

ATTACHMENT “B”

McLAREN TRAFFIC ENGINEERING REPORT

McLAREN TRAFFIC ENGINEERING

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

MIRANDA Office:

Level 1
29 Kiara Road
MIRANDA NSW 2228
Ph 61-2-8543-3811
Fax 61-2-8543-3849

Email: mclaren@ozemail.com.au

Mobile (0412) 949-575



Accounts Office:

5 Jabiru Place
Woronora Heights
NSW 2253
Ph 61-2-9545-5161
Fax 61-2-9545-1227

31 January 2011

2010/110.L01 CM/sm

Sutherland Shire Council
C/o Environmental Lawyer
Locked Bag 17
SUTHERLAND NSW 1499

ATTENTION: Mr Adam Markham,
Dear Adam,

SUBJECT: DA # DN10/0007
PROPERTY: 566-594 PRINCES HIGHWAY, KIRRAWEE

TRAFFIC AND PARKING ISSUES – BRICKPIT SITE

Reference is made to your request for a detailed review of the traffic report lodged with the Part 3A Application for the Kirrawee Brickpit site. Our findings of this review with particular regard to the lodged HALCROW traffic report and with due consideration to the detailed assessment / joint conferencing outcomes that arose during the 2008 Land & Environment Court appeal are as follows:

1. Land Use

- The DA introduces a bulky retail / showroom use (3,200m²) and a 200 space commuter car park which were not previously considered in the previous and less intense scheme rejected by the Land & Environment Court (*Restifa Pty Ltd v Sutherland Shire Council & ors* [2009] NSWLEC 1267) on 7 August 2009. The bulky retail / showroom use has not been adequately defined in the assessment.
- A response to the Court's rejection of previous DA largely on the grounds on the scale of the retail component has not been addressed by the applicant. In particular the following concluding statements made by Commissioners Tuor & Taylor is relevant:
- *"We have concluded that LEP 2006 and DCP 2006 define a hierarchy of centres and that, in this hierarchy, retailing has a specific role to play. Kirrawee is intended to remain a local centre and retailing is to serve the needs of the local population. The Brick Pit site is intended to provide predominantly residential development with a commercial component and to a lesser extent retail supporting the needs of the new population and creating an active live/work environment. In our opinion, Kirrawee Town Centre together with the development of the Brick Pit site is envisaged to remain a local centre."*



M^CLAREN TRAFFIC ENGINEERING

The agreed evidence of the experts is that the supermarket and associated retail will mainly be accessible by vehicles and will meet the shopping needs of a wider catchment. The submission of the applicant is that with the development of the Brick Pit site and other sites in the mixed use zone it is inevitable that Kirrawee Town Centre will not remain a local centre. In our opinion this is inconsistent with what is envisaged in the planning controls for the area.

No assessment of the economic impacts of a 4,500 supermarket has been undertaken. Given the scale of the development and its likely impacts we are not satisfied that we can rely on the previous economic analysis for the original two supermarket and a "judgement call" made by the experts. Particularly as there were significant doubts raised about the impact of the original scheme and its methodology in calculating the figure for retail trade data. Given the amendments to the proposal, we do not think it appropriate to further delay the proceedings for such an assessment to be undertaken nor was any request to this effect made by the parties.

In our opinion the size of the supermarket and retail component has the potential to impact on the sustainability of Kirrawee and Sutherland Centres. If not economically but in the strategic role that they play in the region, which needs to be thoroughly assessed."

