



TMAP Study

**Concept Plan Application For An Existing Industrial
Site at 78-90 Canterbury Road, Lewisham**

Addendum Report

Reference: 09 141 Addendum Report_v6

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Contents

1. Introduction	1
2. Concept Application Plan	3
2.1 Original Concept Plan Application	3
2.2 Proposed Concept Plan	4
3. Car Parking	5
4. Access Principles	7
5. Traffic Implications	8
5.1 Proposed Traffic Generation	8
5.2 Other Planned Traffic Generating Developments	9
5.3 Performance of Key Intersections	11
6. Conclusions	13

Appendix A: RTA Response to Original Concept Plan

Appendix B: Reduced Plans

Appendix C: Traffic Distribution Tables & Calculations



1. Introduction

Traffic was previously commissioned by Lewisham Estates to undertake a Transport Management Accessibility Plan (TMAP) assessment in support of a Concept Plan Application for the existing industrial site at 78-90 Old Canterbury Road, Lewisham for a mixed retail and residential development.

A Concept Plan Application was subsequently submitted to the NSW Department of Planning (DoP) which was exhibited and was the subject of a number of responses from relevant Government authorities, including the RTA (a copy of the RTA's response is included in **Appendix A**). In this regard, the proposal has been amended (reduced in size) to respond to concerns as raised; which has resulted in a fundamental reduction in the level of traffic activity associated with the site.

This report documents the findings of our further investigations in relation to the amended plans which respond to concerns raised generally, but particularly those of Council and the Roads and Traffic Authority.

In particular, the development intensity has been substantially informed by the limited capacity of the road system to accommodate future traffic volumes, so that every effort has been taken to moderate car travel. This includes the elimination of commercial and large retail uses on the site, with the predominant use being residential units, together with smaller retail uses that are of a local nature and will involve extensive walking trips, including trips associated with the residents who reside within the site. The retail uses will also benefit from moderated trip rates due to the presence of multi-purpose and linked trips. It is emphasised that the subject site forms part of a larger McGill Street Precinct area that includes the development site to its immediate south. The 650 residential units that result (430 units on the subject site and an estimated 220 on the adjoining site) could potentially accommodate up to 1,500 residents and these residents are expected to make significant use of the neighbourhood retail uses on the site, reducing 'external' traffic impacts.

It should be noted that the subject site is immediately adjacent to the existing Lewisham Railway station, with a very good prospect that it will also have direct and convenient access to a future light rail service (the Dulwich Hill Light Rail extension) that is currently under investigation by the Ministry of



Transport. This presents a unique opportunity to reduce parking supply and suppress travel demand, particularly for the journey to work. Nevertheless, the benefits associated with this light rail extension (resulting in reduced trip rates) has not been claimed for the purpose of this report, so that it represents a worst case scenario in terms of external traffic impacts.

Furthermore, it should be emphasised that separate Project Applications will subsequently be submitted which will include the demolition of the site, following the granting of a Construction Certificate for such works. There will therefore be subsequent traffic impact assessment reports that will provide more accurate details of impacts associated with individual development applications. That is, the level of investigations undertaken in this report is consistent with what would be expected based on a master plan.

The report is structured as follows:

- Section 2: Describes the changes to the concept plan application
- Section 3: Parking provision
- Section 4: Discusses traffic impacts
- Section 5: Discusses the access and design aspects
- Section 6: Presents the overall study conclusions.



