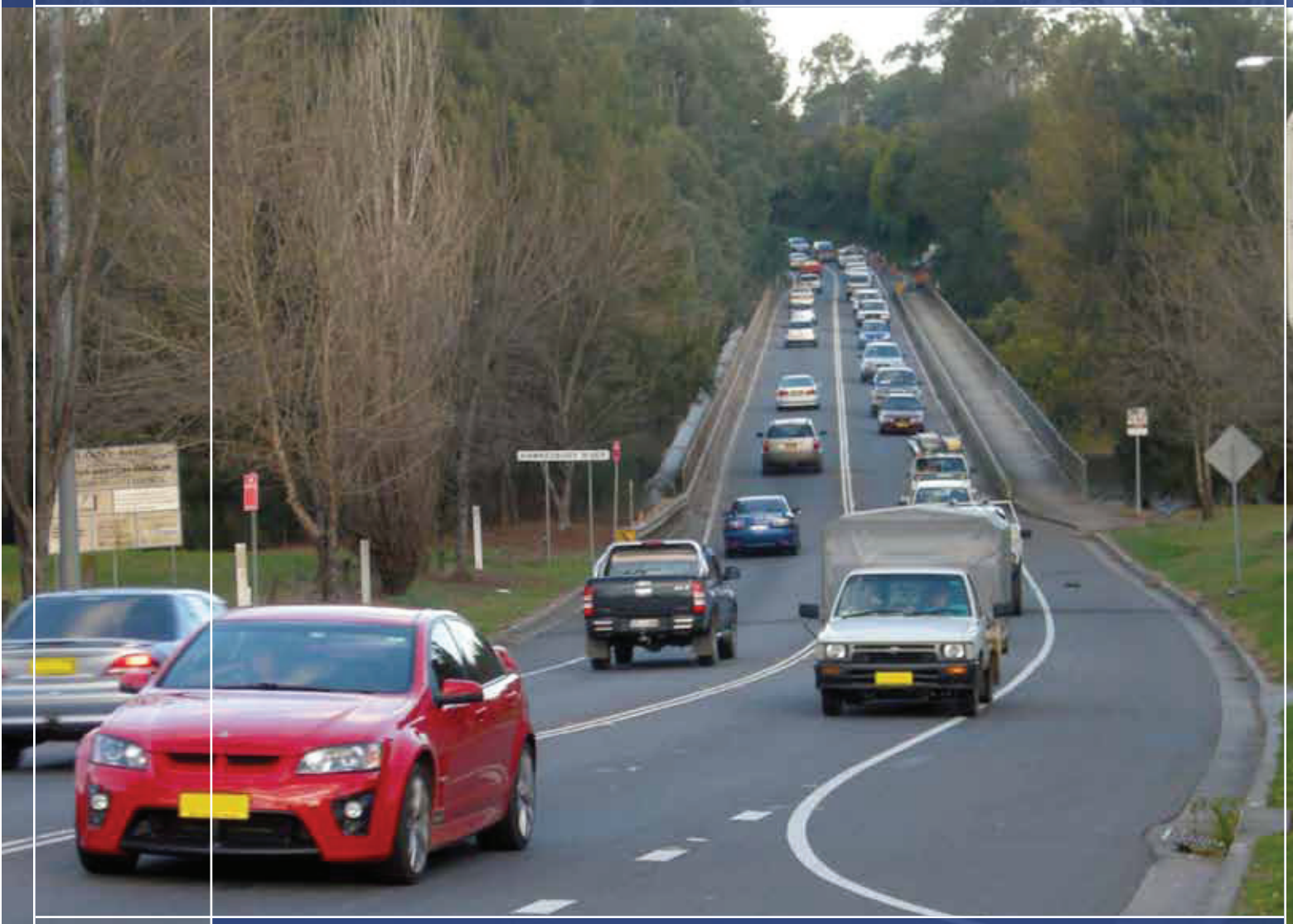

Appendix 3 - Community issues report (Part 3 long-term study)

Australian Government
Nation Building Program

NSW GOVERNMENT
Transport Roads & Maritime Services

RICHMOND BRIDGE AND APPROACHES CONGESTION STUDY – LONG-TERM OPTIONS

Community Issues Report

December 2012

RMS 12
ISBN

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Executive Summary

Consultation with the community is an important part of the Roads and Maritime Services (RMS) planning process to develop solutions to improve traffic flow between Richmond and North Richmond and improve access for communities who rely on Richmond Bridge and its approach roads.

Since July 2012, the project team has met with the community and key stakeholders to better understand community views about improving local traffic flow conditions. The purpose of this report is to provide a summary of the submissions received during community consultation undertaken in September and October 2012 on the *Richmond Bridge and approaches congestion study - Long-term options report September 2012.*

A total of 32 submissions were received on the *long-term options report*. Based on the submissions, Option D appears to have the strongest support, followed by Option C, B and then A (which received very little support). However, the community identified issues and challenges across six main subject areas:

- **Flood immunity:** many submissions sought a solution that provides flood immunity; the majority of those who did not support Options A and B cited no improved flood immunity as the reason for their lack of support. Of the submissions that supported Options C and D, improved flood immunity was a key reason for their support.
- **Key intersection congestion and safety:** many comments related to the need to address the congestion and safety issues at Grose Vale Road/Bells Line of Road/Terrace Road, Yarramundi Lane/Kurrajong Road, March Street/West Market Street and Lennox Street/Bosworth Street in the short-term, rather than wait for the long-term plan. Safety concerns were also raised in relation to cyclists and pedestrians and the need for safety measures on the shared paths to avoid conflicts between pedestrians and cyclists and more extensive shared path networks between Richmond and North Richmond.
- **Property and Open Space Impacts:** submissions were made by directly impacted property owners who raised concerns about potential impacts, such as strip acquisition, and sought more information on the extent to which the proposed corridor may impact on their properties. Some submissions also raised concerns in regard to potential impacts on community parks, such as Hanna Park and sports fields, such as the Windsor Polo Club.
- **Land use and development:** there is concern that future development will increase traffic congestion between Richmond and North Richmond and suggestions made by the community that future development should not be approved until the appropriate infrastructure is in place to support increased traffic projections.
- **Project scope:** many submissions noted they felt the project scope was too limited and that other options should be considered, including an underpass for through traffic at the North Richmond lights on Bells Line of Road or bypassing Richmond and North Richmond.
- **Timeframes and funding:** the community are concerned that solutions will not be implemented within an appropriate timeframe and are calling for implementation of solutions in the short to medium term, not in 20 years.

At its meeting of 9 October 2012, Hawkesbury City Council resolved to support, in principle, Option C subject to further analysis and determination of the short-term options report currently being finalised in conjunction with the long-term options report. Council stressed in its submission that the in principle support for Option C may be reviewed in light of further information or studies that may become available.

Project overview

In April 2011, the Australian Government allocated $2 million for planning to alleviate traffic congestion on Richmond Bridge and its approach roads. The study is limited to the existing road connections between Grose Vale Road at North Richmond and East Market Street at Richmond. RMS will investigate both the short-term improvements to relieve traffic congestion and the long-term options.

Community members have suggested completely bypassing Richmond, North Richmond and Windsor or a combination of all three. However, these suggestions are outside the scope of current investigations. Bypass options can be considered as part of overall transport planning for the north-west region of Sydney.

The Richmond Bridge and approaches congestion study – long-term options report for the project was placed on public exhibition on the RMS project website on 19 September 2012. Public submissions on the report were requested by 17 October 2012.

The focus of the long-term options report is to investigate a long-term solution to the traffic congestion along the corridor for the purpose of reserving a corridor for future improvements. Consideration is also given to options that improve the current level of flood immunity along the corridor.

The report presents the investigations undertaken to develop four strategic concept options in consultation with the Federal Department of Infrastructure and Transport (DoIT), Transport for New South Wales (TfNSW), Hawkesbury City Council (HCC) and other key stakeholders. Information collected from the public consultation phase in September/October 2012 will be considered in the refinement of the strategic concept options and will assist in identifying a preferred option.

The objectives of the study are to improve travel conditions and road safety along the corridor between Richmond and North Richmond. To support these objectives, the following additional objectives also need to be satisfied by the study:

- Ensure the operation of Richmond Bridge and its approaches can be maintained during construction
- Maintain/improve the accessibility of Richmond Bridge
- Minimise the impacts on the built and natural environment along the route
- Minimise the project whole of life cost.

Submissions were invited from the community and other stakeholders on the four long-term options presented in the report (Options A, B, C and D). Submissions made directly to RMS via the project website, project information line, letter, feedback form, email to the project team or in person at the information displays are summarised in this report.

Further information on consultation undertaken to date is provided at Appendix A - Community and Key Stakeholder Consultation.

Community Comments on Option A - three lane contra flow traffic management option

Of the 18 submissions that specifically commented on Option A, 14 did not support Option A, noting:

- The traffic congestion would increase
- Contra flow systems are ineffective and a safety concern and would require continual operational maintenance
- A water pipe would need to be moved
- Increased noise and decreased property value
- Flood immunity is not improved
- Key intersection issues are not addressed, such as congestion at Grose Vale Road/Bells Line of Road
- It would only be a short-term solution and not address congestion for the long-term.

Three submissions did support Option A, noting:

- It would maintain the rural aspect west of the river
- Have minimal visual impact and the least effect on the surrounding area
- The option would have the least impact on community infrastructure.

One local business did not indicate support, or otherwise, but noted that Option A would not impact on truck access.

