. It is debatable whether safe access for cyclists at either of these locations could be achieved.
4 Refinements to the REF proposal

Roads and Maritime displayed the REF between November 2013 and February 2014, and held an additional round of community consultation in July 2014 after revising several aspects of the proposal.

Since then, Roads and Maritime has refined the proposal design in response to issues raised in public submissions, consultation with affected landowners, and the outcomes of additional technical investigations. These refinements to the proposal are described and assessed in this chapter.

4.1 Refinements to the proposal in the REF

4.1.1 Overview of refinements

Following the display of the REF, Roads and Maritime refined the proposal in response to comments received from the community, including Blue Mountains City Council, and as part of the design development process. Key refinements to the proposal are shown in Figure 4-1a to Figure 4-1c and include:

- Minor refinements to the extent and location of batters along the highway (refer to Section 4.1.2)
- Left-turn lane from the highway into Selsdon Street, within the proposal area (refer to Section 4.1.3)
- Changes to the service road and associated retaining walls in Section 2 (refer to Section 4.1.4)
- Changes to retaining walls in Section 2 (refer to Section 4.1.5)
- Changes to water quality measures (refer to Section 4.1.6)
- Upgrades to cyclist and pedestrian facilities, and lighting for the shared path in Section 1 (refer to Section 4.1.7)
- Changes to property access (refer to Section 4.1.7)
- An additional stockpile site in Section 2 (refer to Section 4.1.9).

These changes increase the proposal area from 8.4 hectares – as outlined in the REF – to 9.0 hectares (an increase of 0.6 hectares). The increase in the proposal area is due to minor refinements to the extent and location of batters along the highway, associated with formalising access and tie-ins along the highway.

The changes are described in more detail below.
FIGURE 4-1a | PROPOSED REFINEMENTS TO THE PROPOSAL

Widened shoulders with concrete lined drains, and underground pipes to convey stormwater

Widened shoulder to provide for traffic turning right

Lit footpath to railway bridge

New footpath including incorporation of underground utilities

Basic right turn at Victoria Falls Road

Tie-in to Browntown Oval track

Potential stockpile and/or compound site

LEGEND
- The proposal
- Proposal area
- REF construction footprint (5 m buffer)
- Retaining wall
- Footpath
- Section boundary
- Existing highway
- Road
- Primary waterway
- Minor waterway
- Property boundary

DATA SOURCES
Roads and Maritime Services 2013,
LPMA 2010, STREETWORKS 2001

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**FIGURE 4-1b | PROPOSED REFINEMENTS TO THE PROPOSAL**

- **Upgrade drainage for full length of Section 2**
- **Potential compound stockpile site**
- **Left-in left-out turning control with signposting and line marking**
- **Retaining wall to include sandstone blocks**
- **Improve road alignment between Mt Piddington Rd and Hooper St**
- **Pedestrian pathway**
- **New dedicated right turn bay**
- **4.2 m service road for shared vehicle and pedestrian use**
- **Relocation of underground facilities**
- **Two retaining walls (1.5 m and 1 m high) separated by a planted batter slope**
- **Retaining wall length reduced to 110 m**
- **Cecil Road shortened to 25 m**
- **Widened road shoulders**
- **Tie-in to track past Weatherboard Cottage**

**DATA SOURCES**
- Roads and Maritime Services 2013,
- LPMA 2010, STREETWORKS 2001

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FIGURE 4-1c | PROPOSED REFINEMENTS TO THE PROPOSAL

- **Proposed water quality measure**
- **Remove steel guardrail and relocate electrical poles and pole-mounted transformer**
- **Widened road shoulders on both sides**
- **New pedestrian pathway**
- **Left turn lane into Selsdon Street**
- **New pedestrian refuge**
- **Upgrade drainage - new kerb and gutter and underground stormwater pipes along both sides of the highway in Section 3**
- **Pedestrian pathway along both sides of the highway in Section 3**
- **Potential compound stockpile site**
- **Proposed water quality measure**
- **New dedicated right turn bay**
- **Reinstate existing bus shelter**
- **New dedicated right turn bay**
- **New pedestrian pathway**
- **Install raised splitter island**
- **Line marking improvements creating left turn lane**

**DATA SOURCES**
Roads and Maritime Services 2013, LPMA 2010, STREETWORKS 2001

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4.1.2 Minor refinements to batters along the highway

Design refinements during the detailed design have resulted in minor adjustments to the batters. In general, these refinements were made to ensure that the design would be contained within the road reserve wherever possible, to reduce the need for property acquisition.

4.1.3 Left-turn lane from the highway into Selsdon Street

Roads and Maritime proposes to provide an additional left-turn lane into Selsdon Street, 35 m long and 3 m wide (including the gutter). It would be accommodated within the existing proposal area and would not require an increase in road pavement.

4.1.4 Changes to the service road and associated retaining walls

Roads and Maritime refined the service road in Section 2. Key changes to the service road are shown in Figure 4-1b and involve:

- Reducing the width of the service road by about 2 m (from 6 m to about 4.2 m) (refer to Figure 4-2 and Figure 4-3)
- Modifying the 4.8 m retaining wall between the service road and the highway to two smaller walls. The lower wall next to the highway would be about 1.0 m high and the upper wall next to the service road would be about 1.5 m high. The smaller retaining walls would be separated by a planted 2:1 batter slope that would eventually hide the upper retaining wall (refer to Figure 4-4)
- Grading the driveways south of the highway to intersect with the service road (as discussed in Section 4.1.8)
- Building an extra footpath next to the highway, providing pedestrians with an alternative to the service road, as shown in Figure 4-2.

Figure 4-2 Typical cross section of the revised service road in Section 2
Changes to the retaining walls in Section 2

Roads and Maritime reduced the scale of the retaining walls in Section 2. The changes include:

- Replacing 80 m of the retaining wall to the west of Harley Avenue with an earthen batter
- Replacing the retaining wall next to the service road with two shorter retaining walls separated by planting, as discussed in Section 4.1.4
- Modifying the retaining wall east of Hooper Street to accommodate sandstone blocks.
4.1.6 Changes to water quality measures

Currently, there are no water quality measures (such as water quality basins) to manage background water quality impacts from the existing highway.

To address this issue, the REF proposed the following water quality measures:

- Section 1 – Water quality measure for operation to be confirmed in detailed design
- Section 2 – Water quality basin for construction and operation
- Section 3 – Water quality basin for construction and operation.

The water quality measures proposed in the REF would address the cumulative water quality requirements of the site, rather than just the incremental changes to water quality associated with the proposed safety upgrade. The design criteria proposed treatment measures to meet standard NSW pollutant load reduction rates.

However, to respond to community concerns about reducing the footprint and potential impacts, the strategy for water quality management has been refined to be consistent with similar upgrade projects along the Great Western Highway and reduce impacts on property, land use and biodiversity.

Roads and Maritime has adopted revised design criteria to focus on the incremental impact of the safety upgrade while ensuring the Sydney Catchment Authority (SCA) Neutral or Beneficial Effect (NorBE) requirement in Section 3 would be met as a minimum. To meet the revised design criteria is to maximise the use of grassed swales and use permanent water quality basins only as required.

Design refinement

In light of the revised water quality design criteria, the proposed water quality basin in Section 2 and the water quality measure in Section 1 have been removed as part of the proposal.

Roads and Maritime held a meeting with Sydney Catchment Authority (SCA) on 2 September 2014 to discuss water quality treatment options, particularly in Section 3 of the proposal. It was acknowledged that the incremental increases in impervious pavement areas were relatively small (about a three per cent increase) and therefore the increase in pollutant loads is expected to be negligible. A water quality basin was proposed in Section 3 as part of the REF. However, due to space limitations and potential biodiversity impacts, Roads and Maritime is instead proposing to replace the basin with a water quality improvement measure to manage discharge from Fairy Dell Road to provide long term improvements in the catchment. The final design would be determined during detailed design in consultation with Sydney Catchment Authority.

It is noted that adequate temporary construction phase erosion and sedimentation control measures would still be applied for all sections of the proposal. These would be confirmed by the contractor before construction.

4.1.7 Upgrades to cyclist and pedestrian facilities

Following feedback from the community, Roads and Maritime investigated providing continuous cyclist and pedestrian access along the highway in the proposal area.
Additional paths and tie-ins to the proposal identified during detailed design include (refer to Figure 4-5):

- A shared path linking the railway bridge to the Gatekeepers Cottage pathway
- A shared road linking the Gatekeepers Cottage to the footpath next to the highway. This road already exists as the driveway to the Gatekeepers Cottage, but the proposal would improve the road and install shared road signs
- Signage to indicate the shared road that would link the proposed footpath next to the highway with Browntown Oval, via the existing gravel track
- A tie-in from the highway to Victoria Falls Road
- A track past Weatherboard Cottage, north of the highway opposite Cecil Road.

In addition, it is proposed to provide lighting for the shared path in Section 1.

4.1.8 Changes to property accesses
Following consultation with affected landowners, Roads and Maritime revised the proposal to include formalised driveways that would be graded to interface with the road network at the following nine properties:

- Chainage 15840 (Gatekeepers Cottage) in Section 1
- Chainage 16230 to the south of the highway; access would be from Cecil Road
- Chainage 16250 to the south of the highway; access would be from the service road between Mount Piddington Road and Cecil Road
- Chainage 16275 to the south of the highway; access would be from the service road between Mount Piddington Road and Cecil Road
- Chainage 16400 (Weatherboard Cottage) to the south of the highway; access would be from the service road between Mount Piddington Road and Cecil Road
- Chainage 16530 (House/Marthaville) to the south of the highway; access would be from the highway between Hooper Street and Mount Piddington Road
- Chainage 16590 to the south of the highway; access would be from the highway between Hooper Street and Mount Piddington Road
- Chainage 16325 and 16350; these two properties would be provided with a new shared driveway; access would be from the service road between Mount Piddington Road and Cecil Road.