2. Concept Application Plan

2.1 Original Concept Plan Application

The original Concept Plan development for which approval was previously sought related to the establishment of a mixed use development for residential, commercial and retail uses with associated car parking facilities and public domain improvements. The Concept Plan proposed buildings ranging in height from 4 to 9 storeys with a maximum overall FSR of 3.5:1 and comprised the following components:

- Development of an internal road network to serve individual buildings, which will form part of the public road network;
- Creation of individual sites to be developed in stages, with a resulting development yield as follows (based on the level of traffic generation that can be sustained on the road network as assessed) as follows;
 - A maximum of 400 residential units;
 - 3,218.5m² of general retail area;
 - 2,800m² local (neighbourhood) supermarket (including back-of-house); and
 - 287m² of commercial area.
- The uses and yields are generally consistent with the development concept adopted for assessment in the Preliminary Environmental Assessment report;
- Parking will be provided at reduced rates (compared with Council's requirements) to promote non-car travel modes and this will be the subject of later Project Applications. A total of 669 spaces are proposed, comprising 400 resident spaces, 100 visitor spaces and 169 non-residential spaces.



2.2 Proposed Concept Plan

As discussed in Section 1, the proposal has been substantially reduced, particularly in relation to the non-residential component, in response to a number of submissions received to the DoP's exhibition period. In summary, the currently proposed Concept Plan includes the following components, with the relative change from the previously proposed Concept Plan outlined in brackets () for ease of reference:

- Development of an internal road network to serve individual buildings, which will form part of the public road network;
- Creation of individual sites to be developed in stages, with a resulting development yield as follows:
 - A maximum of 430 residential units, including 19 SOHO units.
 - 739m² of general (neighbourhood) retail area (a reduction of 2,479.5m²)
 - The deletion of supermarket and commercial uses (a reduction of 2,800m² and 287m², respectively)
 - The above results in a total reduction of 5,566.5m² of commercial and retail floor area from that of the original application
- Parking will be provided at reduced rates (compared with Council's requirements) to promote non-car travel modes and this will be the subject of later Project Applications. A total of 492 spaces are proposed, including 416 resident, 44 visitor, 13 non-residential and 19 shop top spaces

The traffic implications associated with the now proposed development are discussed in more detail in Section 4. Reference should also be made to the reduced plans and indicative schedule of areas, included in **Appendix B**.



3. Car Parking

The Marrickville Draft Development Control Plan requires car parking to be provided at the rates indicated in **Table 1**, below, which is based on the indicative bedroom yields as indicated by the schedule of areas included in Appendix B. It is noted that the site lies within Parking Area 2 of the DCP Parking Area Map, included in Council's DCP.

Type	Area / No.	Council Parking Rates	Spaces Required	Spaces Provided
<i>Residential</i>				
Studio	7	1 / 4 units	2	2
1 Bedroom	46	1 / 4 units	12	12
2 Bedroom	306	1 / unit	306	306
Shop Top (2 Bed)	19	1 / unit	19	19
3 Bedroom	52	1 / unit	52	52
Visitors	430	1 / 10 units	43	44
Retail	739m ²	7 + 1 / 45m ²	13	13
Totals			447	492 ¹

Note(s): 1) This includes allowance for additional width required to accommodate accessible car parking space width. See following commentary.

A total of two basement levels are proposed which is expected to provide a total of up to 492 standard sized parking spaces. However, it is noted, that the development is required to provide a total of 83 adaptable housing units, which equates to at a rate of 20% of total residential units (excluding Shop Top Housing). These adaptable units require the provision of adaptable spaces in accordance with AS4299 which requires an increased width of 3.8 metres. It is proposed to provide these accessible spaces in accordance with AS2890.6 which requires a 2.4 metre 'shared area' adjacent to each allocated parking space, thus reducing the overall space required (7.2 metres under AS2890.6 for two adjacent spaces, as opposed to a nominal 7.6 metres under AS4299).



A further accessible visitor space should also be provided, which equates to 2% of the total visitor parking in accordance with BCA requirements.

Having regard for the above, it is assumed that an additional 42 standard space widths will be required above that nominally required by Council's DCP in order to adequately provide all necessary parking within the proposed basement car parks. This assumes that all accessible parking can be provided adjacent to each other such that two accessible spaces can both benefit from the required 'shared area'.