Community Comments on Option B - new two-lane bridge five metres downstream

Of the 16 submissions that specifically commented on Option B, 11 cited reasons for a lack of support, such as:

- Traffic congestion would increase
- Flood immunity is not improved
- It would only be a short-term solution
- Increased noise and decreased property value
- There may be potential impacts to community infrastructure.

Five submissions are supportive of Option B, noting:

- Provision of four lanes treats east and west bound traffic equally and accommodates peak hour traffic
- Provided the bridge design is sympathetic to the original bridge and the new road/bridge footprint isn't too large
- It is less invasive to the surrounding landscape and allows viewing of the old railway bridge
- Provides a shared cycleway and pedestrian path
- Does not require lane changing by RMS between peaks or moving the water pipe
- Provides greater traffic flow.

One local business did not indicate support, or otherwise, but noted that Option B would not impact on truck access.

Community Comments on Option C - new two-lane bridge provided 25 to 50 metres downstream (1:5 year flood event)

Of the 19 submissions that specifically commented on Option C, 12 were not supportive, citing reasons such as:

- Flood immunity is not adequate
- Traffic congestion would increase
- It would only be a mid-term solution (5-7 years)
- It would cost too much
- Increased noise and decreased property value
- Flood free benefits do not outweigh the land that would need to be acquired and the impact on the local environment, such as Hanna Park
- There are impacts on visual amenity
- Concerns there may be potential impacts to community infrastructure.

Seven submissions are supportive of Option C, noting it:

- Provides greater flood immunity
- Is a more realistic approach (but more detail is needed)
- Has four lanes
- Provides a shared cycleway and pedestrian path
- Is preferred, provided it does not impact on a local business' exit driveway for trucks.

At its meeting of 9 October 2012, Hawkesbury City Council resolved to support, in principle, Option C subject to further analysis and determination of the short-term options report currently being finalised in conjunction with the long-term options report. Council stressed that the in principle support for Option C may be reviewed in the light of further information or studies that may become available.

Submissions also made recommendations to improve Option C, such as to include:

- A new four-lane bridge
- Use the old bridge as a cycleway
- Include a shared cycle path between Richmond and North Richmond
- Reconsider if the bridge needs to be as high
- Limit the amount of prime agricultural land removed from production
- Assess any impacts for existing infrastructure, including irrigation infrastructure
- Remove the lights and implement a roundabout at Bells Line of Road and Terrace Road intersection
- Widen the corridor on the southern side, not on the Windsor Polo Club side
- Two lanes in both directions at the North Richmond Traffic lights on Bells Line of Road and a longer turn-right lane accommodating 7-8 vehicles
- A turn left at any time with care heading up Grose Vale Road
- Add a new roundabout on Terrace Road and Beaumont Avenue junction and extend Beaumont Avenue to continue through Hanna Park and over a new bridge and follow the road to a new roundabout at Yarramundi Road [Old Kurrajong Road].

Community Comments on Option D - new two-lane bridge provided 25 to 50 metres downstream (1:20 year flood event)

Of the 25 submissions that specifically commented on Option D, 16 indicated support, noting it:

- Provides good flood immunity
- It caters for increased traffic
- Provides a shared cycleway and pedestrian path
- Is the best plan in a very difficult area
- Is preferred provided it does not impact on the local business' exit driveway for trucks.

Of the nine submissions that were not supportive of Option D, reasons provided include:

- It creates congestion at the intersections by moving the traffic faster
- It would be expensive and unnecessary
- It is too invasive on the landscape and will dominate Hanna Park
- It is too restrictive with turning options at Old Kurrajong Road and Yarramundi Lane, such as right-hand turn bans
- Increased noise and decreased property value
- Concerns there may be potential impacts to community infrastructure.

Submissions also made recommendations to improve Option D, such as:

- A new four-lane bridge
- Limit the amount of prime agricultural land removed from production
- Assess any impacts for existing infrastructure, including irrigation infrastructure
- Use the old bridge as a cycleway and link to existing on-road or off-road cycleways and ensure bicycle line markings are as per Australian standard
- Widened the corridor on the southern side, not on the Windsor Polo Club side
- Provide parking for train users, such as a multi-story structure to mitigate March Street 'no parking'.

General Comments

Some directly impacted property owners raised concerns in regard to detrimental effect on property, and/or disruption to business, sporting and community services and sought further information on the potential impacts to property. The RMS project team has been and will continue to meet with directly impacted property owners to discuss the project further.

General concerns were also raised in a number of submissions in regard to future land development leading to increased traffic congestion and the need to consider this when further developing any option.

Submissions also provided general comments in relation to:

- Richmond Bridge
- Key intersections
- Other options

1.1 Richmond Bridge

There is support to maintain the old bridge**.**

Two submissions noted that the bridge has always been called the 'North Richmond Bridge' and the name should be retained. The bridge is actually located at North Richmond and the sign on the Richmond side of the bridge reads 'North Richmond' indicating that this is where North Richmond begins.

Another submission noted the bridge is not the problem; the problem is the intersections.

1.2 Key Intersections

Many of the submissions noted that the key intersections should be addressed first before a bridge replacement is considered. Suggested solutions were made in regard to the intersections at: Bells Line of Road/Grose Vale Road/Terrace Road, Yarramundi Lane/Old Kurrajong Road/Kurrajong Road, Lennox Street/Bosworth Street and March Street to West Market Street.

1.2.1 Bells Line of Road/Grose Vale Road/Terrace Road

Comments in regard to this key intersection (and surrounding streets), include:

- Make the left lane of the two lanes approaching the lights (eastbound) left turn and service road entry only (no through traffic)
- Remove traffic lights and replace with a roundabout
- Reconfigure traffic light phasing
- Address danger spot for cars turning into Pitt Lane
- Implement a bus light to exit the service lane near post office
- Improve access to exit the BP service station
- Do not change the centre of the intersection and traffic lights
- Widen Bells Line of Road at the western corner of Terrace Road in order to accommodate five wide lanes. East bound lanes will then line up and an extra west bound lane can be created allowing traffic to flow better.
- Continue two west bound lanes westward before merging after Charles Street. The extra lane will benefit local traffic, turning left into Charles Street and turning left out.
- Remove the 2.8m island dividing traffic lanes from the service lane. The removal is the key to the success of the whole project. The service lane should be widened enough to accommodate a curb side parking lane and a lane marked local traffic and bus lane.
- Bells Line of Road from Terrace Road to Hanna Match can be widened to accommodate four full width lanes; two eastbound and two westbound. A westbound clearway lane can be initiated between Pitt and Charles Street during PM peak hours and Saturday 11 am - 2.30pm.
- The right turn lane from Bells Line of Road into Terrace Road can be extended to eight vehicles (now four). This option will definitely improve the westbound traffic. The lane is too short and causes problems with through traffic.
- Move the bus stop to the eastern end of the service road in front of No.30 Bells Line of Road, with off road parking for customers and provide an island extension at the bus stop to give more room for a shelter. Construct a divider strip to separate the eastbound lane from the westbound lane. The barrier should start at the western end of the Terrace Road right turn lane and be unbroken to finish at Pitt Street.
- Keep the westbound bus stop
- Keep the entry driveway off Bells Line of Road, servicing North Richmond shopping Plaza, and the off-road parking. Consult Plaza owners, to have driveway widened, with gutter corners angled to enable to remain in curb side lane entering and exiting - (clearway lane). Or construct an "Entry" driveway further east of the present driveway and use the

present driveway as an exit to the west. One-way traffic "entry and exit" driveways to work perfectly in Riverview Street.

1.2.2 Yarramundi Lane/Old Kurrajong Road/Kurrajong Road

Safety concerns were raised in regard to Yarramundi Lane/Old Kurrajong Road/Kurrajong Road intersection. The following suggestions were made in submissions:

- Stop/restrict the right turns from Yarramundi Lane and Old Kurrajong Road into Bells Line of Road, during peak times.
- Build up and widen Kurrajong Road lanes approaching the western side of the intersection and construct an eastbound through lane on the left side to have a left-hand slip lane into Old Kurrajong Road north. This will enable left turn traffic to clear the through lane at a quicker pace.
- Right turn lane from Kurrajong Road into Old Kurrajong Road south should be extended to a minimum of eight vehicles to keep the eastbound through lane clear at all times approaching the intersection.
- Widen eastern side of Kurrajong Road so through traffic lanes will line up with those on the western side. Construct a left-hand slip from Old Kurrajong Road south into Kurrajong Road west.
- Turning restrictions to apply during am - pm peak hours: no Right turns to be made from either side of Old Kurrajong Road into Kurrajong Road, no crossing at Kurrajong Road from either side of Old Kurrajong Road i.e. north to south, south to north, no right turn into Old Kurrajong Road (north) from Kurrajong Road (east).

1.2.3 Lennox Street/Bosworth Street

Lennox Street/Bosworth Street safety issues were raised and comments noted that pushing more traffic along this route without upgrades and through a school zone will be a less than safe or expedient option.

1.2.4 March Street to West Market Street

Some submissions noted that hold-ups are caused by traffic blocking the through lane by trying to turn right from March Street to West Market Street and that the left merging lanes are so short and often contain parked cars; making the use of them dangerous.

One impacted property owner noted that they did not support adjusting the kerb line to cater for heavy vehicles and suggested Hawkesbury Council should consider restricting heavy vehicles or relax requirements for a turn path. The same respondent also raised a concern about potential impacts on Richmond Park and its Wollemi Pine trees.