4.1.9 Additional stockpile site
An additional temporary stockpile site (for use during the construction period only) was identified next to the Great Western Highway, opposite Mount Piddington Road, at chainage 16500.

This site would typically be used for laydown facilities, equipment and chemical/fuel storage, maintenance sheds, stockpiling earth, and construction activities.
FIGURE 4-5 | PEDESTRIAN FACILITIES

New pedestrian refuge as part of Caltex Service Station work

New pedestrian refuge

LEGEND
- The proposal
- Section boundary
- Proposed pedestrian path
- Proposed pathway from different project
- Bridge
- Shared road
- Existing shared road
- Existing pathway
- Retaining wall
- Caltex Service Station work
- Toll Bar House pedestrian pathway project

DATA SOURCES
Roads and Maritime Services 2013, LPMA 2010, STREETWORKS 2001

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4.2 Environmental assessment

Roads and Maritime assessed the potential environmental impacts of the proposed refinements described in Section 4.1. Only additional impacts (either positive or negative) resulting from the proposed refinements are discussed in the following sections. Impacts considered to be consistent with the REF or regarded as being unaltered are not discussed.

Table 4-1 summarises the environmental factors affected by the refinements to the proposal.

**Table 4-1 Environmental factors affected by the refinements to the proposal**

<table>
<thead>
<tr>
<th>Refinement to the proposal in the REF</th>
<th>Environmental impact</th>
<th>Relevant section in the report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor refinements to batters along the highway</td>
<td>Increase in proposal area resulting in biodiversity impacts</td>
<td>Section 4.2.1</td>
</tr>
<tr>
<td></td>
<td>Reduction in property acquisition required</td>
<td>Section 4.2.10</td>
</tr>
<tr>
<td>Left turn lane from the highway into Selsdon Street</td>
<td>Improved traffic conditions in this location</td>
<td>Section 4.2.9</td>
</tr>
<tr>
<td></td>
<td>Potential increase in operational noise at this location</td>
<td>Section 4.2.2</td>
</tr>
<tr>
<td>Changes to the service road and associated retaining walls</td>
<td>Reduction in scale of proposal, resulting in reduced landscape character and visual amenity impacts</td>
<td>Section 4.2.6</td>
</tr>
<tr>
<td></td>
<td>Improved and changed traffic, transport and access</td>
<td>Section 4.2.9</td>
</tr>
<tr>
<td>Changes to the retaining walls in Section 2</td>
<td>Reduction in scale, resulting in reduced landscape character and visual amenity impacts</td>
<td>Section 4.2.6</td>
</tr>
<tr>
<td>Changes to water quality measures</td>
<td>Reduction in proposal footprint, resulting in a reduction in biodiversity impacts</td>
<td>Section 4.2.1</td>
</tr>
<tr>
<td></td>
<td>Water quality</td>
<td>Section 4.2.5</td>
</tr>
<tr>
<td>Upgrades to cyclist and pedestrian facilities</td>
<td>Improvements to cyclist and pedestrian access</td>
<td>Section 4.2.9</td>
</tr>
<tr>
<td>Changes to property accesses</td>
<td>Improvements to cyclist and pedestrian access</td>
<td>Section 4.2.9</td>
</tr>
<tr>
<td></td>
<td>Improvements to socio-economic conditions</td>
<td>Section 4.2.11</td>
</tr>
<tr>
<td>Additional stockpile site</td>
<td>Increase in noise at this location during construction</td>
<td>Section 4.2.2</td>
</tr>
</tbody>
</table>
4.2.1 Biodiversity

Method

Potential impacts to biodiversity were outlined in Section 6.1.3 of the REF and the Biodiversity Assessment Technical Paper (SKM, 2013) (Appendix C of the REF). This technical paper and previously collected field data was reviewed to identify any additional impacts associated with the proposed refinements, particularly in relation to known threatened flora and fauna species and threatened ecological communities in the study area.

Potential impacts

Loss of vegetation and/or habitat

The construction footprint associated with the proposal assessed in the REF would impact a total of about 1.33 hectares (ha) of native and modified vegetation. This comprises:

- About 0.55 ha of remnant vegetation
- About 0.78 ha of native and exotic plantings and disturbed land (or modified habitat) in the form of residential gardens and maintained roadsides.

The revised proposal area outlined in Section 4.1 would require the clearing of about 1.77 ha of native and modified vegetation. This is 0.44 ha (33 per cent) more than the extent assessed in the REF. The areas to be cleared would comprise:

- 0.74 ha of remnant vegetation (0.19 ha more than the proposal assessed in the REF). This is mostly associated with the additional clearing associated with tie-ins to tracks and Victoria Falls Road
- 1.03 ha of residential gardens and maintained roadsides (0.25 ha more than the proposal assessed in the REF), due to minor changes to batter extents and changes to property accesses.

Table 4-2 outlines the potential impacts associated with the amended proposal, and compares the areas of direct impact assessed in the REF with the areas of direct impact from the amended proposal.

Table 4-2 Revised areas of impact for native vegetation communities

<table>
<thead>
<tr>
<th>Native vegetation community type</th>
<th>Conservation status/percentage cleared (Tozer 2010)</th>
<th>Condition</th>
<th>Area of direct impact from REF (ha)</th>
<th>Revised total area of direct impact (ha)</th>
<th>Proposed change</th>
<th>Fauna habitat type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map Unit 1:</td>
<td>Not listed / 10–30% of original extent estimated to be cleared</td>
<td>High</td>
<td>0.08</td>
<td>0.14</td>
<td>+ 0.06</td>
<td>Dry sclerophyll forest</td>
</tr>
<tr>
<td>Silvertop Ash – Peppermint Forest</td>
<td></td>
<td>Moderate</td>
<td>0.34</td>
<td>0.15</td>
<td>- 0.19</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>0.13</td>
<td>0.45</td>
<td>+ 0.32</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>0.55</td>
<td>0.74</td>
<td>+ 0.19</td>
<td></td>
</tr>
</tbody>
</table>

Note: Values preceded by ‘+’ and shown in red text indicate an increase in vegetation clearing in comparison to the clearing indicated in the REF. Conversely, values...
preceded by ‘-’ and shown in black text indicate a decrease in vegetation clearing in comparison to the clearing indicated in the REF.

**Threatened ecological communities**

Section 6.1.3 of the REF confirms that the hanging swamps TEC are not hydrologically connected to the basins that were originally proposed in the REF. As such, the removal of the basin proposed in Section 2 would not have an impact on the hanging swamps TEC.

**Impact on fauna habitat**

The REF identifies three fauna habitat types in the study area. The additional vegetation clearing for the proposal resulting from the design refinements would result in an additional impact on two of these habitat types. Species that would potentially be affected by the clearing of dry sclerophyll forest include:

- Arboreal mammals and nectivorous birds, as this habitat type provides important habitat and food sources for these fauna
- Koala, as this habitat type has some secondary and supplementary food trees
- Glossy Black-cockatoo, due to the presence of *Allocasuarina* spp.

Species that would potentially be affected by the clearing of modified habitat are those that would use modified habitat for foraging and dispersal, including:

- Macropods
- Spotted-tail Quoll.

The assessment of significance for the proposal (refer to Appendix C of the Biodiversity Technical Paper, Appendix D of the REF) was reviewed against the proposed refinements. The review found that the outcomes of the assessment of significance would remain unchanged (that is, not significant). No further assessment is therefore required under Section 5A of the EP&A Act.

**Conclusion**

The proposed refinements would have minimal additional impact on biodiversity in the study area. No amendment or addition to the management measures outlined in Section 6.1.4 of the REF is therefore proposed.

**4.2.2 Noise and vibration**

**Method**

The proposed refinements as discussed in Section 4.1.2, 4.1.3, 4.1.4, 4.1.5 and 4.1.9 were assessed to identify any impact on construction and operational noise and vibration, additional to that already assessed in the REF.

**Potential impacts**

*Change in proposal area*

While the proposed refinements have resulted in a change in proposal area, traffic lanes and noise sources on the highway would generally remain in the same location.
as what was assessed in the REF. Accordingly, operational noise impacts associated with the proposal would remain consistent with that assessed in the REF.

Left-turn lane from the highway into Selsdon Street

At the intersection of Great Western Highway and Selsdon Street, the proposed refinements include a new left turn lane for eastbound traffic entering Selsdon Street. This would move the turning lane about 3 m closer to the residence at 82 Great Western Highway, generating an increase in traffic noise.

The Great Western Highway currently has daily traffic movements in the order of 11,000 vehicles per day. Traffic noise from the through traffic compared with the less frequent turning lane traffic is substantial in comparison. Noise from through traffic would tend to mask the noise of the closer traffic as it slows to negotiate the corner.

While the noise impacts from the turning lane are expected to be minimal, additional noise monitoring for 82 Great Western Highway (the closest residence to this intersection) would be carried out for the pre and post construction scenarios to identify any changes in noise level (refer to Section 5.2). No other changes to operational noise are expected as a result of the revised proposal area.

Retaining walls

The requirement to undertake further noise impact assessment associated with retaining walls in Section 2 was reviewed during detailed design. Changes in the design resulted in the previously assessed retaining walls being shorter and incorporating plantings and vegetation in front of them. The changes to the design of these walls are expected to result in reflected noise impacts that will be negligible.

Additional stockpile site

The stockpile site proposed for Harley Avenue has predicted noise levels in the order of 65 dB(A) at 30 m, about 10–15 dB(A) higher than the daytime noise management level (NML). The additional stockpile site at chainage 16500 that fronts onto the Great Western Highway would produce similar levels and impacts at the nearest receiver on the opposite side of the highway. While these levels may be above the NML for the proposal, they would be lower than the ‘highly affected noise’ criterion.

The use of this stockpile site is not expected to occur for extended durations and therefore the predicted noise levels are representative of loading and unloading operations only. Management and mitigation measures for all ancillary sites have been included in the Construction Noise and Vibration Management Plan.