2. Traffic Generation & External Traffic Impacts

- Looking at the TMAP / traffic report by *Halcrow* (Oct 2010), the estimation of projected traffic generation is significantly flawed because of the retail component. On page 27 the report uses the coarse rate of 7.6 vehicle trips per 100m² (Thursday PM) and 7.5 vehicle trips per 100m² (Saturday noon) for shopping centres from the RTA Guide, which should only be used if the mix is unknown. Using the empirical RTA formula for the individual uses (& assuming that the bulky / showroom area functions as a specialty shop) gives a total of 1,152 and 1,422 peak hour RETAIL vehicle trips for Thursday afternoon and Saturday noon periods respectively.
- The same approach of using the empirical formulae was used during the L&E appeal for the mix of retail that was agreed between the planning and traffic experts (i.e. 3,500m² supermarket plus additional 4,085m² specialty shops). That mix resulted in an agreed peak hour traffic generation rate of 9.6 vehicle trips per 100m² (Thursday PM) for the retail component. A rate much higher than 7.5 vehicle trips per 100m² is also expected for the Saturday noon assessment period. It is also relevant to note that the RTA's recorded Friday PM peak hour vehicle trip rate for Kareela Shopping Centre in 1990 was 12.5 vehicle trips per 100m² which included the effects of a 3,000m² Coles supermarket and 2,174m² specialty shops.
- The Saturday peak hour impact within the local road network is also required to be looked at in more detail as the HALCROW report (Table 8-3, page 31) shows that the Princes Highway junctions with Oak Road and Acacia Road perform at a poorer level of service in the future compared with the Thursday PM peak.
- The key point on generation is that supermarkets have a much higher attraction – and hence traffic generation – compared with specialty shops and department stores. I always prefer to use the RTA disaggregated model (empirical formula), which assigns different rates for different retail / shop types. The stated weekday AM peak traffic percentage of 30% is reasonable.

M^CLAREN TRAFFIC ENGINEERING

- The assignment of traffic for the retail component needs to reflect an intended catchment area. It is noted that no economic assessment has been provided and that there are differences in assignment of traffic compared with that agreed in the L&E appeal.
- The reported rates for commercial and commuter car park are reasonable. For residential, the report adopts an RTA sub-regional centre rate of 0.29 veh/hr/unit. It is not really a sub-regional centre but it does have good public transport. The report estimates $450 \times 0.29 = 131$ veh/hr. I would prefer a mid-range projection of 316 by 1-2BR units @ 0.3 + 134 by 3BR units @ 0.4 = about 148 veh/hr.

- Overall, the HALCROW & M^CLAREN peak hourly figures are:

	Thursday AM	Thursday PM	Saturday
HALCROW	431	1,092	1,063
M ^C LAREN	590	1,397	1,570

- Clearly, with these differences, reliance cannot be put on HALCROW'S assessment of the external traffic impact as they are too low. The percentage & numeric differences are as follows:

	Thursday AM	Thursday PM	Saturday
Difference %	+36.9%	+27.9%	+47.7%
Difference	+159	+305	+507

- This assessment also has to be revisited because of the unreasonable assumptions on vehicular access to and from the site. The entry and exit driveway from Oak Road was an issue of great debate during the previous L&E Appeal. The applicant's traffic consultant for that project accepted the difficulty in allowing retail traffic entering and leaving the site at that location given its close proximity to the Princes Highway traffic signals and left turn slip lane. If this access is to be retained to service higher traffic flows than previously considered (including the commuter car park below the open space / public park, then it must be further relocated to the south to improve its operational performance (in terms of traffic flow efficiency and road safety considerations). If this retail access is downgraded then the impact of displacing traffic into Flora Street and connecting streets needs to be re-assessed. Further details of this access and its relationship with the traffic signals / slip lane at the Princes Hwy / Oak Road junction in terms of lane arrangements and sight distances needs to be examined further.
- The vehicle trip distribution appears to contain some discrepancies. There needs to be a further examination to see if it had reasonable agreement with any retail impact studies lodged with the application.
- The impact assessment only uses the SIDRA model, which is inadequate for the Princes Highway modelling and ignores the well developed SCATES model that the RTA used for the "Pinch Point" Corridor Modelling in July 2008. The SIDRA results do not correspond to those evaluated previously for the Princes Highway especially its junction with Oak Road that currently performs poorly (LoS "F") in the weekday AM peak and near capacity (LoS "D") in the weekday PM peak. The report provides misleading comments with regard to the need for the Stage 2 road works as identified on page 5 of the RTA's letter dated 29 June 2009 (as contained in Appendix B of the Halcrow report). The need for the Stage 2 road works is required for the supermarket