1.3 Other options

Many submissions called for North Richmond and Richmond to be bypassed. Information was provided to the community that a bypass is outside the scope of the Richmond Bridge and approaches congestion study project. However, community members were encouraged to make a submission to Transport for NSW which had its *draft NSW Long Term Transport Master Plan* on public exhibition from 4 September 2012 to 26 October 2012.

The draft Long Term Transport Master Plan proposes a new program of town bypasses to improve travel within towns, reduce delays caused to freight traffic and increase safety. A list of prioritised town bypasses that may be considered for funding and delivery will be developed in consultation with local communities as part of developing Regional Transport Plans.

Other suggestions made were the need to consider:

- A further refined option (Option E)

- Other examples as a template for Richmond to North Richmond, such as Hawkesbury Valley Way
- Consider an underpass for through traffic at North Richmond lights on Bells Line of Road
- A long-term solution, for example, the Castlereagh Highway starting at Crooked Lane
- The original proposal for a freeway terminating at Springwood Road at Agnes Banks, with a subsequent bridge across the Grose
- Construct the Castlereagh freeway with an associated bridge over the Hawkesbury/Grose Rivers and to either join Bells Line of Road at North Richmond or proceed behind Bowen Mountain and connect to Bells Line of Road past Kurrajong Heights

Responses to the issues raised by the community are addressed in Appendix B.

Conclusion

The Richmond and North Richmond communities provided broad ranging feedback with valuable local knowledge that will be used to further inform the development of a long-term preferred option to reduce traffic congestion on Richmond Bridge and its approach roads between these two communities.

Based on the submissions received, Option D - a new two-lane bridge provided 25 to 50 metres downstream with improved flood immunity at a 1:20 year flood event level, is supported more favorably over the other options presented. However, most submissions sought refinement to Option D, such as consideration of a four-lane bridge and minimising property impacts.

Evidenced by the community consultation to date, there is strong support for the implementation of traffic improvements to the three key intersections (and surrounding streets) of Bells Line of Road and Grose Vale Road, Kurrajong Road, Yarramundi Lane, and Old Kurrajong Road and Kurrajong Road and Bosworth Street.

While there is strong support for bypass options, the scope of this project is for long-term strategy to reduce traffic congestion in the Richmond and North Richmond area within the existing bridge and road corridor.

Comments received on the long-term options, the investigations and technical assessment undertaken and the outcomes of a Value Management Workshop held on 24 October 2012 will input into a decision on the recommended preferred corridor option.

Appendix A - Community and key stakeholder consultation

In July 2012 the Community Involvement Plan was prepared and published on the Roads and Maritime Services (RMS) road projects website (www.rta.nsw.gov.au/roadprojects) to ensure the Richmond Bridge and approaches congestion study is developed through extensive consultation with local communities and stakeholders.

A crucial part of the consultation process is to understand the perspectives of the local community and stakeholder groups, including their:

- Values and vision for the future planning and development of Richmond and its environs
- Short-term solutions to improve traffic flow at Richmond Bridge and adjoining approach roads for the Richmond/North Richmond areas
- Long-term strategies for Richmond Bridge and adjoining approach roads for the Richmond and North Richmond areas.

Consultation on long-term options

The Richmond Bridge and approaches congestion study – long-term options report for the project was placed on public exhibition on the RMS project website on 19 September 2012. Public submissions on the report were requested by 17 October 2012.

Submissions were invited from the community and other stakeholders via the project website, project information line, letter, feedback form, and email to the project team or in person at the information displays.

Printed copies of the long-term options report were also made available at the following locations:

- Hawkesbury City Council
  366 George Street
  Windsor NSW 2756
- Richmond Motor Registry
  173 Windsor Street
  Richmond NSW 2753

Two staffed information displays were held during the exhibition period at the North Richmond Community Centre on:

- Wednesday 10 October from 4.30pm to 8.30pm
- Saturday 13 October from 10am to 2pm.

The toll free project information line for the Richmond Bridge project also allowed members of the community and other stakeholders to contact the project team with any comments or questions they might have regarding the technical review.

Consultation with key stakeholders was carried out by RMS both prior to and during the exhibition period. This included a number of meetings on request by individual property owners and other stakeholders.

Value Management Workshop

Nominations were also sought from community members to attend a Value Management Workshop on 24 October from 9am to 4pm at the Sebel Resort & Spa Hawkesbury Valley. The value management workshop is one of several inputs to help identify the best performing option.

The purpose of the workshop is for participants to identify and rank key issues and objectives for the project, then rate options against criteria. **The workshop outcomes are not a final decision.**

RMS considers all inputs; including reports, additional investigations, public submissions, comments from government agencies and the results of the value management workshop, to identify and recommend a best performing option.

The workshop was facilitated by an independent expert and included participants from the Department of Infrastructure and Transport (Federal Government), Transport for NSW, Sydney Water, Roads and Maritime Services, Hawkesbury City Council, the local community and project consultants: SMEC, Id Planning and Tract.

The purpose of the workshop was to discuss the options from a wide range of perspectives, and to work towards gaining a shared understanding of which option would perform best and provide a balanced outcome across social, environmental and functional aspects, while also taking cost and value for money into consideration.

Community participation in the value management workshop

The purpose of community participation in the value management workshop was to:

- Ensure that community views and values are taken into account
- Ensure the process is transparent and accountable
- Provide the community an opportunity to be involved and understand the process to be undertaken.

Community members were invited to self-nominate through the nomination form attached to the community update distributed on 20 September 2012. The nomination details were also available through the RMS project website.

Twenty-five nominations were received. Six community representative positions were available, as value management workshop numbers are limited to achieve equal representation across multiple stakeholder groups. Participants were confirmed independently of RMS through a self-selection process.

At the value management briefing on Monday 22 October 2012, nominees agreed to the following selection process:

1. One representative from Richmond
2. Four representatives from North Richmond and/or from outside Richmond/North Richmond but frequent users of the Richmond Bridge and approaches road corridor
3. One representative of a directly impacted property owner.

As there was only one representative present at the briefing from Richmond and one directly impacted property owner, these two representatives gained automatic selection to attend the value management workshop.

The remaining nominees' names were drawn from a box, to determine the remaining four representatives. Note: not all 25 nominees attended the briefing and some nominees withdrew from the process at the briefing.

Consultation on short-term options

During July 2012 the project team met with the community and key stakeholders to better understand community views about improving local traffic for the short-term and the long-term option of a possible road corridor in the vicinity of Richmond Bridge for future traffic needs. RMS received a wide range of constructive comments, which have been considered in detail by the project team.

Comments on short-term options will help to further develop local plans to relieve traffic congestion. Suggestions include:

- Adjustments to traffic light phasing
- Parking restrictions
- Improvements to three key intersections at Grose Vale Road, Yarramundi Lane and Bosworth Street.

Roads and Maritime Services will select practical short-term solutions in discussions with Hawkesbury City Council, transport providers, local businesses and residents. More information about the specific short-term localised changes will be provided later this year.

In addition to input provided by over 80 attendees at the community workshop, 56 written responses were received by RMS during the July 2012 consultation period.

A copy of the *Richmond Bridge and Approaches Congestion Study - Community issues report September 2012* is available on the project website at:
http://www.rta.nsw.gov.au/roadprojects/projects/sydney_region/outer_west_blue_mtns/richmond_bridge/documents/richmond_bridge_approaches_issues_report_sep12.pdf

Appendix B – Response to community issues

Introduction

The purpose of this document is to provide a summary of the community feedback gained through consultation activities undertaken between 24 July 2012 and 31 July 2012 (as part of the Part 2 – short term study) and between September and October 2012 (as part of the Part 3 – long term study). This will be used to inform the technical solutions on the short-term and long-term measures to reduce traffic congestion for Richmond Bridge and approaches.

The table below includes community feedback received from:

- 68 written submissions via email and feedback forms (a combination of both short term and long term issues) collected during the Part 2 study consultation phase.
- Facilitation notes taken at community workshop session on 24 July 2012.
- 32 written submissions via email and feedback forms collected during the Part 3 study consultation phase and in response to the 'Richmond bridge and approaches congestion study: long-term options report (September 2012)'.

Comments received from the community have not been reported verbatim, but summarised and collated for reporting purposes. Community members provided feedback on short-term and long-term issues and solutions and the focus of this report is on the long-term issues. However, where community members have suggested the same solutions, such as adjusting traffic light timings, under both short-term and long-term measures, they have been grouped into the one solution option.

Many community members made similar comments and this duplication is demonstrated in the table below.

Key issue summary

In summary the key community issues can be categorised into the following areas:

- Traffic management and access arrangements at intersections along the corridor.
- Town bypasses and alternate river crossings.
- Alternate traffic arrangements and routes.
- Public transport improvements (locally and more broadly).
- Land use and development (locally and more broadly).

The tables overleaf provide a summary of the issue raised by the community, the location, and a response by the project team.