In summary, it is anticipated that the proposed basement levels will be required to accommodate a total effective parking space demand for up to 489 spaces, including 447 spaces in accordance with Council's DCP plus 42 'shared area' spaces required for the provision of adaptable and accessible visitor parking. A total of 492 spaces are capable of being provided within the basement car park and therefore all necessary car parking can be readily accommodated with these basement levels. Consideration should also be given to the potential for additional visitor parking on-street within the confines of the site which will further alleviate any potential for overflow on-street parking demand on surrounding residential streets.



4. Access Principles

The original application sought to provide a number of access opportunities to the subject site. However, the RTA raised the following main concerns:

- That the intersection of Hudson Street with Old Canterbury Road provide only for left-in/left-out movements to serve the subject site; and
- In the long term, that the proposed new approach from the southern McGill Street precinct site to form a four way signal-controlled intersection opposite Toothill Street should be the subject of further modelling using SCATES or LINSIG.

The first of these has been accepted and is now proposed, with all access to the site is now via left-in/left-out arrangements. The exception is the continued use of the intersection of McGill Street with Old Canterbury Road which permits all movements. However, the proposed new access onto Toothill Street is no longer proposed. It is also noted that the modelled road geometry generally reflects that of existing conditions, with Scates default minimum parking restrictions length of up to 20 metres on approach to each signalised intersection. In this regard, since the original TMAP study was completed, further information has been made available concerning the redevelopment of the Flour Mill site on the western side of the Greenway corridor, which has been submitted as a separate rezoning application. This is discussed further in the following section although it will be evident that the rezoning proposes the provision of a new set of traffic signals at the intersection of Old Canterbury Road with Edward Street. This permits traffic associated with the subject site to recirculate westbound along Longport Street, to facilitate safe right turn movements onto Old Canterbury Road. This has been included in the modelling discussed in the following section.



5. Traffic Implications

5.1 Proposed Traffic Generation

Residential

The 430 residential units now proposed will generate a maximum of 0.40 trips/unit/hr during peak periods which is higher than the RTA rate for a sub-regional centre of only 0.29 trips/unit/hr. In this regard, the subject site is unique in that it has excellent access to both bus and rail services, with minimal parking, so that trip rates would probably be reduced below the 0.4 trips/unit/hr that has been adopted for the purposes of this assessment. Indeed, the car parking proposed (391 resident spaces, in accordance with Council's draft DCP) is consistent with that nominally recommended under the RTA Guide for high density residential development within a sub-regional centre (397 resident spaces). As such, a reduced traffic generation rate of 0.29 trips per unit could be regarded as more representative of future traffic volumes.

The adoption of reduced parking in close proximity to excellent public transport services is also considered to be sound transport policy, aimed at reducing car travel, particularly for the journey to work. Adoption of this rate is therefore a worst-case scenario. This rate would be potentially reduced to between 0.24 – 0.29 trips/unit/hr in the event that the light rail system is extended through this precinct, with a stop likely to be immediately adjacent to the site. However, this is not assumed for the purpose of the Concept Plan. Based on the adopted rate of 0.4 trips/unit/hr, the 430 units will generate 172 veh/hr during peak periods (34 in, 138 out in the AM peak, with these flows reversed in the PM peak).

Retail

The RTA's Guide to Traffic Generating Developments recommends a trip rate of 4.6 trips/100m² for secondary retail. However, a trip rate of 2.3 trips/100m² has been adopted for the purposes of this assessment which takes the following into consideration:



- ② Car parking for the proposed retail uses is limited and will be substantially less than that envisaged under the RTA's Guide; and
- ② The relatively small size of the retail area is expected to service a very localised market, including the subject site whereby many visitors will be able to walk to the site. Furthermore, any moderate use of private vehicles would be expected to occur as part of a 'linked trip' thereby reducing the effect of additional traffic associated with this use;

Having regard for the above, the retail uses will generate in the order of only 17 vehicles per hour, with the majority of these movements related to staff arrivals and departures.

