Response to Referral – Fabcot- Shoalhaven Marketplace, Vincentia: Mod 5

Traffic Unit Comments

Prepared by Council Traffic Unit Manager, Scott Wells. 15 March 2013.

Purpose of Report

This report is in response to referral regarding the Shoalhaven Marketplace, Vincentia: Mod 5 application.

The following represents preliminary concerns regarding the new information submitted including new traffic impact assessment and new plans

Preliminary concerns regarding non compliance with DGRs

1. The effect of Mod 5 and associated traffic impact reports is to ignore the original statement of commitments and previous traffic impact reports, and undertake new surveys and new traffic impact statements relative to the Mod5 application. The problem with this approach is that it ignores the reasons for the original statement of commitments and the latest traffic impact statements do not comply with the original DGRs.

2. The original DGRs require a Traffic impact study to address construction and operational, to be prepared in compliance with relevant Council and RTA requirements, modelling to address AM and PM peak volumes, holiday peak volumes, existing volumes with/without the development, 10 year projected volumes with/without the development, identification of pedestrian movements and appropriate treatments. Because the effect of Mod 5 is to ignore the original statement of commitments and previous traffic impact reports, and undertake new surveys and new traffic impact statements relative to the Mod5 application, the new traffic study must address the requirements of the original DGRs, but simply it fails to do this> seasonal adjustment of demand flows has not been undertaken, 10 year projected volumes has not been undertaken with/without the development, and pedestrian issues have not been addressed, all other issues required to be addressed in accordance with RTA guidelines have not been addressed.

Preliminary concerns regarding new traffic impact studies by CBH&K

1. The traffic impact reports are titled "report on the traffic aspects" (of the development) presumably because the applicant is aware that the reports are not complete traffic impact studies. The original DGR's were very specific in requiring full traffic impact studies to be undertaken in accordance with RMS guidelines. If the Mod 5 was based on the original statement of commitments and merely seeking to introduce staging based on more detailed staging assessment, then a full traffic impact study would not be required, and the assessment would come down to the detailed traffic impacts associated with the revised staging.

2. However the Mod5 seeks to alter significantly the original statement of commitments (proposing not to undertake any external works) and is basing the application on new surveys and completely new traffic analysis. Accordingly such

a departure from the original statement of commitments warrants a full traffic impact study to be completed so Council and the DPI can appreciate the full impacts of the application. Quite simply the traffic reports are incomplete and do not provide all of the information required to assess the Mod 5 application. The reports have not been undertaken in accordance with AUSTROADS and RMS traffic impact study requirements.

3. Despite the Shoalhaven area known for its significant seasonal fluctuation there has been no attempt to comment on the appropriateness of the days/times surveyed including how they may compare to other times of the year.

4. There has been no attempt to adjust base surveys to AADT and separately 120th HH of the year in order to undertake the assessment. Accordingly the assessment undertaken is incomplete and does not comply with AUSTROADS or RMS requirements.

5. The CBH&K report Cl 2.8 refers to traffic flows from the previous reports being increased by 20% to represent seasonal flows. This was indicated in the former MWT traffic reports in the absence of seasonal data which now exists. The seasonal data suggests that factoring in the order of 20% would NOT be sufficient to adjust the flows to 120th HH equivalent flow levels as required by AUSTROADS and RMS guidelines (recreational peak). That being said the CBH&K report does not provide for any seasonal adjustment to recreational peak, or 120th HH flow levels.

6. The CBH&K traffic report has not included an assessment of the impacts of the High School access (same location as relocated BBLC access). This is completely unacceptable. I would imagine CBH&K may say that the school peaks at different times than the High School, but that argument would not be accepted. CBH&K have not provided their raw survey data collected, there is no evidence they even considered the High school access in their surveys. Council records indicate that on the surrounding road network some intersections peak from 3-4pm and others from 4-5pm, however there is not a significant difference between these hours. CBH&K have stated that the overall PM peak was 4-5pm, however to properly assess the impacts at the relocated BBLC access / High school access it is completely unacceptable to not address the High school traffic as part of the analysis. To take the High school access into consideration the 3-4pm period must also be assessed. It is interesting to note that Council records for Stockland Nowra indicate that more often than not the 3-4pm period is busier than the 4-5pm period, and where not the flows are reasonable similar anyway (both of those hours are very busy periods). Not addressing the school peak or the impacts on the high school access is a significant flaw in the CBH&K report.

7. It is unclear whether the CBH&K traffic report has included an assessment of additional traffic generation from the northern pad sites. This must be confirmed. Additional traffic generation must be allowed for if not addressed already.

8. The CBH&K traffic report has not included an assessment of additional traffic generation from the southernmost pad sites (north of access D). This means the traffic generation applied in the CBH&K studies understate what the actual future

traffic demands may be, and this is vital in determining the requirements for the surrounding road network and also for access D. This is completely unacceptable.

9. The dates of surveys and survey times have not been reported in the traffic assessment report. In an area subjected to significant seasonal fluctuation in traffic demand this is vitally important information to determine how the days/times of survey compare with the rest of the year.