M^CLAREN TRAFFIC ENGINEERING

component of the subject development and not due to the impact of the operating Bunnings development. The external traffic impact assessment needs to be extended to include the impacts on the northern Waratah Street precinct including its intersections with Oak Rd, Bath Rd & the Princes Hwy. In addition the junction of Hotham Road with both President Avenue and The Kingsway needs to be included.

- There thus needs to be a lot more work on external traffic impacts. This should also include approved / operational development sites to the north off Oak Road, being Bunnings and the concrete plant. The analysis of Highway intersections should be undertaken using the SCATES program, taking into account signal co-ordination issues. Background growth along the highway will need to be included in consultation with the RTA.

- The RTA's Stage 1 & Stage 2 works are as follows:

➤ **Stage 1:**

- Princes Hwy / Oak Road upgrade to include:
 - Three northbound lanes on Oak Road (south) with each lane being 90m in length.
 - 80m long left turn SLIP lane on the westbound carriageway within the Highway into Oak Road.
 - One southbound lane on Oak Road (south).
 - A 900mm wide raised median island in Oak Road at the proposed left in / left out driveway starting at the stop line at the Highway and to an appropriate point south of the driveway.
- Traffic signals at Oak Road / Flora Street.
- A 60m long deceleration lane into the site from the Highway.
- An independent road safety audit of the proposed left in / left out driveway from Oak Road and its close proximity to the Highway / Oak Road and the SLIP lane.
- A 3.5m wide land dedication to facilitate the left turn deceleration lane on the Princes Highway and left turn slip lane into Oak Road to be provided for the relocation of the footway.
- Land dedication along the Oak Road frontage to provide the additional lanes within Oak Road (south of the Highway) and the 900mm wide raised median.

➤ **Stage 2: (Supermarket on the Brickpit site is the trigger)**

- Princes Highway / Oak Road reconfigured to provide a half road closure of Oak Road (north) involving the discontinuation of the southbound lanes with the northbound lanes remaining open.
- Traffic signals at Princes Highway / Bath Road with the following works:

- Left in left out only for Bath Road (south) with the left out signalised.
 - No through movements across the Princes Highway (i.e. no north-south traffic from Bath Road).
 - Signalised left and right turn out of Bath Road (north) with a double right turn lane.
 - No right turns permitted from the Princes Highway from either direction to Bath Road.
- Sutherland Shire Council to separately assess other localised road works that arise from the RTA's Stage 2 works and its effects upon the northern precinct. The works (yet to be detailed) include modifications at the junctions of Bath Road with Munro Avenue, Waratah Road and possibly the Bunnings driveways plus Waratah Road junctions with Oak Road, the Princes Highway and service road fronting the car yards. The assessment is likely to extend also to the Oak Road / The Boulevard intersection. An independent road safety audit of any required changes to bicycle lane provision to be undertaken.
 - Sutherland Shire Council to also document adverse amenity effects that may occur along the following road segments that may require traffic calming measures to discourage excessive use of these road elements:
 - Flora Street, west of Oak Road.
 - Clements Parade, east of Bath Road.
 - Avery Avenue, north of President Avenue.
 - Oak Road, south of Flora Street (Kirrawee Station shops).
 - The SIDRA analysis for the junction of Oak / Flora is based upon an unreasonably short cycle time of 40 seconds and may not include the impacts of increased pedestrian crossing demand associated with the significant retail / commercial & residential uses proposed on the site.
 - The applicant should provide all electronic files of the intersection analysis for existing and proposed conditions.
 - The applicant should be requested to undertake SCATES modelling of the Princes Highway performance that includes the required Stage 1 & 2 RTA works and micro-simulation of the following localised precincts:
 - Kirrawee Station shops that includes the effects of pedestrian generation and parallel parking manoeuvres.
 - Northern Waratah Road Precinct that includes bicycle path integration and impacts upon driveways (particularly Bunnings).
 - Eastern Precinct that includes Clements Parade, Avery Avenue and Hotham Road.

