

**INQUIRY INTO WINDSOR BRIDGE REPLACEMENT
PROJECT**

Name: Mr Peter Nicholson

Date received: 23 January 2018

The Hon Robert Brown MLC,
Chairman,
Portfolio Committee No. 5 - Industry and Transport

Dear Mr Brown,

I am making this submission to address the terms of reference for the Portfolio Committee No. 5 – Industry and Transport, specifically that the committee inquire into and report on the expenditure, performance and effectiveness of the Roads & Maritime Services' Windsor Bridge replacement project, and in particular:

- a) the current Windsor Bridge, including its maintenance regime, renovation methods and justification for demolition,
- b) the replacement bridge project, including:
 - i. options presented to the community
 - ii. post construction strategic outcomes, including traffic benefits, transport and network service capacity
 - iii. economic, social and heritage impacts
 - iv. flood immunity benefits
 - v. project assessment process
 - vi. planning and procurement strategies and associated project costs
 - vii. cost benefit analysis process, and
- c) any other related matters.

In regards to point a), I am a resident of Windsor and have lived in the area since 1988, experiencing a number of floods which resulted in the inundation of Windsor Bridge in the 4 years prior to 1992, which was the last flood which overtopped the bridge deck. Despite not being a qualified bridge engineer, I am a regular user of the Windsor Bridge both as a motorist and pedestrian, and have never had cause to doubt the integrity or safety of the bridge. On the occasion of the last bridge closure by the RMS in 2016, I was standing in the centre of the bridge shortly before it was closed to traffic, and could not feel any vibration or notice any deflection despite the raging current flowing beneath it.

I can also state with a fair degree of certainty that apart from a recent repair to a railing on the northern approach following a motor vehicle rollover (which involved a single vehicle accident), I have never seen any maintenance work being done on the bridge over the 29 years I have lived here. This repair work appears to have been instigated by requests from the Hawkesbury City Council, not as the result of any maintenance program performed by the RMS. The bridge appears, in fact, to have been sadly neglected by the RMS and its forerunner, with railings badly in need of painting, and the approach roads and river banks infested with weeds.

A friend and I have recently commenced clearing the weeds and build up of debris within the Bridge Street cutting and bridge surrounds on the southern bank, which the RMS neglects.

My submission will focus more on the areas in point b and c. I should point out that I have a particular interest in the Windsor Bridge Replacement Project, after discovering my house at

Windsor was considered for acquisition for Option 7¹, despite my never being consulted directly by the RTA/RMS contrary to their claims to have consulted with affected property owners.

In summary, I consider the Option 1 project should not go ahead as:

1. It fails to deliver the required objectives regarding traffic and transport efficiency,
2. It fails to provide for a 1 in 5 year flood event,
3. It does not meet community needs for the long term,
4. It does not minimise impacts on heritage and the character of the local area

5. It has not adequately or appropriately addressed the costs and benefits,
6. It is opposed by the community at large due to its detrimental effects, and
7. Better alternatives have been identified and not properly or fully investigated.

My reasons for this conclusion are set out in the following pages together with links to the sources of the reference material I have used (set out as Endnotes at the conclusion of the submission).

Ideally I believe Windsor deserves to have its heritage assets protected and that a third crossing, in effect a bypass of the town, is the most appropriate course of action for the long-term future traffic and flooding needs of the region. The exact location should be determined in conjunction with plans for the Outer Sydney Orbital to ensure the most effective solution is provided.

Thank you for the opportunity to submit this presentation to the committee. If you have any questions or need clarification of any point, please contact me via email and I would be more than happy to answer.

Yours sincerely,

Peter Nicholson,

i. OPTIONS PRESENTED TO THE COMMUNITY

It appears the first time any “options” were presented to the community was in July 2009, via publication RTA/Pub. 09.232 Community Update Windsor Bridge over the Hawkesbury River². I use the term options in inverted commas for 2 reasons:

- 1) Prior to this publication it was recorded in Legislative Assembly Hansard – 24 June 2008³, **13 months previously**, that Mr JOHN AQUILINA (Riverstone—Leader of the House) [1.42 p.m.] stated “I am delighted to advise the House that the Lemma Government will spend \$25 million **to replace the Windsor bridge** across the Hawkesbury River.... I am advised that the Roads and Traffic Authority [RTA] has looked at a number of options for the Windsor bridge and found that it is not cost effective to continue to upgrade the structure due to its age and condition... **The new bridge will be built downstream and alongside the current Windsor bridge**... A call for tenders is expected during the first half of 2009, with construction getting underway before the end of that year.” This records that the decision to replace the bridge and the location had been determined well in advance of any community involvement.
- 2) The Community Update stated that the State Government had committed to **replace** the bridge, and presented 9 options (a tenth option described as Option 9B appeared in the EIS in Table 4-1), which any reasonable person could tell at a glance were either totally impractical, virtually impossible, or downright ridiculous. Option 9, being the only one to mention rehabilitation of the existing bridge, stated clearly that “The bridge would have to be closed for up to 12 months during the work and a significant detour (approximately 20 km) would be required to cross the river during the work.” This would obviously be untenable to any reasonable traveller and is indicative of the approach of the RMS, considering when the bridge height was raised in 1896-7 traffic was able to cross the river via a temporary wooden bridge during the works⁴. It seems progress has not come very far in the last 120 years.

Options 1 And 2 Downstream Of Existing Bridge

Approximately 35 metres downstream from the existing bridge, aligned with old Bridge Street.

Key considerations²

- *These options are a continuation of the existing Windsor Road corridor.* - This is misleading and incorrect. The Windsor Road corridor ends before the project area, and both options involve a rerouting of the road through Thompson Square rather than a continuation of the existing road corridor.
- *Central to the Windsor township, connecting the northern side of the Hawkesbury River from within the township of Windsor.* - Although the same claim could have been made about option 3, 4 and 5 which are technically closer to the “centre” of Windsor, these options were the only ones for which this central claim is posited. It appears to have been made for the express purpose of making these options look more desirable.
- *Easier access to southern river bank by continuing The Terrace under the bridge.* - This claim is not made for either Options 3, 4 or 5 despite all these options involving a “continuation” of The Terrace. Again, it appears to have been made for the express purpose of making these options look more desirable.
- *Safe pedestrian and vehicle access to the southern river bank.* - This is the only time pedestrian safety is mentioned despite all options having apparent benefits for pedestrians. Once again, the purpose of this “consideration” for these options only appears to provide justification for these options above any others.
- *Potential for the Bridge Street road cutting to be backfilled and landscaped to reinstate the shape of Thompson Square.* – The claim that the project would “reinstate” the shape of Thompson Square is highly debatable, given the Square has had a diagonal road through it from the time the bridge was

built in 1874. Reinstate is defined in the Oxford English dictionary as “Restore (someone or something) to their former position or state”, and as such these options do not reinstate anything. To reinstate the Square to its original shape would require removal of all roads, and at best what could be considered a reinstatement would have a diagonal road going in the opposite direction following the old Punt Hill Road route. The proposed road alignment is totally new and actually changes the shape of the Square, rather than reinstate it.

- *The bridge approach would cut through part of Thompson Square which is listed on State Heritage Register.* – It is noted this consideration is buried in the middle, despite having the most significant impact on the heritage and character of the local area. It would also seem that claiming this option cuts “through part of Thompson Square” is designed to minimise the actual impact of running the approach and bridge footings through the entire north/south length of the Square, together with the increased project footprint and removal of the remnants of the Greenway wharf. The wharf itself is mentioned in the SHR listing where it states “Macquarie named Thompson Square at Windsor, where the town wharf was located in his memory”. The spelling mistake of the word Thompson has been corrected in this instance⁵.

- *Existing northbound right turn from Bridge Street to heritage properties in Old Bridge Street would be removed.* - This affects only 2 properties so again was not likely to cause any anguish in the community.

- *Aboriginal heritage is likely to be found in areas near the presence of permanent water.* - This claim is made for every option bar Option 9, despite potential archaeological discovery being previously investigated and well documented. The potential to find Aboriginal heritage does not, however, seem to have been a determining factor in choosing the preferred option. This is made clear in section 3.2 “Aboriginal heritage” in the 2011 Options report⁶, which states “Where intact sand dunes are located there is also potential for burials to be present. This would be of considerable cultural significance to the Aboriginal community.” A “deep intact sand profile”⁷ is known to exist in the area directly impacted by Option 1 yet the Options report goes on to state “Taking the background Aboriginal archaeological contextual data and site inspection into account, options 1 and 2 and to a lesser extent option 3 represent the preferred options for the Windsor Bridge in respects to Aboriginal archaeological and cultural heritage. These three options would involve the least amount of disturbance to known and potential Aboriginal archaeological and cultural values **as well as involving the least amount of further assessment, investigation and impact mitigation.**”

- *Tree loss would be required along both river banks.* – Again, this claim is made for every option bar Option 9.

- *Traffic would be closer to existing properties on the east side of Bridge Street.* – Not in dispute, although interesting if the “existing Windsor road corridor” was to be used.

- *Property would be acquired from the turf farm on the northern river bank.* – This fails to include the acquisition of property within Thompson Square from Hawkesbury City Council, and may also be factually incorrect since it appears that the turf farm property had already been acquired before the bridge project was approved. **It would be in the Inquiry’s interests** to follow up the actual acquisition of this land to ascertain whether it did in fact occur before the project was approved by the Hon Brad Hazzard MP, Minister for Planning and Infrastructure, on 20 December 2013, or even prior to the publication of the nine options in the Community Update in July 2009. NB. Page 64 of the Cambray Consulting report from August 2013 reveals their understanding that the turf farm had already been acquired.⁵⁰

Option 3 High Level – Upstream Of Existing Bridge

Slightly upstream of the existing structure, crossing the Hawkesbury River 10 metres to the west of existing bridge and using the same road approaches.

Key considerations:

- *This option goes through the middle of Thompson Square.* – As did Options 1 and 2, and this option technically would have been better described in the same terms as those options – the approach road would be in “the existing road corridor”. There is an apparent trend in the narrative that paints every option in the worst possible light while praising the slightest hint of a benefit accruing from Options 1 and 2.

- *Existing northbound right turn from Bridge Street to heritage properties in Old Bridge Street would be removed.* – Why? No explanation for changing the road configuration in this manner has ever been provided, and its removal is not even mentioned in the August 2011 Options report⁶.

- *Approach roads would need to be realigned, affecting Thompson Square and Macquarie Park.* – This statement is particularly misleading since this option would have used the existing road alignments with relatively minor modifications. As evidenced in the 2011 Options report, this option would “Keep the roundabout at George Street and the current alignment on Bridge Street”⁶ and “Create a curved bridge which would meet the existing alignment of Wilberforce Road”⁶ and it appears this option would have been the least disruptive to the existing environment.

- *Existing service road access for through traffic would be denied in front of the properties in Thompson Square immediately west of Bridge Street.* – This is concerning in that there is no explanation anywhere, even in the 2011 Options report, of how this impact would arise. It is “assumed” this Option would have resulted in the closure of the Thompson Square road, between George Street and The Terrace, but this is not specified anywhere. This lack of relevant information is damning in itself, and indicates a failure to fully consider or inform the design, assessment and decision process.

- *Access for buses and other vehicles would be provided along The Terrace under the new bridge.* – This is consistent with the information in the 2011 Options report, however the feasibility is somewhat doubtful given the difference in road heights along The Terrace, which is considerably higher to the west of the existing bridge than it is to the east where the Option 1 proposal was to be located. To provide access would require either lowering of The Terrace or a much higher elevation and slope of the bridge itself with implications for the approaches through the Square.

- *Aboriginal heritage is likely to be found in areas near the presence of permanent water.* – Refer comments under Option 1.

- *Tree loss would be required along both river banks.* – Refer comments under Option 1.

- *A retaining wall or the full acquisition of property is likely from the Doctors House in Thompson Square.* – Strangely, this consideration does not rate a mention in the 2011 Options report, is not illustrated in the map in this Community Update, and is vaguely referenced on page 40 of the EIS where it states “it would encroach on the Doctors House”⁸. There does not appear to be any reference elsewhere to requiring the full acquisition of the Doctors House, one of the most visible landmarks in the town, or any mention of a retaining wall. This statement appears to have been made for the express purpose of exaggerating the potential impact of this option.