10. RMS guidelines require analysis to demonstrate LOS C or better (average conditions) and LOS D or better (recreational peak conditions) specifically for areas subjected to seasonal fluctuation in traffic flows. For areas subjected to seasonal fluctuation in traffic flows AUSTROADS requires design based on the 80-120th highest hourly flows of the year.

11. Accordingly Council traffic unit have typically required an assessment based on the 120th HH. Council Traffic Unit has contacted CBH&K to obtain the dates/times that the applicant had undertaken the new surveys.

12. It was advised that the surveys were undertaken Thursday 6 September 2012 (3-6pm) with the peak hour determined to be 4-5pm and also Saturday 8 September (10-2pm) with the peak hour determined to be 11:30-12:30pm.

13. Council has collected annual hourly data on Jervis Bay Road. This has been assessed to determine how the applicant's dates/times compare with the rest of the year, with specific comparison to the 120th highest hour flow level, and based on "average" conditions taken to be the percentile at which peak hour would occur on a day equivalent to AADT.

14. Based on the applicant's survey dates/times the following was found:
    - The applicant's base Thursday 4-5pm data was found to be 11% lower than AADT equivalent, and 27% lower than 120th HH
    - The applicant's base Saturday 11:30am-12:30pm data was found to be 13% lower than AADT equivalent, and 37% lower than 120th HH
    - All through traffic on the surrounding road network must be increased by the amounts shown above to ensure the "base" survey data is adjusted in the first instance to AADT equivalent (for LOS C assessment) and 120th HH equivalent (for LOS D assessment) in accordance with AUSTROADS and RMS guidelines.

15. The applicants traffic assessment report has failed to adequately consider future (10 year) projections as required by the DGRs.

16. The applicants traffic assessment report has advised of very low background traffic growth in the area (discussions CBH&K report Cls 2.8-2.10). This is unacceptable for a number of reasons:
    - The Shoalhaven and in particular the Bay & Basin area is subject to significant seasonal variation. That CBH&K conclusion is based on a one off survey six years ago, compared to a one off survey last year, both of those surveys were undertaken at relatively quiet times of the year (proven by Council's seasonal data). To determine actual growth would require

comparison between the respective annual 120th HH flows over the change period

- The subject assessment period has seen one of the slowest periods of growth in decades, with the global financial crisis and other factors affecting local investment and development levels, accordingly it is not appropriate to use that period for indication of likely future growth
- It is appropriate to consider the growth implications envisaged under the Jervis Bay settlement strategy and also broader growth predictions of the entire catchment population as identified in the economic impact assessment. This includes traffic diverting from the Princes Highway to the development. From the intersection Princes Highway / Island Point Road it is 22.5km to Stockland Nowra but only 9km to the proposed Vincentia Marketplace. This indicates that the Vincentia Marketplace is likely to be the centre of choice for a significant percentage of the central Shoalhaven, not just limited to the Bay & Basin. On that basis, and if the DGRs only require a 10 year assessment, background growth must be assumed to be at 3% per annum, consistent with industry practice, even though greater potential growth exists because of the broader catchment population. The CBH&K traffic report has noted (Stage 1 - Cl 2.11) that 1% growth has been adopted (which is considered unacceptable) however the traffic flow diagrams upon which the CBH&K analysis is based (Figures 2 & 3 of both the Stage 1 and Stage 2 reports) does not demonstrate that any future growth was applied to the analysis.

17. The existing + development flow diagrams (Figures 2 & 3 of the CBH&K Stage 1 report are incomplete), parts of Figure 3 of the CBH&K Stage 2 report also appears incomplete.

18. The Wool Road and Naval College Road are existing black spots/black lengths. Even without adjustment to higher seasonal traffic levels the current report (lower traffic levels) indicates that the development will increase traffic considerably, yet the traffic reports provide no assessment of the broader effect on the regional road network. RMS guidelines require accident records to be reviewed as a part of the traffic impact study. This has not been addressed.

19. The traffic report documents intersection analysis undertaken only using SIDRA and only on the intersections in the immediate surrounds to the development. This is a typically urban approach to traffic assessment, and the study is incomplete without further assessment. In this case even the consultants own traffic suggests a very significant increase in traffic on the broader road network will result from the development, accordingly the assessment should have considered the following issues to determine whether the additional loading of the developments traffic triggers the need for external works on Naval College Road and The Wool Road:
    - Levels of Service along the existing two way two lane road network
    - Warrants for over taking lanes
    - Pedestrian desire lines and how these may change due to the development, pedestrian safety, and treatments required
    - Cyclist safety, and treatments required
    - Cross section warrants (lane, shoulder widths etc)

20. The study has adopted RMS rates for development generation, with no consideration to seasonal adjustment, and no consideration to Council's assessment of Stockland Nowra rates (previously provided to the applicants consultant). Council's survey identifies Thursday rates at Stockland Nowra are in accordance with RMS rates (could be marginally lower than RMS rates in the PM peak period) however the surveyed Saturday rates were some 17% higher than RMS rates. This is a significant difference. The applicants consultant has merely adopted the RMS rates and with no application of seasonal adjustment.