Should night work be required, operation of the site would exceed the project noise criteria at the nearest receiver locations by up to about 25–30 dB(A). Therefore, access to and operation of the site is not recommended at night. If work is required during night-time hours, it would be carried out in accordance with the Interim Construction Noise Guideline (DECC, 2009) and Roads and Maritime’s Environmental Noise Management Manual (RTA, 2001).

Roads and Maritime have updated the general measures to mitigate potential noise associated with stockpile sites to include this additional stockpile site (refer to Section 5.2).
4.2.3 Non-Aboriginal heritage

The refinements to the proposal would not alter its potential impact on non-Aboriginal heritage as described in the REF.

4.2.4 Hydrology

The refinements to the proposal would not alter its potential impact on hydrology as described in the REF.

4.2.5 Water quality

Following the water quality review in detailed design, it was confirmed that the increases in impervious pavement surfaces as a result of the proposal were insignificant and therefore water quality measures in Section 1 and 2 were not required.

The refinements to the proposal would not alter its potential impact on water quality as described in the REF. No change to the neutral or beneficial effect (NorBE) assessment is required as no change to water quality measures in Section 3 (which is located within the SCA drinking water catchment) is proposed.

Accordingly, water quality impacts from the refinements to the proposal in Section 1 and 2 are expected to be negligible, as compared to that described in the REF. The refinements to the proposal in Section 3 would not alter its potential impact on water quality as described in the REF.

4.2.6 Landscape character and visual amenity

A desktop review was carried out to identify potential impacts on landscape character and visual amenity associated with the refinements to the proposal outlined in Section 4.1. The proposed refinements would affect the three landscape character zones (LCZ) and three of the 16 viewpoints assessed in Section 6.6 of the REF and the landscape character and visual amenity technical paper (SMM, 2013) (Appendix H of the REF). The implications of the refinements are described below.

Landscape character impact

LCZ 1: Eastern approach

Vegetation

Improvements to the driveway to the Gatekeeper’s Cottage, the northern track to Browntown Oval and to the intersection of Victoria Falls Road may require minor clearing of vegetation. Trees next to the highway contribute to the enclosed character of the highway in Section 1. The proposed refinements are minor and would not change the visual character of this area as assessed in the REF.

Landscape character assessment

The proposed refinements would not change the sensitivity rating assessed in the REF, which would remain Moderate. The removal of a small number of roadside trees in three locations would not be sufficient to increase the magnitude rating, which would remain Low. Therefore, the overall landscape character impact would remain Moderate to Low.
**LCZ 2: East village**

**Earthworks and retaining walls**

The proposed refinements would reduce the earthworks required for the proposed service road by reducing its width from 6.0 m to about 4.2 m. The proposed refinements would also replace the 5.0 m high retaining wall between the service road and the highway with two shorter retaining walls, separated by a vegetated slope.

Ninety m of the retaining wall on the northern side of the highway to the west of Harley Avenue would be replaced with an earthen batter. The retaining wall to the east of Hooper Street would be modified to allow for sandstone blocks to be used. The proposed refinements would reduce the physical and visual scale of the proposal.

**Landscape character assessment**

The proposed refinements would not change the sensitivity rating assessed in the REF, which would remain Moderate. While the proposed refinements would reduce the physical and visual scale of the proposal in Section 2, it would not be sufficient to decrease the magnitude rating, which would remain High. Therefore, the overall landscape character impact would remain High to Moderate.

**LCZ 3: West village**

**Additional lane into Selsdon Street**

The proposed additional left-turn lane into Selsdon Street would be accommodated within the existing proposal footprint and would not require an increase in road pavement.

**Landscape character assessment**

The proposed additional left-turn lane into Selsdon Street would not change the sensitivity rating assessed in the REF, which would remain Moderate. The proposed refinement is minor, and would not have an impact on the magnitude in Section 3, which would remain Low. Therefore, the overall landscape character impact would remain Moderate to Low.
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DATA SOURCES
Visual impact
The desktop assessment found that the proposed refinements would affect three of the 16 viewpoints for the proposal, namely: viewpoints 2, 4 and 5. These are shown in red in Figure 4-6 and discussed below.

Viewpoint 2
Location
Great Western Highway, chainage 15570, looking east (foreground view).

Description
The viewpoint shows the highway winding around Browntown Oval, and the vegetation on both sides. The track to the right leads to the oval.

Plate 4-1 Viewpoint 2

Visual impact assessment
The proposed refinements would not change the sensitivity rating assessed in the REF, which would remain Low. The proposed refinements would formalise the interface between the dirt track that leads to Browntown Oval and the highway. Some shrubs or trees on both sides of the track may be cleared as part of the proposed refinements, but these would not result in a substantial change to the visual amenity. The refinements to the proposal would not be sufficient to alter the magnitude rating assessed in the REF. Therefore, the visual impact rating would remain Low.

Viewpoint 4
Location
Great Western Highway, chainage 16210, next to a residential access track, looking west (foreground view for resident entering property).

Description
The viewpoint shows the highway curving to the left around the lower slopes of Mount Piddington. There are houses next to the highway.
Plate 4-2 Viewpoint 4

Visual impact assessment
The proposed refinements would reduce the width of the service road from 6.0 m to about 4.2 m. The 4.8 m high retaining wall would be replaced with two smaller retaining walls, separated by a planted batter slope. The proposed refinements would not be sufficient to change the magnitude rating of High, and the overall impact rating would remain High to Moderate.

Viewpoint 5
Location
Eastern side of Harley Avenue, looking south (foreground view).

Description
The viewpoint looks toward the Harley Avenue intersection with the highway. There are houses on the eastern side of the road.

Plate 4-3 Viewpoint 5

Visual impact assessment
The proposed refinements would reduce the height of the retaining wall visible from this viewpoint. The reduction of the service road from a two-lane road to a single-lane road would also reduce the visual impact. A new driveway for properties may require
the removal of small shrubs and one large tree in this view, increasing the visual impact. The proposed refinements would not be sufficient to change the magnitude rating of High, and the overall impact rating would remain High.

Conclusion
The proposed refinements do not introduce sufficient change to the proposal to change the magnitude rating of the proposal in any area. Accordingly, the overall impact rating for the viewpoints within the proposal would remain as described in the REF.

4.2.7 Aboriginal heritage
The Aboriginal Heritage Information Management System (AHIMS) was searched on 7 May 2014 and 29 August 2014 to identify whether the proposed refinements would have an impact on Aboriginal heritage. No sites were identified as a result of these AHIMS searches. Accordingly, no impact on Aboriginal heritage is expected as a result of the refinements to the proposal.

4.2.8 Topography, geology, soils and contamination
The refinements to the proposal would not alter its potential impact on topography, geology, soils and contamination as described in the REF.

4.2.9 Traffic, transport and access
The addition of a left turn lane from the highway into Selsdon Street, would improve traffic flow in the vicinity of the intersection, as through traffic would be able to pass any turning vehicles safely. Moreover, it would reduce the risk of rear end crashes for turning vehicles at this location.

The additional footpaths and shared paths described in Section 4.1.7 would help provide for continuous pedestrian access along most of the highway, as shown in Figure 4-5 and discussed in Section 3.5. The additional footpath along the highway in Section 2 would also improve access opportunities by providing pedestrians with a flat alternative to walking along the service road.

Additional lighting and signage of shared roads would provide for improved safety for pedestrians and cyclists. Formalising driveways and accesses to properties as described in Section 4.1.8 would provide improved and safer access to the highway for residents.

This would result in a better outcome for pedestrians and cyclists in Mount Victoria village.

The formalised driveways outlined in Section 4.1.7 would improve access for these properties relative to that described in the REF.

4.2.10 Land use and property
The refinements to the proposal would result in a change in potential land use impacts, particularly for owners, occupant and operators of properties along and near the proposal area. These potential land use impacts and opportunities include improved access to nine properties (refer to Section 4.2.9) and reduced land acquisition arising from refining the proposal footprint (refer to Table 4-3). These
impacts would not alter significance of the proposal’s impact on land use and property as described with the REF.

### Table 4-3 Property acquisition associated with the proposed refinements

<table>
<thead>
<tr>
<th>Property (Lot and DP)</th>
<th>Area proposed to be acquired as part of the REF (sq m)</th>
<th>Area proposed to be acquired as part of the detailed design (sq m)</th>
<th>Difference (sq m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 1/DP256358</td>
<td>360</td>
<td>350</td>
<td>-10</td>
</tr>
<tr>
<td>Lot 1/Section 2/DP1948</td>
<td>25</td>
<td>23</td>
<td>-2</td>
</tr>
<tr>
<td>Lot 6/DP656400</td>
<td>310</td>
<td>307</td>
<td>-3</td>
</tr>
<tr>
<td>Lot 5/DP656399</td>
<td>320</td>
<td>319</td>
<td>-1</td>
</tr>
<tr>
<td>Lot 4/DP656398</td>
<td>285</td>
<td>283</td>
<td>-2</td>
</tr>
<tr>
<td>Lot 21/DP813107</td>
<td>250</td>
<td>248</td>
<td>-2</td>
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<tr>
<td>Lot 2/Section 1/DP1948</td>
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<td>Lot B/DP338486</td>
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<td>Lot A/DP338486</td>
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<td>Lot 3/Section 1/DP311</td>
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<td>Lot 2/Section 1/DP311</td>
<td>130</td>
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<td>-2</td>
</tr>
<tr>
<td>Lot 1/Section 1/DP914368</td>
<td>15</td>
<td>14</td>
<td>-1</td>
</tr>
<tr>
<td>Lot 100/DP1067318</td>
<td>50</td>
<td>47</td>
<td>-3</td>
</tr>
<tr>
<td>Lot 5/DP666077</td>
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<tr>
<td>Lot 2/DP650593</td>
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<td>149</td>
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<tr>
<td>Lot 1/DP663613</td>
<td>70</td>
<td>68</td>
<td>-2</td>
</tr>
<tr>
<td>Lot 1/DP536240</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL (sq m)</strong></td>
<td><strong>3,795</strong></td>
<td><strong>3,757</strong></td>
<td><strong>-38</strong></td>
</tr>
</tbody>
</table>

#### 4.2.11 Socio-economic

The refinements to the proposal would provide improved access to one property in Section 1 and eight properties along the service road, as outlined in Section 4.1.7. It is not expected that refinements to the proposal would alter the potential socio-economic impacts on the local area as described in the REF.