- *Property would be required along the northern river bank through Macquarie Park.* – I assume this statement should actually read “acquired”, not required. It is interesting that the EIS actually states “The amount of land acquired for option 3 would be low in comparison to other options.”⁸

- *Difficult construction due to the close proximity to the existing bridge.* – This is not particularly relevant to the community as a whole, but makes this option appear less suitable by being included as a consideration.

Option 4 Baker Street – Upstream Of Existing Bridge

Along Macquarie Street via Baker Street, crossing the Hawkesbury River at Macquarie Park on the northern river bank.

This option is indicative of the stupidity of some of the design alternatives, given anybody who has ever seen Windsor would know that both the southern and northern sections of Baker Street are simply not wide enough to cope with even local traffic, being less than 8 metres wide, so could not be utilised to provide an arterial road. With the existing parking it is barely a single lane road, and is totally inadequate for large vehicles.

This option would also have required traffic lights at intersections on Macquarie and George Streets as well as The Terrace, leaving 3 sets of lights within 250 metres, which is clearly unacceptable. As with Option 5, the road layout under this option would create a significant deviation from the “straight line” route proposed for Options 1 to 3 leading to an unsatisfactory situation for motorists while providing no benefit.

The EIS simply states “This option would split the town centre in half resulting in a high severance impact.”

As such, I am not going to comment further on this particular option other than to say the person who thought it up should seriously question their choice of career.

Key considerations:

- *As Baker Street is narrow, existing parking would need to be restricted/denied between Macquarie Street and George Street.*
- *Potential for the Bridge Street road cutting to be backfilled and landscaped to reinstate the shape of Thompson Square.*
- *Reconstruction of the intersection at Macquarie Street and Baker Street, providing a signalised right turn bay to accommodate right turning traffic.*
- *Increased traffic along shopping precinct in Baker Street reducing pedestrian and parked vehicle safety.*
- *Traffic lights would be required at The Terrace to manage the increased traffic volumes. Alternatively this access may be closed.*
- *Potential for traffic to queue back onto Windsor Road if the right turn bay cannot meet the needs of traffic during peak or busy periods.*
- *Removal of raised pedestrian threshold at George Street and replaced with traffic lights to allow pedestrians to cross safely due to increased traffic.*
- *Tree loss would be required along both river banks.*
- *Aboriginal heritage is likely to be found in areas near the presence of permanent water.*
- *Property would be acquired on Baker Street, along the southern and northern river banks and from Macquarie Park*

Option 5 Kable Street – From Windsor Road, Along Macquarie Street

Along Macquarie Street through to Kable Street, crossing the Hawkesbury River at Macquarie Park on the northern river bank.

Similarly to Option 4, this option barely rates serious consideration, given the deviation from a straight route, the severance of the town centre, the width of the road corridor, the proximity of a major retail shopping complex, but most importantly the consideration that The Terrace may be closed. Having posited so strongly on the benefits of being able to “continue The Terrace” in other options, the mere proposition that this road would be closed, which is confirmed in the Options report which clearly states “Remove pedestrian and vehicle access along The Terrace at Kable Street or install a controlled intersection”⁶, defies logic.

Again, as with Option 4, the additional traffic lights alone make this a totally unviable option for motorists, particularly heavy vehicles.

The obvious missing factor from both Options 4 and 5 is that the claim of improved flood immunity is almost ridiculous, as unless a high level bridge were proposed these roads are at very low level where they cross The Terrace, and are inundated in minor flooding. The 1 in 5 flood level at Windsor is 11.1m⁹ which is higher than the road surface level at the end of Kable Street.

Key considerations:

- *As Kable Street is narrow, existing vehicle parking would need to be restricted/denied between Macquarie Street and George Street.*
- *Potential for the Bridge Street road cutting to be backfilled and landscaped to reinstate the shape of Thompson Square.*
- *Reconstruction of the intersection at Macquarie Street and Kable Street, providing an extended right turn bay to accommodate additional turning traffic.*
- *Traffic lights required at The Terrace to manage the increased traffic volumes. Alternatively this access may be closed.*
- *Removal of raised pedestrian threshold at George Street and replacement with traffic lights would allow pedestrians to cross safely.*
- *Increased traffic along shopping precinct in Kable Street reducing pedestrian and parked vehicle safety.*
- *Potential impact to the heritage listed Masonic Centre on Kable Street.*
- *Tree loss would be required along both river banks.*
- *Aboriginal heritage is likely to be found in areas near the presence of permanent water.*
- *Property would be acquired on Kable Street, along the southern and northern river banks and from Macquarie Park.*

Option 6 Palmer Street

This option begins at a new T intersection on Windsor Road, north of Pitt Town Road, travels east by a new bridge/viaduct across South Creek to run parallel to the east of Palmer Street, proceeding to a new bridge over the Hawkesbury River.

Key considerations:

- *Safe navigation for river traffic around bridge piers*
- *Potential access difficulties to properties east of Palmer Street.*
- *Increase in traffic noise to properties along the route.*
- *Potential for the Bridge Street road cutting to be backfilled and landscaped to reinstate the shape of Thompson Square.*
- *Tree loss would be required along both river banks.*
- *Aboriginal heritage is likely to be found in areas near the presence of permanent water.*
- *Property would need to be acquired for the entire proposed route.*

This option effectively offered a bypass of the Windsor town centre on paper, but the vital thing missing from the considerations listed is that virtually the entire route was on lower land than the existing road and would actually reduce the level of flood immunity as a result. This was not even mentioned in the 2011 Options report which still claimed this option provided improved flood immunity, despite such a claim not being made in the 2009 Community Update.

While the route itself appeared a viable option, it would require substantial raising of the road levels in order to be practical (and above the 1 in 5 year flood height), which would most likely have additional negative impacts on flood behaviour in the locality. The lowest point of Windsor Road between the Fitzroy Bridge and the intersection with Pitt Town Road is approximately 500m south of where the proposed T intersection was to be located, meaning the road would be impassable in the event that South Creek broke its banks, as happened in June 2016 even when the River itself was not flooded.

All traffic would be required to divert through Windsor using the flood evacuation route to proceed south in such circumstances, making this an undesirable option for motorists.

There is no explanation as to why the road was planned to run parallel to Palmer Street rather than along Palmer Street, given virtually all the other options used existing roadways. This is partially offset however by the list of proposed acquisitions in the Built Heritage And Archaeological Landscape Investigation : Windsor Bridge Options Final Draft Report October 2009¹ which listed only 4 lots requiring acquisition.

Option 7 Court Street

This option would provide a signalised T intersection on Windsor Road to enable traffic to turn right into Court/North Streets, meeting at a T intersection with Palmer Street and proceeding north along Palmer Street to a new bridge over the Hawkesbury River.

There are a number of issues with the description of this option, firstly specifying a “turn right” at Court Street assumes all traffic is coming from McGraths Hill and none is using Macquarie Street, which is blatantly ridiculous in the circumstances. Installing a signalised intersection merely 20 metres from the Bridge/Macquarie Street intersection would presumably create additional traffic problems not considered, given the recognised poor performance of the existing intersection. It is worth noting that since the decision to proceed with Option 1 was made, the RMS has undertaken to ban left turn movements into Court Street between the hours of 4-6pm, prohibiting the “rat run” which was used to avoid traffic delays, but are intending to allow such turns once (if) Option 1 is completed. This decision would appear to be based on increasing traffic delays until the preferred option is in place, for some inexplicable reason.

It also seems that this option would use the existing alignment of Palmer Street, unlike Option 6 which was to run parallel to Palmer. There is no explanation in any form which indicates why this was the case.

This option required the acquisition of my property on the corner of Court and Bridge Streets. As previously noted the RMS made no attempt to consult with me on this potential acquisition, so I can only assume this option was never going to be seriously considered and was offered merely to make up the numbers.

Key considerations:

- *Safe navigation for river traffic around bridge piers.* . – This consideration is raised for Options 6, 7 and 8 only, despite navigation issues around piers being relevant to all bridge structures. While it is accepted that the current river conditions see more boating traffic downstream of the existing bridge, it appears the raising of this consideration for the downstream options only is to cast a negative aspect to their potential benefits and making them unlikely to gain widespread community support. If this was not the case, the same consideration should have applied to all replacement options.
- *Widening of Court Street and North Street.* - As a consideration this is remarkable, given the road corridor of Court and North Streets is approximately 12 metres wide, and yet there was no mention of road widening required in Options 4 or 5 which utilised streets 4 metres narrower. The road corridor of Court and North Street is in fact wider than the proposed roadway of Option 1, which is only 11 metres. The recurrent theme is to portray all non-preferred options in the worst possible light.
- *Potential for queuing across Fitzroy Bridge along Windsor Road. Widening of the bridge may be necessary to accommodate right turn queuing along Windsor Road/Bridge Street.* – Traffic is already queuing across Fitzroy Bridge on Windsor Road for more than 4 hours most days, whether traffic is turning right at Court Street or not, so this consideration is nothing new to motorists in the area. The limitations of the Bridge/Macquarie Street intersection cause traffic to queue back into McGraths Hill on a daily basis, so again the only reason to raise this as a concern is to point out the obvious so that it reduces the consideration of this option.

- *Increased traffic along Court, North and Palmer streets.*
- *Increase in traffic noise to properties along the route.* - Given increased traffic would be expected to create increased traffic noise, these considerations are virtual duplicates so should be dealt with together. While 2 of the project objectives were to “Meet community needs for the long term” and “Minimise impacts on heritage and character of the local area”, the mere proposition of this option as a viable alternative was never going to be received favourably. The RMS compounded the situation by directly approaching several residents of this route who became the Windsor Residents First Group featuring in the Windsor Bridge community consultation report November 2009¹⁰ and subsequently submitted a petition of over 600 signatures. This petition was described in the 2011 Options report as indicating “support for options 1, 2 and 8 (in order of preference), whilst strongly opposing options 6 and 7 as the group felt that they failed to meet the project objectives.”⁶

It is strongly requested that this Inquiry seek to have this petition presented in evidence, as it appears the original petition was headed “COMMUNITY OPPOSITION FOR RTA’s PROPOSED WINDSOR BRIDGE: OPTIONS 6 & 7”, and called only for the RTA to reject those 2 options with not a single mention of any preference for Options 1, 2 or 8, or indeed any option at all.

The original petition sheets had the instruction PLEASE RETURN SHEETS TO TRACY at the bottom of each page.

- *Potential access difficulties to properties along Court, North and Palmer streets.* – This consideration is interesting given the properties east of Palmer Street are either turf farms or the Council-owned Governor Phillip Park, and one should be able to assume that any proposed option would provide access to these properties. The EIS refers to access difficulties as “The efficiency of local traffic connections to the township of Windsor would be reduced”, not to the eastern properties or those on Court, North or Palmer Streets. Once again, it is a highlighted negative with no detail to be considered in assessing the desirability of the option.
- *Potential impact to the North Street Conservation Area in Windsor.* – Again, there is a considerable lack of detail here which would be required to make an informed assessment. Examination of the Built Heritage And Archaeological Landscape Investigation : Windsor Bridge Options Final Draft Report October 2009¹ reveals that as well as the North Street Conservation Area, this option would have required acquisition and possible demolition of the Toll House, as well as impacts on the site of the Windsor Gaol at 42-44 Court Street and 2 Pitt Street. This information was not provided before the deadline for community submissions, 14 August 2009, had been surpassed.
- *Potential for the Bridge Street road cutting to be backfilled and landscaped to reinstate the shape of Thompson Square.* - It almost appears as if this is the main focus of the entire project.
- *Tree loss would be required along both river banks.*
- *Aboriginal heritage is likely to be found in areas near the presence of permanent water.*
- *Property would be acquired at Windsor Road/Court Street intersection and along Court and North streets.* – This includes my property and the Toll House, one of only 2 remaining in New South Wales, behind it.

Option 8 Pitt Town Road

Access from Pitt Town Road onto Punt Road, then by viaduct or low embankment and bridge across Bardenarang Creek, across the floodplain crossing the Hawkesbury River to King Road, Wilberforce.