21. The RTA traffic generation rates are included for planning purposes in the RTA guidelines. They are based on metropolitan surveys (higher levels of public transport than in rural areas), there was no annual survey undertaken to allow adjustment of the calculated rates to seasonal benchmarks, and there was no correlation made at the time of the RTA surveys to demonstrate that the RTA rates were based on some known level of trading at the time of the surveys. The RTA guidelines encourage local surveys of similar developments to be considered. *"As with most land uses, it is preferable to base a traffic generation estimate for a shopping centre on a similar development"*. The applicant has not considered traffic generation surveys from other shopping centres of similar size in similar areas. The results of the Stockland Nowra traffic generation surveys are an indicator that the Vincentia centre could generate significantly more traffic than reported by the applicant. Council also has recorded annual hourly data at the Stockland centre which indicates considerable seasonal variation. The applicant has not undertaken an assessment of the likelihood of the proposed centre to experience significantly higher traffic generation during holiday periods.

22. The study has adopted the same directional splits for the Thursday PM peak and Saturday mid day peak (both 50/50) which is not accepted. Council's surveys indicate 50/50 may be appropriate for the Saturday mid day peak however different directional splits will be applicable in the Thursday PM peak with more outbound traffic than inbound traffic. Applying 50/50 directional splits has the effect of mitigating the actual likely traffic impacts.

23. The Stage 1 assessment allowed for traffic turning right into Moona Creek Road from the development which is not a permitted movement due to close proximity of the access to Naval College Road and likely traffic conflicts (by allowing the right turn movement this lessens the actual likely impact on Naval College Road therefore assessment on this basis was not realistic). It is acknowledged that the CBHK Stage 1 report (cl 3.10) and Stage 2 (Cl 3.9) both say there will be no right turn from the western car park to Moona Creek Road, however it is very clear from the traffic flow diagrams upon which the assessment is based that Figures 2 & 3 of the Stage 1 report clearly show an allowance for right turn traffic out of the car park on to Moona Creek Road which is unacceptable.

24. The original purpose of access D was not just to provide an access to the development direct from The Wool Road but also to mitigate the adverse impacts of the proposal on the existing roundabout (intersection The Wool Road and Naval College Road). The applicant has proposed a left in/left out arrangement for access D. This directs all traffic that would have otherwise turned right into the development towards the existing roundabout as either right turn or u-turn movements, creating an adverse impact at the roundabout. The traffic report does

not provide a comparison of the roundabout conditions for the scenarios both with / without full movements at access D. The CBH&K report also understates the traffic generation at access D because the pad sites have not been factored in to the traffic generation. This is all necessary in order to assess whether the proposal is acceptable in terms of the additional impacts at the roundabout. The modelling would need to consider the full impacts at 120th HH demand flow levels both with / without the development in current conditions and the future scenario. These aspects are all omissions from the CBH&K report. The left in / left out scenario is likely to be unacceptable in Traffic Unit's view, as was found in the previous analysis.

25. Similarly by removing the right turn out of the development (from access D) this will create additional traffic conflicts in the car park, and additional traffic loading at Moona Creek Road. It may also lead to unacceptable u-turn movements on The Wool Road which could only be addressed by installation of the previously proposed median island.

26. The applicant has not proposed to restrict access D to left in/left out by physical means. This would not be acceptable for a significant traffic generator like a shopping centre directly adjoining the busiest road in the Bay & Basin area. Any restrictions must be by physical means to a level acceptable to Council. This would be subject to first convincing Council that the additional impacts on the roundabout could be accepted (this was not able to be demonstrated in the previous analysis, thus the previous requirement for access D). Inadequate justification has been provided , and reducing access D to left in / left out is not accepted. Such a suggestion may be acceptable for a small traffic generator, not a significant generator such as a shopping centre and associated developments.

27. Because not reported in the traffic report Council traffic unit have considered latest crash data and also summarised the traffic increases on the broader network as consequence of the development (based on the consultants own traffic data) in addition to traffic data from Council (see below). The Crash data indicates crash problems on the existing network, based on current traffic levels.

28. The traffic data (based on the generation provided in the applicants traffic report) identifies daily traffic flows will increase by up to 211% (west of the development of which 53% is development proportion), 43% (east of the development of which 30% is development proportion), 69% (north of the development of which 41% is development proportion), and 47% (south of the development of which 32% is development proportion), yet the impact of these increases and the external works required to effectively mitigate these impacts have not been assessed by the applicant.

29. The cost of external works was crudely determined by Council when the original master plan development was being assessed (refer costs and proportions documented below). This led to the statement of commitments which was based on the developer undertaking all of the works to ultimate level in Naval College Road and The Wool Road around the perimeter of the development, in leui of making proportional contributions to a broader range of external works in addition to necessary works around the perimeter of the development. The Mod 5 ignores the philosophy of the original statement of commitments by not committing to the

external works in the immediate surrounds of the development, but also not identifying or committing to works required to address the strategic ripple effect of the development.

Other non factual statements in the CBH&K Traffic report:

30. Stage 1 report- Cl 2.16 and Stage 2 of the CBH&K report (Cl 2.16) – states there is a roundabout controlled intersection B (Naval College Road and Bayswood Avenue), however this intersection is not a roundabout controlled intersection.

31. Stage 1 report- Cl 3.26 – dot point 4, refers to a roundabout controlled intersection of Naval College Road and Moona Creek Road. However the Statement of Commitment to achieve this has been deleted by the MOD 5 application and this is unacceptable.