#### 4.2.12 Air quality

The refinements to the proposal would not alter its potential impact on air quality as described in the REF.
4.2.13 Greenhouse gas and climate change
The refinements to the proposal would not alter its potential impact on greenhouse gas and climate change as described in the REF.

4.2.14 Waste and resource management
The refinements to the proposal would not alter its potential impact on waste and resource management as described in the REF.

4.2.15 Cumulative environmental impacts
The refinements to the proposal would result in an increase in cumulative vegetation clearing and biodiversity impacts. This would, in turn, affect the cumulative impact of clearing associated with vegetation clearance across the Mount Victoria to Lithgow safety projects.
5 Environmental management

The REF for the proposed upgrade of the Great Western Highway at Mount Victoria village identifies environmental management and mitigation measures that Roads and Maritime will adopt to avoid or reduce environmental impacts (refer to Section 7.2 of the REF).

After considering the issues raised in the public submissions and refinements to the proposal, Roads and Maritime revised the management and mitigation measures in the REF. The key changes include:

- Amendment of noise mitigation measures to include the additional stockpile site
- Additional mitigation measures to note that any stormwater infrastructure owned by Blue Mountains City Council will be returned to pre-construction condition after the proposal is built.

A review and update of management and mitigation measures was also carried out in light of the design changes identified during detailed design.

Should the proposal proceed, environmental management will be guided by the framework and measures outlined below.

5.1 Environmental management plans (or system)

Chapter 6 of the REF identifies a number of safeguards and management measures to minimise potential adverse environmental impacts, including social impacts that could potentially arise as a result of the proposal. Should the proposal proceed, these management measures will be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Project Environmental Management Plan (PEMP) and a Contractors Environmental Management Plan (CEMP) will be prepared to describe the safeguards and management measures. These plans will provide a framework for establishing how these measures will be implemented and who will be responsible for their implementation.

The plans will be prepared before construction of the proposal and must be reviewed and certified by environment staff, Roads and Maritime Environmental Manager, Sydney Region, before the start of any on-site work. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP and PEMP will be developed in accordance with the specifications set out in the following documents:

- QA Specification G36: Environmental Protection (Management System)
- QA Specification G38: Soil and Water Management (Soil and Water Management Plan)

5.2 Summary of safeguards and management measures

Environmental safeguards outlined in this document will be incorporated into the detailed design phase of the proposal and during construction and operation of the proposal, should it proceed. These safeguards will minimise any potential adverse
impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 5-1.

Changes made to the previous safeguards and management measures are identified in blue italicised text in Table 5-1.
## Table 5-1 Summary of site specific environmental safeguards

<table>
<thead>
<tr>
<th>ID</th>
<th>Impact</th>
<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-1</td>
<td>General</td>
<td>All environmental safeguards must be incorporated within the Project Environmental Management Plan (PEMP) (those relevant to the detailed design stage). Relevant mitigation measures for the contractor during construction will be included in the contract specifications, and these safeguards will be addressed by the contractor in the Construction Environmental Management Plan (CEMP). The CEMP will also include incident management procedures.</td>
<td>Project manager</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>G-2</td>
<td>General</td>
<td>Any work resulting from the proposal and covered by the REF may be subject to environmental audit(s) and/or inspection(s) at any time during their duration.</td>
<td>Project manager and regional environmental staff</td>
<td>Pre-construction and after-first audit Construction</td>
</tr>
<tr>
<td>G-3</td>
<td>General</td>
<td>Relevant environmental contract specifications must be forwarded to Roads and Maritime’s Sydney Environmental Manager for review at least 10 working days before the tender stage. A contractual hold point must be maintained until the CEMP is reviewed by Roads and Maritime’s Senior Environmental Officer.</td>
<td>Project manager</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>G-4</td>
<td>General</td>
<td>Roads and Maritime’s Project Manager must notify Roads and Maritime’s Environmental Officer Sydney Region at least 5 days before work commencing.</td>
<td>Project manager</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>G-5</td>
<td>General</td>
<td>All businesses and residences likely to be affected by the proposed work must be notified at least 5 working days before the start of the proposed activities.</td>
<td>Project manager</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>G-6</td>
<td>General</td>
<td>Environmental awareness training must be provided, by the contractor to all field personnel and subcontractors.</td>
<td>Contractor</td>
<td>Pre-construction and during construction as required</td>
</tr>
</tbody>
</table>

**Biodiversity**

<table>
<thead>
<tr>
<th>ID</th>
<th>Impact</th>
<th>Potential impacts will be avoided and minimised through the application of these general principles:</th>
<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI-1</td>
<td>General impacts on threatened</td>
<td></td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
</tr>
<tr>
<td>ID</td>
<td>Impact</td>
<td>Environmental safeguards</td>
<td>Responsibility</td>
<td>Timing</td>
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</tbody>
</table>
|      | species and ecological communities                                     | • Avoiding broad scale vegetation clearing  
• Minimising vegetation/habitat clearing where possible to reduce impacts on threatened fauna species that rely on these habitats  
• Minimising impacts on threatened ecological communities and habitat features (particularly habitat trees) through appropriate refinements to the road design  
• Minimising habitat fragmentation and reduced connectivity and avoiding the use of barriers to fauna movement. | Roads and Maritime Construction contractor          |              |
| BI-2 | Impacts associated with ancillary facilities and water facilities (including basins and treatments) | **An assessment of the impacts on biodiversity from ancillary facilities, basins and other water quality treatment devices will be carried out following finalisation of their design. Appropriate safeguards will be identified to mitigate these impacts.**  
The location of ancillary sites would be confirmed before construction. The need for additional assessment would be identified in consultation with the Roads and Maritime Environment Officer, Sydney Region. | Roads and Maritime Construction contractor          | Pre-construction |
| BI-3 | Vegetation and habitat removal                                         | Pre-clearance surveys will be carried out by an experienced ecologist to:  
• Identify and mark fauna habitat features (including roosting sites, if any) to be protected during construction in retained dry sclerophyll forest areas and gardens/plantings if habitat features are identified  
• Identify nearby habitats on both sides of the existing highway, along the length of the proposal, suitable for the release of fauna that may be encountered during the pre-clearing process or habitat removal. These are likely to be the large areas of dry sclerophyll forest close to the highway, including the wildlife corridor area. | Construction contractor                            | Pre-construction |
| BI-4 | Vegetation and habitat removal                                         | The following safeguards will be included in the Construction Environmental Management Plan (CEMP):  
• Maps identifying the location of microbat roosting sites (if any) and drainage areas that run towards the hanging swamps TEC  
• A clearing procedure, which will specify the requirements for pre-clearing, prepared in accordance with Roads and Maritime’s Biodiversity Guidelines (RTA, 2011)  
• The location of exclusion zones to be installed before clearing, to avoid damage to native vegetation and fauna habitats and prevent the distribution of pests, weeds and disease. Temporary fencing will be installed to indicate the limits of clearing. | Construction contractor                            | Pre-construction |
<table>
<thead>
<tr>
<th>ID</th>
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<th>Responsibility</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>The location of exclusion fencing to be installed will be identified on plans in the CEMP and the function and importance of the exclusion zones communicated to construction personnel.</td>
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<tr>
<td></td>
<td></td>
<td>• A staged habitat removal process will be implemented consistent with procedures in the Biodiversity Guidelines and communicated to construction personnel. This process will consider the safe and ethical handling of fauna.</td>
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<tr>
<td></td>
<td></td>
<td>• An unexpected threatened species finds procedure, as outlined in the Biodiversity Guidelines.</td>
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<td></td>
<td></td>
<td>• Prevention of parking of vehicles or plant and the stockpile or storage of materials under the dripline of any trees.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI-5</td>
<td>Vegetation and habitat removal</td>
<td>A Vegetation Management Plan will be developed as part of the CEMP. It will provide specific details for the re-establishment of native vegetation on batters, cut faces and other areas disturbed during construction as appropriate. These details will be in accordance with the Biodiversity Guidelines (RTA, 2011a) and will be consistent with the landscape and urban design strategy (refer to Section 6.6 of the REF).</td>
<td>Construction contractor</td>
<td>Pre-construction, Construction</td>
</tr>
<tr>
<td>BI-6</td>
<td>Injury and mortality of fauna during the clearing of vegetation</td>
<td>A licensed wildlife carer and/or ecologist will be present to supervise native forest vegetation clearing, to capture and relocate fauna where required. Fauna handling and vegetation clearing will be carried out in accordance with the procedures in the Biodiversity Guidelines (RTA, 2011).</td>
<td>Roads and Maritime/ Construction contractor</td>
<td>Pre-construction, Construction</td>
</tr>
</tbody>
</table>
| BI-7| Spread of weeds                              | Actions for weed management will be developed as part of the Vegetation Management Plan. The plan will detail the following to ensure that weeds are managed during construction:  
  • Weed management priorities and objectives  
  • Sensitive environmental areas (high condition native vegetation) next to the site  
  • The location of weed-infested areas  
  • Mechanical weed control methods such as slashing or mowing, as well as a range of herbicides to avoid the development of herbicide resistance  
  • Measures to prevent the spread of weeds  
  • The appropriate disposal of weed-infested materials and soils. | Construction contractor | Pre-construction |
| BI-8| Introduction or Measures                     | Measures to confirm the presence of pathogens and disease-causing agents will be                                                                                                                                    | Construction            | Pre-construction |