Possible long-term strategies to improve traffic flow at Richmond Bridge and approach roads from the Richmond/North Richmond areas		
Yarramundi Lane	Construct a right-hand turn into Yarramundi Lane during the morning.	All options under investigation include the provision of a dedicated right turn lane into Old Kurrajong Road/Yarramundi Lane in the eastbound direction at all times. With the lane extending from an off ramp there will be capacity greater than eight vehicles.
	Close Yarramundi Lane.	Closure of Yarramundi Lane is undesirable as it would restrict access and would force vehicles to re-route, increasing traffic flow at adjacent intersections which have limited capacity for increased volumes of traffic. The provision of a right turn lane into Old Kurrajong Road/Yarramundi Lane and maintaining left turn access (onto and off Kurrajong road) will assist in congestion management at this location.
	Construct a new bridge to stop after Yarramundi Lane and create a roundabout.	All options being considered include improvements to the intersection of Old Kurrajong Road/Yarramundi Lane that will reduce congestion and provide safer access at this location. A roundabout is not desirable at this location due to the speed zone and also the low traffic volumes on potentially two legs of the roundabout. Significantly different flow volumes on two legs of the roundabout would have a negative effect on the efficiency of the roundabout.
	Evening ban right-hand turn into Yarramundi Lane. It is too restrictive with turning options at Old Kurrajong Road and Yarramundi Lane, such as right-hand turn bans	All options being considered include the provision of a dedicated right turn lane into Old Kurrajong Road/Yarramundi Lane (in the eastbound direction). The options also provide for two travel lanes in each direction along Kurrajong Road. Each of these features will improve safety at the intersection and will also improve traffic congestion. With the very low volumes of traffic undertaking this right-hand turn an evening ban is not considered necessary.

	Construct a right-hand turn from Yarramundi Lane into Bells Line of Road.	This location is for access onto Kurrajong Road (not Bells Line of Road). Presently there are a low number of vehicles that make a right turn from Old Kurrajong Road/Yarramundi Lane into Kurrajong Road. The right turn is maintained in Options A, B & C however dedicated turning facilities are not provided. For Option D the right turn for a westbound movement onto Kurrajong Road is not possible due to the level difference between the two carriageways. The right turn for the eastbound direction will be provided by a ramp to access the eastbound carriageway.
	Slip lane left-hand turn from Yarramundi Lane to Bells Line of Road.	This location is for access onto Kurrajong Road (not Bells Line of Road). A left turn slip lane was considered for all options however, the existing give-way arrangement is suitable for all options when combined with the provision of two travels lanes in each direction along Kurrajong Road.
	Widen eastern side of Kurrajong Road so through traffic lanes will line up with those on the western side. Construct a left-hand slip from Old Kurrajong Road south into Kurrajong Road west	
	Build up and widen Kurrajong Road lanes approaching the western side of the intersection and construct an eastbound through lane on the left side to have a left-hand slip lane into Old Kurrajong Road north. This will enable left turn traffic to clear the through lane at a quicker pace	
Bells Line of Road / Kurrajong Road	No right turn into Bells Line of Road from Old Kurrajong Road.	This location is for access onto Kurrajong Road (not Bells Line of Road). Presently there are a low number of vehicles that make a right turn from Old Kurrajong Road/Yarramundi Lane into Kurrajong Road. The right turn is maintained in Options A, B & C however dedicated turning facilities are not provided. For Option D the right turn for a westbound movement onto Kurrajong Road is not possible due to the level difference between the two carriageways, similarly it is not possible to provide a through movement across Kurrajong Road from Old Kurrajong Road into Yarramundi Lane. The right turn for an eastbound direction will be provided by a ramp to access the
	Turning restrictions to apply during am - pm peak hours: no Right turns to be made from either side of Old Kurrajong Road into Kurrajong Road, no crossing at Kurrajong Road from either side of Old Kurrajong Road i.e. north to south, south to north, no right turn into Old Kurrajong Road (north) from Kurrajong Road (east).	

	Stop/restrict the right turns from Yarramundi Lane and Old Kurrajong Road into Bells Line of Road, during peak times	eastbound carriageway. Traffic modelling of the proposed amendments to the intersection indicates that traffic congestion at this intersection will be reduced to acceptable levels even with the right turn being retained.
	The intersection of Chapel Street and Bells Line of Road is very dangerous – nursing home/retirement village visitors and staff are often “trapped’ trying to exit. A roundabout or lights would help (though Chapel Street residents may not want this).	This location is at the intersection of Chapel Street and Kurrajong Road. All proposals include the signalisation of this intersection and the provision of a dedicated right turn bay into Chapel Street from both directions on Kurrajong Road. This will improve safety and reduce current delays experienced by traffic exiting Chapel Street to access Kurrajong Road.
	Review the proposal of a no right turn from Bells Line of Road into Grose Vale Road at Charles Street school- will create another ‘rat run’ and will shift congestion.	All options maintain the right turn access from Bells Line of Road into Grose Vale Road with the provision of a right turn bay.
	Widen the corridor on the southern side, not on the Windsor Polo Club side	The proposed additional two lane carriageway cannot be provided on the southern side of the existing carriageway due to the proximity of HV power lines and also a property of significant state heritage. Therefore the provision of this new carriageway was considered along the northern side due to there being fewer constraints. The impact on the Polo fields will need to be investigated in further detail in future stages of design development. Options such as retaining walls to eliminate the use of embankments would reduce the width of the overall corridor, however, these options need to be assessed against important factors such as constructability and cost.

Grose Vale Road	Turning out of Grose Vale Road eastbound – longer merge lane, longer phase and get rid of bus stop.	For all options it is proposed that this intersection will have two dedicated right turn lanes turning into Bells Line of Road in the eastbound direction. There will also be two lanes provided in the eastbound direction along Bells Line of Road. This will allow a greater volume of traffic to turn right through the intersection and the increased capacity will assist in reducing congestion at this location. The current location of the bus stop is being examined as part of the option development. The bus stop could be relocated further east and into the service road area, however, it will need to be at a suitable location so that a safe crossing of Bells Line of Road can be provided for pedestrians. This may be via the existing signalised intersection at Grose Vale Road/Terrace Road or via a separate mid-block signalised pedestrian crossing.
	If the section of road from Grose Vale Road to Bosworth Street was magically converted to super highway it would not resolve the problem. It would simply strangle the town of Richmond.	The proposed options consider a widening of the existing carriageway and also the provision of peak hour parking restrictions in Richmond and North Richmond to provide two lanes in the peak hour direction along the corridor.
	Bridge is not the problem. Grose Vale Road is the problem.	Grose Vale Road presently suffers from traffic congestion and currently operates at a poor Level of Service. The proposed improvements at this intersection aim to reduce traffic congestion and improve the Level of Service. These improvements include the provision of two dedicated right turn lanes exiting onto Bells Line of Road in the eastbound direction and also a dedicated left turn lane from Bells Line of Road in a westbound direction. Traffic modelling indicates that these measures will improve the Level of Service to an acceptable level.
Terrace Road	Use service road as extra lane after Terrace Road.	The proposals at the intersection of Grose Vale Road/Terrace Road and Bells Line of Road include carriageway widening in the vicinity of the service road and this is required to provide for the eastbound two lanes on Bells Line of Road and to also widen the carriageway to
	Do not change the centre of the intersection and traffic lights	

	Make the left lane of the two lanes approaching the lights (eastbound) left turn and service road entry only (no through traffic)	provide a dedicated left turn lane from Bells Line of Road into Grose Vale Road. This would require a shifting of the intersection slightly north and using some of the service road to accommodate the additional lanes along Bells Line of Road. The service road will also require rationalisation in terms of parking and the relocation of the bus stop further east.
	Remove the 2.8m island dividing traffic lanes from the service lane. The removal is the key to the success of the whole project. The service lane should be widened enough to accommodate a curb side parking lane and a lane marked local traffic and bus lane	
	Widen Bells Line of Road at the western corner of Terrace Road in order to accommodate five wide lanes. East bound lanes will then line up and an extra west bound lane can be created allowing traffic to flow better	
	Construct a roundabout at Terrace Road & Beaumont Avenue.	The focus of the study is along the main road corridor and option development is primarily focussed on this corridor and the intersections along it. This particular location has not been considered as it does not form part of the main road corridor. However, it is recognised that improvements to the road geometry at this location could be made.
	Construct an underpass at west side of bridge for Terrace Road traffic.	The traffic modelling undertaken for this study has led to the development of the improvements proposed for the Grose Vale Road/Terrace Road/BLoR intersection. With these improvements this intersection will be able to function to an acceptable Level of Service as an at grade intersection. Providing an underpass at an alternate location is not required and it is also economically unviable.
	Consider an underpass for through traffic at North Richmond lights on Bells Line of Road	
	Two lanes in both directions at the North Richmond Traffic lights on Bells Line of Road and a longer turn-right lane accommodating 7-8 vehicles	The proposed widening of Bells Line of Road provides an extended right turn bay from Bells Line of Road into Terrace Road.

	The right turn lane from Bells Line of Road into Terrace Road can be extended to eight vehicles (now four). This option will definitely improve the westbound traffic. The lane is too short and causes problems with through traffic	
March Street	Some submissions noted that hold-ups are caused by traffic blocking the through lane by trying to turn right from March Street to West Market Street and that the left merging lanes are so short and often contain parked cars; making the use of them dangerous. One impacted property owner noted that they did not support adjusting the kerb line to cater for heavy vehicles and suggested Hawkesbury Council should consider restricting heavy vehicles or relax requirements for a turn path. The same respondent also raised a concern about potential impacts on Richmond Park and its Wollemi Pine trees	For all options it is proposed to restrict parking in the kerbside lane during peak hours. This would provide the additional lane capacity along the corridor to reduce congestion. Dedicated left turn and right turn lanes are provided at March Street and East Market Street and at Bosworth Street and these will be signalised. The intersection at West Market Street is not proposed to be signalised however the removal of on street parking in peak hours will assist with vehicles turning right from March Street. The options have been designed to accommodate heavy vehicle turning movements at the intersections. However, the impact of these will need to be further considered and addressed at a future stage of design development. Similarly the impacts on Richmond Park will also need to be investigated.
Bypass and bridge	Create a second bridge from Castlereagh Road to Grose Vale Road which would divide the traffic.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely

		be addressed by the future BLoR upgrade.
	A 3-4 lane bridge which bypasses Richmond and North Richmond which will be high enough to cope with the rising Hawkesbury during heavy rain periods.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. • The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	A long-term solution, for example, the Castlereagh Highway starting at Crooked Lane	
	Build a second bridge crossing from Castlereagh Road at The Driftway, across to Grose Vale Road. This could potentially be flood free. It would create a link between Penrith and North Richmond and also between North Richmond and the M7 via Richmond Road. Richmond Road would also need to be upgraded, as would Grose Vale Road and a new access road created between Grose Vale Road and Bells Line of Road, bypassing the town centre and the main intersection.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.

