

11 Urban design

11.1 Key urban design impacts

The proposals for the area through the townships of Richmond and North Richmond are common to all four options.

Within Richmond there would be the potential for substantial effects to the streetscape, with the widening changing parts of the northern verge (the former rail corridor). There would also be impacts at intersections where the scale and nature of the proposed intersection upgrades would potentially be inconsistent with that of Richmond Town centre. Changes are also required to:

- Chapel Street where part of the heritage listed avenue is impacted by the removal of three trees.
- The heritage listed Richmond Park where part of the southern edge would be removed to increase the width of the road, resulting in the loss, or potential loss, of trees on the corner of March Street and East Market Street.

Across the floodplain (Kurrajong Road) all options impact the vegetation within the corridor due to the widening of the road for the proposed addition of two lanes and a shared path through this zone.

- Options A and B maintain the embankment height which reduces the impact of the loss of vegetation from the existing embankment.
- Option C has an increased impact as the new lanes are lifted to achieve 1:5 year ARI flood immunity.
- Option D has a potentially substantial impact due to the requirement for the road to be built to 1:20 year ARI flood immunity. This would require the construction of a split carriageway and the creation of an embankment which has a potential to affect existing floodplain views.

All four options have impacts when crossing the Hawkesbury River. They are:

- Option A has the least visual impact on the view from the road corridor as views up and down the river are unencumbered by another structure. However there is a substantial impact on the views of the heritage bridge from the river bank. The new structure would be placed immediately adjacent to the existing, concealing it from view downstream.
- Option B provides a solution in which the heritage bridge is visible from downstream but it is partially obscured by the construction of a free standing structure. Views from the road are partially affected by the offset of the new structure which expands the bridge's width and reduce the view of the river.
- Option C and Option D are similar in that the view of the heritage bridge is affected least by the offset of the structures. However, views downstream would be fragmented by the construction of a completely new river crossing.

In North Richmond the affects are different for the options. They are:

- The bridge approach sees the scale of impact on Hanna Park increase from Option A to Option D.
- For Option A the existing formation would be widened by a single lane and shoulder.
- For Option B the impact is pushed further north with the need to accommodate the two full lane width of the new bridge.
- Options C and D introduce a difference in the level and batter between the new road pavement and the existing bridge approach road. This sees the removal of a portion of Hanna Park, including a number of trees and a flagpole established as part of the Bicentennial upgrade of the park.

Along Bells Line of Road to the Grose Vale Road intersection, the impact of all options is limited to the reconfiguration of the existing streetscape to accommodate new turning movements and maintain two lanes of traffic through the town centre. The impacts here are not substantial and the changes can be enhanced by landscape works.

11.2 Summary of urban design for the options assessment

Each of the proposed options within Richmond will have an affect on the heritage context and scale of the streets of Richmond. As part of the option development process each option will be assessed on a range of criteria. The assessment process will also incorporate feedback from the community and key stakeholders and will form an integral component of the process to identify the preferred option. The various options along the corridor have similar affects in relation to the urban design and local character of the study area, with limited variation between options in this area.

All four options will affect the streetscape through Richmond, with widening affecting parts of the northern verge (the former rail corridor) and at intersections where the scale and nature of the intersection has the potential to be inconsistent with that of Richmond Town Centre. This includes changes to Chapel Street where part of the heritage listed avenue is potentially affected by the requirement to remove three trees and the edge of the heritage listed Richmond Park where part of the southern edge would be removed to widen the road. This proposed work would result in the loss, or potential loss, of trees on the corner of March Street and East Market Street.

At Grose Vale Road the affect of all options is limited to the reconfiguration of the existing streetscape to accommodate new turning movements and to maintain two lanes of traffic through the centre. The affects here are not substantial and can be mitigated by landscape works.

Option A

Table 25 summarises the urban design affects of Option A.