Mount Victoria village safety upgrade
Submissions report
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</thead>
</table>
|    | spread of pests and disease         | carried out before construction. Should pathogens or disease-causing agents be found, measures will be implemented to prevent their introduction and/or spread to the proposal area. These measures are provided in the Biodiversity Guidelines and will include, where appropriate:  
• The provision of vehicle and boot wash-down facilities to ensure vehicles and footwear are free of soil before entering or exiting the site  
• Ensuring that the risk of spreading pathogens and the mitigation measures required on site are regularly communicated to staff and contractors during inductions and toolbox talks  
• Programming construction activities so they move from uninfected areas to any known infected areas  
• Restricting vehicles to designated roadsides and parking areas.                                                                                      | contractor      | Construction |
|    | Vegetation and habitat removal      | No parking of vehicles or plant, or the placement of stockpile or storage of materials will be permitted under the dripline of any trees.                                                                                                                                                                                                                                        | Construction contractor | Construction |

**Noise and vibration**

<table>
<thead>
<tr>
<th>NV-1</th>
<th>Noise impacts on sensitive receivers from the retaining walls during operation</th>
<th>During detailed design, noise impacts as a result of retaining walls would be determined. Consideration will be given to using noise-absorbent or noise-diffusive finishes on the retaining walls where possible.</th>
<th>Detailed design contractor</th>
<th>Detailed design</th>
</tr>
</thead>
<tbody>
<tr>
<td>NV-2</td>
<td>Noise impacts on sensitive receivers from operation of stockpile and compound sites</td>
<td></td>
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</tr>
</tbody>
</table>
• Activities at the site at Harley Avenue and the site opposite Mount Piddington Road, will be limited to daytime hours only, where possible  
• Activities at the site at Cassilis Street will be limited to daytime hours, during weekdays only, where possible  
• Should construction activities at night be required, stockpile and compound activities will be limited to the Soldiers Pinch site, where possible.  
• All work outside of standard working hours would be in accordance with the Interim Construction Noise Guideline (DECC, 2009) and Roads and Maritime’s Environmental Noise Management Manual (RTA, 2001). | Construction contractor Roads and Maritime | Detailed design |
<p>| NV-3 | Noise and vibration impacts | A Construction Noise and Vibration Management Plan (CNVMP) will be prepared as part of the CEMP before construction. The CNVMP will address all stages of construction.                                                                 | Construction contractor | Pre-construction |</p>
<table>
<thead>
<tr>
<th>ID</th>
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<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
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</thead>
</table>
|        | on sensitive receivers during construction | It will include actions relating to:  
- The use of alternative low-noise processes and equipment  
- The placement of work compounds, parking areas, equipment and material stockpile sites away from noise-sensitive locations  
- The use of screening or enclosures for noise-generating equipment  
- Restrictions on times when noisy work can be carried out  
- A process for assessing maximum noise levels for each project phase  
- Consultation with affected residents  
- The temporary relocation of residents: Where short-term or out-of-hours activities are predicted to have a substantial impact on a small number of receivers, their temporary relocation will be considered  
- A process for handling and responding to noise or vibration related complaints  
- The maintenance and operation of construction plant and equipment. All plant and equipment will be:  
  - Fitted with properly maintained noise suppression devices in accordance with the manufacturer’s specifications  
  - Maintained in an efficient condition  
  - Operated in a proper and efficient manner. | Construction contractor | Pre-construction and during construction as required |
| NV-4   | General vibration during construction | Building condition surveys will be carried out at receivers within specified distances of certain construction activities and plant, as below:  
- Vibratory compaction: 25–50 m  
- Demolition works: 50 m  
- Excavation works: 10 m. | Construction contractor | Pre-construction |
| NV-5   | General vibration during construction | Heritage structures such as culverts and walls may not be adequately addressed by the building vibration criteria outlined in this report. Where these structures are identified, a condition assessment survey will be required to assess and identify appropriate construction vibration levels and mitigation measures. | Construction contractor | Pre-construction  
Construction |
<p>| NV-6   | General vibration during construction | Appropriately sized equipment will be selected to minimise vibration emissions where required. | Construction contractor | Construction |</p>
<table>
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<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>NV-7</td>
<td>General vibration during construction</td>
<td>To avoid or reduce the impact of vibration during construction:</td>
<td>Construction contractor</td>
<td>As required during Construction</td>
</tr>
</tbody>
</table>
|      |                                             | • Vibratory compacters will be replaced with normal compactors where vibration issues have been identified, and where their use is considered feasible and reasonable
|      |                                             | • Where vibration is found to exceed project criteria, management measures will be implemented to control vibration. In terms of human comfort criteria, measures will include modifications of construction methods and respite periods. For potential structural damage impacts, modification of construction methods will be necessary. |                        |                               |
| NV-8 | Construction work hours                     | Construction will be carried out during standard construction working hours in accordance with the Interim Construction Noise Guideline (DECC, 2009) as follows: | Construction contractor| Construction                  |
|      |                                             | • Monday to Friday: 7am to 6pm
|      |                                             | • Saturday: 8am to 1pm
|      |                                             | • Sunday and public holidays: No work. Any work outside of these standard construction working hours will need to be carried out in accordance with the Interim Construction Noise Guideline (DECC, 2009) and Roads and Maritime’s Environmental Noise Management Manual: Practice Note vii – Road works outside normal working hours (RTA, 2001). The contractor will give the community prior notice of any roadwork to be carried out outside normal construction hours. |                        |                               |
| NV-9 | Traffic noise impact on 82 Great Western Highway | Additional noise monitoring for 82 Great Western Highway would be carried out before and after construction to identify any changes in noise level. | Construction contractor| Pre-construction, construction |
|      |                                             |                                                                                         |                        |                               |
| Non-Aboriginal heritage | |                                                                                         |                        |                               |
| NA-1 | Potential impact on visual character of the Central Mount | • Mature cypress trees on the southern side of the highway near the intersections of Hooper and Station streets will be retained wherever possible
|      |                                             | • Roads and Maritime will replant trees to retain the character of Mount Victoria village (refer to Section 6.6.4 of the REF)
<p>|      |                                             | • Visually sensitive treatments such as non-bonded sandstone will be used to face | Roads and Maritime and design contractor | Detailed design, Construction |
|      |                                             |                                                                                         |                        | Detailed design               |</p>
<table>
<thead>
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<th>Timing</th>
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<tbody>
<tr>
<td></td>
<td>Victoria Urban Conservation Area (MV23)</td>
<td>retaining walls and batter slopes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NA-2</td>
<td>Potential impact on curtilage of the Weatherboard Cottage (MV068) at 135-139 Great Western Highway</td>
<td>During detailed design, the heritage curtilage boundaries of the Weatherboard Cottage will be re-evaluated.</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
</tr>
<tr>
<td>NA-3</td>
<td>Potential impact of construction on Browntown culvert</td>
<td>The culvert will be protected during construction and operation. This may include avoidance of the culvert and the use of road plates before re-establishment of the verge.</td>
<td>Roads and Maritime</td>
<td>Detailed design and pre-construction Construction Operation</td>
</tr>
<tr>
<td>NA-4</td>
<td>Potential impact on visual character of the Central Mount Victoria Urban Conservation Area (MV23)</td>
<td><strong>Roads and Maritime will replant trees to retain the character of Mount Victoria village, (refer to LA-6).</strong></td>
<td>Roads and Maritime and construction contractor</td>
<td>Construction</td>
</tr>
</tbody>
</table>
| NA-5| Potential impact on Soldiers Pinch 20th century road                   | During construction, care will be taken during construction to avoid impact on the Soldiers Pinch road, including:  
- Vehicles will not be parked on the road  
- Plant and equipment will not be stored or parked on the road | Construction contractor | Construction                  |
<table>
<thead>
<tr>
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<th>Responsibility</th>
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</tr>
</thead>
<tbody>
<tr>
<td>NA-6</td>
<td>Impact on heritage items from construction activities</td>
<td>• Materials will not be stockpiled on the road. Construction site inductions will include a briefing of heritage items located close to the proposal area and construction areas. Where necessary, heritage items will be fenced off and appropriate signage erected.</td>
<td>Construction contractor</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>NA-7</td>
<td>Potential impact on Ivanhoe sandstone kerbing</td>
<td>The sandstone kerbing will be recorded for archive purposes before it is removed or relocated.</td>
<td>Roads and Maritime</td>
<td>Construction</td>
</tr>
<tr>
<td>NA-8</td>
<td>Rectification of any damaged heritage items</td>
<td>Any heritage items that are outside the area of impact but sustain inadvertent damage during construction will be repaired to pre-damaged condition after the work is finished.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
</tbody>
</table>