Combined Traffic Generation

The proposed development will generate in the order of 189 vehicles trip per hour during peak periods. Nevertheless, this assessment has adopted a total of 200 vehicle trips per hour as a conservative assessment. This compares with up to 475 trips per hour as assessed for the previously proposed application, upon which the original TMAP report was based.

5.2 Other Planned Traffic Generating Developments

A number of other developments are planned in the vicinity of the site. These include the balance of the McGill Street Precinct and the Summer Hill Flour Mill Rezoning. The opportunity has therefore been taken to assess the cumulative impacts associated with all three development sites.

A total generation of 88 vehicle trips per hour has been assumed for the remainder of the McGill Street Precinct (i.e. south), which assumes a potential development yield of approximately 220 residential units. This excludes the subject site which is discussed separately in more detail in Section 4.1. However, this increased generation of 88 vehicles per hour is off-set by the existing site traffic generation of approximately 30 vehicles per hour. As such, the effective increase associated with the redevelopment of the southern section of the McGill Street Precinct is 58 vehicles per hour.



The Summer Hill Flour Mill Rezoning transport assessment, prepared by ARUP dated August 2010, included an assessment of the Summer Hill Flour Mill rezoning in addition to the cumulative impacts associated with the overall McGill Street Precinct, inclusive of the subject site. The ARUP report adopts the following traffic generation for both the Summer Hill Flour Mill and McGill Street Precincts:

Summer Hill Flour Mill

➡ AM	226 veh/hr	(85 in, 141 out)
➡ PM	289 veh/hr	(172 in, 117 out)

McGill Street Precinct (north and south)

➡ AM	229 veh/hr	(66 in, 163 out)
➡ PM	287 veh/hr	(157 in, 130 out)

It is difficult to establish from the body of this report, to which movements the additional peak hourly traffic volumes have been distributed. However it can be derived from the SIDRA outputs included within the ARUP report. A comparison of traffic volumes (by movement) for the key intersections associated with this subject development are included in **Appendix C**. This provides clarification of the assumed traffic distributions as raised by the RTA. In this regard, it is possible to establish the component of future traffic volumes that have been assumed for the McGill Street Precinct; and which of these future traffic volumes relate to the Summer Hill Flour Mill development.

Based on this approach, the above volumes associated with the McGill Street Precinct can be adjusted for the amended generation associated with the subject (northern) site as outlined in Section 4.1. In this regard, the predicted generation from the McGill Street Precinct is now 275 veh/hr (187 veh/hr for the subject site plus 88 veh/hr for the remainder of the Precinct) during both peaks; while the effective change in traffic volumes associated with the McGill Street Precinct compared to the ARUP modelling is as follows:

➡ AM	275 veh/hr (increased from 229 veh/hr); and
➡ PM	275 veh/hr (reduced from 287 veh/hr)



It can be seen that there is a slight increase on the ARUP generation of 46 veh/hr during the AM peak; while traffic volumes during the PM peak are essentially unchanged and have already been assessed within the ARUP report.

Nevertheless, the proposed development includes changes to the previous McGill Street Precinct master plan that ARUP have assessed and the cumulative impacts associated with all three sites has now been assessed based on the updated access arrangements and trip generation as outlined in the following section.

5.3 Performance of Key Intersections

The original TMAP report included SIDRA Intersection analysis for the previous development scenario which included the following 'long term (cumulative)' scenario traffic generation:

- ➡ 436 veh/hr in the AM peak
- ➡ 676 veh/hr in the PM peak

The original TMAP states that the surrounding road network is capable of supporting this increased traffic generation.

However, it can be seen from above that these previously modelled volumes are substantially higher than that those are now proposed. In these circumstances, additional SIDRA Intersection modelling of the currently proposed development scenario is not considered necessary. Rather, SCATES modelling has been undertaken for the critical intersections of Old Canterbury Road with Railway Parade and Longport Street and Toothill Street, as requested by the RTA in response to the original application. This also includes consideration of the proposed signals at Edward Street, as recommended within the Summer Hill Flour Mill transport assessment. This arguably provides a more accurate assessment given the likely future coordination of these signals.