Key considerations:

- *Safe navigation for river traffic around bridge piers.*

- *Punt Road is a gravel road and would require reconstruction to accommodate anticipated traffic volumes.*
- *Bathurst Street is narrow and would require widening and upgrading to accommodate anticipated traffic volumes.*
- *Increase in traffic through Pitt Town.*
- *Potential access difficulties to properties along the route.*
- *Increase in traffic noise to properties along the route.*
- *Potential for the Bridge Street road cutting to be backfilled and landscaped to reinstate the shape of Thompson Square.*
- *Potential impact to heritage items along the route.*
- *Tree loss would be required along both river banks.*
- *Aboriginal heritage is likely to be found in areas near the presence of permanent water.*
- *Property would be acquired across the flood plains on both river banks.*

The failure of this option to meet most of the project objectives and criteria, the comparative cost and the proposal to route traffic through a newly developed (and developing) residential area make this a truly horrendous option, particularly since the residents of Pitt Town have been promised a bypass for over 60 years. As such, it is barely worth considering other than as a means to fill up the pages of the Community Update. It used inadequate existing roads, ignored the flood liability of Pitt Town Road between McGraths Hill and Pitt Town entirely, and barely considered the impact on the Wilberforce side of the river where all residents of Freemans Reach and Glossodia wishing to travel to Windsor would be funnelled through the Wilberforce township. An outstanding piece of transport planning it most certainly is not.

Option 9 Rehabilitate the Existing Bridge

The rehabilitation of the existing bridge with a 25 year life span would cost between \$14 million and \$17 million. The bridge would have to be closed for up to 12 months during the work and a significant detour (approximately 20 km) would be required to cross the river during the work.

Of particular note here is the provision of a cost estimate to rehabilitate the bridge, given no other option had a cost attributed to it. The Community Update specifically points out that “In June 2008 the NSW Government announced it had committed \$25 million to **replace** Windsor Bridge”, but this option is prefaced with a claim it will cost almost the entire project budget to simply rehabilitate the existing structure, with only a 25 year life span.

Closing of the bridge for “up to 12 months” appears deliberately misleading if the RTA/RMS’s own Traffic modelling and evaluation of options - preliminary report – August 2011 is to be believed, as it stated this option “would require the closure of the existing bridge for a period of 3 months”¹².

While others will no doubt provide arguments on how much proper rehabilitation of the bridge structure will cost, I will not go down that path as I lack the expertise.

What I will raise is the assessment of this option.

An “Options Review Workshop was held on Friday, 18 September 2009, at Courtyard Marriott, 18-40 Anderson Street, Parramatta. The session was facilitated by Declan Tierney, of Tierney Page Kirkland with technical support and assistance provided by Natasha Munasinghe.”¹⁰ The participants in this workshop were 14 representatives of the RTA, the Mayor and General Manager of Hawkesbury City Council (who were staunch Option 1 supporters with the Mayor, Bart Bassett, subsequently being investigated by ICAC during their “Investigation Into NSW Liberal Party Electoral Funding For The 2011 State Election Campaign And Other Matters” during which he was found by the Commission to have “solicited a political donation from Buildev, a property developer”¹³), the Senior Heritage Officer of the Department of Planning, Heritage Branch, 2 Boating Officers from NSW Maritime, an Assistant Government Architect and Urban Designer from the Government Architects

Office, an Environmental Consultant from Ngh Environmental, and the Workshop Facilitator and Assistant Facilitator from Tierney Page Kirkland Pty Ltd.¹⁰

Bearing in mind that the RTA did not prepare the report documenting the “community feedback received in response to the nine options presented to the community” until November 2009, some 2 months after the holding of the Options Review Workshop, the 24 individuals at that workshop “unanimously recommended that Options 3, 4, 5, 7, 8 and 9 not be considered further”¹⁰. The report on the Options Review Workshop goes on to state “It was recognised that sufficient work must be undertaken to close out heritage issues associated with Option 9, recognising that it was initially the Heritage Council’s preferred option.”¹⁰

In effect, it appears that Option 9 was only considered long enough to satisfy the Heritage Council’s requirements and that retention and rehabilitation of the existing bridge was not presented to the community as a serious option.

Option 9B, refurbishment of the existing bridge to provide a 3 lane crossing, was never presented to the public at this time despite the claim in the EIS Section 4.2.1 Overview of route options⁸ and the Traffic modelling and evaluation of options - preliminary report – August 2011¹².

As noted in the section below titled “Challenges Of Retaining The Existing Bridge”, it appears the only option being considered by the RTA/RMS was to build a new bridge in any event, ignoring all calls from the community to retain the bridge for local traffic.

Key considerations:

- *Replacing the deck requires substantial modifications to the piers.*
- *There would be no additional impact on Thompson Square.*
- *Provide for a 1 in 2 year flood event.*
- *Minimal vegetation would be disturbed.*
- *No property acquisitions would be required.*
- *Potential safety hazard for traffic could be created with current sight distances along approaches to the bridge.*

CHALLENGES OF RETAINING THE EXISTING BRIDGE

If the preferred option is to construct a new bridge the following needs to be considered:

- *Potential risk to the new bridge if constructed downstream of the existing bridge.*
- *The ongoing cost of maintaining the existing bridge.*
- *The heritage of the existing bridge.*
- *Pedestrian and cyclist connectivity to local areas.*

ii. POST CONSTRUCTION STRATEGIC OUTCOMES

This submission will focus on the traffic benefits, transport and network service capacity considerations of the RMS proposal, as published in the documents on their website

The earliest data appears in the “Traffic modelling and evaluation of options - preliminary report – August 2011”¹² which reveals traffic surveys were undertaken on Thursday, 18 June 2009 covering the morning and afternoon peak periods, and supplementary data was extracted from the SCATS traffic control system. The study consisted of two components. An origin-destination survey was used to determine the vehicle travel patterns through the study area. This recorded vehicle number plates at 6 observation points around the perimeter of the study area, and at 3 points on a screen line located between New Street and Catherine Street, to examine travel patterns through the area. Traffic counts were undertaken at 19 intersections within the study area, plus counts of traffic entering and leaving the four main parking areas in the town centre, and counts of pedestrians on the existing bridge and crossing Kable Street at George Street. The origin-destination survey results were then adjusted to match the observed traffic counts. This data then created the base model which represents the existing traffic conditions on the existing network as at June 2009.

Subsequent comments in the report are particularly relevant:

“The 2009 base model showed the Bridge Street/George Street roundabout in combination with the nearby Bridge Street/Windsor Road/Macquarie Street signalised intersection experiencing random congestion in both AM and PM peaks.

In the AM peak, southbound traffic using the existing bridge experiences heavy queuing, on occasions stretching from Macquarie Street and/or George Street extending for several hundred meters, sometimes even beyond Freemans Reach Road intersection.

Queuing is less extensive in PM peak, however the northbound traffic queue may extend for several hundreds meters from the roundabout.

It appears that congestion is primarily caused by insufficient capacity at the intersections of Bridge Street with George Street and Macquarie Street, and the configuration of Bridge Street between them.”¹²

These comments are of concern for a number of reasons:

1. The roundabout and intersection experience constant congestion, not random congestion, in peak periods.
2. In the AM peak the southbound traffic is ALWAYS queued beyond the Freemans Reach Road intersection and usually well beyond the identified study area.
3. Queuing is just as extensive in the PM peak, with queues extending far more than several hundred metres along a number of roads and beyond the boundaries of the study area.
4. If the congestion is caused by insufficient capacity of the intersections and the configuration of Bridge Street, why are these issues not addressed by the project?

Bearing in mind the report understates the level of congestion and queuing, the next paragraph of the report is alarming:

“Traffic growth to 2026 was estimated using the Sydney Strategic Traffic Model. The forecast increase in trips to and from the Windsor study area was added to the 2009 traffic base model. The 2026 traffic demand exceeded the capacity of a number of key intersections in the base models, notably along Bridge Street and Hawkesbury Valley Way (the former Richmond Road). The traffic model showed traffic congestion. **Therefore substantial improvements would be required to cater for the forecast traffic growth.**”¹²

Looking mainly at Option 1 since it is the proposal being pursued by the RMS and State Government, it is extremely disappointing that this option performs particularly poorly in terms of the reported traffic benefits, transport and network service capacity it provides. Table 5.1: Modelled traffic data for each option¹² indicated that compared to the existing bridge, option 1 saved a total of 30 vehicle hours in the morning peak, but resulted in an increase of 1 vehicle hour in the afternoon peak, and allowed an increase of just 2.4km/h average speed in the morning and caused a reduction of 0.1km/h in the afternoon. **Using this data, Options 5 and 7 performed the same as or better in the mornings, and only option 6 performed worse in the afternoon.**

From a traffic perspective, Option 1 provides no benefit.

In order to push ahead with its preferred path, and as a result of the government stakeholder workshop noted earlier,¹¹ the preliminary traffic report refined and analysed option 1 and option 6 further than how they were presented to the community. These refinements were presented in Section 6 of the “Traffic modelling and evaluation of options - preliminary report – August 2011”¹² and revealed some alarming issues with Option 1, including that the modelling indicated “The original concept for option 1 considered a roundabout at the northern end of the bridge at the junction of Freemans Reach Road and Wilberforce Road. In the traffic modelling it was identified that the roundabout was not operating satisfactorily **with 2009 traffic**, and would create additional congestion with future traffic growth.”

At this point the traffic modelling becomes somewhat ineffective as it introduces elements not proposed in either the Community Update or the EIS, including additional turning lanes, traffic signals and remarking of the Fitzroy Bridge to accommodate 2 northbound and one southbound lane. It should be noted however that these refinements resulted in:

“The model showed that the **2026 travel demand would be close to capacity for option 1**. Traffic flow on Bridge Street shows signs of instability, especially in the morning peak. Long queues occasionally develop from the Macquarie Street intersection, extending through George Street and across the bridge.

The model data for 2026 showed that option 6 had stable traffic flow, with less queuing. A test with a 10% increase in traffic over the 2026 AM peak (a rough estimate of 2031 traffic) showed that **option 6 performed significantly better than option 1.**”¹²

In this light, it is extremely hard to understand why Option 1 has been so relentlessly pursued. This pursuit is even more questionable given the evaluation was prepared in-house by the RTA at the time, so all the comments pertaining to how poorly Option 1 performed were internally generated.

Despite its poor traffic performance, however, an “economic analysis” of each option was portrayed in Table 7.1 in Section 7 of the August 2011 Preliminary Report, which attributed Option 1 and 2 with a Net Present Value of \$143.98M, the highest of any options, followed by Option 9A at \$139.64M, options 4 and 5 at \$120M, and other options trailing far behind. However, the methodology behind this evaluation is highly questionable and is even described by the RTA itself as “unusual”. The evaluation is questionable mainly because it does not appear to be carried out in accordance with the RTA/RMS own guidelines at the time. These guidelines are provided by two documents: the Economic Analysis Manual¹, Version 2, 1999 (with 2009 update of Appendix B) produced by the NSW Roads and Traffic Authority (now Roads and Maritime Services) and the NSW Government’s Guidelines for Economic Appraisals (TPP 97-2)², which addresses issues that are not explicitly covered by the Economic Analysis Manual.

To provide an example of what the economic analysis should have entailed, comparison is drawn to the Singleton Bypass Economic Appraisal¹⁴ which followed the prescribed procedure.

The shortcomings of the economic analysis undertaken for the project are discussed in more detail in section vii.

The traffic performance of the project must be of sufficient concern for the RMS to undertake more modelling. “Updated traffic modelling was recently carried out due to the time elapsed since the original traffic modelling in 2012” according to the introduction to the Traffic and Options Modelling Report prepared by Arcadis Australia Pacific Pty Limited in 2017.⁵⁴

The first apparent thing with this new report is the reconfiguration of the George/Bridge Street intersection to incorporate a dedicated left turn northbound lane. This was never in the options previously considered. The entire configuration of this intersection appears to have changed considerably, with a left turn from George Street (west) and George Street (east) also included, which indicates further intrusion into the Thompson Square parkland will be required.