**Hydrology**

<p>| HY-1 | Potential blockages, diversions or erosion of waterways or drainage lines | • Drainage structures will be designed to convey flows under the highway with consideration of appropriate blockage factors and overflow/diversion routes. • Appropriate energy dissipation and scour protection measures will be implemented at drainage structures during construction where required. • Cross-drainage structures will be maintained at regular frequencies and/or after large storm events to reduce the probability of blockages and associated flooding. | Roads and Maritime and construction contractor | Detailed design |
| HY-2 | Impact on capacity of culverts from increased extreme rainfall events due to climate change | Further flood modelling assessment of potential climate change impacts will be carried out as required during detailed design. | Roads and Maritime | Detailed design |
| HY-3 | The potential for increased peak | • An additional survey will be carried out before detailed design to confirm the configuration of the existing highway drainage system downstream (east) of the | Roads and Maritime | Detailed design |</p>
<table>
<thead>
<tr>
<th>ID</th>
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<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
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</thead>
</table>
|      | flows downstream of X1, causing impacts on the residence at Lot 1, DP 1036734 | highway in Section 1. The survey will focus on the full extent of the piped drainage line through Lot 1, DP1036734  
• The existing ungrated informal pit immediately east of the highway at Lot 1, DP1036734 will be replaced with a grated surcharge pit set 200 mm above existing ground levels. This will increase the piped capacity of the drainage line through Lot 1, DP1036734, and reduce surcharge, and the raised grating will reduce the potential for blockages. | Maritime       |                 |
| HY-4 | The potential for increased peak flows downstream of X4, causing impacts on the residence at Lot 1, DP 872202 | • Appropriate energy dissipation and scour protection measures will be applied at the X4 piped outlet  
• A detention basin will be considered within Lot 3, DP654036, next to the proposed eastbound carriageway of the highway, to capture flows downstream of X4.  
• Further investigation may be considered during detailed design and may include a detailed flood study, additional ground survey and geotechnical investigation. | Roads and Maritime | Detailed design |
| HY-5 | The potential for increased peak flows downstream of X6, causing scour impacts at Fairy Dell Road | The following scour reduction options will be considered during detailed design downstream of culvert X6:  
• A stormwater basin at the upgraded piped outlet  
• Extension of the proposed piped drainage system along Fairy Dell Road to the base of the slope next to the Sydney Water pumping station facility  
• Construction of piped drainage systems from the highway down Burwood and Fairy Dell roads, with energy dissipation structures at both piped outlets. | Roads and Maritime | Detailed design |
| HY-6 | Risk of scour at Lot 3, DP1140103 during operation                      | The most appropriate scour treatment option will be confirmed during the detailed design for this location.                                                                                                           | Roads and Maritime and detailed design contractor | Detailed design |
| HY-7 | Potential flooding of construction facilities and stockpiles          | The following safeguards will also be included in the CEMP:  
• Site facilities, machinery and material stockpiles will be located well away from identified overland flow paths and drainage lines  
• Diversion bunds will be used to manage external catchment flows around the construction areas and appropriately discharge them to receiving waters | Roads and Maritime and construction contractor | Pre-construction Construction |
<table>
<thead>
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<th>ID</th>
<th>Impact</th>
<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>HY-8</td>
<td><strong>Rectification of any damaged stormwater infrastructure during construction</strong></td>
<td><strong>Stormwater infrastructure that is outside the area of impact but sustains inadvertent damage during construction will be repaired to pre-damaged condition after the work.</strong></td>
<td>Roads and Maritime and construction contractor</td>
<td>Construction</td>
</tr>
</tbody>
</table>

### Water quality

<table>
<thead>
<tr>
<th>ID</th>
<th>Impact</th>
<th>Environmental safeguards</th>
<th>Responsibility</th>
<th>Timing</th>
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</thead>
</table>
| WQ-1| Pollution as a result of sediment entering waterways during construction | Water management controls and an associated maintenance and inspection program will be developed during detailed design in accordance with the water quality control strategy for the proposal (SKM, 2013). Controls to improve the water quality from construction sites will include basins or other appropriate water quality treatment as described in **Section 3.4.2 of the REF**. During detailed design, the following will be confirmed:  
  - Location and size of basins (where relevant)  
  - Capacity for spills in the basin  
  - Installation of trash racks and other pollution control measures  
  - Installation of other water quality measures where required. | Design contractor                     | Detailed design                      |
<p>| WQ-2| Impact on water quality within the Sydney Drinking Water Catchment    | Detailed design will consider increasing the design requirements of the <strong>sediment basins water quality measures</strong> from the 80th percentile five-day rainfall value adopted by the Blue Book, to the 85th percentile rainfall value to improve water quality during construction. | Design contractor                     | Detailed design                      |
| WQ-3| Concentration of run-off by drains and kerbs causing scour             | Outlet structures such as culverts <strong>and basin spillways</strong> will be lined to avoid scour downstream of the outlet <strong>or spillway</strong>. Open drains and channels will be lined with appropriate material to prevent scour. | Design contractor                     | Construction    |
| WQ-4| Contaminants entering                                                  | Water management controls and an associated maintenance and inspection program will be developed during detailed design in accordance with the water quality control strategy                                                                 | Construction contractor                | Detailed design                      |</p>
<table>
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<tr>
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<tbody>
<tr>
<td></td>
<td>receiving environments during operation</td>
<td>for the proposal (SKM, 2013). These controls will include a physical treatment system with elements such as grassed swales or water quality ponds with trash racks where run-off will be directed before discharge into downstream waterways. These controls will be designed to:</td>
<td></td>
<td></td>
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</table>
| WQ-5   | Contaminants entering receiving environments during operation from spills | ▪ Ensure total suspended solids are reduced by at least 80%  
▪ Ensure no oil or grease is visible  
▪ Provide at least 45% reduction of total nitrogen and total phosphorus  
▪ Prevent litter from entering waterways.  
During operation, accidental spills will be managed through water management controls such as dedicated small-spill basins and grassed swales.  
▪ A spill containment provision of 20,000L will be incorporated into the water pond (downstream of X2) through an underflow baffle arrangement at the outlet side of the basin.  
In addition, a site-specific Spill Management Response Plan will be developed in consultation with local emergency services. | Design contractor               | Detailed design Operation      |
| WQ-6   | Impacts on downstream water quality during construction and operation  | A Water Quality Monitoring Plan will be prepared in accordance with Roads and Maritime’s Guideline for Construction Water Quality Monitoring (RTA, 2003). The plan will focus on the water quality of receiving waterways. It will include water quality monitoring:  
▪ Before construction: Water quality monitoring at sites where the most recent sampling data is over one year old to provide assurance of compliance with regulatory requirements. Sampling locations, monitoring frequency and monitoring methodology will be determined during detailed design.  
▪ During construction: Monitoring to immediately detect any environmental degradation as a result of construction work.  
▪ During operation: Water quality monitoring will be carried out monthly for three months after construction. After this period, the water quality will be reassessed to identify whether additional monitoring is required (for example, if the site water quality is not yet stable after construction), or whether monitoring can be discontinued. The purpose of the monitoring will be to assess and manage impacts on receiving waterways as the site stabilises, to | Roads and Maritime, design contractor, construction contractor | Detailed design  
Pre-construction  
Construction  
Operation |
## Environmental safeguards

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<tbody>
<tr>
<td>WQ-6</td>
<td>Pollution of downstream waterways due to maintenance practices during operation</td>
<td>Roads and Maritime's standard maintenance controls will be applied in a manner that will minimise any potential water pollution due to maintenance practices (such as herbicide use, mowing, and road surface cleaning).</td>
<td>Operation</td>
</tr>
<tr>
<td>WQ-7</td>
<td>Water quality impacts in Section 3</td>
<td>The water quality measure for Section 3 would be investigated and confirmed during detailed design.</td>
<td>Design contractor</td>
</tr>
</tbody>
</table>

### Landscape character and visual amenity

<table>
<thead>
<tr>
<th>LA-1</th>
<th>General</th>
<th>Detailed design will be carried out according to the landscape and urban design strategy and objectives described in Section 4 of Landscape Character and Visual Impact Assessment (SMM, 2013), Appendix I of the REF.</th>
<th>Roads and Maritime</th>
<th>Detailed design</th>
</tr>
</thead>
</table>
| LA-2 | Visual impact of earthworks: embankments and cuttings | To reduce potential visual impact of embankments and cuttings:  
  - The use of retaining walls will be minimised, where possible  
  - Retaining walls/batters will be constructed of materials that will visually integrate with the surrounding geology and landscape (refer to Section 6.8 of the REF)  
  - Screen planting will be provided below walls where possible and will comprise vegetation that will integrate visually with the surrounding environment  
  - Retaining walls will not face the highway, where possible  
  - Natural rock cutting faces will be maintained where feasible, to expose the geological character of the landscape. | Roads and Maritime | Detailed design |
<p>| LA-3 | Impact of large earthworks and changes in landform | The potential visual impact of earthworks will be minimised by careful design that allows them to integrate with adjoining landforms. | Roads and Maritime | Detailed design |
| LA-4 | Impact of new barriers, fencing and street furniture | To reduce the potential visual impact of new barriers, fencing and street furniture: | Roads and Maritime | Detailed design |</p>
<table>
<thead>
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<tbody>
<tr>
<td></td>
<td>barriers, fencing and street furniture</td>
<td>• W-Beam guard rail or wire rope barriers will be used, where possible</td>
<td>Maritime</td>
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<td></td>
<td></td>
<td>• A modified concrete barrier (type F) with twin rail bridge barrier will be used where space is limited or maximum visual transparency is required. Property fencing will be replaced with similar style to existing</td>
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<td></td>
<td></td>
<td>• Balustrades will be vertical steel rods, 1.2 - 1.4 metres high, as per standard use throughout the Blue Mountains.</td>
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<tr>
<td>LA-5</td>
<td>Impact of new drainage features</td>
<td>To reduce the potential visual impact of new drainage features, consideration will be given to:</td>
<td>Roads and Maritime</td>
<td>Detailed design</td>
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<tr>
<td></td>
<td></td>
<td>• Visually integrate drainage channels with the surroundings, where possible</td>
<td></td>
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<td></td>
<td></td>
<td>• Rock-lining drainage channels at the top of cutting benches</td>
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<td></td>
<td></td>
<td>• Planting screening vegetation around visible roadside channels and channels in the median.</td>
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<tr>
<td>LA-6</td>
<td>Vegetation clearing</td>
<td>Following construction, areas impacted by the proposal will be landscaped in accordance with the Urban and Landscape Design Concept Plan. The plan will include:</td>
<td>Roads and Maritime</td>
<td>Detailed design, construction</td>
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<td></td>
<td></td>
<td>• Retention of existing roadside vegetation, where possible</td>
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<td></td>
<td></td>
<td>• Consideration of the Blue Mountains LEP precinct vision statements for Mount Victoria village</td>
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<td></td>
<td></td>
<td>• Maximise the areas of new street tree planting</td>
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<td></td>
<td></td>
<td>• Revegetation of cleared areas using existing vegetation communities</td>
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<td></td>
<td></td>
<td>• Revegetation of residual land affected by the work that will not be viable for amalgamation</td>
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<td></td>
<td></td>
<td>• ‘Gateway’ planting at key intersections and important cultural areas to provide visual landmarks and enhance local identity</td>
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<td></td>
<td>• Provision of planting to screen views of the proposal and reinforce the ‘country road’ character of the highway</td>
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<td></td>
<td></td>
<td>• Revegetation of cut/fill batters with local species of trees, shrubs and groundcovers</td>
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<td></td>
<td></td>
<td>• Revegetation with provenance plant material (plants grown from locally collected seeds), where possible.</td>
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**Aboriginal heritage**