A summary of the SCATES modelled outputs for all intersections is provided in **Table 2**, below,



Table 2: SCATES Modelling Summary

Intersection	Degree of Saturation		Average Vehicle Delay		Level of Service	
	AM	PM	AM	PM	AM	PM
Old Canterbury Road, Edward Street & Weston Street	0.64	0.46	2	3	A	A
Old Canterbury Road and Toothill Street	0.81	0.67	5	18	A	B
Old Canterbury Road, Railway Terrace and Longport Street	0.85	0.91	12	27	A	B

It can be seen from above that all intersections will operate with a Level of Service B (or better) during both peak periods, based on the cumulative impacts of all sites. A copy of these SCATES modelling files can be provided to the RTA, upon request.

The above assumes that the surrounding road geometry will remain relatively unchanged from that of the existing conditions, with the exception of changes to signal phasing and timing associated with coordination of the signals. All access to the site is left-in/left-out with the exception of the intersection of Old Canterbury Road and McGill Street, which is to continue to permit all movements. Furthermore, the above demonstrates that the road network can accommodate all traffic associated with both the subject site and cumulative impacts associated with surrounding developments. This modelling includes provision of signals at the intersection of Old Canterbury Road and Edward Street, however this is not considered strictly necessary in support of the subject application.



6. Conclusions

In summary:

- The site is currently used for industrial purposes and is in need of redevelopment, with numerous old and dilapidated buildings. The proposed mixed use development represents a significant improvement in the locality that provides a range of local services and will result in an enhanced amenity and streetscape;
- The amended development yield associated with the site has been limited by the road capacity that is available within the locality, which is presently at capacity at critical intersections. This relates particularly to the moderate extent of retail floor area now proposed, which relates to neighbourhood retail that is intended to serve the local catchment;
- Commercial uses have been deleted from the proposal;
- The resulting development yield provides an appropriate balance between available road capacity and the need to achieve planning objectives consistent with State Government Policy;
- The site is uniquely placed to take advantage of excellent public transport services. The adopted vehicle trip rates reflect reliance on these services which is consistent with State Government Policy. The preparation of a Transport Access Guide is also expected to be required in support of any Project Applications;
- Parking for the development is expected to be suppressed with the specific intention of promoting alternate travel modes, in accordance with Council's DCP rates. Council's rates are considered a sustainable level of provision that will also encourage low car usage; but without the need to rely on on-street parking which may introduce residential amenity issues. This recognises the site's proximity to excellent public transport but should be regarded as the minimum level of provision, especially if the light rail is not implemented;
- Traffic volumes associated with the subject site are substantially reduced compared with the original Concept Plan application. There will be a reduction from 207 veh/hr to 189 veh/hr in the AM Peak; and from 474 veh/hr to 189 veh/hr during the PM Peak. In addition, traffic conditions will be acceptable with mainly left-in/left-out arrangements associated with the subject site, other



than at the intersection of McGill Street with Old Canterbury Road. Based on these reductions, no further modelling is considered necessary;

- ② Traffic conditions have also been assessed for the cumulative impacts of the subject site (the northern part of the McGill Street precinct), the southern McGill Street Precinct and the Flour Mill site. This has been based on the ARUP report conducted for the Flour Mill Site, with adjustments made to reflect the changes now proposed to the subject site. These results are generally consistent with the conclusions of ARUP. In addition, further SCATES modelling has been undertaken along Old Canterbury Road, including the new signals now proposed at Edward Street, but without the new link onto Toothill Street which is no longer required. This demonstrates very satisfactory performance.
- ② The potential benefits of a future light rail system will be substantial. However, the traffic analysis has not taken any account of this proposal so that it is based on a worst case assessment;
- ② The road network has been assessed with the Part 3A development and operates satisfactorily subject to implementation of the various improvements discussed in this report as amended by the additional modelling; and
- ② Construction issues will be dealt with in detail through the preparation of a Construction Traffic Management Plan and this will be in response to a suitable condition of consent on subsequent Project Applications.