It appears a further traffic count was undertaken by a company called Matrix in March 2017, which included intersection classified turning movement counts (cars and heavy vehicles), midblock traffic counts, queue length, and travel time surveys. The results of this count reveal the Bridge carries between 21,000 and 22,300 vehicles per day on weekday (Monday to Friday) with an average of 21,600 vehicles per day.⁵⁴

“The 2017 survey data shows that average travel speeds on Windsor Bridge are between 20 and 40 km/h; lower than the posted speed limit of 60 km/h.

In the morning peak the average travel speed on the bridge is 40 km/h in the northbound direction and 20 km/h in the southbound direction. In the afternoon peak, average travel speeds on the bridge are 40 km/h in the northbound direction and 30 km/h in the southbound direction.”⁵⁴

The existing network performance is described “Two intersections north and south of Windsor Bridge currently operate at or over their capacity during peak hour. Wilberforce Road / Freemans Reach Road (sign controlled intersection) currently operates with Level of Service E in the AM and PM peaks (delays of 60 seconds). Bridge Street / George Street (roundabout) currently operates at Level of Service F in PM peak (delays of 97 seconds). The operational issues at both intersections adversely impact the traffic performance on Windsor Bridge during peak hours.”⁵⁴

If the Option 1 project is implemented “In 2036, the Concept Design would provide adequate capacity for the morning peak traffic condition. The traffic model predicted Level of Service B at Wilberforce Road / Freemans Reach Road (new roundabout), Bridge Street / Macquarie Street traffic signals and Bridge Street / George Street (new traffic signals). In the afternoon peak, the traffic model predicted Level of Service F with delays of more than 169 seconds (2.8 minutes) at Bridge Street / George Street intersection and more than 99 seconds (1.8 minutes) at Bridge Street / Macquarie Street intersection.”⁵⁴

What this means is that the Option 1 project provides no long term benefit in the PM peak with forecast delays growing by 70 seconds at the George/Bridge Street intersection. The benefits at the Wilberforce/Freemans Reach Road intersection still do not provide a Good operation level, but only a “Good with acceptable delays & spare capacity.”⁵⁴

Option 1 fails to deliver on two of the project objectives - to minimise queue length/delays, and improve the performance of the road network (level of service).

iii. ECONOMIC, SOCIAL AND HERITAGE IMPACTS

a) Economic and Social Impacts

Socio-economic investigations were undertaken by SGS Economics and Planning Pty Ltd (SGS) in March 2010 and published in August 2011¹⁵, but were restricted to considering only options 1 and 6. The investigations were to identify the current role and functioning of Windsor town centre, and assess the likely socio-economic benefits and potential negative impacts of the two options for bridge replacement on the local business community and the socio-economic environment.

Practically all of the strategies, community strategic plans, and Local Environmental Plans considered in the preparation of the SGS investigation have subsequently been updated or replaced, however the findings remain consistent with present day activities.

Table 1, Estimated annual retail turnover, Windsor Town Centre showed a 2009 retail turnover for the town of \$186.9M. Using the Consumer Price Index Inflation Calculator¹⁶ provided by the Australian Bureau of Statistics to adjust these figures to 2017 values, the estimated retail turnover would be in the vicinity of \$222M.

Given the direct impact of Option 1 on Thompson Square, it is hardly surprising that the investigation found “Both bridge replacement options are likely to have an impact on the Thompson Square area. Thompson Square contributes to the character of the centre. **Under option 1, the impact on the character is likely to be negative** as the new bridge approach would go through the park. **Under option 6, there is likely to result in a benefit** as passing traffic would be diverted away from Thompson Square.”¹⁵

In preparing the assessment, SGS noted “Once a decision regarding the preferred option is chosen, the project would then move to the concept design phase and environmental assessment including the socio-economic impacts of the preferred option.”¹⁵

Option 1 (new high-level downstream bridge) was identified by RMS as the preferred option for the project⁸ after considering “Information on the potential impact of each option, including biophysical, heritage, community and socio-economic impacts.”⁸ In the Environmental Impact Study at page 32 of chapter 4, it was stated that Option 1 “was found to perform best in terms of value for money and would perform well in relation to most of the project objectives”, however the socio-economic impacts seem to have been summarised in 3 paragraphs on pages 383-384 in chapter 7.8¹⁷ and only examined in detail in the Land use, property and socio-economic working paper 9 in Volume 4¹⁸.

There can be little doubt on reading of the detailed socio-economic impacts of Option 1 on the local community that there was an overwhelming tendency to dismiss those impacts as minimal without any evidence to support such dismissal. This is best summarised in the concluding statements on page 70 of working paper 9:

“Overall, the proposed works would have an impact on community values, particularly those related to the heritage and landscape character of Windsor, impacts to Thompson Square, access and connectivity and changes to the natural environment. **This is largely due to the sensitivity of the setting and its low ability to absorb change, particularly in areas of historical significance and in areas that are important to the local community.** However, impacts have been mitigated to some degree through the continued refinement of the project concept design... It is expected that community values will change over time and the overall value of the proposed bridge in providing improved access and connectivity to local and regional communities is likely to gain importance with the local community once operational.”¹⁸

This is akin to removing a wall and replacing it with a mirror, then saying it makes the room twice as big.

Two important factors in the assessment are contained in section 4.4 Local business and 4.5 Local and regional industry¹⁸. While much emphasis is placed on the inflow of economic benefits brought about by construction and operation of the project, specifically the project's contribution to economic output, employment and household income, the analysis does not point out that much of this contribution would be generated regardless of where the project was situated. In other words, the replacement bridge could be located at North Richmond and achieve the same regional and State contribution, but would not generate the negative impacts on the local Windsor economy.

To illustrate, consider the amount of money that has been spent on the project to date and the amount of that which has added to the Windsor economy. According to the NSW Treasury 2016-2017 Infrastructure Statement, \$15.393M had been spent to 30 June 2016 with a further \$1M allocated for 2016-2017. Up to this point, there had been no significant or visible work undertaken, and nothing contributed to the Windsor economy. Of 10 known consultants who have participated in the project to this time, none are situated within 40 kms of Windsor, and as such their contribution to the local economy is considered extremely minimal but their contribution to the economic output, employment and household income within NSW and mainly Sydney is beyond doubt.

The project has already had an adverse economic impact on the Thompson Square and Wharf precinct, with plans for Council to spend in the vicinity of \$750,000 on landscaping, lighting and interpretive trails being discontinued.²⁰

While it is stated at page 373 of the EIS chapter 7.8 that "The southern approach road to the existing Windsor bridge which bisects Thompson Square parkland, reduces the functionality, accessibility and popularity of this recreational space"¹⁷, the approach road has been in that location since 1934 and was preceded by a diagonal road going in the opposite direction since the opening of the bridge in 1874, so the road is a feature of the precinct and has determined its functionality, accessibility and popularity since the bridge was built.

Thompson Square is located in the town centre of Windsor and comprises a small area of open space with picnic tables and gardens. The square is surrounded by historic buildings and is an important area for both the local community and tourism¹⁷. Tourism is an important industry for Windsor and the wider Hawkesbury local government area. Between September 2008 and September 2011, an average of 795,000 people visited the Hawkesbury region annually, of which over 80 per cent were day trippers¹⁷. While more current figures are not readily available, it would be reasonable to assume that this average will increase as a result of initiatives being implemented under the recently adopted Hawkesbury Tourism Strategy by the newly-invigorated Council. Figures reported in the Tourism Strategy indicated in FY2012, domestic day trippers spend an average \$112 per trip, while international travellers spend on average \$2,059 per trip. This indicates the value of tourism for day trippers alone (estimated 636,000 people) is approximately \$71.2M per year.

The EIS states "Tourist facilities located nearest to the project include:

- Thompson Square precinct.
- Macquarie Park.
- Governor Philip Park and a public boat ramp.
- Windsor Wharf.
- The Windsor Motel and the Windsor Terrace Motel, which are located within 200 metres of the project.

Several tourist attractions also contribute to the overall landscape character and heritage value of the Windsor township. For example, Thompson Square, the Hawkesbury Museum and Tourist centre and surrounding buildings are listed on several local and state heritage registers. These buildings contribute to the overall amenity and heritage character of Windsor and are valued by the local community."¹⁷

The potential impacts of the project on recreation and tourism during the construction period would be largely associated with the impacts on amenity, traffic and access. In particular, the proximity of construction activities to Thompson Square and the river foreshore, and the corresponding potential for loss of amenity in these areas, may result in a temporary reduction in patronage of recreation and tourist sites and facilities, such as Thompson Square itself, the Macquarie Arms Hotel, and the Hawkesbury Paddle Wheeler¹⁷. During operation, some impacts on tourism may be experienced, however the EIS states “impacts on tourism associated with the project are not expected to be significant, since there would still remain a large number of heritage attractions, as well as a number of natural resource and recreational attractions. Additionally, it is unlikely that tourists’ main desire to visit the Windsor town centre would be to see the existing bridge, given the number of other tourism opportunities.”¹⁷ One wonders whether the same statement would be made if it was suggested that Port Arthur would be better off once the ruins were removed or that the new bridge being proposed would generate the same tourism potential as the current structure.

There appears to have been no value placed on potential damage to the tourism industry caused by the construction or operation of the bridge project in the “economic analysis” of the various options other than saying they are “not expected to be significant”. The loss of a heritage asset in the bridge itself is significant to the community and should have been factored into the equation. The EIS dismisses tourism with the following conclusion:

“Baseline tourism data in the region indicates that for over one third of domestic visitors, the primary purpose of the visit is to see family members. These visitors would not be expected to reduce the frequency or duration of visits to the town centre from changes associated with the project. The assessment therefore concludes that overall impacts on tourism during operation are expected to be minimal.”¹⁷

This totally ignores the other two thirds of visitors who are not visiting family members, and contribute in excess of \$50M to the economy.

On the other hand, the Hawkesbury City Council adopted a Hawkesbury City Council Tourism Strategy in 2015 which identified the first priority should be to establish Windsor as the primary hub and expand in a planned and strategic fashion. The Strategy also identified Windsor’s heritage as a major attraction to the township, which would be severely impacted by the bridge replacement project’s changes to Thompson Square, noting that heritage tourism is more likely to align with many community aspirations for improved quality of life, protection of open space areas and preservation of heritage sites and buildings. Page 38 of the Strategy states “What may need to be considered is creating dedicated tourism and associated retail precincts which can act as sub nodes for tourism destination activity and which aim to protect the character of town centres so the recreational and heritage values are not compromised.”

The bridge project compromises this important business element.

Page 59 of the Strategy further states “Heritage tourism is seen to be a major potential component of the Hawkesbury, strengthened by the extensive selection of historic buildings and the nationally important stories associated with the area in Australia's history.” The most important story, the earliest days of the first regional centre in this country, is told within Thompson Square.

Of interest is the conclusion on pages 383-384 of the EIS, which touts the benefits of “improved vehicle, bicycle and pedestrian access in the following areas:

- Across the river.
- To/from Macquarie Park.
- Between the southern foreshore and Windsor town centre via Thompson Square.
- Along the southern foreshore”

The final paragraph of this conclusion then begins “There would be some changes to access to the town centre and other areas of Windsor as a result of the project” and goes on to describe introduced turn restrictions which reduce the potential for vehicles to access the town centre and tourist facilities.

It is my contention that the “improved” access will actually make it harder for vehicles, cyclists and pedestrians to access the town centre and accordingly have a significant detrimental effect on the local economy.

Working paper 9 Appendix B Economic modelling results¹⁸ highlights that, of the modelled benefits accruing from the project, most of the household income benefits accrue to the North-Western Sydney region, 48.3 per cent of the total. However a significant number of household income benefits also accrue to the rest of NSW, 48.2 per cent. The most significant proportion of value added benefits from construction accrue to the rest of NSW, 49.3 per cent compared to 47.0 per cent in the North-Western Sydney region. The majority of employment benefits are accrued to the rest of NSW, 51.7 percent compared to 44.6 percent in the North-Western Sydney region. It is apparent that the project appears to have far more benefit to the rest of NSW than it does to the local region, and certainly far more than it does to Windsor

b) Heritage Impacts

Built heritage

There has been a significant effort by the RMS to promote the mitigation efforts they have gone to in order to minimise the impact of this project on heritage. Mitigation can be defined as the action of reducing the severity, seriousness, or painfulness of something, but it doesn’t make it not exist.