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<thead>
<tr>
<th>AH-1</th>
<th>Unexpected find of Aboriginal</th>
<th>In the event of an unexpected find of an Aboriginal heritage item (or suspected item):</th>
<th>Construction contractor</th>
<th>Pre- construction</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>• Work will cease in the affected area and Roads and Maritime’s Environmental</td>
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<tr>
<td></td>
<td>heritage artefacts</td>
<td>Officer, Sydney Region and Roads and Maritime’ Senior Environmental Specialist for Aboriginal Heritage will be contacted on advice on how to proceed. The Unexpected Archaeological Finds Procedure (Roads and Maritime, 2012) will be followed.</td>
<td></td>
<td>and Construction</td>
</tr>
<tr>
<td>TG-1</td>
<td>Impact on potentially contaminated sites</td>
<td>Further investigation will be carried out on potentially contaminated sites. Sites will be remediated as required, in accordance with OEH guidelines.</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
</tr>
</tbody>
</table>
| TG-2 | Land contamination during construction                                  | To avoid or limit the impact of contamination during construction:  
- Standard contingency measures (including for unknown contaminants, asbestos-containing materials and site operations) will be incorporated into the CEMP to allow for further investigation and treatment/disposal as appropriate  
- All potentially contaminated wastes generated during construction will be classified according to the Waste Classification Guidelines: Parts 1 and 2 (DECC, 2008). Wastes will be disposed to a licensed disposal facility or re-used in construction, as appropriate  
- All road base/bitumen excavated during roadwork will be re-used or disposed of in accordance with the Waste Classification Guidelines: Parts 1 and 2 (DECC, 2008). | Roads and Maritime   | Pre-construction Construction |
| TG-3 | Erosion and sedimentation leading to impacts on water quality, air quality and downstream biodiversity | A Site Stabilisation Plan, including a Soil and Water Management Plan (SWMP) and an Erosion and Sediment Control Plan (ESCP) will be developed as part of the CEMP and implemented throughout the construction period. It will include the following safeguards:  
- Construction will be carried out in accordance with Roads and Maritime’s Technical Guideline – Temporary Stormwater Drainage for Road Construction (Roads and Maritime, 2011)  
- Designated exclusion zones will be identified for the storage and use of construction plant and equipment. These zones will delineate traffic areas and restrict entry and exit points to construction sites  
- The extent and time of exposed soil will be minimised through construction sequencing, and exposed soils will be revegetated as soon as possible  
- Areas of risk near the proposal, such as steep areas or highly erodible soils, will be | Construction contractor | Pre-construction Construction Pre-construction Pre-construction |
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<td>identified and appropriate management controls implemented</td>
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<td>• The length of slopes will be minimised by limiting the extent of excavations; this will reduce water velocity over disturbed areas</td>
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<td>• Temporary or permanent diversion drains will be used to divert off-site run-off around or through the construction site to minimise the volume of flow that mixes with on-site run-off</td>
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<td>• Physical controls will be developed in line with the ESCP, including sediment fences, sediment filters, rock check dams, level spreaders, and onsite diversion drains installed before construction and maintained during construction</td>
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<td></td>
<td></td>
<td>• Channels and other concentrated flow paths will be lined</td>
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<td>• Exposed batters will be lined, if required</td>
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<td>• Run-off will be captured from exposed areas within sediment basins and treated to reduce sediment to the required level before it is discharged into downstream waterways</td>
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<td></td>
<td>• A schedule for the ongoing maintenance and inspection of temporary erosion and sediment controls will be developed</td>
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<td>• A soil conservationist from Roads and Maritime’s erosion, sedimentation and soil conservation consultancy services register will be engaged during detailed design to develop an erosion and sedimentation management report, which will inform the SWMP.</td>
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<tr>
<td>TG-4</td>
<td>Water and air pollution as a result of stockpile-sediment and other contaminants being released into waterways and the air during construction</td>
<td>Stockpile management measures will be incorporated in the SWMP and ESCP and include the following safeguards:</td>
<td>Construction contractor</td>
<td>Pre-construction</td>
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<tr>
<td></td>
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<td>• The maintenance of established stockpile sites during construction will be in accordance with Roads and Maritime’s Stockpile Site Management Procedures (RTA, 2001)</td>
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<td>Construction</td>
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<td></td>
<td></td>
<td>• Stockpiles will be located away from overland flow paths and areas of high topography with minimal upstream catchment</td>
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<td>Construction</td>
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<td></td>
<td></td>
<td>• Run-off will be directed around stockpile sites</td>
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<td>Construction</td>
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<td></td>
<td></td>
<td>• The number and size of stockpiles will be minimised throughout the proposal</td>
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<td>Construction</td>
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<td></td>
<td></td>
<td>• The base of stockpiles will be lined if they are to be located over a shallow water table</td>
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<td>Construction</td>
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<td></td>
<td></td>
<td>• Stockpiles will be covered with plastic sheets if required</td>
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<td>Construction</td>
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|    | • If uncovered, run-off from stockpile sites will be treated with a stockpile-specific sediment basin, which will be monitored for sediment and visible contaminants  
 • Mitigation of tannins leaching from mulch stockpiles into waterways will be in line with Roads and Maritime’s Environmental Direction – Management of Tannins from Vegetation Mulch (Roads and Maritime, 2012). |  |  |  |
| TG-5 | Pollution as a result of sediment and other contaminants entering waterways during construction | Compound sites, plant and equipment will be managed within the ESCP. The following measures will be included to limit sediment and other contaminations entering receiving waterways:  
 • Plant will be located within a bunded area, preferably away from overland flow paths and in areas of high topography with minimal upstream catchment  
 • Chemicals will be stored within a sealed or bunded area  
 • The base of plant areas will be lined if they are to be located over a shallow water table  
 • Run-off from site compounds will be treated with a site-specific sediment basin designed to the required level before discharging into downstream waterways  
 • Vehicle movements will be restricted to designated pathways where feasible  
 • Areas that will be exposed for extended periods, such as car parks and main service roads, will be paved where feasible. | Construction contractor | Pre-construction Construction |
| TG-6 | Contaminants entering receiving environments during construction | The following measures relating to the storage and management of plant, equipment, chemicals fuels and liquids will be implemented to minimise the risk of contaminants entering receiving environments (including soil, water and air):  
 • All fuels, chemicals and liquids will be stored and disposed of in accordance with DECC’s Storing and Handling Liquids: Environmental Protection Participants Manual (DECC, May 2007)  
 • Refuelling of plant and equipment will occur in impervious bunded areas located a minimum of 50 m from drainage lines or waterways  
 • Plant, equipment and vehicle washdown will occur in a designated bunded area away from waterways and drainage lines  
 • All concrete washouts will occur into a sealed receptacle or bunded concrete washout area with an impermeable liner. The concrete washout area will be sized to be 120% of the estimated volume of the waste that will be received into the washout area at any one time | Construction contractor | Construction |
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<tr>
<td>TG-7</td>
<td>Accidental spills during construction, resulting in the release of contaminants into waterways and the soil</td>
<td>A site-specific Emergency Spill Plan will be developed as part of the SWMP. It will include spill management measures in accordance with the Code of Practice for Water Management and Bunding and Liquid Chemical Storage, Handling and Spill Management (DEC, 2005).</td>
<td>Construction contractor</td>
<td>Pre-construction</td>
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<td></td>
<td>Should a spill occur during construction, the Emergency Spill Plan will be implemented and Roads and Maritime’s Environmental Manager, Sydney Region, will be contacted immediately. Emergency spill kits will be kept at areas identified as having the highest spill risk at all times. All staff will be made aware of the location of the spill kits and trained in their use.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>TR-1</td>
<td>General traffic impacts</td>
<td>A Construction Traffic Management Plan (CTMP) will be prepared as part of the pre-construction planning. The CTMP will detail how construction traffic will be managed in accordance with Roads and Maritime’s Traffic Control at Work Sites (RTA, 2010), as well as relevant Australian Standards including AS1742 and the work site manual Roads and Maritime Specification G10. The CTMP will also be used to develop site-specific traffic management measures once the construction methods and haulage routes are finalised. These measures will be developed as part of the site-specific traffic management plans to indicate how traffic will be controlled and managed during each stage of construction.</td>
<td>Construction contractor</td>
<td>Detailed design</td>
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| TR-2 | Construction site traffic impacts   | At each work site, the following guiding principles will be adopted to manage traffic impacts:  
• The interaction with the existing road network and night-time freight vehicle movements will be minimised through the use of construction planning  
• The road space occupied by construction activity, and the time of construction, will be minimised  
• Traffic control measures will be implemented only when necessary.                                                                                           | Construction contractor | Construction      |
<p>| TR-3 | Impact on access to bus stops during construction | Local and school bus operators will be consulted during detailed design regarding the provision of access to bus stops during construction.                                                                                                                                          | Roads and Maritime      | Detailed design   |
| TR-4 | General traffic impacts             | The CTMP will also be used to develop site-specific traffic management measures once the construction methods and haulage routes are finalised. These measures will be developed as part of the site-specific traffic management plans to indicate how traffic will be controlled and managed during each stage of construction. | Construction contractor | Pre-construction  |
| TR-5 | General traffic impacts             | A Vehicle Movement Plan (VMP) will be prepared as part of the overall CTMP. The VMP will assess construction-related heavy vehicle movements per shift into and out of the construction sites, and provide guidelines for limiting impacts on traffic using the highway.                      | Construction contractor | Pre-construction  |
| TR-6 | Impact to pedestrian and cyclist access during construction | Alternative pathways and/or walking routes will be provided during construction wherever existing routes are blocked, to maintain access for pedestrians and cyclists within the proposal area.                                                                                                         | Construction contractor | Construction      |</p>
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| TR-7 | Traffic delays             | Roadwork will be coordinated to limit excessive delays. This will involve:  
  - Static signs and portable variable message signs (VMS) to provide necessary proposal information, guidance and warning to motorists that drive through, past or next to the proposal area  
  - Coordination of the delivery of construction materials and the movement of construction plant and equipment to and from construction sites  
  - Consideration of any cumulative traffic impacts from nearby development to ensure coordination of work and construction traffic movements  
  - Coordination of Roads and Maritime roadwork and any work by other agencies that affect traffic flow  
  - Coordination with transport operators regarding schedules, abnormal loads and other events  
  - Identification, evaluation and documentation of alternative routes (in consultation with local councils)  
  - Coordination with emergency services to manage incidents. | Construction contractor | Construction |