	I feel the long term solution is another Bridge crossing and approaches.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. Options B, C and D propose another bridge crossing with associated approaches.
	Fast forward the incorporation of a new high-level bridge across the river with an expressway to the west. It would only be a mid-term solution (5-7 years)	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	A flood free bridge over the Hawkesbury. Flood immunity is not adequate	The primary objective of the study is to reduce traffic congestion across Richmond Bridge and on its approach roads. However options have been investigated that aim to improve the level of flood immunity. Two of the options that have been developed have investigated the provision of an improved level of flood immunity. Option C is designed to a 1:5 year flood event and Option D is designed to a 1:20 year flood event.

	Windsor, Richmond and North Richmond bypass.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	Provide a new minimum two lanes each way North Richmond Bridge above flood height over the river on the Bells Line of Road.	The primary objective of the study is to reduce traffic congestion across Richmond Bridge and on its approach roads. However options have been investigated that aim to improve the level of flood immunity. Two of the options that have been developed have investigated the provision of an improved level of flood immunity. Option C is designed to a 1:5 year flood event and Option D is designed to a 1:20 year flood event. Options A will provide two lanes in the peak hour direction across the Bridge through the implementation of a tidal flow traffic management system. Options B, C and D will provide two lanes in the eastbound direction at all times with the existing bridge providing the two lanes in the westbound direction at all times.

	Enhance existing bridge one way to west and new bridge one way to east (two lanes per bridge).	The bridge options that have been developed consider this suggestion. Option A provides for an additional lane constructed as part of the existing bridge and on the downstream side. This will allow for two lanes to be provided across the River in the peak hour direction with the implementation of a tidal flow traffic management system. Options B, C and D provide for new bridges 5 metres and 25-50 metres downstream of the existing bridge respectively and will provide for two lanes (eastbound) across the River with the existing bridge providing two lanes (westbound).
	Raise the level of the Yarramundi Bridge to above maximum flood height.	The primary objective of the study is to reduce traffic congestion across Richmond Bridge and on its approach roads. However options have been investigated that aim to improve the level of flood immunity. Two of the options that have been developed have investigated the provision of an improved level of flood immunity. Option C is designed to a 1:5 year flood event and Option D is designed to a 1:20 year flood event. Options A will provide two lanes in the peak hour direction across the Bridge through the implementation of a tidal flow traffic management system. Options B, C and D will provide two lanes in the eastbound direction at all times with the existing bridge providing the two lanes in the westbound direction at all times. Yarramundi Bridge is upstream from the Richmond Bridge on Springwood Road. To provide flood free access to this bridge would require significant raising of the road levels as well.
	Construct a flood free four-lane bridge.	The primary objective of the study is to reduce traffic congestion across Richmond Bridge and on its approach roads. However options have been investigated that aim to improve the level of flood
	A new four-lane bridge	

	Reconsider if the bridge needs to be as high	immunity. Two of the options that have been developed have investigated the provision of an improved level of flood immunity. Option C is designed to a 1:5 year flood event and Option D is designed to a 1:20 year flood event and the height of the bridge is determined by the level of flood immunity it is designed to provide. Options A will provide two lanes in the peak hour direction across the Bridge through the implementation of a tidal flow traffic management system. Options B, C and D will provide two lanes in the eastbound direction at all times with the existing bridge providing the two lanes in the westbound direction at all times. A four lane bridge was also considered during the development of Options C and D to determine if a bridge of this nature could be accommodated within the same corridor width.
	Another river crossing.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.

	Adding a second parallel bridge and linking it with new access routes (eventually).	The bridge options that have been developed consider this suggestion. Option A provides for an additional lane constructed as part of the existing bridge and on the downstream side. This will allow for two lanes to be provided across the River in the peak hour direction with the implementation of a tidal flow traffic management system. Options B, C and D provide for new bridges 5 metres and 25-50 metres downstream of the existing bridge respectively and will provide for two lanes (eastbound) across the River with the existing bridge providing two lanes (westbound). These bridges would connect to the existing Kurrajong Road and Bells Line of Road corridors. An additional two lanes will also be provided along Kurrajong Road between Chapel Street and the bridge.
	By-pass Richmond to avoid traffic congestion with the Richmond & North Richmond town centres.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.

	Implement a bypass.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	There is a need to assess whether the area needs a bypass - specifically for Richmond and North Richmond - and if so where should it be placed.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.

	Provide a second new bridge over the Grove River at Yarramundi Reserve so as to connect Springwood Road and Grove River Road to relieve traffic flow from Bowen Mountain and Grose Vale areas.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	Construct the Castlereagh freeway with an associated bridge over the Hawkesbury/Grose Rivers and to either join Bells Line of Road at North Richmond or proceed behind Bowen Mountain and connect to Bells Line of Road past Kurrajong Heights	
	The original proposal for a freeway terminating at Springwood Road at Agnes Banks, with a subsequent bridge across the Grose	
	Construction of a high-level, all-weather, futuristic bridge West of Richmond.	Two of the options that have been developed have investigated the provision of an improved level of flood immunity. Option C is designed to a 1:5 year flood event and Option D is designed to a 1:20 year flood event. Options A will provide two lanes in the peak hour direction across the Bridge through the implementation of a tidal flow traffic management system. Options B, C and D will provide two lanes in the eastbound direction at all times with the existing bridge providing the two lanes in the westbound direction at all times.

	A bypass from Richmond North Richmond.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	Provide an alternative crossing/corridor with multi-lane capability by passing North Richmond.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.

	Needs to be another crossing and bypass right through.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	The only way to reduce traffic flow through North Richmond would obviously involve a second bridge. Constructing a road starting at the intersection of Kurrajong and Old Kurrajong roads for through traffic, crossing the Hawkesbury River below Hanna Park, skirting the North Richmond Reserve and Industrial area to link up with Bells Line of Road near Crooked Lane.	The bridge options that have been developed consider this suggestion. Option A provides for an additional lane constructed as part of the existing bridge and on the downstream side. This will allow for two lanes to be provided across the River in the peak hour direction with the implementation of a tidal flow traffic management system. Options B, C and D provide for new bridges 5 metres and 25-50 metres downstream of the existing bridge respectively and will provide for two lanes (eastbound) across the River with the existing bridge providing two lanes (westbound).

	We note that consideration of a downstream duplication of the Richmond Bridge after 2121. It is difficult to see the logic of this as there is no possibility of a four lane highway extending east and west and traffic increases have exhausted the benefits of proposed junction improvement. An alternative bridge crossing makes more sense.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	The best outcome will be provision of a flood free river crossing which bypasses both Richmond and North Richmond. An underpass at North Richmond allowing free passage along Bells Line of Road would be an alternative answer to the unresolved gridlock on Grose Vale Road.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location.

	Build a bypass at Windsor, rather than the current option 1 for a new Windsor Bridge. The bypass would need to run from McGraths Hill, across the floodplain and emerge on Putty/Wilberforce Road near or above King Road. This would reduce the amount of traffic travelling from Glossodia, Freemans Reach and other areas via North Richmond as many would be able to drive through to Windsor Road. The current Windsor Bridge should be repaired and kept for local and tourist traffic.	The scope of this project is to address traffic congestion between Richmond and North Richmond. Bypassing Windsor is unlikely to improve this congestion.
	A driftway through to South Windsor would allow people to go to work at Penrith etc (via Crooked Lane).	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.
	Develop a bridge through to Springwood Road from Nauva Reserve, Grose Vale.	This study is focussed on investigating and developing viable options along the existing corridor between Richmond and North Richmond to address the traffic congestion issue and to investigate options that provide an improved level of flood immunity. Options that consider bypasses and that are not along this corridor are not within the scope of the study and have not been considered at this stage.

	Richmond /Blacktown road upgrade from the M7.	This study is focussed on investigating and developing viable options along the existing corridor between Richmond and North Richmond to address the traffic congestion issue and to investigate options that provide an improved level of flood immunity. Options that consider bypasses and that are not along this corridor are not within the scope of the study and have not been considered at this stage.
	Extend Beaumont Avenue via park to north side of bridge and allow for future second bridge beside existing bridge to make two lanes to Richmond and create existing bridge two lanes to North Richmond.	The focus of the study is along the existing alignment and road corridor. It also aims to minimise impacts on adjacent land uses. Options B, C and D propose a new bridge crossing consider the provision of an additional two lanes across the river and with minimal impact on the park by maintaining an alignment that is close to the existing alignment.
	Consider an overpass/underpass option at North Richmond lights.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade.