3. Kirrawee Local Area Masterplan & Impact on Existing Kirrawee Shops

- There are clearly issues with the intersection of Oak Road and Flora Street. It is considered that traffic signals are appropriate for pedestrian safety. The departure route of service vehicles leaving the site from Flora Street has not been identified nor has any swept path details of semi-trailers upon the Flora

Street exit route been provided. The approaches to the intersection of Flora / Oak may need to be widened, probably on the north-east corner, on the site. With signals, two lanes approaching the signals are preferred, with the possible exception of Oak Road South. How entering trucks are directed / managed to use the Highway deceleration lane and roadway is not detailed. It is plausible that some service vehicles may enter the site from Flora Street and the swept path impacts of the largest service vehicle that may do so has not been provided. It is expected that the Oak / Flora intersection will need to be widened to facilitate the swept path of semi-trailer service vehicles associated with the proposed development.

- The SIDRA analysis presented by HALCROW includes 50m long right turn bays on all approaches, with the Oak Road (south) bay resulting in the loss of at least 6 existing parking spaces in front of the Kirrawee village shops.
- The access off Oak Road needs to be carefully reviewed, in terms of vehicle swept paths, lane arrangements, sight distances incorporating provision of a concrete median in Oak Road. Given the greater use of this driveway than envisaged under the previous scheme reviewed by the L&E Court it is recommended that this driveway be further offset to the south away from the Princes Highway. The addition of the underground commuter car park proposed beneath the lake / park and greater retail traffic use of this driveway justifies the relocation of the driveway further south. The minimum offset should be in the order of 60m or greater depending upon the findings of the independent road safety audit.

4 Parking

- Page 33 of the Halcrow report adopts the Council's parking rates for the retail & commercial components and calculates a requirement of 501 spaces (although the bulky goods retail use and low parking rate is of concern especially in terms of whether that use is permissible and if it is then the traffic generation rate on a Saturday is expected to be higher). The agreed retail parking rates adopted during the L&E appeal as contained in Council's controls reflect the RTA rates for supermarkets (1/23.8m² GLFA) and specialty shops (1/22.2m² GLFA).
- The Halcrow report uses 2006 Census Data to reduce the parking provision for residential which results in a 190 shortfall when compared to Council's DCP. There is some merit in the argument given the site location subject to Pedestrian / Cyclist integration that links the site to Kirrawee Train Station and other nominated areas.
- The Halcrow report calculates a total of 1,349 parking spaces (500 retail / commercial, 649 residential and 200 commuter spaces). This provision does not include the displaced angled parking spaces along the Flora Street frontage which was previously assessed by the applicant's traffic consultant as 67 spaces or the required car wash bays for the residential component calculated as 22 spaces.
- The on-site car parking provision is therefore insufficient in terms of resident parking provision, car wash bays and displaced angled parking from Flora Street.
- It is noted that the applicant plans to provide compliant motorcycle and bicycle parking provision within the site, however insufficient information /

plans are provided with respect to handicapped (retail / commercial / community) and adaptable (resident) parking spaces.

- A detailed car park management / allocation plan is required for the entire site which may require dynamic parking guidance system.

5 Public Transport Integration

- There is no assessment in the HALCROW report of the existing passenger capacity and usage rates of the rail and bus services in the immediate vicinity of the site.
- The applicant should further detail the bus / taxi set-down / pick-up areas within the site (in terms of road safety considerations as the bay is on the wrong side of the road for alighting / boarding passengers) and along the Flora Street frontage.