32. Stage 2 of the CBH&K report Cl 3.29 –dot point 2, refers to the existing roundabout at the Naval College Road and The Wool Road would require upgrading to two lanes and two departure lanes on three of the legs. However the Statement of Commitment to achieve this has been deleted by the MOD 5 application and this is unacceptable.

Due to the above issues with the applicants Mod5 and associated traffic report it is recommended that the proponent amend the report and application to the effect that the original statement of commitments be reinforced.

If the applicant continues to propose the Mod5 in its current form it is clear that a full traffic impact study that addresses the above issues is required in the first instance to allow a more thorough appraisal of the proposal.

Preliminary concerns regarding new plans submitted with Mod 5

The new Mod5 plans include some changes which are of concern including:

1. It is not accepted that works included in the statement of commitments have been deleted from The Wool Road and Naval College Road. The traffic assessment report has not provided satisfactory evidence that is justified (in the context of the original statement of commitments).

2. The new Mod5 plans do not address pedestrian safety on The Wool Road or Naval College Road. The proposal is to build a shopping centre on the other side of busy regional roads from several local schools (existing High school and Primary schools) and two proposed schools (existing approvals). The original statement of commitments provided an underpass under Naval College Road and traffic signals at multiple locations on The Wool Road (to manage not just traffic conflicts but provide important pedestrian safety treatments for access to the BBLC and the new shopping centre). The new mod5 has both understated the traffic impacts, and completed ignored the pedestrian safety aspects of the original statement of commitments. Both traffic signals on The Wool Road are required at Stage 1 to provide appropriate traffic management and pedestrian safety as consequence of the new development.

3. Notwithstanding the traffic analysis that would find access D is unacceptable as left in / left out due to adverse impacts at the roundabout, also because of additional internal conflicts and likely u-turn movements on The Wool Road, also because the original statement of commitments provided for traffic signals at access D and BBLC /HS access to also cater for pedestrian safety, it is further completely unacceptable that access D be left in/left out when considering the needs of service vehicles including large rigid trucks and semi-trailers needing to service the bulky goods retail precinct and the southern pad sites and because of the access restrictions posed at access D these large vehicles would have to otherwise traverse through the busiest sections of the shopping centre car park. This is a fundamental planning and design flaw, is not consistent with RMS guidelines that require service vehicles to be separate service from general traffic where ever possible (no excuses at a green fields site of this size) and Traffic Unit find it completely unacceptable. Access D must be provided as full access and signalised as per the original statement of commitments to mitigate the impact of the centres traffic on the roundabout, eliminate the likelihood of unsafe u-turns on The Wool Road, provide safe pedestrian crossing, and ensure service vehicle traffic remains largely on the main road network and does not need to traverse through the busiest part of the shopping centre car park for servicing of the Bulky goods retain area and southern pad sites.

4. The mid block traffic signal proposal (in lieu of underpass on Naval College Road) is not shown on the plans. Stockland have lodged a current Modification No 13 to the original Concept approval with the Department and this is awaiting determination. At the time of this report being prepared it is understood that the Mod 13 has received approval. The Mod 13 proposes the deletion of the required underpass and the placement of a mid-block signalised crossing on Naval College Road. Council has supported this so that acceptable pedestrian safety can be maintained. The Mod 5 has not included any reference to that signalised crossing, and given the subsequent approval of Mod13 the signals should be shown on the drawings in the location preferred by Council and RMS (approximately mid block between the two roundabouts). The internal Boardwalk through the car park should be aligned to the future crossing location.

5. The proposed shared pathway network is accepted however in accordance with the original statement of commitments must be extended along The Wool Road (north side) to the BBLC access.

6. It is not accepted that the intersection of Moona Creek Road / Halloran Street become a 4 leg junction including access to a proposed new loading dock. For traffic and pedestrian safety reasons, and amenity of the development frontage; the intersection of Moona Creek Road / Halloran Street must be retained as a three leg junction. Service access should be via the far eastern roundabout.
7. That said if the DPI were going to accept the Mod5 with service access direct from Moon Creek Road/Hallaron Street intersection as shown, the mountable roundabout solution is not accepted under those conditions and traffic signals must be provided (if for a four leg junction), designed to cater for design service vehicle, and to ensure pedestrian safety is not compromised. It is noted that traffic signals were originally shown as the preferred treatment on a version of draft master plan agreed to between Council and RMS prior to statement of commitments being adopted. A mountable roundabout was agreed to on the basis

that the Moona Creek Road/Halloran Street intersection would be reduced to a simple three leg junction and not accommodate development traffic. This is obviously being revisited with the Mod5. The proposal as shown in Mod5 is not accepted.

8. There is a land dedication issue at the intersection of Moona Creek Road / Halloran Street (north east corner) that must be resolved to allow the proposed roundabout at both the MOD 4 and the MOD 5 applications to be built.