	Option 1 – Off ramp from Bridge and Raised Roadway over Bells Line of Road and through Hanna Park crossing over Terrace Road and back onto Bells Line of Road: cheapest option but would give relief to evening i.e. west bound traffic. Estimated length two kilometres. Cost $5M @ km=$10M? 30,000 cars cross bridge daily. Provision for dual lanes. If not enough room for elevation of off ramp after bridge exclude heavy vehicles, commence off ramp on bridge lower Bells Line of Road, leading on and off bridge on North Richmond side. Allows traffic still to enter township. Would encourage shopping.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. The BLoR upgrade would provide the opportunity to bypass the towns of Richmond and North Richmond completely. As such all options which involve bypassing Richmond and North Richmond would likely be addressed by the future BLoR upgrade. The options being developed also need to consider local constraints such as the environment and heritage items which place further constraints on the design. The options also need to retain access for all vehicles along the corridor. The suggested proposal would significantly impact on Hanna Park and also the residential area that backs onto the park. This would significantly impact on the amount of recreational land available in the park and bring the road close to the rear of the properties therefore increasing noise and vehicle emissions and also reducing the visual amenity.

	Option 2 – Raised roadway for bypass traffic and flood free access from Kurrajong Road over river to link to North Richmond bypass. Existing road retained for traffic to and from North Richmond. Existing road underneath for North Richmond traffic. Overhead bridge for bypass traffic and flood free access. Guaranteed flood free access to all of Hawkesbury. Upper levels (see diagram in submission) 2 lanes for traffic by passing North Richmond and to be used exclusively during times of flooding for all traffic. Minimum environmental concerns as using existing road to North Richmond and bridge. Traffic still flows to North Richmond for local traffic and encourage shopping. Length Crooked Lane to Richmond 4.5 kms @ $5M = $23M?	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location. However, the focus of this study is on the corridor between Richmond and North Richmond The traffic modelling undertaken also indicates that with the suggested capacity improvements along the corridor it is possible to provide an acceptable Level of Service with at-grade intersections. The constructability issues for such a proposal would be significant and perhaps not feasible to construct a high level bridge over the existing bridge. The existing bridge must remain open to traffic at all times during construction of a new bridge and this proposal would significantly impact on the viability of this.
	Option 3 – Raised roadway for bypass traffic and flood free access from Inalls Lane/Southee Road – across Grounds to Richmond Bridge and through Hanna Park and over Terrace Road and back onto Bells Line of Road. Direct connection to Castlereagh Road moves traffic away from traffic lights Bosworth St Richmond. Allows for possible direct connection to Blacktown Road and Hawkesbury Valley Way. Existing Kurrajong Road to be used by North Richmond traffic.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location.

		However, the focus of this study is on the corridor between Richmond and North Richmond The traffic modelling undertaken also indicates that with the suggested capacity improvements along the corridor it is possible to provide an acceptable Level of Service with at-grade intersections. The suggested proposal would significantly impact on Hanna Park and also the residential area that backs onto the park. This would significantly impact on the amount of recreational land available in the park and bring the road close to the rear of the properties therefore increasing noise and vehicle emissions and also reducing the visual amenity. Such a proposal would also require a significant length of elevated carriageway across the flood plain compared to that required along the existing corridor on Kurrajong Road.
	Option 4 - Raised roadway for bypass traffic and flood free access from Inalls Lane/Southee Road running in line with Drift Road to Kurrajong Road to Richmond Bridge and through Hanna Park and over Terrace Road and back onto Bells Line of Road near Crooked Lane. Existing road to be used by North Richmond traffic.	
	Option 5 – New road from intersection of Southee Road and Castlereagh Road to Blacktown Road along two alternative new roads - one running at the back of Orchard Road and one in the opposite direction and through the University of Western Sydney campus (on proposal map). This would move traffic away from centre of Richmond and relieve traffic pressures. Blacktown Road already earmarked from upgrade. Open land utilised/owned by UWS and TAFE. Would have direct access to mostly dual lanes from M7 to Richmond and then onto Kurmond. No need for super highway and new bridge out Yarramundi and through national parks. Estimated distance from Blacktown Road at Richmond to past North Richmond 6kms @$5M= $30M? Super highway in 2007 estimated $300M.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location.

	Option 6 – Connect Blacktown Road to Hawkesbury Valley Way between Richmond Golf course and Hawkesbury Show Ground. Same benefits as Option 5. In addition allow those travelling on Windsor Road (which is upgraded to Windsor) direct access to bypass and relieve pressure on Richmond. Such upgrade if Richmond RAAF Base ever becomes second international airport would be necessary.	
	Other examples as a template for Richmond to North Richmond, such as Hawkesbury Valley Way	The proposal for Options C and D will require the new eastbound carriageway to be constructed at a height greater than the existing carriageway and on elevated embankments as opposed to a viaduct such as that adopted on the Hawkesbury Valley Way. The elevated embankments were considered more suitable in terms of constructability, access during construction and cost.
Other comments	Concerns that there is a limited scoping study that does not seem to look at traffic inputs and outputs in a wider context than just the Richmond.	The study is focussed on the existing main road corridor and intersections along it and it does not consider locations that may be considered for a bypass of Richmond and North Richmond. Traffic modelling does consider inputs from proposed future developments and scenarios of whether additional bridge crossings as a result of a possible BLoR upgrade or additional Grose River bridge are provided.
	Create three lanes/two lanes for peak hour in morning, two lanes reversed peak hour in afternoon.	A tidal flow traffic management scheme is being developed as part of Option A and this would provide for two lanes in the peak direction across the bridge and would be in place between Old Kurrajong Road/Yarramundi Lane and Pitt Lane. For Options B, C and D with the provision of new bridges, it is proposed to have two lanes across the bridge in the eastbound and westbound directions at all times.

	Concern over potentially losing the unique character of the area if major upgrade works were to occur.	Urban Design and Landscape issues have been considered at all stages of the option development. There have also been various environmental and heritage studies undertaken to identify other important factors such as impact on biodiversity, Aboriginal and non-Aboriginal heritage, noise, land use and socio economic factors. The ongoing development of the design will aim to ensure that any impacts on these important factors are considered and do not have an adverse impact on these constraints.
	It is too invasive on the landscape and will dominate Hanna Park	
	Flood free benefits do not outweigh the land that would need to be acquired and the impact on the local environment, such as Hanna Park	
	Concerns there may be potential impacts to community infrastructure	
	Assess any impacts for existing infrastructure, including irrigation infrastructure	
	Increased noise and decreased property value	
	There is a need for a wide ranging study of the long-term traffic and transport needs of the area.	The traffic modelling carried out for the Stage 2 study considers traffic and transport inputs from proposed future developments on the study corridor. It also considers scenarios of whether additional bridge crossings as a result of a possible BLoR upgrade or additional developer funded Grose River bridge are provided. However, the analysis is focussed on the study corridor and intersections along it. A broader study area would only be investigated through a separate study.
	Traffic congestion would increase	
	This study should be conducted with community involvement to avoid elitism and perceived bias of experts contracted to undertake study.	Input from the community is welcomed at all stages during the design development of the options. A phase of community consultation will be undertaken in September 2012 and will be an important input into the study.

	There is a need to consider whether any traffic improvements will be flood affected or whether traffic improvements will be efficient from a logistic technical or financial standpoint.	Providing improved flood immunity along the corridor has been considered for the development of Options C and D. The traffic modelling undertaken has been carried out by technical experts and all options will have a strategic cost estimates prepared and their qualitative and quantitative benefits identified and assessed as part of a cost benefit analysis.
	It would be expensive and unnecessary	
	It would cost too much	
	There is a need to consider whether long term traffic improvements such as river crossings, bypasses and upgrades will be the vehicle for future unwelcome residential development and land releases and superhighways all of which are environmentally and socially devastating.	The study is only concerned with the development of options to address the traffic congestion in the defined study area. Broader transport studies in relation to future developments are undertaken by RMS or Transport for NSW at a strategic level which would consider such issues.
	Keeping the rural and village areas west of the river intact (not introducing major traffic routes through these places).	This study involves improvements to the existing road corridor and intersections along it. The study does not introduce new traffic routes. The study only extends as far west as the intersection of Grose Vale Road/Terrace Road and BLoR.
	The congestion problem may be symbolised by the bridge crossing, but has causes more related to the nexus problem. It, therefore, needs to be looked at in a more global fashion.	The study is only concerned with the development of options to address the traffic congestion in the defined study area. Broader transport studies in relation to future developments are undertaken by RMS or Transport for NSW at a strategic level which would consider such issues.

	A key principle from Councils perspective is State road traffic should be contained within its own road network and not diverted into the Local road network.	The proposals are focussed on improving capacity along the State road corridor and at the intersections along it. Developing options with this requirement in mind has ensured that the proposals will improve the Level of Service on this corridor and therefore encourage traffic to remain on this corridor and not use the local road network as an alternative.
	Through traffic would keep off our local roads – including Bilpin –this would make the area safer for locals and tourists.	The proposals are focussed on improving capacity along the State road corridor and at the intersections along it. Developing options with this requirement in mind has ensured that the proposals will improve the Level of Service on this corridor and therefore encourage traffic to remain on this corridor and not use the local road network as an alternative.