**Land use and property**

| LU-1 | Property acquisition       | Roads and Maritime will consult with property owners impacted by the proposal. Property acquisition will be managed in accordance with the provisions of Roads and Maritime’s Land Acquisition Policy (Roads and Maritime, 2012) and the Land Acquisition (Just Terms Compensation) Act 1991. | Roads and Maritime      | Detailed design |
| LU-2 | Property access            | Property access will be maintained wherever possible. Before any unavoidable disruption to access, Roads and Maritime will consult with the affected property owner. | Construction contractor | Pre-construction, construction |

**Socio-economic**

| SE-1 | Start of construction      | Local residents will be notified before construction commencing. They will also be regularly kept informed of construction activities during the construction process as part of the Great Western Highway upgrade program. | Roads and Maritime      | Pre-construction and construction |
| SE-2 | Complaints                 | A complaints-handling procedure and register will be included in the CEMP.                                                                                                           | Roads and Maritime      | Pre-construction |

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<tr>
<td>SE-3</td>
<td>Change of conditions and disruptions</td>
<td>Road users, pedestrians and cyclists will be informed of changed conditions, including likely disruptions to access.</td>
<td>Construction contractor</td>
<td>Construction</td>
</tr>
<tr>
<td>SE-4</td>
<td>Changes to property access</td>
<td>Property access will be maintained wherever possible. Roads and Maritime will consult with affected property owners before any unavoidable disruption to access.</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
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<td>Construction</td>
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<tr>
<td>SE-5</td>
<td>Emergency vehicle access</td>
<td>Access will be maintained for emergency vehicles in the vicinity of construction work. Roads and Maritime will consult with emergency services throughout construction to ensure that potential impacts are identified and appropriately managed.</td>
<td>Roads and Maritime</td>
<td>Construction</td>
</tr>
<tr>
<td>SE-6</td>
<td>Interruptions to utility services</td>
<td>Roads and Maritime will inform residents before any interruptions to utility services that may be experienced when utilities need to be relocated.</td>
<td>Roads and Maritime</td>
<td>Pre-construction</td>
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<td>Construction</td>
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<tr>
<td>SE-7</td>
<td>Property acquisition</td>
<td>Property acquisition will be managed in accordance with the provisions of Roads and Maritime's Land Acquisition Policy and the Land Acquisition (Just Terms Compensation) Act 1991.</td>
<td>Roads and Maritime</td>
<td>Construction Design</td>
</tr>
<tr>
<td>SE-7</td>
<td>Local goods and services</td>
<td>Goods and services will be sourced locally during construction wherever possible to help support the local economy.</td>
<td>Construction contractor</td>
<td>Construction</td>
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### Air quality

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<tr>
<td>AQ-1</td>
<td>Dust from construction activities</td>
<td>Air quality safeguards include: • Stabilising areas with the capacity to cause dust, with water spraying, compaction or progressive revegetation • Covering stockpile and storage areas • Ceasing dust-generating activities in high winds where dust cannot be controlled. Local residents will be advised of hours of operation and provided with contact details for queries regarding air quality before work begins.</td>
<td>Construction contractor</td>
<td>Pre-construction</td>
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<td></td>
<td><strong>Greenhouse gas and climate change</strong></td>
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</table>
| GG-1 | Impacts on climate change from construction activities | During construction, the following will be considered:  
- The life cycle environmental impact of materials and plant used in the construction process (this will be considered during procurement)  
- Establishing operating procedures for site vehicles to increase efficiency of vehicle fuel use  
- Reducing vegetation clearing as much as feasible, and re-establishing vegetation in suitable areas when construction is completed  
- Reducing site wastage by reusing and recycling wasted materials as a preference before disposing to landfill. | Construction contractor | Pre-construction  
Construction contractor | Construction |
|    | **Waste and resource management**                          |                                                                                                                                                                                                                                                                                                                                                         |                     |                        |
| WR-1 | Generation of construction waste                         | The construction contractor will follow the resource management hierarchy principles:  
- Avoid unnecessary resource consumption as a priority  
- Avoidance is followed by resource recovery (including reuse of materials, reprocessing, and recycling and energy recovery)  
- Disposal is carried out as a last resort (in accordance with the Waste Avoidance and Resource Recovery Act 2001). | Construction contractor | Construction          |
| WR-2 | Generation of construction waste                         | The construction contractor will complete a Waste Management Plan in accordance with the requirements of the Roads and Maritime's QA Specification G36 – Environmental Protection (Management System). | Construction contractor | Construction  
Construction contractor |                         |
| WR-3 | Generation of construction waste                         | The construction contractor will regularly address housekeeping at the construction site. This will include collection and sorting of recycling, general waste and green waste. Waste will be disposed regularly at a licensed waste facility. | Construction contractor | Construction          |
| WR-4 | Waste generation during operation                        | During operation:  
- Green waste from maintenance activities will be disposed of appropriately or reused where practicable  
- Wastes, such as oils and greases, will be disposed of to an appropriate licensed facility  
- Road user litter will be collected by the relevant maintenance organisation either for | Roads and Maritime | Operation              |

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<td></td>
<td>Cumulative traffic, <a href="https://en.wikipedia.org/wiki/Biodiversity">biodiversity</a>, noise and air quality impacts due to construction of multiple projects</td>
<td>To minimise potential impacts during construction, the construction timetable for the upgrades will be co-ordinated to minimise disruption to motorists. This will allow construction to be carried out on a section-by-section basis. This approach will ensure that negative cumulative impacts on both the function of the highway and the surrounding environment will be minimised where possible.</td>
<td>Roads and Maritime</td>
<td>Detailed design, pre-construction</td>
</tr>
</tbody>
</table>
6 References


Heritage Branch, Department of Planning, 2009, *Assessing Significance for Historical Archaeological Sites and Relics*.


Appendix A

Community updates
Katoomba to Lithgow
Great Western Highway upgrade

JULY 2014
MOUNT VICTORIA VILLAGE SAFETY UPGRADE - UPDATE

Background
In November 2013, Roads and Maritime Services prepared and displayed a review of environmental factors for a range of the road safety upgrades proposed for Mount Victoria village. Comments were invited from members of the community on these upgrades until February 2014.

Current situation
Following receipt of submissions and meetings with a number of stakeholders and the community, Roads and Maritime has progressed the designs with the following changes:

- more detail is now given about the service road design for Section 2
- some alternative designs have been provided for Section 3.
  - Option 1: Left in/left out only at Cassilis and Selsdon streets.
  - Option 2: Close Cassilis and Selsdon streets at the highway.

Section 2: (East of Harley Avenue to east of Station Street) - design refinements:
Following feedback from the community, design refinements have been made to reduce the visual impact of the service road retaining wall. The artist’s impression (below) shows how the overall visual impact of the proposed service road would be minimised.

Further, it has been determined that sediment basins are no longer required in this section.

Section 3: (West of Station Street to west of Fairy Dell Road) – design change options
In view of the feedback received, we are now providing more options for the upgrade of this section of the highway. Alternatives have been developed for a number of intersections on the western side of the village.

The community is invited to provide feedback on these options, in order for a decision to be made on the way forward.

Further details and copies of the November 2013 community update can be found at this website http://www.rms.nsw.gov.au/roadprojects/projects/western_region/mt_victoria_lithgow

Rocks and Maritime Services
Roads and Maritime Services is subject to the Privacy and Personal Information Protection Act 1998 ("PIP Act") which requires that we comply with the Information Protection Principles set out in the PIP Act.

All information in correspondence is collected for the sole purpose of delivering this project. Roads and Maritime will only disclose your personal information, without your consent, if authorised by the law. Your personal information will be held by the Katoomba to Lithgow Project team at Level 4, 460 Pacific Highway, St Leonards 2065. You have the right to access and correct the information if you believe that it is incorrect.

Which combination of intersection treatments do you prefer?

☐ Current concept  ☐ Option 1  ☐ Option 2

Your reasons for preferring this option over others?

Turn over for further comments
### West of Station Street to west of Fairy Dell Road - Current concept

- New traffic island
- Relocate existing bus shelter
- Retain existing bus shelter
- New pedestrian refuge

** LEGEND **
- Widened sealed road shoulders
- Footway
- New kerb and gutter

### West of Station Street to west of Fairy Dell Road - Option 1

- New traffic island
- New pedestrian refuge
- New protected right turn bay
- Left in/left out only

- Relocate existing bus shelter
- Left in/left out only

** Protected right turn bays at Fairy Dell, Grandview and Burwood roads **

** Left in and left out only at Cassilis and Selsdon streets and Kanimbla Valley Road **

### West of Station Street to west of Fairy Dell Road - Option 2

- New traffic island
- New pedestrian refuge
- New protected right turn bay
- Access closed to vehicles

- New pedestrian refuge
- New protected right turn bay
- Left in/left out only

- Relocate existing bus shelter

** Protected right turn bays at Fairy Dell, Grandview and Burwood roads **

** Close Cassilis and Selsdon streets at the Great Western Highway **

** Left in/left out only at Kanimbla Valley Road **
Appendix B

Submissions received during consultation and where issues are addressed in the report
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Note: Submissions 10, 20, 20a and 21 contained comments that were common to both the Hartley Valley and Mount Victoria village safety upgrades and are included in both submissions reports.
Appendix C

Work near Caltex Service Station, Mount Victoria