6 Internal Car Park Design

- There are a number of concerns with the lodged plans with respect to internal car park design. Some of the main concerns are:
 - Two entering lanes from Oak Road, one serving the proposed surface roadway around Block H and the Brick Kiln with the other serving the extensive basement parking levels.
 - Internal radii to accommodate the swept path needs of the largest vehicle expected (i.e. Semi-trailers, Fire Appliance vehicle).
 - Tight loading dock arrangement with no independent swept path tests by the applicant's traffic consultant.
 - Concentration of four (4) vehicular access directions at the first basement levels for entering traffic from Oak Road which creates difficulties in terms of driver decision time.
 - The proposed two (2) exit lanes for the entire 1,343 on-site parking spaces within the basement levels (note 6 spaces at ground level) is insufficient to accommodate the peak exit of traffic load of traffic and is likely to create on-site congestion within the internal ramps. A micro-simulation of the driveway performances should be conducted. The Oak Road driveway is expected to experience delay for exiting vehicles given the close proximity to and restricted sight line towards the Princes Highway intersection with Oak Road. Attention to detail of the proposed driveway interface along all road frontages is required.
 - There is concern over the proposed Flora Street driveway performance with respect to priority of exit vehicles (i.e. service vehicles versus general traffic) and pedestrian / cyclist conflicts as well as detailed sight line analysis. Detailed sight line analysis is also needed for the Oak Road driveway.
 - There is no detail with respect to parcel pick-up which is likely for the showroom and some retail tenancy components.

7 Loading and Unloading

- The applicant has not provided swept path diagrams for the service docks nor a loading dock management plan. An assessment of the number of docks has not been provided and a detailed report on how service vehicles make deliveries to the retail / commercial and residential components needs to be provided. This also applies with respect to waste collection for the retail / commercial and residential components.
- Concern is raised about the internal swept path of service vehicles (including semi-trailers) entering from the highway through to Flora Street in terms of required geometry, clearances and impact on urban design.
- The direction of exiting service vehicles from the site into Flora Street and connecting streets have not been detailed to assess whether further widening of the public roads and junctions are needed, particularly the Oak / Flora junction that was modified to support the exit swept path needs of semi-trailers.
- Using the RTA rates the required number of docks are as follows:
 - Normal Retail (includes Supermarket, Mini Major & Specialty) : $11,410 / 400 = 28$ docks (excessive) which could be significantly reduced under a Loading Dock Management Plan to say 6 docks (i.e. $11,410 / 2,000$).
 - Showroom (bulky retail) : $2,930 / 2,000 = 1$ to 2 docks.
 - Office : $840 / 4,000 = 0.2$ (no dock).
 - Residential : $250 / 50 = 5$ docks (or minimum 1 per building).

8 Roads & Traffic Authority

- It is imperative that urgent face-to-face meetings be held with senior RTA officers from strategic planning, development assessment, road safety departments as soon as possible to discuss the subject DA and the lodged traffic report. The Stage 2 road works and their detailed road work requirements need to be fully explored and documented with concept plans.
- The extra information requested should be pursued, particularly with the analysis of Highway intersections and broader study.

9 INADEQUACY OF INFORMATION

- The plans need to include full frontage road details with respect to the three public road frontages to include travel lanes, driveway interface details (including generic profiles), footpaths, cycle paths, pedestrian crossings / refuges, kerbside parking and indented bus bays (for improved public transport integration). This was canvassed with the applicant during the previous court appeal and should be included in a revised set of the plans.
- A detailed loading dock management plan, car park allocation / management plan and more detailed construction traffic management plan that includes construction vehicle approach / departure routes and concrete truck pumper and standing areas should be provided.

10 MATTERS PREVIOUSLY RAISED BY OBJECTORS

- Potential impacts on Clements Parade and Bath Road near Kirrawee Primary School could well be issues worth considering, depending on traffic distribution options.

Finally, we ask that you contact the undersigned should you require further information.
Yours faithfully

M^CLAREN TRAFFIC ENGINEERING

A handwritten signature in black ink, appearing to read 'CMH', is written over the printed name.

Craig M^CLaren
Director