Community Solutions Suggested for short term and long term		
Roundabouts	Install a roundabout at the junction of Yarramundi Lane & Old Kurrajong Road, this would enable traffic to move freely and hopefully avoid the stopping and starting that the community have to endure every day.	All options being considered include improvements to the intersection of Old Kurrajong Road/Yarramundi Lane that will reduce congestion and provide safer access at this location. A roundabout is not desirable at this location due to the speed zone and also the low traffic volumes on potentially two legs of the roundabout. Significantly different flow volumes on two legs of the roundabout would have a negative effect on the efficiency of the roundabout.
	The Yarramundi Lane, Bells Line of Road and Old Kurrajong Road intersection needs attention as soon as possible, a roundabout such as at George Street/Blacktown/Richmond Road would be a step forward.	
	Immediate construction of a two lane traffic roundabout at the intersection of Yarramundi Lane – Old Kurrajong Roads and Bells Line of Road.	

	Roundabout at turn-off to Inalls Lane.	This intersection is outside the study area and has not been considered as part of this project. Inalls Lane is a local road under the management of Hawkesbury City Council.
	Remove traffic lights at Bells Line of Road and Grose Vale Road and create roundabout.	This intersection cannot operate as a roundabout as the traffic flows are too high. Improvements to the lane capacity and traffic signal operation (phasing) are proposed and these will improve the overall capacity and operational level of service of the intersection. For all options it is proposed that this intersection will have two dedicated right turn lanes turning into Bells Line of Road in the eastbound direction. There will also be two lanes provided in the eastbound direction along Bells Line of Road. This will allow a greater volume of traffic to turn right through the intersection and the increased capacity will assist in reducing congestion at this location.
	Remove the lights and implement a roundabout at Bells Line of Road and Terrace Road intersection	
	Remove traffic lights and replace with a roundabout	
	Reconfigure traffic light phasing	
	Add a new roundabout on Terrace Road and Beaumont Avenue junction and extend Beaumont Avenue to continue through Hanna Park and over a new bridge and follow the road to a new roundabout at Yarramundi Road [Old Kurrajong Road].	This intersection cannot operate as a roundabout as the traffic flows are too high. Improvements to the lane capacity and traffic signal operation are proposed and these will improve the overall capacity and operational level of service of the intersection. Such a proposal would also have significant impacts on Hanna Park and on the residential area that backs onto the park.
	Expand and add more roundabouts e.g. Grose Vale Road/ Bells Line of Road intersection.	
Parking and clearways	Keep parking in Riverview for residents.	Parking outside of the study area is not within the scope of this study. A local area parking scheme for residents/businesses is a matter for the local Council to consider. \
	No parking in peak hours on Bells Line of Road.	The options that have been developed propose the removal of on

	Continue two west bound lanes westward before merging after Charles Street. The extra lane will benefit local traffic, turning left into Charles Street and turning left out	street parking in the peak hour direction along the main corridor between Richmond and North Richmond (March Street/Kurrajong Road/Bells Line of Road). On street parking will be retained outside of peak periods. The removal of on street parking will allow for the additional road capacity to be provided in the peak hour direction through Richmond and North Richmond and without having to make significant changes to the existing road corridor width within these townships.
	Bells Line of Road from Terrace Road to Hanna Match can be widened to accommodate four full width lanes; two eastbound and two westbound. A westbound clearway lane can be initiated between Pitt and Charles Street during PM peak hours and Saturday 11 am - 2.30pm	
	Remove all parking on Bells Line of Road between Pitt Lane and Grose Vale Road.	
	Removal of parking and shifting of bus parking bays.	
	Clearway between Bridge and Grose Vale Road in peak traffic periods.	
	Make clearway conditions from Bourke Street East Richmond along – March Street, Kurrajong Road, and Bells Line of Road to Charles Street North Richmond and south eastern side of Pitt Lane North Richmond. These being for morning and evening peak traffic flows.	
	Clearways on approaches at both ends – North Richmond and between Bosworth and Chapel Streets in Richmond.	
	No street parking from between the bridge and the Grose Vale Road lights at North Richmond.	

	Clear ways from Richmond to North Richmond. Merging lanes at the cross section of old Kurrajong Road plus a no right hand turn from Old Kurrajong Road going west to North Richmond.	
	Remove parking to create a clearway at Pitt Lane.	
	Parking should be removed (at least in peak hours) around Pitt Lane and Grose Vale Road.	
	Ban parking in front of florist at North Richmond, increase the parking spaces within the shopping centre.	
	No parking on Bells Line of Road in the afternoon between Pitt Lane and traffic lights 3pm – 6 pm.	
	Create more clearways and less parking areas.	
	Remove street parking from between the bridge and the Brose Vale Road lights at North Richmond.	
	Westbound parking bans – we believe this should not be restricted to peak periods but made permanent as adequate off-road parking is available. Bells Line of Road at North Richmond should be a clearway at all times.	

	Pitt Lane and Riverview Street – parking should be banned at least on one side of the road. The report notes the use of the road to avoid the light caused delays but does not mention the hazards associated with the practice. The roads have parking both sides, heavy trucks reversing to access Coles loading dock and a day care pick up point.	
	Remove bus stop down to Hanna Park.	
	It is clear that improvements are required at the intersection of Bosworth Street and Kurrajong Road as outlined in the Study which in the short-term could result in removing all parking for both the AM and PM peak between Chapel Street and East Market Street.	
	Need more parking in study area.	On street parking is a matter for Hawkesbury City Council to investigate. Provision of more parking in the study area is not part of this particular study.
Access along the corridor	Improve access to exit the BP service station	The existing dedicated right turn bay into the service station and also Pitt Lane (to access the shopping centre) will be retained in all Options and proposals to improve the delineation these accesses will be considered during future stages of design development.
	Keep the entry driveway off Bells Line of Road, servicing North Richmond shopping Plaza, and the off-road parking. Consult Plaza owners, to have driveway widened, with gutter corners angled to enable to remain in curb side lane entering and exiting - (clearway lane). Or construct an "Entry" driveway further east of the present driveway and use the present driveway as an exit to the west. One-way traffic "entry and exit" driveways to work perfectly in Riverview Street	

	Address danger spot for cars turning into Pitt Lane	
Bus stops	Relocate both bus stops near the intersection of Grose Vale Road and Bells Line of Road.	The locations of bus stops in North Richmond are being reviewed as part of the study. Combining the bus stops into a single eastbound and westbound bus stop on either side of Bells Line of Road is being considered, however the location of these bus stops need to work from an operational perspective for the bus operator and also be located in close proximity to pedestrian crossing facilities.
	Implement a bus light to exit the service lane near post office	
	Keep the westbound bus stop	
	Move the bus stop to the eastern end of the service road in front of No.30 Bells Line of Road, with off road parking for customers and provide an island extension at the bus stop to give more room for a shelter. Construct a divider strip to separate the eastbound lane from the westbound lane. The barrier should start at the western end of the Terrace Road right turn lane and be unbroken to finish at Pitt Street	
	The bus shelter should be moved into the service road on Bells Line of Road.	
	Remove bus stops (either way in both directions in North Richmond. Possibly move them to the side road (service road).	
	Move the bus stop currently located near the post office for Richmond bound busses. A possible solution is to move it to the area between the Caltex service station driveways.	
	School bus stop outside shopping centre – allow them to stop but not cars.	

	Bus stops – east bound buses stop on the road. Can they use the slip road in front of the Post Office? West bound buses stop in the inside lane. This is a problem in late afternoon and understated as bus timetables do not show school buses. A bus bay should be added to the width of the west bound lane or buses directed into Riverview Street to stop.	
	Moving bus stop at North Richmond.	
Traffic lights	Traffic light cycle needs to consider traffic peaks.	The phasing of traffic signals has been reviewed as part of the overall traffic modelling and intersection improvements proposed along the corridor. The changes proposed to the traffic signal phasing in combination with specific intersection capacity improvements will improve the overall operation Level of Service and traffic congestion along the route.
	Time the lights in North Richmond to be on green longer for traffic flow peak hours along Bells Line of Road (this applies to morning traffic also).	The phasing of traffic signals has been reviewed as part of the overall traffic modelling and intersection improvements proposed along the corridor. The changes proposed to the traffic signal phasing in combination with specific intersection capacity improvements will improve the overall operation Level of Service and traffic congestion along the route. The Grose Vale Road/BLoR intersection also proposes two dedicated right turn lanes out of Grose Vale Road into BLoR, a dedicated left turn lane into Grose Vale Road from BLoR and two lanes in each direction along BLoR during peak hours.
	Phase the traffic lights at the intersection of Bells Line of Road and Grose Vale Road to give priority to vehicles travelling west on Bells Line of Road during peak times.	The phasing of traffic signals has been reviewed as part of the overall traffic modelling and intersection improvements proposed along the corridor. The changes proposed to the traffic signal phasing in combination with specific intersection capacity improvements will

	A turn left at any time with care heading up Grose Vale Road	improve the overall operation Level of Service and traffic congestion along the route. The Grose Vale Road/BLoR intersection also proposes two dedicated right turn lanes out of Grose Vale Road into BLoR, a dedicated left turn lane into Grose Vale Road from BLoR and two lanes in each direction along BLoR during peak hours.
	Allow the long line of cars (eastbound AM) up to 5kms bumper-to-bumper to move through faster at lights	The phasing of traffic signals has been reviewed as part of the overall traffic modelling and intersection improvements proposed along the corridor. The changes proposed to the traffic signal phasing in combination with specific intersection capacity improvements will improve the overall operation Level of Service and traffic congestion along the route.
	It creates congestion at the intersections by moving the traffic faster	
	Figure 5.2 indicates reasonable morning speeds eastbound once the Grose Vale lights are passed indicating the prospect of substantial improvements if issues can be resolved at the lights which should be given top priority.	The phasing of traffic signals has been reviewed as part of the overall traffic modelling and intersection improvements proposed along the corridor. The changes proposed to the traffic signal phasing in combination with specific intersection capacity improvements will improve the overall operation Level of Service and traffic congestion along the route. The Grose Vale Road/BLoR intersection also proposes two dedicated right turn lanes out of Grose Vale Road into BLoR, a dedicated left turn lane into Grose Vale Road from BLoR and two lanes in each direction along BLoR during peak hours.
	Proposal for Bosworth Street lights is endorsed but we believe increased traffic will mean the 5-10 year proposals need to be effected in the first five years.	The implementation of short term options will be considered by Roads and Maritime Services separately to the long term options which form this study.
Land use and future development	Stop creating developments west of the river that creates more cars on the road.	Approval of land use developments is under the control of the local Council and is outside of the scope of this study. All options have considered the minimisation of the impact on the agricultural land, particularly across the flood plain. Future stages of design development could consider other design options to reduce the width of the corridor across the flood plain by considering the use
	Limit the amount of prime agricultural land removed from production	
	Stop all future urban development.	