If this project goes ahead, the heritage listed Windsor Bridge will simply no longer exist, and that can not be mitigated.

The NSW Office of Environment and Heritage describes built heritage as “one of our most important cultural assets. It represents the historical layers of our built environment in places made of brick, plaster, wood, metal and stone. Built heritage includes cathedrals and cemeteries, factories and fences, houses and hotels, museums and markets. It includes areas, precincts and streetscapes. It is the physical evidence of our cultural development. Built heritage within our urban and regional neighborhoods is a key to the understanding of our shared history.

Built heritage describes our origins and informs our understandings of who we are today. It helps to define a sense of place, an identity for a community. It can contribute to feelings of connectedness, and community pride and confidence. Heritage can excite curiosity about our past and enrich our daily lives. Built heritage is not just about beautiful or significant historic buildings but also includes small, modest vernacular buildings that reflect the social conditions of working families. It encompasses a wide range of familiar and historical landmarks that are important in creating and sustaining a strong sense of belonging and attachment in our society.”²¹

The State Heritage Register listing for the Thompson Square Conservation Area says “Thompson Square is one of the oldest public squares in Australia and notable for the large number of Colonial Georgian buildings which surround it. It is the only public space remaining from the original town and has played an important part in the history of the town. It is the only remaining civic space as laid out by Governor Macquarie and is a vital precinct in the preservation of the early Colonial character of Windsor. The Square reflects Macquarie’s visionary schemes for town planning excellence in the infant colony”⁵.

“Option 1 would have a significant impact on historic heritage as it would directly impact the Thompson Square Conservation Area and remnants of the 19th century Windsor wharf. It would also have considerable visual impact from within and outside Thompson Square.”⁸

It is a remarkable shame that the RMS does not share Macquarie's "visionary schemes for town planning excellence". It is a further shame that they continually fail to explain that their option will not only directly impact the Thompson Square Conservation Area, but will completely remove the heritage bridge, destroy the remnants of the wharf and, as has been confirmed by the archaeological salvage work recently begun, also remove some of the earliest known infrastructure in the country – the brick barrel drains underneath the Square.

Listed in its own right on the State Heritage Register, the entry for the bridge states "The Windsor Bridge has a high level of historic, technical, aesthetic and social significance as an important historical and physical landmark in one of the State's pre-eminent historic towns, and in the wider Sydney region. It is the oldest extant crossing of the Hawkesbury River.... The Windsor Bridge has landmark qualities as one of only two bridge crossings of the Hawkesbury River in the Hawkesbury area and as such it defines the surrounding network of roads. It is a large structure, and although simple in appearance, impressive. The bridge represents a major engineering project in the State for its time. The addition of a reinforced concrete beam deck to replace the timber deck in the 1920s is a relatively early use of this technology. The River and this crossing of it has defined the life of several generations of local inhabitants on both sides of the River. As the suburban outskirts of Sydney widen and come closer to the still distinct and distinctive Macquarie towns, the rich history of the area and its physical remains become increasingly important to the community's sense of identity. The Windsor Bridge is thus an important part of Windsor's history and identity."²²

The RMS has promoted the notion that Option 1 provides the "potential for the Bridge Street road cutting to be backfilled and landscaped to reinstate the shape of Thompson Square" since the first presentation of options to the community in July 2009². As a heritage mitigation measure this is almost laughable, considering there has been a roadway through the Square in one form or another since the establishment of the Green Hills village. Plate 101 on page 190 of the Historic Heritage Assessment for Windsor Bridge Replacement Project shows one of the earliest illustrations of the Square, with a track leading down to the riverfront from the Government buildings on the George Street ridge in a similar alignment to the current cutting²³. On completion of the bridge, an unnamed roadway which became known as Punt Hill Road traversed the Square from the west to the east, as illustrated in Plate 106 and Figure 10 (1842), and Plate 108 where the road was described as "approach to ferry" (c. 1870). Plate 109 shows the route of the Punt Hill Road from the wharf and bridge in the 1890's where it ran until the current cutting was implemented in 1934.

Despite claims from the RMS, there has never been a "unified" Square since the wharf has been in use to receive goods for the Green Hills settlement, and there has certainly never been a roadway running through the entire eastern boundary of the Square following the proposed route. It is quite clear from Figure 21 in the Windsor Bridge Maritime Archaeological Statement of Heritage Impact²⁸ that Old Bridge Street was effectively nothing more than a track until after the current road cutting was built, with the clearing from the Punt Hill Road visible traversing the Square. The development of Old Bridge Street is even more apparent in Figure 22²⁸ from 1955.

Replacing a listed heritage item with a modern structure with a larger footprint than the current road cutting, restricting and impairing the heritage vistas and access to heritage properties, and claiming that it has a minimal impact is not mitigation, it is madness.

To best illustrate the lack of significance placed on heritage by the RMS one need look no further than this statement in the Windsor Bridge Replacement Socio-economic Investigation:¹⁵ "Option 1 does however, impact on a historical square, Thompson Square, but this impact on the centre's character is localised."

Given only those heritage items which are of **state significance in NSW** are listed on the State Heritage Register, it is hard to even attempt to justify how impact on a state significant item is localised. Maybe that is why no attempt is made.

Focusing purely on the heritage impacts of the preferred option within Thompson Square, those impacts can be broken into the following general categories:

- The demolition and removal of the State listed Windsor Bridge
- The removal of the remains of the Greenway wharf
- The destruction of the Macquarie-era barrel drains
- Impacts on heritage vistas.

- The demolition and removal of the State listed Windsor Bridge

The Heritage Council of NSW – “unequivocally objects to the project on the grounds of long term irrevocable and serious negative impacts on the Thompson Square heritage conservation area and the heritage of Windsor. The Heritage Council of NSW supports rehabilitation of the existing bridge and construction of a bypass. The Heritage Council also provided detailed Minister’s Conditions of Approval for the project, if it should proceed.”²⁴

In its submission in response to the exhibition of the EIS, “The Heritage Council notes that its prior advice and the advice of the specialist heritage report as quoted in points 1 and 2 above have essentially been disregarded”²⁵. They certainly aren’t Robinson Crusoe in that respect. They continue “It has been clear since 2009 that other options would better meet this objective. The specialist reports which have been undertaken to inform the EIS have confirmed that heritage and archaeological resources of State significance are situated within the project area and would be detrimentally affected if the project proceeds. It is a long standing Heritage Council position that items of State significance should be retained and conserved. This does not preclude adaptive reuse, but it does preclude substantial demolition.”²⁵

The EIS, at page 466, states “However, demolition of the existing bridge, which contributes to the heritage views and vistas, would be an irreversible impact.”²⁶

In response to the submissions to the EIS which in the majority objected to the demolition of the bridge, the RMS response was “The existing bridge would be dismantled in a manner that allows its construction methods and evolution to be appropriately documented as an archival record prior to, and during its demolition.”²⁴

There is little doubt in my mind, having read the project documents and technical reports in full, that the primary purpose of this project has always been to remove the Windsor Bridge regardless of the impact such removal causes. In view of other options available, including those never presented to the community but summarily dismissed by the RMS, there is absolutely no justification for proceeding with Option 1. A photographic archaeological record of the Bridge during its demolition is simply not adequate.

The removal of the Bridge is opposed by the community, the Hawkesbury City Council, the Heritage Council of NSW, together with most major political parties, and is not preferred by the National Trust of Australia (New South Wales). Only two groups appear to support the demolition – the RMS, and the NSW Liberal Party.

- The removal of the remains of the Greenway wharf

Ironically, in the same year that Australia Post releases a \$1 stamp to celebrate Australia’s Convict Past, featuring Hyde Park Barracks designed by “one of Australia’s notable early convicts, Francis Greenway, who is considered Australia’s first architect and the first official government architect”²⁷, the remains of a wharf which is as old as the Barracks, and designed by the same notable early convict, is scheduled for total demolition by the RMS.

Governor Macquarie on 14 November 1816 “agreed on an estimate made out and submitted to me by Mr. Greenway the Govt. Civil Architect of the additional Expense of repairing and Completing the same in solid and durable material (agreeably to a Plan thereof made out by Mr. Greenway), to allow and pay unto Messrs. Howe and McGrath the additional sum of Two Hundred and Twenty (including Twenty Pounds for Mr. Greenway's trouble in planning and directing the Work) Pounds Sterling; allowing them also for payment such Iron and Spike Nails from the stores as can be spared.”²⁸

The wharf, which was completed in 1820, was partially built before washing away in a flood in 1816 and was either a variation to, or extension of, the original 1814-15 wharf.

The Windsor Bridge Maritime Archaeological Statement of Heritage Impact^{29,30} in section 4.1 details the findings relating to the wharf from a 2008 study undertaken by Cosmos Archaeology in December 2008, some 8 months prior to the bridge project being announced to the community and 5 years prior to the project's approval by the Minister (again indicative that the project never really had any other option considered).

The existence of the wharf remains are well known to locals, and the overgrowth of lantana and other weeds has largely been left to deter souvenir hunters and other vandalism, as the limited remains are rather difficult to access due to the vegetation and gabion retaining walls. It is hoped that under the current and more progressive Council, efforts would be made to preserve and promote the wharf remains as a tourism attraction within the Thompson Park and Wharf reserve precincts (as part of the Great River Walk) should the community be successful in opposing the RMS Option 1 project which would remove the remnants entirely.

The archaeological study done by Cosmos Archaeology concluded in section 5.3³¹ that there was a high potential for structural remains associated with the wharf and non-structural deposits to be present.

In assessing the wharf under the criteria of the Burra Charter, the Cosmos Archaeology report found:

- regarding criterion (a), the wharves at Windsor “are considered to be State significant under this criterion on the basis they formed part of critical transport and trade infrastructure for one of the earliest European settlements in Australia, a settlement which was important for the survival of Sydney as a viable colony.”³²
- regarding criterion (b), the “wharf at Windsor has a strong association with Governor Macquarie, who is an important figure in the history of NSW, and as such the wharves built at Windsor are considered to be State significant under this criterion.”³²
- regarding criterion (e), “The archaeological site associated with the former wharves built at Windsor, both above and below the low water line has the potential to contribute to a greater understanding of settlement before and during the Macquarie era. As such, the archaeological site associated with both former wharves built at Windsor is considered to be State significant under this criterion.”³²
- regarding criterion (f), “The physical and archaeological remains of the former wharves built at Windsor are considered to be State significant under this criterion.”³²

“The archaeological resource present on the site is considered to be a rare and endangered resource that can provide new information into the design and construction types of wharves in the early settlement of NSW, and Australia.”³² The preservation of the remains in situ will be impossible if the salvage work proposed is not prevented.

While not featured in the landscape designs given to the public, it appears from the Cosmos Archaeology report that there is an intention that integral to the new bridge on “the southern bank, the scour protection would consist of a concrete panel retaining wall between Windsor Wharf and the existing bridge.”³² Such a structure would have a devastating impact on the wharf remains and not even allow for any interpretive signage or features to be incorporated..

- *The destruction of the Macquarie-era barrel drains*

The mythical Smuggler's Tunnels of Thompson Square, which are part of the social folklore of the area, consist of the barrel drain which has recently been "discovered" (or more technically correct "verified") by the archaeological salvage operation. The existence of the barrel drain has previously been recorded by local historians including former Mayor Rex Stubbs, who wrote "Macquarie entered into contracts to build a bridge over South Creek, a road to Sydney and a wharf at Thompson Square. The wharf contract included the making of a slope from the wharf to the Government Stores, the filling of Thompson Square, and a sewer for drainage of the centre of the square. Part of the sewer was uncovered during roadwork to realign Bridge Street during the 1930's and this helped promote the local legend that it was a smugglers' tunnel running from the Macquarie Arms to the wharf. Copies of the contracts are held in the Mitchell Library. They are dated 8th August, 1814, (M.L. MSS 106, article 37), and 24th April, 1815, (M.L. MSS 106, article 88). The first contract contains the words: To Sink and Erect one Sewer in the middle of the Square with channels leading thereto or to Sink and Erect two sewers one on each side of the Square as laid down in the Plan in the possession of his Excellency Governor Macquarie.