9. Approval should not be given to the two northern pad sites without including an assessment and design layout for consideration. There are concerns regarding internal traffic and queuing conflicts. In the absence of a detailed assessment, or design layout, it is Traffic Units view that traffic could access and egress from both of the pad sites from internally within the development site, however egress from both pad sites could be permitted direct to Naval College Road (restricted to left out traffic access because of the median required in Naval College Road) to mitigate internal impacts and additional impacts in Moona Creek Road. Location and layout of the pad sites, and egress design to Naval College Road subject to review of overall design layout (all external works required), in particular having due regard to the proximity to the proposed mid-block traffic signals on Naval College Road. Safe pedestrian access must be provided from both Naval College Road and from internally within the development. The mod5 has provided no detail to assist in assessing the traffic implications of the pad sites which could affect the final positioning of the mid block traffic signals. Accordingly a design layout showing the development layouts and all external road works in accordance with the original statement of commitments is required so these impacts can be properly assessed.

10. Disabled car parking provisions are not satisfactory. Location of disabled parking must be as close as possible to all of the shopping centre pedestrian access points. It is not accepted that some general car parking spaces are closer to access points than some disabled car parking spaces. Further disabled parking numbers must exceed Australian standard requirements consistent with Council resolution (due to higher than average representation of aged population in Shoalhaven City). To comply with DDA requirements disabled car parking spaces should also be provided on Moon Creek Road in traffic units view. It is suggested that the angled spaces closest to Halloron Street could be converted in accordance with standards.

11. There is no evidence bike racks have been provided in accordance with standards at reasonably convenient locations for both staff and customers. There is also no evidence that lockers and showers have been provided for staff to encourage walking/cycling as an alternative mode to travel to/from work in accordance with Council's integrated transport strategy.

12. No pedestrian refuge has been shown in the median island at the car park entrance/exit to Moon Creek Road.

13. No footpath has been shown to the east of Halloran Street (south side), that is unacceptable. The footpath must extend to the eastern roundabout and link to pram ramps and refuges shown at that location.

14. It is not clear whether the fact that footpaths are not shown as shaded on the northern side of Halloran Street means they are not proposed? If so that is completely unacceptable. All works in the Moona Creek Road reserve including all road, footpath, intersection, and all associated works must be provided as per the latest version of design plans accepted by Council (subject to outstanding amendments). This includes all footpath connections to Halloran Street and Dinghy Street.

15. It is not clear what the intent of the indented bay is immediately to the south of Moona Creek Road? If that is proposed as a pick up/ drop off area, there must be an internal roundabout provided at the first internal intersection/access south of that location to facilitate safe and efficient turnaround of vehicles. The median island at the entry/exit would be required to be extended to the internal roundabout and pedestrian refuges provided at suitable locations to suit internal pedestrian desire lines.

Existing Crash Statistics

From latest 5 year crash period: January 2007 – December 2011

Crash data in proximity of Naval College Rd / The Wool Rd roundabout provided below. The raw crash data is provided in the attached spreadsheet.

Criteria for a site to be classified as a "Black Spot" or "Black Length" is as follows in accordance with RMS & Nation Building Program policy:

- Black Spot (up to 3km in length) – at least 3 casualty crashes in the most recent 5 years of crash data
- Black Length (over 3km in length) – at least an average of 0.2 casualty crashes per kilometre per annum over most recent 5 years of crash data

For further information see:
http://www.rta.nsw.gov.au/doingbusinesswithus/downloads/lgr/process_in_applying_bsp.pdf
& http://www.nationbuildingprogram.gov.au/funding/blackspots/eligibility_of_sites.aspx/

NORTH LEG - Naval College Road, north of The Wool Road

- 14 x casualty crashes within approx 6.0km of roundabout (Naval College Road between Huskisson Rd & The Wool Rd)
- This equates to crash rate of **0.47 casualty crashes per km per year**
- Furthermore, there was an additional 21 x non-casualty (towaway) crashes in the same period along this same section
- Accordingly, this equates to crash rate of **1.17 total crashes per km per year**

Meets criteria for Black spot and Black length

EAST LEG - The Wool Road, east of Naval College Road

- 1 x casualty crash within approx 1.3km of roundabout (The Wool Road between Naval College Rd & George Caley Place)
- This equates to crash rate of **0.15 casualty crashes per km per year**
- Furthermore, there was an additional 1 x non-casualty (towaway) crash in the same period along this same section
- Accordingly, this equates to crash rate of **0.31 total crashes per km per year**

Does not meet criteria for Black spot or Black length

SOUTH LEG - Naval College Road, south of The Wool Road

- 3 x casualty crashes within approx 2.0km of roundabout (Naval College Road between The Wool Rd & Erowal Bay Rd)
- This equates to crash rate of **0.30 casualty crashes per km per year**
- Furthermore, there was an additional 2 x non-casualty (towaway) crashes in the same period along this same section
- Accordingly, this equates to crash rate of **0.50 total crashes per km per year**

Meets criteria for Black Spot

WEST LEG - The Wool Road, west of Naval College Road

- 12 x casualty crashes within approx 2.5km of roundabout (The Wool Road between Larmer Ave & Naval College Rd)
- This equates to crash rate of **0.96 casualty crashes per km per year**
- Furthermore, there was an additional 7 x non-casualty (towaway) crashes in the same period along this same section
- Accordingly, this equates to crash rate of **1.52 total crashes per km per year**

Meets criteria for Black spot and Black length

The above crash data should have been taken into consideration in the applicants traffic report (consistent with RMS guidelines). Existing crash records on the surrounding road network have not been taken into consideration in the applicants latest proposal (Mod5) to avoid doing any external road works.