Table 25 - Urban design affects of Option A

<i>Corridor element</i>	<i>Description of affects</i>
Kurrajong Road floodplain	Option A maintains the embankment height, resulting in the equal least affect on vegetation across the flood plain with Option B.
Hawkesbury River crossing	Option A has the least visual affect on the views from the road corridor as views up and down the river are unencumbered by another structure. However, the views of the heritage structure from the river bank are substantially affected, with the new structure placed immediately adjacent to the existing and concealing it from view from downstream.
North Richmond (in the vicinity of Richmond Bridge)	Option A has the least affect on Hanna Park as it would widen the existing formation by a single lane and shoulder.

Option B

Table 26 summarises the urban design affects of Option B.

Table 26 - Urban design affects of Option B

<i>Corridor element</i>	<i>Description of affects</i>
Kurrajong Road floodplain	Option B maintains the embankment height resulting in the equal least affect on vegetation across the flood plain with Option A.
Hawkesbury River crossing	Option B provides a solution in which the heritage bridge is visible from downstream, but partially obscured by the construction of a free standing structure. Views from the road are partially affected by the offset of the new structure which expands the width of the bridge and reduces views of the river.
North Richmond (in the vicinity of Richmond Bridge)	Option B has the second least affect on Hanna Park as it involves pushing further north with the need to accommodate the two full lane width of the new bridge.

Option C

Table 27 summarises the urban design affects of Option C.

Table 27 - Urban design affects of Option C

<i>Corridor element</i>	<i>Description of affects</i>
Kurrajong Road floodplain	<p>Option C has more affect than Option B as the new lanes are lifted to achieve 1:5 year ARI flood immunity.</p> <p>This sees the formation of a split carriageway and the creation of an embankment which has the potential to affect floodplain views.</p>
Hawkesbury River crossing	<p>The affects of Option C on the heritage view of the old bridge are similar to Option D, with these options presenting the least affect with the offset of the structures.</p> <p>However, views downstream would be fragmented by the construction of a completely new river crossing.</p>
North Richmond (in the vicinity of Richmond Bridge)	<p>Option C affects on Hanna Park as it involves introducing a new embankment for the new raised bridge which is higher than the existing bridge.</p> <p>This sees the removal of a portion of Hanna Park including a number of trees and the flagpole established as part of the bicentennial upgrade of the park.</p>

Option D

Table 28 summarises the urban design affects of Option D.

Table 28 - Urban design affects of Option D

<i>Corridor element</i>	<i>Description of affects</i>
Kurrajong Road floodplain	<p>Option D has the most affect of the options investigated as the new lanes are lifted to achieve 1:20 year ARI flood immunity.</p> <p>This sees the formation of a split carriageway and the creation of an embankment which significantly affects the floodplain views.</p>
Hawkesbury River crossing	<p>The affects of Option D on the view of the old bridge are similar to Option C, with these options presenting the least affect by the offset of the structures.</p> <p>However, views downstream would be fragmented by the construction of a completely new river crossing.</p>
North Richmond (in the vicinity of Richmond Bridge)	<p>Option D has the most affect on Hanna Park as it involves introducing the highest new embankment for the new raised bridge which is higher than the existing bridge.</p> <p>This would affect a portion of Hanna Park, including a number of trees and the flagpole established as part of the bicentennial upgrade of the park.</p>

11.3 Mitigation strategies

Several mitigation strategies have been identified to reduce any visual affects of the proposals through Richmond and North Richmond. These include landscape and revegetation to off-set some of the character lost as a result of the works and provide a sense of scale and humanity within the urban context.

A key focus of the strategies proposed is the approach to bridge design and its implementation. For all options the approach adopted for the design of the bridge needs to be cognisant of the heritage structure of the existing bridge.

Key elements to be considered include:

- The profile of the bridge and particularly the need to reflect or complement the haunched profile of the existing structure.
- The provision of a simple elegant structure which is slim and minimises the number of piers within the river.
- The need to meet safety standards for barriers while providing for views from the bridge.