Both contracts were signed by John Howe and James McGrath. Payment for the first contract was to be 350 Pounds and 350 gallons of Bengal rum, and 600 Pounds for the second contract. The contractors were permitted to make between 120,000 and 150,000 bricks at the new Government brickfields at Windsor."³³

"Brickwork was discovered under the old Boat Club building in Thompson Square in April, 1985. An archeologist, Edward Higginbotham, was commissioned by Hawkesbury Shire Council to investigate the site. Mr Higginbotham advised that the structure located was a brick barrel drain, dated c.1815, similar to one recently excavated at Parramatta. Mr Higginbotham was referring to the brick barrel drain excavated by himself in June, 1981 (Australian Journal of Historical Archeology. Vol. 1, January 1983, page 35-39). The Parramatta drain had been constructed in the 1820's during the Governorship of Macquarie for the purpose of disposing of stormwater rather than sewerage. The Windsor sewer / drain, as can be verified by the contracts and dates of payment, clearly predates it."³³

The Parramatta drain, which was built between 1822 and 1827, is the first step in an Archaeological Sites Walking Tour brochure jointly promoted by the NSW Department of Planning and the Heritage Council of New South Wales.³⁴

The entire remains of the Windsor drain, which appears to be some of the earliest public infrastructure constructed in Australia, will be completely removed under the Detailed Salvage Strategy for Aboriginal and Historical Archaeological Heritage³⁵ published by AAJV (a joint venture of Austral Archaeology and Extent Heritage (formerly AHMS)). Strangely, despite the location of the drain having been confirmed in 1985, the AAJV joint venture strategy indicated that no evidence of the drains existed, and that the potential for encountering any remains appeared low, and as such the actual protocols in place for the salvage work do not address the treatment of the drains at all.

Page 66 of the Salvage Strategy addresses the lower area of Thompson Square where the drain has been found, and identifies the "conservative outcome" of proposed works as "Limited potential for in situ conservation. There may be some opportunistic locations where materials may be able to be retained in situ and encapsulated below the new bridge, but this is not considered likely given the aggregated impact of construction and service relocations."³⁵

As with the Greenway wharf, the Option 1 proposal will obliterate the remains of the brick barrel drain and wipe out any trace of its existence.

That is not heritage mitigation. It is an act of vandalism.

- *Impacts on heritage vistas*

In the Submissions Report on the EIS, the RMS states “The EIS also acknowledges that, despite minimising impacts on heritage as part of the design process, and implementing additional management measures during construction, the project would still have significant adverse impacts on heritage, including impacts on the form of Thompson Square, demolition of the existing Windsor Bridge, and impacts on historic views and vistas.”²⁴

Of the 95 community submissions received in relation to the EIS, 43 addressed the issue that the project would have significant long term and irrevocable adverse impacts on the heritage values of the Thompson Square precinct, including the form of the Thompson Square parkland, and historic views and vistas.

The RMS response to this concern can basically be summed up by the 4 bullet points on page 21 of the Urban Design And Landscape Detailed Design report, as follows:

- “
- Existing key sightlines and viewpoints would be preserved on both sides of the river
 - Some of the visual connections and sightlines throughout Thompson Square, and between the various buildings across the upper areas of the square would be retained or improved
 - Sightlines directly down the Thompson Square parkland towards the river and out over the land north of the project area, would be retained and potentially enhanced with the possibility of increasing the extent of the visibility of the river from some locations
 - Views towards Windsor and Thompson Square from the expanded parkland area and pathways on the northern foreshore, would be enhanced, particularly from the pathways near the foreshore.”³⁶

What this really means is that the **places** from which heritage vistas can be viewed remain, but the **view** itself will be dominated by the presence of a modern concrete and steel structure in place of the existing heritage bridge (which forms part of the view), a structure which is higher, wider, deeper and totally out of character with its surroundings.

The impact of the proposed new bridge is quite clearly illustrated in Figure 4-2, page 51 of the EIS.⁸ The illustration does not include handrails or lighting on the new bridge but clearly shows it is an obvious intrusion in the landscape, is significantly deeper than the existing bridge, has a poor aesthetic quality due to its slope, and the abutment on the southern bank is substantial and highly visible.

Also telling is that the form of the proposed bridge is contrary to the RMS’s own aesthetic guidelines which dictate “Bridges with a horizontal form are generally preferable to bridges on a grade over flood plains and significant expanses of water... Water always forms a horizontal plane and a bridge structure when skewed to this plane can appear discordant.”³⁷

The heritage vistas which have attracted photographers and artists to the Windsor area in general for over 200 years will be severely diminished by the introduction of this foreign and discordant element.

Aboriginal heritage

It seems there has been some fairly strange dealings by the RMS in regards to the impact on Aboriginal heritage.

“Following initial Aboriginal consultation in accordance with the former Department of Environment and Climate Change procedures in 2008, a desktop analysis and site inspection of the nine options was carried out in June-July 2009. The Deerubbin Local Aboriginal Land Council and the Darug Tribal Aboriginal Corporation were contacted, invited to inspect the bridge options and offer advice on any impacts each option may have on Aboriginal cultural heritage values. Twelve known Aboriginal archaeological and cultural sites were identified and likely areas of Aboriginal archaeological sensitivity highlighted. Of the nine bridge options only two (options 6 and 7) are without known Aboriginal archaeological constraints.”⁶

Two sentences later:

“The Aboriginal stakeholders expressed a lesser preference for options 6 and 7 and were expressly unfavourable towards option 8. The stakeholders felt these options would have a considerable impact upon the Aboriginal cultural values of that stretch of the river and its banks.”⁶

Although I am not an expert on Aboriginal matters, the above statements appear very inconsistent – the 2 options without known Aboriginal archaeological constraints are the ones with the highest Aboriginal cultural values? The area utilised by the Upper Hawkesbury PowerBoat Club, the same organisation which apparently benefitted from the RMS conducting an unadvertised consultation during one of their boating events, and is one of the most frequently used reserves in the Hawkesbury for events, markets and such, is suddenly seen as having cultural values which make it the most unfavourable option? Is it coincidental that these options are also the most expensive, according to the RMS? Why was initial consultation with the Aboriginal community undertaken in advance of consultation with the rest of the community, and yet there is not a single mention of the word “Aboriginal” in the 2009 Community Consultation report¹⁰?

Those matters aside, the Deerubbin Local Aboriginal Land Council and the Darug Tribal Aboriginal Corporation appear to have been involved in a long-running feud³⁸, and the involvement of only these two groups in the early stages of the project leading up to the choice of preferred option is remarkable. By September 2012 a further 6 groups had registered as Aboriginal stakeholders, however by this time the only option being “considered” was Option 1.

According to the 2011 Options Report, “Taking the background Aboriginal archaeological contextual data and site inspection into account, options 1 and 2 and to a lesser extent option 3 represent the preferred options for the Windsor Bridge in respects to Aboriginal archaeological and cultural heritage. These three options would involve the least amount of disturbance to known and potential Aboriginal archaeological and cultural values as well as involving the least amount of further assessment, investigation and impact mitigation.”⁶ Again, it appears the choice of option may have been determined by needing the least amount of work.

There is no detail in the report as to who came to the conclusion that Options 1, 2 and 3 were the preferred options from the viewpoint of Aboriginal stakeholders. The only evidence of any sort is a letter from the Chief Executive Officer of the Deerubbin Local Aboriginal Land Council dated 3 August 2009 which indicated a representative had done a “walkover” of the study areas which revealed no Aboriginal cultural material but pointed out that the route of the project needed to be further investigated, particularly in light of the discovery of Aboriginal sites “in close proximity” to the study area.³⁹

In June 2012, Darug Aboriginal Cultural Heritage Assessments, one of the 8 stakeholders, wrote to the RMS concurring with their “proposed methodology for this most important Darug area”⁴⁰ in relation to the proposed Cultural Heritage Assessment Report. An email was received in August 2012 from Tocomwall Pty Ltd, surprisingly on RMS stationery⁴⁰, “excepting” the proposed CHAR. Not surprisingly, almost the entire contents of many of the reports on Aboriginal matters has been removed from public view on the grounds of being potentially culturally sensitive, so no informed discussion on the process can be made.

Having limited access to the information which informed the CHAR, it is necessary to go back to the Preliminary Aboriginal Baseline Investigation from July 2009 to determine “In terms of the development options presented, the stakeholders were unanimous in their opinion that Options 1 and 2 are the most preferable from a cultural perspective. They felt that as the Aboriginal archaeological and cultural assessment had already been conducted they were aware of the archaeological and cultural values of the area and were confident in the mitigation and management strategies proposed as a result (i.e. subsurface investigation).”⁴¹

In conclusion, despite concerns about the manner in which the decision was arrived at, if the Aboriginal stakeholders are satisfied with the proposal without having any information on the detailed salvage strategy, retention of artefacts or other protocols other than those required by law, then it is not my place to question the impact on Aboriginal heritage. The fact that only 8 options were presented to the Aboriginal stakeholders, and that the option(s) to retain the existing bridge were not, is indicative of the intention of the project to remove the bridge in any event.

Maritime heritage

Other than the impacts on the Greenway wharf and the Bridge itself, the project appears to have limited maritime heritage impacts and the nature of proposed archaeological works, being almost entirely of a salvage nature, would provide little opportunity for any significant findings.

iv. FLOOD IMMUNITY BENEFITS

In July 2009 the Community Update from the New South Wales Government and RTA expressly stated that one of the objectives of the Windsor Bridge Replacement Project was to improve flood immunity, and that the criteria by which this would be measured was to provide for a 1 in 5 year flood event.²

The project has failed dismally to deliver on this objective.

The Average Recurrence Interval (ARI) of a flood event is described as the likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large as or larger than the design flood event. For example, floods with a discharge as large as or larger than the 100-year ARI flood will occur on average once every 100-years. A 1 in 5 year ARI flood will occur on average once every 20 years, but can in fact occur numerous times in a single year. The 1 in 5 flood level at the Windsor Bridge is 11.1 metres Australian Height Datum (AHD), and the deck of the bridge is at 7.2m AHD according to the SES⁴² which roughly equates to a 1 in 2 year flood level.

The 2012 State Infrastructure Strategy 2012–2032 highlighted that improved flood mitigation infrastructure is critical to protecting people, buildings, public assets and the NSW economy. Infrastructure NSW commissioned a study to update data on flood impacts in the Valley. It found that a major flood event would cause billions of dollars of damage and place tens of thousands of homes and people at risk. The impact would extend beyond the Valley and be felt across the NSW and Australian economies.⁴³

The 2012 State Infrastructure Strategy highlighted “Infrastructure NSW also recommends that funding sources be identified to deliver flood mitigation and evacuation works for the Hawkesbury-Nepean Valley in anticipation of the Task Force report to Government in mid-2015.”⁴⁴ The SIS went further and identified the Outer Sydney Orbital (M9) could “deliver potential benefits as a flood evacuation route for the Hawkesbury Nepean Valley.”⁴⁴ Unfortunately the location of this wonderful and mythical Outer Sydney Orbital has not been disclosed to the public, so how it could be incorporated into the current project to provide flood relief for the people in Wilberforce and beyond is still a mystery.

Despite the above the Windsor Bridge Replacement Project offers, at best, a marginal increase in flood immunity from 1 in 2 ARI to apparently just less than 1 in 3 ARI. The deck of the replacement bridge will have a minimum road level of RL 9.8 metres AHD (2.8m higher than the existing bridge⁴⁵) per page 365 of the EIS⁴⁵ which is 1.3m below the objective height. No definitive data can be obtained to check the veracity of the claims regarding the “1 in 2” or “1 in 3” event levels, as all flood planning appears to consist of 5,10,20,50 and 100+ year flood events.

Categorisation of flood levels at Windsor is defined by the SES as Minor (5.8 metres AHD), Moderate (7.0 metres AHD) and Major (12.2 metres AHD) at Windsor Bridge.⁴⁶

In a “Major” flood at Windsor, the replacement bridge will be under up to 2.4m of water.