Implications of Development Traffic Impacts

The impacts portrayed in the applicants traffic report are arguably low because the consultants has not considered seasonal fluctuation of traffic demand as required by AUSTROADS and RMS guidelines.

The applicant has also not attempted to convert peak hour flows to daily traffic flows for other assessment requirements.

Undertaking intersection assessments (only) using SIDRA is a typically urban approach to traffic assessment.

In this case even the consultants own traffic suggests a very significant and broad ripple effect of the development will occur over an extensive length of the existing road network, yet there has been no assessment of impact on the surrounding roads other than limited to the existing intersections around the development.

In the limited time Council Traffic Unit has had to assess the new information, Council had access to its own surveys which were used to provide a guide to peak/daily ratios and existing daily flows on a Thursday and Saturday (as surveyed\, not seasonally adjusted, to be consistent with the consultants approach).

Based solely on the traffic flow diagrams provided by CBH&K from their two respective reports, and using the Council traffic (tube) data as base daily flows (and peak-daily ratios), the following regional traffic impacts can be crudely determined as follows:

Stage 1 Impacts: Existing Thursday PM peak + development traffic

Naval College Road, north of Bayswood Avenue
+ 140 vph (peak hour)
PM peak-daily ratio 0.094
Therefore + 1489 vpd (additional daily traffic from the development)
Existing Thursday (from 3 May 2007): 3,250 vpd
Therefore 3,250 + 1489 vpd (additional daily traffic from the development) = 4,739 vpd
Represents a 46% increase in traffic with the development
Proportion of development traffic (to total traffic): 31%

Naval College Road, south of The Wool Road
+ 115 vph (peak hour)
PM peak-daily ratio 0.102
Therefore + 1127 vpd (additional daily traffic from the development)
Existing Thursday (from 3 May 2007): 3,329 vpd
Therefore 3,329 + 1127 vpd (additional daily traffic from the development) = 4,456 vpd
Represents a 34% increase in traffic with the development
Proportion of development traffic (to total traffic): 25%

The Wool Road, west of Naval College Road
+ 495 vph (peak hour)
PM peak-daily ratio 0.089
Therefore + 5562 vpd (additional daily traffic from the development)
Existing Thursday (from 31 May 2007): 8,191 vpd
Therefore 8,191 + 5562 vpd (additional daily traffic from the development) = 13,753 vpd
Represents a 68% increase in traffic with the development
Proportion of development traffic (to total traffic): 40%

The Wool Road, east of Naval College Road
+ 270 vph (peak hour)
PM peak-daily ratio 0.087
Therefore + 3103 vpd (additional daily traffic from the development)
Existing Thursday (from 31 March 2005): 9,396 vpd
Therefore 9,396 + 3103 vpd (additional daily traffic from the development) = 12,499 vpd
Represents a 33% increase in traffic with the development
Proportion of development traffic (to total traffic): 25%

Stage 1 Impacts: Existing Saturday mid day peak + development traffic

This diagram in the consultants report is incomplete (additional development traffic not shown on the surrounding network)

Stage 2 Impacts: Existing Thursday PM peak + development traffic

Naval College Road, north of Bayswood Avenue
+ 170 vph (peak hour)

PM peak-daily ratio 0.094
Therefore + 1808 vpd (additional daily traffic from the development)
Existing Thursday (from 3 May 2007): 3,250 vpd
Therefore 3,250 + 1808 vpd (additional daily traffic from the development) = 5,058 vpd
Represents a 56% increase in traffic with the development
Proportion of development traffic (to total traffic): 36%

Naval College Road, south of The Wool Road
+ 155 vph (peak hour)
PM peak-daily ratio 0.102
Therefore + 1520 vpd (additional daily traffic from the development)
Existing Thursday (from 3 May 2007): 3,329 vpd
Therefore 3,329 + 1520 vpd (additional daily traffic from the development) = 4,849 vpd
Represents a 46% increase in traffic with the development
Proportion of development traffic (to total traffic): 31%

The Wool Road, west of Naval College Road
+ 785 vph (peak hour)
PM peak-daily ratio 0.089
Therefore + 8820 vpd (additional daily traffic from the development)
Existing Thursday (from 31 May 2007): 8,191 vpd
Therefore 8,191 + 8820 vpd (additional daily traffic from the development) = 17,011 vpd
Represents a 208% increase in traffic with the development
Proportion of development traffic (to total traffic): 52%

The Wool Road, east of Naval College Road
+ 320 vph (peak hour)
PM peak-daily ratio 0.087
Therefore + 3678 vpd (additional daily traffic from the development)
Existing Thursday (from 31 March 2005): 9,396 vpd
Therefore 9,396 + 3678 vpd (additional daily traffic from the development) = 13,074 vpd
Represents a 39% increase in traffic with the development
Proportion of development traffic (to total traffic): 28%