It is therefore concluded that the proposed development concept envisaged under the amended Concept Plan is supportable on traffic planning grounds and the proposed development will operate satisfactorily.



Appendix A

RTA Response to Concept Application

Our Reference: RDC 09M206 – SYD10/00972
Your Reference: MP08_0195
Contact: Aleks Tancevski
Telephone: 8849 2313

**SYDNEY
REGIONAL
DEVELOPMENT
ADVISORY
COMMITTEE**

Director / Metropolitan Projects
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Attention: Amy Watson

**EXHIBITION OF ENVIRONMENTAL ASSESSMENT FOR CONCEPT PLAN FOR A MIXED
USE DEVELOPMENT AT 78-90 OLD CANTERBURY ROAD, LEWISHAM**

Dear Sir/Madam

I refer to your letter dated 15 November 2010 (Department Reference Ref: MP 08_0195), concerning the abovementioned Environmental Assessment Application (EA) which was referred to the Roads and Traffic Authority (RTA) for comment in accordance with Clause 104 of State Environmental Planning Policy (Infrastructure) 2007. I wish to advise that the Sydney Regional Development Advisory Committee (SRDAC) considered the traffic impact of this application at its meeting on 1 December 2010.

The RTA raises the following concerns with regard to the EA application and the proposed 'interim' traffic arrangements proposed for Stage 1 of the proposed development. The Department of Planning is advised to defer the determination of this EA until the following issues have been resolved.

TRAFFIC MANAGEMENT

1. The RTA does not support the 'interim' traffic arrangements proposed for Stage 1 of the proposed development. Section 5.11.3 of the Transport Management and Accessibility Plan (TMAP) refers to an 'interim' arrangement at the intersection of Old Canterbury Road and Toothill Street. The current northbound lane allocation provides a through movement in lane one, with lane two a shared right turn and through movement. Section 5.11.3 details changes which formalises the right turn, effectively reducing the northbound movement to one lane through and one lane right turn. This reduction in lane usage will significantly effect the northbound movement causing the current pinch point at the intersection of Old Canterbury Road and Railway Terrace to be extended to this location. Furthermore, the reduction will cause increased queuing and congestion for northbound traffic.
2. The provision of a dedicated left turn lane in Longport Street to turn left into Old Canterbury Road is not supported. Currently buses are able to turn right from this approach and outside of peak times all vehicles can turn right into Old Canterbury Road. If a vehicle is in the right lane waiting to turn right, vehicles wanting to travel through the intersection will be blocked as they will no longer be able to overtake a vehicle turning right.



3. The proposed median island at William Street is not supported due to the width of the carriageway on Old Canterbury Road. Any median island would need to be a minimum of 1.2 metres wide and Old Canterbury Road can not accommodate this width without reducing the lane widths, which is unacceptable to the RTA. In lieu of the above, 'No Right Turn' regulatory signposting shall be installed at this intersection to prohibit right turn movements on both the William Street and Old Canterbury Road approaches to the intersection. A 'Works Instruction' will be required from the RTA.
4. The RTA does not support the provision of a right turn storage facility in Old Canterbury Road to facilitate the right turn exit from the site via Hudson Street on road safety grounds. (As shown in Figure 5 in the submitted TMAP). As a result of the above, right turn movements on both the Hudson Street and Old Canterbury Road approaches to the intersection shall be prohibited and shall be enforced by implementing 'No Right Turn' regulatory signposting. A 'Works Instruction' will be required from the RTA. In addition, this right turn prohibition shall apply to both Stage 1 and 2 of the proposed development.
5. The submitted TMAP and associated intersection modelling is to be revised to incorporate the abovementioned right turn prohibitions on Old Canterbury Road. The revised TMAP is to assess the implication of these right turn prohibitions on traffic movements in the vicinity of the subject site.