The Options Report presented in August 2011 stated “The bridge height would accommodate a 1-in-5 year flood event.”⁶ This has subsequently been seen to be completely untrue, although the RMS has failed to adequately inform the community and in fact has hidden the first mention of the lower flood immunity until section 5.3.2 Design standards and criteria for the replacement bridge in the EIS, where it is stated “The proposed replacement bridge has a flood immunity that is just below the 1 in 3 year flood level. This provides an improved level of flood immunity relative to existing conditions and matches the flood immunity of the northern approach roads.”⁴⁷

So as previously stated, the improvement in flood immunity of the proposed new bridge is barely large enough to be considered marginal. It fails to deliver the required and promoted flood immunity by 1.3m.

The Traffic and transport working paper – Working Paper 4, November 2012 (EIS Volume 4) states “The low point of the replacement bridge would be around 9.8 metres Australian Height Datum (AHD), making it around 2.8 metres higher than the lowest point of the existing bridge. This would give the replacement bridge a slightly higher level of flood immunity than the existing bridge. Specifically, while the existing bridge is overtopped in a one in two year flood, the replacement bridge is predicted to remain above water for the one in two year flood but be overtopped in an event just smaller than the one in three year flood.

This level of flood immunity is consistent with that of the immunity of the roads on the northern side of the Hawkesbury River i.e. Wilberforce Road and Freemans Reach Road, which have a flood immunity that lies about midway between the one in two year and one in three year flood levels. The replacement bridge would be marginally above minimum road levels along Wilberforce Road and Freemans Reach Road, and thus may improve flood access into Windsor from the north. It is important to note that the frequency and depth of flooding in the Windsor area is expected to increase under climate change scenarios (refer to Chapter 7, Section 7.7 of the EIS).”⁴⁸

If the frequency and depth of flooding in the Windsor area is expected to increase, why is the plan to provide a bridge that is barely higher than the existing one?

To compound matters, the proposed bridge appears to actually increase the impact of flooding, as stated in Chapter 7.7 Hydrology of the EIS:

“Changes in peak water levels

The project would potentially increase flood levels on the Hawkesbury River floodplain, as the new bridge and approach road modifications **would obstruct the movement of floodwaters to a greater extent than the existing bridge and approach roads.**

In the five year ARI flood event, the peak water level in the channel would increase by 0.12 metres just upstream of the project. The increase in water levels would decrease with distance upstream, with water level increases of 0.06 metres at North Richmond and 0.03 metres at Devlin Road, Castlereagh. Flood water levels on the Hawkesbury River floodplain would also increase upstream of the project, with an increase of 0.11 metres at Bakers Lagoon and 0.04 metres at Agnes Banks.

The assessment indicates that one additional lot would experience flooding in a five year ARI in the southwest zone due to the project and up to 359 lots (in the northern and southwest zones) would be expected to experience an increase in a five year ARI flood depth due to the project. The increase of flood depths would be five percent (for example 0.05 metre increase in depth above an existing flood depth of one metre) for 200 of the lots, an additional 103 lots are estimated to have an increase up to ten percent and an additional 51 lots an estimated increase up to 15 percent.

Increases in flood levels would potentially result in increased flood damage costs and other impacts associated with flooding.

In a five year ARI event one additional residential dwellings would be experience over floor flooding (23 Wilberforce Road) due to the project and 25 buildings would experience increased flooding levels greater than 0.01 metre. Of these 25 buildings, three buildings have an existing over floor flooding of greater than one metre. Average increase in flood levels due to the project for the other 22 buildings would be 0.10 metre, with the largest increase in water depth of 0.12 metre. There would be 15 buildings with an increase in flood levels due to the project of greater than 25 percent, two of which are generally subject to low levels of flooding in the existing conditions (less than 0.1 metre). These two buildings would be at most risk of increased flood damage from increases in flood levels due to the project.”⁴⁵

The proposal not only fails to deliver on the promise of 1 in 5 year flood immunity, but actually increases the costs and other damage associated with that flood level and higher. On that basis alone the project should never have been approved.

v. PROJECT ASSESSMENT PROCESS

Chapter 11 of the EIS “presents a justification of the project and a conclusion to the environmental impact statement. It considers a range of issues including project benefits, protection of the environment, the objects of the EP&A Act, ecologically sustainable development and community consultation.”²⁶

Despite the thousands of pages of reports, covering every angle of technical, archaeological, hydrological, environmental, acoustic, and other aspects that could possibly be considered, it is evident that the assessment process for this project only ever had one outcome – to approve a bridge 35 metres downstream of the existing bridge, as had been announced in State parliament back on 24 June 2008³

All the noise generated by the RMS regarding its extensive community consultation was just that – noise. As has been stated previously, a number of property owners affected by other options, including myself, were not even consulted.

Even the level of advertising was minimal. The project was advertised just once in the Hawkesbury Gazette, on 15 July 2009. In comparison, the proposed Pitt Town Bypass was advertised in the same newspaper for 2 consecutive weeks⁴⁹ on 1 and 8 June 2016.

The local community has been provided with very little information and in many instances the information provided has been totally misleading and/or incorrect, such as the claim in the Community Update in 2009 that the replacement bridge would provide for a 1 in 5 year flood event, and that the project would have minimised heritage impacts, improve load capacity, and maintain road speeds of 60 km/h.

The project provides none of these features yet is still the preferred option, maybe because it was the cheapest.

While I am not privy to the inner workings of government, it is the statement in the Cambray Consulting Pty Ltd report prepared for NSW Department of Planning and Infrastructure on 15 August 2013 which sums up my view on the process: “In summary, based upon the information provided to us, it appears that the scope throughout much of the duration of the project **has focussed on justifying the preferred option, as opposed to undertaking a thorough investigation** into alternative options.”⁵⁰

The NSW Land & Environment Court reviewed the legalities of the project approval process in 2014 in *Community Action for Windsor Bridge Inc v NSW Roads and Maritime Services & anor* [2015] NSWLEC 167. The decision by Judge Brereton included the comment that “Such a decision was plainly within the bounds of possible acceptable outcomes. It was one of the decisions rationally open to the Minister. **That many, even most, might have decided the question differently would not make the decision unreasonable in the legal sense**”⁵¹ The decision did in fact question the adequacy of some of the assessments and information provided, but could find no “legal” deficiency in the process despite its shortcomings. This case was however focused on the process of approving the project, not on the assessment of the individual options.

For all intents and purposes, the entire assessment process only ever had one outcome, which was to approve Option 1.

vi. PLANNING AND PROCUREMENT STRATEGIES AND ASSOCIATED PROJECT COSTS

Having not examined any of the strategies and costs in any detail I will make no comment in this respect, other than to state that as this process has been dragged out over so many years without adequate funding to begin construction ever having been provided by the Treasurer, the costs appear to have escalated and the benefits appear to have reduced. The delays may in fact render whatever cost-benefit analysis has been carried out to date obsolete.

vii. COST BENEFIT ANALYSIS PROCESS

The cost-benefit analysis process for this project is almost entirely missing.

Section 3.3 of the EIS states “Economic analysis assists decision-makers to understand the economic worth of a project in monetary terms. It helps determine what is ‘value for money’ and allows the economic worth of a particular initiative to be considered in the context of other potential benefits and impacts. A favourable economic analysis often forms a key element of the project justification.”⁵²

It then goes on to inform that “An economic analysis was undertaken for the project (SKM, 2012d). The analysis quantified the costs and benefits of the project in dollar terms and provided a benefit-cost ratio (BCR) as an indicator of its economic performance. The following economic costs and benefits were considered:

- Capital expenditure.
- Incremental operating costs.
- Travel time savings.
- Vehicle operating costs.
- Safety impacts.
- Externalities.”⁵²

Chapter 12 of the EIS identifies this economic analysis as “Sinclair Knight Merz (SKM) 2012d. Economic Analysis for Windsor Bridge Repalcement. Prepared for RMS”⁵³ (RMS spelling). This document does not appear to be on either the RMS or DPE websites which contain the remainder of project documentation, and as such the methodology used can not be checked. A Google search for the document reveals no matches for the correct spelling and only 1 match if the word “repalcement” is omitted – to the entry in Chapter 12. Effectively, the economic analysis used to consider the economic worth of the Windsor Bridge Replacement Project in the context of potential benefits and impacts can not be scrutinised in any detail.

The only economic analysis that seems to be available is restricted to Section 3.3 in the 2012 EIS, plus 2 pages in Section 7 of the “Traffic modelling and evaluation of options - preliminary report – August 2011”.¹² This situation is remarkable given the NSW Government and RMS have a defined procedure for economic analysis as evidenced by the Singleton Bypass Economic Appraisal¹⁴ which shows “The economic appraisal has been carried out according to NSW Government guidelines. These guidelines are provided by two documents: the Economic Analysis Manual1, Version 2, 1999 (with 2009 update of Appendix B) produced by the NSW Roads and Traffic Authority (now Roads and Maritime Services) and the NSW Government’s Guidelines for Economic Appraisals (TPP 97-2)2, which addresses issues that are not explicitly covered by the Economic Analysis Manual.”¹⁴

The analysis carried out in the August 2011 traffic modelling report appears to follow a dramatically unorthodox approach in stating “An economic analysis usually compares a base case (without a project, often termed the “do nothing” case) with an improved case (with the project completed). The capital cost of the project and its lifetime maintenance costs are compared against the benefits of the project to the community. For a road project, the benefits usually consist of reductions in travel time, vehicle operating costs and crash costs.

In this case, “do nothing” is not an acceptable option, since the existing bridge requires extensive rehabilitation and ongoing maintenance. The “do minimum” option is the closure and demolition of the existing bridge which has an estimated cost of \$540,000. It will also impose substantial ongoing travel costs on the community as all traffic is then required to detour via North Richmond.”¹²

Strangely, this analysis then goes on to provide a Net Present Value for option 9A (repair of the existing bridge) and arrived at a figure only \$4.34million less than Option 1, but with a Benefit Cost Ratio of 9.2 compared to Option 1’s 4.5. In other words, repairing the current bridge provided a cost benefit ratio more than twice that of the preferred option.

Despite some of the ridiculous limitations applied in oversimplifying the analysis in 2011, there is not a single justification offered to explain why the option with the maximum cost benefit ratio was not chosen. There is also no explanation as to why the travel costs associated with repairing the bridge would cost an additional \$10.01M present value, while Option 1 would save travel costs of \$17.96M present value in the same period. Given the proximity of the two optional bridges, a difference in travel costs of almost \$30M seems absurd, but it is this absurd saving which gives Option 1 the best NPV and is then used as the justification for the project.

The 2012 analysis included in the EIS also apparently fails to follow the government guidelines. The EIS states “The economic analysis returned a high BCR of 14.6 and concluded that the project would create benefits that would be realised by the general community and would outweigh the initial upfront construction and ongoing operational costs. Key findings included:

- Travel time benefits accrued from improved travel speeds due to the removal of speed restrictions and proposed improvements to the existing curvature, grade.
- Reduced vehicle operating costs due to improved road conditions and the increase in average vehicle speed compared the base case.
- Annual crash savings due to proposed safety measures and the change in vehicle kilometres travelled.
- Decreases in externality costs compared to the base case.

Economic analysis undertaken as part of the options evaluation for the project (RMS, 2011) yielded a BCR lower than the current value (SKM, 2012d). This difference is due to the adoption of different base case assumptions around traffic flow and the inclusion of a number of additional economic factors in the recent analysis, such as vehicle operating costs, externalities and safety impacts.”⁵²

With no access to the detail of this analysis, a number of questions firstly arise purely on the above quotation:

- The new project bridge length is 156.6m long, compared to the current bridge which is only 143m, and the new bridge is only 35 metres downstream of the existing one. How does this result in any significant change in vehicle kilometres travelled to contribute to annual crash savings?
- The 2017 traffic study carried out for the RMS⁵⁴ reported 52 crashes between July 2011 and December 2016 in the study area, and 4 of those happened on Macquarie Street which is not subject to any changes due to the project. With 22,000 vehicles a day using the bridge, and 48 crashes in the bridge approaches in 65 months, the calculation of crash savings surely should have minimal effect on the cost benefit analysis?
- The savings for “improved travel speeds” must be considered marginal given the actual speed limit in the project area will reduce from 60 km/h to 50 km/h?
- Again, isn’t comparing the vehicle operating costs savings based on a “increase in average vehicle speed” seems inconsistent with a reduction in the posted speed limit?