Stage 2 Impacts: Existing Saturday Mid day peak + development traffic

Naval College Road, north of Bayswood Avenue
+ 170 vph (peak hour)
PM peak-daily ratio 0.0934
Therefore + 1820 vpd (additional daily traffic from the development)
Existing Saturday (from 5 May 2007): 2,655 vpd
Therefore 2,655 + 1820 vpd (additional daily traffic from the development) = 4,475 vpd
Represents a 69% increase in traffic with the development
Proportion of development traffic (to total traffic): 41%

Naval College Road, south of The Wool Road

+ 155 vph (peak hour)
PM peak-daily ratio 0.097
Therefore + 1598 vpd (additional daily traffic from the development)
Existing Saturday (from 5 May 2007): 3,393 vpd
Therefore 3,393 + 1598 vpd (additional daily traffic from the development) = 4,991 vpd
Represents a 47% increase in traffic with the development
Proportion of development traffic (to total traffic): 32%

The Wool Road, west of Naval College Road
+ 785 vph (peak hour)
PM peak-daily ratio 0.097
Therefore + 8093 vpd (additional daily traffic from the development)
Existing Saturday (from 2 June 2007): 7,281 vpd
Therefore 7,281 + 8093 vpd (additional daily traffic from the development) = 15,374 vpd
Represents a 211% increase in traffic with the development
Proportion of development traffic (to total traffic): 53%

The Wool Road, east of Naval College Road
+ 320 vph (peak hour)
PM peak-daily ratio 0.0906
Therefore + 3532 vpd (additional daily traffic from the development)
Existing Saturday (from 2 April 2005): 8,271 vpd
Therefore 8,271 + 3532 vpd (additional daily traffic from the development) = 11,803 vpd
Represents a 43% increase in traffic with the development
Proportion of development traffic (to total traffic): 30%

The traffic volume increases shown above are of significant concern when considering the existing level of road network and existing crash statistics.

This has not been addressed in the applicant's traffic report.

The traffic volumes shown above would be worse than indicated if there was adjustment of the Council tube data to 2012 flow levels, if seasonal adjustment were also considered (as required), and if an adequate ten year (future) assessment was undertaken also as required.

This indicates beyond reasonable doubt that the development (even at Stage 1) will create unacceptable impacts to the surrounding road network which requires road upgrading as per the original statement of commitments.

In summary, generally the following increases / proportions can be derived from the above assessment:

Stage 1 (Minimum likely impacts)
Naval College Road, north of Bayswood Avenue
Represents a 46% increase in traffic with the development
Proportion of development traffic (to total traffic): 31%

Naval College Road, south of The Wool Road
Represents a 34% increase in traffic with the development
Proportion of development traffic (to total traffic): 25%

The Wool Road, west of Naval College Road
Represents a 68% increase in traffic with the development
Proportion of development traffic (to total traffic): 40%

The Wool Road, east of Naval College Road
Represents a 33% increase in traffic with the development
Proportion of development traffic (to total traffic): 25%

Combined Stage 1 / Stage 2 (Minimum likely impacts)
Naval College Road, north of Bayswood Avenue
Represents a 69% increase in traffic with the development
Proportion of development traffic (to total traffic): 41%

Naval College Road, south of The Wool Road
Represents a 47% increase in traffic with the development
Proportion of development traffic (to total traffic): 32%

The Wool Road, west of Naval College Road
Represents a 211% increase in traffic with the development
Proportion of development traffic (to total traffic): 53%

The Wool Road, east of Naval College Road
Represents a 43% increase in traffic with the development
Proportion of development traffic (to total traffic): 30%

The above states "Minimum likely impacts" because there has been no adjustment of the Council data to 2012 flow levels, no seasonal adjustment (to background traffic or shopping centre traffic), and no ten year (future) assessment undertaken, accordingly the above summary represents the very minimum likely traffic impacts as can be interpreted from the applicant's traffic assessment report.

Cost of External Works (Ripple Effect of the development)

Before the original Concept - Statement of commitments was agreed to with Council, the alternative to the applicant doing the full extent of works around their frontage in Naval College Road and The Wool Road was to determine the proportion of costs from the development towards the full range of regional road works required as consequence of the development.

Works were identified in Jervis Bay Road, Naval College Road and The Wool Road remote from the site (this was determined from a range of projects determined to be required more remote from the development surrounds (works in the immediate surrounds of the development were assumed would be full applicant responsibility).

The result was as follows (all works determined to be required as consequence of the additional development traffic):

Total cost of projects to the north of the development (works meeting RMS or AUSTROADS warrants as consequence of the development)

- Naval College Road north of the development site (realignment of the road and providing overtaking lanes): $8,400,000
- Full channelization of the intersections of Naval College Road and Jervis Bay Road with Pine Forest Road and Huskisson Road: $1,218,000
- Jervis Bay Road (providing overtaking lanes): $4,200,000

Total in 2006 dollars ($13,818,000)
Adjustment to 2013 dollars @ 4% p.a. construction inflation ($18,183,545)
Developer proportion 41% (refer above): $7,455,253

Total cost of projects to the west of the development (works meeting RMS or AUSTROADS warrants as consequence of the development)

- Provide 4 lanes along The Wool Road between Naval College Road and Larmer Avenue (realignment through Old Erowal Bay): $10,864,000
- Additional cost of Intersection treatments: $1,414,000