	Don’t allow North Richmond development to proceed first.	of retaining walls instead of embankments. However, this would need to be assessed against key factors such as constructability and cost.
	Avoid further housing approvals and development in the area.	
	No development to process until a long term solution is provided i.e. a bypass.	
	Over 4,000 signatures have been collected in a petition by the community who are asking Hawkesbury City Council to not approve any further rezoning west of the river until the infrastructure has been upgraded significantly.	
	Along with this it needs to be considered the need and placement for a 3rd Hawkesbury River crossing.	
	Stop further residential development west of the Hawkesbury River.	
	Do not allow any more or new rezoning of land through the ‘Gateway’ until the existing problems are solved.	

	The third river crossing needs to be planned and residents advised, to allow comprehensive planning for flood free access. A plan at least some 30 years ago to have a third River crossing from the Hawkesbury LGA into the Penrith LGA was marked on many maps, and showed a planned flood free access and egress through to Castlereagh Road and a high level Yarramundi Bridge and other supporting road works to the Hawkesbury/Springwood Road.	The planning timeframe to implement a long term preferred option for the Stage 2 study is 2036. In parallel to this study is a separate investigation into the possible upgrade of the BLoR corridor which also has long term timeframes for implementation. From the traffic modelling undertaken for Stage 2 it is apparent that even with a BLoR upgrade, and also with the inclusion of another river crossing at Grose River (developer funded), it would still be necessary to upgrade the corridor between Richmond and North Richmond and provide a crossing of two lanes in each direction across the Hawkesbury River at this location.
	The Peel Dairy Development, and all that that implies, would lift the peaks of the two peak-hour curves above the point of saturation. That single development alone will require, mathematically, an enhanced access between the east and the west of the Hawkesbury River. It is inevitable.	The increase in traffic volumes from approved future developments has been considered in the traffic volume projections as part of this study.
	North Richmond Joint Venture Project will produce more than 2000 extra bridge crossings in each direction per day, mostly during peak periods.	
Public transport and pedestrians	Look at transport in the area- question why is everyone driving? Commuters vs. school kids.	This issue is outside of the scope of this study. Broader issues in relation to encouraging people to change their travel behaviour are a matter for Transport for NSW to consider.
	Car usage by parents taking kids to school instead of using public transport seems to have increased hugely. This is an impact RMS should consider.	This issue is outside of the scope of this study. Broader issues in relation to encouraging people to change their travel behaviour are a matter for Transport for NSW to consider.

	Invest more in public transport, e.g. new rail links, duplicate line to Richmond, undertake study of light rail from Richmond to Campbelltown via Penrith, more bus links to Penrith and throughout Hawkesbury area.	This issue is outside of the scope of this study. Broader issues such as providing new public transport infrastructure for the area are a matter for Transport for NSW to consider.
	Transport initiatives particularly flood impacted ones will have to balance financial effectiveness (economy) and whether significant road constructions is worthwhile given the possibility for reduced development due to flood levels (AHD) with need for road improvements to reduce existing congestion or State Government and local Council imposed residential development and the resulting increased congestion of traffic.	The primary objective of the study is to reduce traffic congestion across Richmond Bridge and on its approach roads. However options have been investigated that aim to improve the level of flood immunity. Two of the options that have been developed have investigated the provision of an improved level of flood immunity. Option C is designed to a 1:5 year flood event and Option D is designed to a 1:20 year flood event. Strategic cost estimates have been prepared for each option and a cost benefit analysis will also be carried out to assist in the assessment of the options.
	A rail link is needed to extend the line from Richmond to at least Kurrajong. There used to be a railway station at Kurrajong. Another link is needed from Richmond to Penrith. This would greatly reduce the traffic on the road. As it is, North Richmond and beyond have very poor public transport links and little option but to drive to at least Richmond in order to use public transport. It is very inconvenient and time consuming to travel to Penrith by rail currently.	This issue is outside of the scope of this study. Broader issues such as providing new public transport infrastructure for the area are a matter for Transport for NSW to consider.
	The Department of Infrastructure should investigate all forms of public transport: Light rail, feeder buses running frequently to transport hubs (rail stations), car-pooling i.e. GoGet. There should be a comprehensive plan before any further development takes place.	This issue is outside of the scope of this study. Broader issues such as providing new public transport infrastructure for the area are a matter for Transport for NSW to consider.

	Provide parking for train users, such as a multi-story structure to mitigate March Street 'no parking'.	
	Improve public transport systems for the area.	This issue is outside of the scope of this study. Broader issues such as providing new public transport infrastructure for the area are a matter for Transport for NSW to consider.
	No buses or taxis in the afternoon/evening- people rely on vehicles or pick-ups from family.	This issue is outside of the scope of this study. Broader issues in relation to encouraging people to change their travel behaviour or providing better public transport options and services is a matter for Transport for NSW to consider.
	The current cycle lanes are inadequate across the Bridge and any modification to bridge and lanes approaching or at the intersections will need to consider cyclist safety.	An off road shared use (pedestrian and cyclist) path is proposed to connect Richmond and North Richmond for all options being developed as part of this study. All options still retain the use of the existing bridge for eastbound traffic. However, a four lane bridge was considered (as part of the development of Option C and D) and this does consider the existing bridge being utilised as a 'green way' link for pedestrians and cyclists.
	Use the old bridge as a cycleway and link to existing on-road or off-road cycle ways and ensure bicycle line markings are as per Australian standard	
	Use the old bridge as a cycleway	
	There is no off-road pedestrian path between Richmond and North Richmond -- although there are often pedestrians walking along the roadway edge in the dark creating another safety issue.	An off road shared use (pedestrian and cyclist) path is proposed to connect Richmond and North Richmond for all options being developed as part of this study.

	Invest more in public transport, e.g. new rail links, duplicate line to Richmond, undertake study of light rail from Richmond to Campbelltown via Penrith, more bus links to Penrith and throughout Hawkesbury area.	This issue is outside of the scope of this study. Broader issues such as providing new public transport infrastructure for the area are a matter for Transport for NSW to consider.
	Safety and convenience for pedestrians and cyclists in not mentioned. Include a shared cycle path between Richmond and North Richmond	An off road shared use (pedestrian and cyclist) path is proposed to connect Richmond and North Richmond for all options being developed as part of this study. This facility will improve the safety of these vulnerable road users.
	Pedestrian safety – work needs to be done to provide safe pedestrian access between the shopping centre and the post office and east bound bus stops without the unreasonable walk to the lights which are impossible for those with a disability.	An off road shared use (pedestrian and cyclist) path is proposed to connect Richmond and North Richmond for all options being developed as part of this study. This facility will improve the safety of these vulnerable road users.
	The cycle / pedestrian access point on the east side of the bridge needs tidying - fallen weeds on the path to Old Kurrajong Road.	This is an existing maintenance issue. Hawkesbury City Council will be advised of this issue.

Comments on consultation process	
I was not happy with the woman on the stage – she was rude. I was not happy with the presenters either. The people and residents should be involved more before last decision and action is taken for improvement in area. Because that is our prerogative.	Community consultation is a key element of the study and inputs from this process will be used to assist in the development of options and help guide the decision of the preferred option.
I was curious as to what saturation meant in practical terms. Gridlock?	'Saturation' is a term used when the volume of traffic on a link exceeds the free-flowing capacity. This is not 'gridlock' as such, but a situation where traffic volumes are sufficiently high that vehicles are unable to travel at the desired travel speed.
I found it intriguing that, at the meeting, scant attention was paid to the phenomenon of flood.	The primary objective of the study is to reduce traffic congestion between Richmond and North Richmond. However, further to this is the investigation of options to improve the current level of flood immunity. This is being investigated as part of the development of Options C and D.
Listen to the people that actually live in the area rather than spend budget on a survey.	Community consultation is a key element of the study and inputs from this process will be used to assist in the development of options and help guide the decision of the preferred option. The consultation process will collect information from the community via several means so that the views from as many people can be captured.
This study should be conducted with community involvement to avoid elitism and perceived bias of experts contracted to undertake study.	Community consultation is a key element of the study and inputs from this process will be used to assist in the development of options and help guide the decision of the preferred option.
Engage community more – consultation should have happened two years ago.	Community consultation is a key element of the study and inputs from this process will be used to assist in the development of options and help guide the decision of the preferred option.