The high BCR of 14.6 in the 2012 analysis compared to the BCR of 4.5 from 2011 indicates that the second analysis found a net NPV of \$481.95M in additional net benefits, a truly staggering amount considering the earlier analysis was done by the RTA itself and not by a paid consultant. What is also staggering is that there is no presentation anywhere of the relative NPV of the other options, the methodology or the components of the calculations.

The Transport for NSW “Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives” states that “It provides a set of practical guidelines to assist economic appraisal of investment and initiatives within the transport portfolio. This covers the discounted cash flow techniques of cost benefit analysis and cost effectiveness analysis all of which may be used at different times to evaluate projects.”⁵⁵

The TfNSW guidelines “set out the principles, concepts, methodology and procedures to be used in the evaluation of proposed investments and initiatives in the transport cluster.”⁵⁵ It states that Cost Benefit Analysis (CBA) is “is the preferred approach when considering the range of costs and benefits

attributable to a project” and specifically that “(e)conomic analysis should prove that the project will generate benefits for the users of the assets or the projects and the community at large and the cost of implementing these are covered by these benefits, hence the net present values are positive.”⁵⁵

A pertinent point in the TfNSW guidelines is “A CBA is always comparative to a base case which may be the continuation of the status quo. Of interest are the differences between the base case and the defined option(s): those factors that are common between options have no bearing on choosing the most worthwhile option.”⁵⁵ No such comparison is provided for the current project, as the use of the “do minimum” has been calculated using the closure and demolition of the existing bridge as the base.

Without having access to the specifics of the cost-benefit analysis, it would appear from Table 3-5 in the EIS that the specified calculations have been performed, with the capital and maintenance costs, and benefits relating to travel time savings, vehicle operating cost savings, external savings and safety savings all included in the table. Unfortunately, the information is only presented for Option 1, and as such a comparison of results can not be done.

Given Windsor’s unique situation in the history of the country, the “unquantifiable” cost of damage to heritage and the potential earnings from tourism associated with it is not addressed at all. There has been no apparent attempt to put any value at all on the impact on aesthetic value, amenity, community spirit/pride or culture which is most significantly damaged by the project.

In “Valuing the Priceless: The Value of Historic Heritage in Australia”⁵⁶ commissioned by the Heritage Chairs and Officials of Australia and New Zealand it is stated “Heritage is what we inherit, but more specifically what we retain of this inheritance. The heritage value of a place is also known as its cultural significance which means its aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Understanding what is meant by value in a heritage sense is fundamental since ‘Value has always been the reason underlying heritage conservation. It is selfevident that no society makes an effort to conserve what it does not value.’”

As has become apparent from the current archaeological work being carried out in Thompson Square, there is an incredible amount of potential damage being done to heritage items, such as the oldest Government infrastructure – the brick barrel drains, which is irreplaceable, so no amount of mitigation or salvage will truly compensate for their destruction. The touted benefits of Option 1 must surely be assessed in the light of what the “real” costs are.

The other obvious failing of the current analysis is the lack of any sensitivity analysis. NSW Government Guidelines for Economic Appraisal require projects to be evaluated at a real discount rate of 7% with sensitivity tests using the discount rates of 4 and 10%.⁵⁵ There also appears to be no consideration of potential variations in forecast traffic flows and other risks:

“Risk assessment in economic evaluations involves identifying risk factors, estimating the likelihood of risk occurrence and determining the consequence of risk occurrence. Risks typically in association of transport project evaluations include:

- Demand and usage forecasting
- Capital cost increase
- Prolonged construction period

Sensitivity analysis should be undertaken to test the robustness of the evaluation results under the identified risk factors, uncertainties, key assumptions and parameters.”⁵⁵ By comparison, the economic analysis for the Singleton Bypass examined 9 variations in parameters in carrying out sensitivity analysis.¹⁴

It appears there are severe shortcomings in the economic analysis that has been provided. Considering the apparent blow-out to date in capital cost for the project, and the prolonged delay in providing adequate funding to progress the development, it is suggested the entire analysis needs to be re-evaluated.

C) ANY OTHER RELATED MATTERS.

i) *Misleading information provided to the public*

For nearly 9 years this project has been the subject of much public debate in the Hawkesbury, and unfortunately a lot of the discussion has been horribly misinformed. The two main sources of misinformation have been local politicians and the RMS.

Hawkesbury MP Dominic Perrottet advised in December 2016 that “This extra lane will save time on the road, especially in peak hour, and that means less time in traffic, and more time doing the things you want to do, like getting home to your family after work.”⁵⁷ The three lane configuration consists of only one northbound lane as currently exists, and the traffic modelling shows no improvement in PM peak period, so a statement like this from Mr Perrottet either indicates he has no grasp on the project or is simply continuing to promote party rhetoric and mislead the public. A month earlier, he “stressed the government will go ahead with their project,”⁵⁸ accusing the new council which had only been elected 2 months earlier of interfering in State matters.

In the earlier article, a RMS spokesman advised that “The design and alignment of the new Windsor Bridge will allow the usable space of Thompson Square to increase by more than 500 square metres, enabling the community and visitors to directly access river frontage.” The Urban Design and Landscape Detailed Design Report September 2017³⁶ makes a slightly smaller claim that “An increase in usable land by 500 square metres with the unified, central green space” will occur, but does not indicate the slope of the land will result in a somewhat disjointed park. The Urban Design report goes on to say “Provision for two key recreational activity areas within the parklands area of Thompson Square. The upper area adjacent to George Street would provide a large space that is close to the main street retail activities whilst the lower area adjacent to The Terrace would be set below the level of the proposed bridge and approach road and has the potential for activities associated with the river foreshore and the foreshore walking path network upstream of the square.” Based on this, it appears not all the space is connected and usable. Direct access to the river is virtually impossible due to the 4m of gabions which are in place, unless you use a rope. The Terrace will also be reopened to through traffic with no pedestrian crossing facilities evident.

Community Updates have also been somewhat misleading. The August 2011 update informed the community that Option 1 involved a second stage, which would have two lanes northbound and one lane southbound on the Fitzroy Bridge, despite the bridge being outside the study area for Option 1 and the earlier July 2009 update having no indication of this modification.⁵⁹ This update also contained an artists impression which showed Thompson Square sloping gently to river level once again, giving people the impression that the area will be landscaped into something which the project does not involve. This continued with the May 2012 Update⁶⁰, which also included the descriptions “upgraded Windsor Wharf” and “increase the usable area of the Square by more than 500 square metres” and claiming to reduce the number of roads in the Square from three to two (there are actually 5 roads in the Square – George Street, Thompson Square, The Terrace, Bridge Street and Old Bridge Street – and after the project there will still be 4 with only Old Bridge Street disappearing).

In March 2016 the Community Update even made the claim that the new bridge would provide “shoulders for vehicle breakdowns”⁶¹, which do not exist, and a “reduced road footprint within the Thompson Square heritage precinct”⁶¹ despite the new bridge having a larger footprint. The August 2016 Update was no better, repeating the same misleading claims. The March 2017 Update continued to claim “continuous green space from the top of Thompson Square to the river, suitable for recreation activities” and showed an artists impression indicating a nice gentle slope (if you ignored the stairs to the right)⁶².

There are numerous other examples of misinformation which have been identified, but these illustrations serve to prove the point. The project has consistently been “sold” to the community using marketing images as opposed to facts.

ii) *Cambray Consulting Traffic Study report August 2013*⁵⁰

This report, commissioned by the NSW Department of Planning and Infrastructure, furnished what appears to be the only independent and complete consideration of the issues affecting the traffic situation at the Windsor crossing of the River. It was highly critical of the RMS (then RTA) development of the proposal, stating “In summary, based upon the information provided to us, it appears that the scope throughout much of the duration of the project has focussed on justifying the preferred option, as opposed to undertaking a thorough investigation into alternative options.”⁵⁰

Such a conclusion is not only an indictment of the process taken, but a reflection of what many in the community have been saying ever since the project was first announced – there is more behind this project than what the community has been told, and its main objective is to remove the bridge.

The Cambray report includes a section 3.4 Alternative 4: Broader Network Options (Maintaining Existing Bridge) and at 3.4.2 Longer Term ‘Bypass’ Options specifically, considers a number of alternatives which make far more sense than the options presented to the community by the RMS.

One of the most telling statements in the report is “We would be interested to see some fully considered and costed options along the lines of those shown in Figure 3.4.2, to understand the extent of any savings in maintaining a river crossing close to the town, versus a bypass option. This comparison should also take into consideration that due to the limitations on intersection upgrades within the town, the former option (i.e. maintaining a river crossing close to the town) may only defer the need for a bypass, not do away with it all together.”⁵⁰

Development of any of the options suggested in the Cambray report, or other potential bypass locations, should be considered in conjunction with the plans for the Outer Sydney Orbital or even the potential link at Vineyard, to ensure an efficient long-term option is provided. The removal of the Restricted Access Vehicle route through the heritage-listed Thompson Square Conservation Area should have been one of the primary objectives of this entire project.

The current proposal is a short-term solution with long-term impacts, and provides virtually no discernible benefits while delaying the inevitable need for an alternative route for trucks and through traffic. It was a choice between the cheapest option and the right option, with the cheapest option winning out despite the substantial community opposition.

iii) *Community opposition and the CAWB presence*

The Windsor Bridge situation became a major issue in the September 2016 Hawkesbury Local Government elections. Of the 10 groups and 2 ungrouped candidates, only one group supported the Option 1 proposal – the Liberal Party. Despite the former Council having 7 Liberal-aligned councillors, after the election only 4 of the 12 councillors elected were supporters of Option 1 – and one of those was elected with less than a full quota of votes. Effectively, only 28% of the Hawkesbury voters chose the only people who supported Option 1, down from their previous 55.44%, despite the advantage of major political party backing. The general consensus among people attending the polling venues was that the preservation of the heritage values of Windsor and the Hawkesbury was a paramount factor in choosing who to cast their vote for.

Hawkesbury City Council at its meeting 28 November 2017 passed resolution 369 to lodge a formal submission with this Committee, addressing its opposition to the project. Since the 2016 Local Government elections the Council has strongly opposed the project and in October 2016 passed Resolution 367 that Council:

1. Council request the Premier urgently order the cessation of the project known as the Option 1 replacement bridge at Windsor.
2. Council request allocated funding be committed to the renovation of historic Windsor Bridge for light and local traffic and the construction of an additional river crossing near Windsor which can appropriately meet current and future traffic needs of the wider community while allowing preservation and enhancement of the natural and heritage landmarks of Windsor.
3. The location of the new, additional river crossing on a town bypass be determined in consultation with Council and the Community, and recognise and integrate with the Government's longer term plans for another bridge and associated road corridor connecting to the Motorway network.⁶³

The current Federal Member for Macquarie, Susan Templeman MP, is a long-time opponent of the Option 1 proposal and has spoken many times in Federal Parliament of the need to afford Thompson Square federal heritage protection.

Further evidence of the lack of community support for the project is the long-running protest by Community Action for Windsor Bridge, otherwise known as CAWB. Since 21 July 2013 CAWB has held a vigil in the south-east corner of Thompson Square, under one of the Silky Oak trees scheduled for removal, manned 24 hours a day, seven days a week in rotating 4 hour shifts. Their dedication to the protection of the heritage area has seen them awarded the Heritage Council of NSW Volunteer Award, collect over 21,000 individually signed letters objecting to the proposal (given to the Premier in December 2017), take legal action through the Land & Environment Court, and make numerous submissions and representations to government and authorities to seek to have the project re-examined and/or terminated.

The level of frustration being felt by the community towards the inaction of government in addressing their concerns is also evident in the recent rallies at the Thompson Square site. This is a community who is desperate to protect its unique place in the development of Australia as a country, epitomised in the existence of Thompson Square since the land was only 23 years into its European settlement. The blood of convicts is in the ground, the dreams of settlers washed away by floods of the River, the survival of the colony depended on the efforts of the farmers in this very region. The body of Phillip Cunningham, the organiser of the Vinegar Hill Rebellion, was gibbeted in the Square and his body buried just down the hill. There is history everywhere you look.

But it won't be there if they build this bridge.

Endnotes:

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