Total in 2006 dollars ($12,278,000)
Adjustment to 2013 dollars @ 4% p.a. construction inflation ($16,157,010)
Developer proportion 53% (refer above): $8,563,215

Total cost of projects to the east of the development (works meeting RMS or AUSTROADS warrants as consequence of the development)

- Provide 4 lanes along The Wool Road between the High School and Beach Road): $6,594,000
- Additional cost of Intersection treatments: $1,358,000

Total in 2006 dollars ($7,952,000)
Adjustment to 2013 dollars @ 4% p.a. construction inflation ($10,464,290)
Developer proportion 30% (refer above): $3,139,287

Total cost of projects (address ripple effect of development ie remote from the immediate surrounds of the development):

Total in 2006 dollars ($34,048,000)
Adjustment to 2013 dollars @ 4% p.a. construction inflation ($44,804,845)
Developer proportion in 2013: $19,157,755 (was $14,558,319 in 2006 dollars)
Developer proportion calculates as 43%

The basis of the original agreement was that rather than requiring the developer to pay $14,558,319 ($19,157,755 in 2013 dollars) and accordingly committing Council to the projects (requiring Council to commit in the order of $25,647,090) it was agreed that these projects would not be added to Council's contributions plan, instead the developer would be conditioned in accordance with the statement of commitments to construct the full extent of works around the full perimeter of the site in Naval College Road and The Wool Road, and Council agreed that it would be responsible for undertaking works along the broader regional road network (beyond the perimeter of the development) to address the strategic ripple effect of the development.

Map 1 of the MacroPlan Dimasi report identifies the primary and secondary trade area for the Vincentia Marketplace. On the basis of future growth and congestion in the Nowra/Bomaderry area, arguably there should have been a second "secondary" area

to the north and west of the primary area as well. Notwithstanding that observation, even the current map 1 identifies there will be a strategic ripple effect of the development on far reaching area, not limited to the very isolated confines of the CBH&K traffic surveys.

When considering the very considerable likely ripple effects of the development, even to the minimum extent that can be interpreted from the CBH&K traffic report, it is considered appropriate that the applicant be required to upgrade the full extent of the surrounding road network (Naval College Road and The Wool Road) in the immediate vicinity of the development, as reflected in the original statement of commitments. Council will have a very considerable responsibility to fund works more remote from the development, as a consequence of the development, it is unreasonable to expect Council should also fund works in the immediate vicinity of the development, required to accommodate the development.

The Mod5 application and the associated traffic reports, have the effect of not only ignoring the very significant strategic ripple effect of the development, but ignoring the original statement of commitments.

If this is accepted by the DPI the additional impacts and associated cost to the community is likely to be very significant and this should not be accepted.

Response to allegations the BBLC access road is over designed

The applicant claims Council is being unreasonable in their requirements for the BBLC access road and argues the replacement access must be like for like (drawing comparison to the existing access road)

There are four factors that make it problematic (arguably impossible) to provide "like for like" in terms of the new access road. Those factors are:

1) the new access road is at a considerable grade (even Cardno, the proponents consulting engineers, acknowledged that because of the grades and associated drainage issues that K&G would be required for the new access road), it is the application that warrants the new access road, therefore that additional cost of K&G is a part of the necessary road works, Council never specified the K&G as a design objective, it arose as consequence of Cardno's review of the drainage impacts of their initial design
2) the new access road is significantly shorter than the current access road, this means that bus storage requires more engineering to achieve satisfactory storage (accordingly the need for the indented bus bay)
3) the new access road is significantly shorter than the current access road, this means handling traffic storage at the new signalised intersection requires more engineering to achieve satisfactory queue storage (ie the second approach lane)
4) the new access road is on an alignment close and parallel to the existing car park aisle (not perpendicular like the current access road), this means a large radii is required to allow buses to safely access the car park (takes on the form of the proposed roundabout), it also makes it impossible for a large rigid bus to exit the car park via the same road (thus the additional proposed egress from the southern side of the car park to resolve that issue)

When you consider those factors above it can quickly be seen that whilst the starting point of the design ‘was’ like for like, quickly it was realised (even by the applicants engineering consultants Cardno) that additional engineering factors are required to make the shorter tighter alignment of the new access road work without adverse safety and efficiency consequence. It was on this basis that previous discussions with Cardno confirmed that the current design of the access road (based on the above factors) was ‘all’ of the applicants responsibility, the only additional costs for Council to bear were:

- cost of an access stub on northern side of the main roundabout for access to the new RFS building (and that is not essential – Council could provide later in conjunction with the RFS building)
- cost of the small roundabout central island and some minor road widening (additional pavement costs) associated with the smaller roundabout, these costs were minimal on the basis that additional lanes were required to that point anyway (for storage to the new signals), K&G was required anyway to address storm water run off issues, accordingly the additional costs were minor pavement widening to achieve the shape of a roundabout and cost of the central island
- additional landscaping or other treatment on the larger roundabout, over and above what would normally be required for a basic level landscaping treatment (if Council decides it wants to achieve a higher standard of visual impact at the entrance) – additional costs not essential, Council can embellish the roundabout at later date if required
- any additional works Council wanted to achieve in conjunction with the access road works (not directly related to the access road)