TRAFFIC SIGNALS

6. The RTA is not in a position to provide any comment or determination on the TMAP with regard to the long term proposal to reconfigure the existing signalised intersection of Old Canterbury Road and Toothill Street to a four (4) legged intersection. The RTA requires a more detailed phasing arrangement of the proposed intersection changes accompanied by either SCATES or Linsig 3 (SCATS) modelling to assess the implications of the new intersection arrangements. Any proposed changes will require the approval of the Manager Networks Operations RTA, Traffic Management Branch.
7. It is noted on page 27 of the submitted TMAP that the applicant states that they have had previous discussions with the RTA regarding all southbound right turn movements along Old Canterbury Road being focused at McGill Street. The RTA is unaware of any discussions having taken place for the southbound right turn movements at McGill Street. No expected traffic volumes have been provided in order for the the RTA to assess whether this would be acceptable.

MODELLING

8. The submitted TMAP has provided limited information with regard to the trip distribution of traffic to and from the proposed development.
9. The modelling results from the Railway Terrace/Old Canterbury Road/Longport Street intersection propose a change in Level of Service (LOS) from F to D with the only change to the intersection being the dedicated left turn lane from Longport Street into Old Canterbury Road. it is questionable that with the additional traffic from the development that the LOS and delays would improve to this extent.

ON-STREET PARKING

10. Clearway restrictions cannot be implemented along this section of Old Canterbury Road as the minimum length of clearway restriction should be 5.0 kilometres. Consideration should be given to installing 'No Stopping' restrictions along the Old Canterbury Road frontage of the subject site.

Updated concept plans shall be submitted to the RTA for review and endorsement prior to the determination of the EA. The RTA reserves the right to provide further requirements following review of the revised concept plans. It is reiterated that the Department of Planning should not determine the EA until the RTA is satisfied that the abovementioned concerns have been addressed.

Following submission of the revised EA, TMAP, architectural plans, intersection concept plans and other further information requested above, the RTA will review the supplementary information and provide further comments to the Department of Planning.

In addition to the above, the RTA provides advisory comments to the Department of Planning for consideration in the determination of the EA and these advisory comments are outlined in Attachment 'A'.

Any inquiries in relation to this Environmental Assessment application can be directed to Aleks Tancevski on telephone 8849 2313.

Yours faithfully



Chris Goudanas

Chairman, Sydney Regional Development Advisory Committee

11 January 2011

ATTACHMENT 'A'

PARKING

1. The provision of off-street car parking, bicycle storage, taxi stands, bus parking and loading areas shall be provided to the Department of Planning and Council's satisfaction.
2. The layout of the proposed car parking areas, loading docks and driveway associated with the subject development (including, grades, turn paths, sight distance requirements, aisle widths, aisle lengths, loading bay dimensions and parking bay dimensions) should be in accordance with AS2890.1- 2004 and AS2890.2 – 2002 for large vehicle.
3. Disabled parking spaces should be clearly marked
4. The proposed turning areas within the car park are to be kept clear of any obstacles including parked cars at all times.
5. The internal aisle ways are to be marked with pavement arrows to direct traffic movements in/out of the site and guide traffic circulation through the car park.
6. All loading should be off-street and any reversing of trucks on heavily pedestrianised roads and driveways should not be supported.

LOADING AREAS

7. Swept path analysis shall be provided to the RTA and Department of Planning. Any Construction Certificate shall not be issued until the swept path analysis has been endorsed by the RTA and Council.
8. In this regard, the swept path of the longest vehicle (including garbage trucks) entering and exiting the subject site, as well as manoeuvrability through the site, shall be in accordance with AUSTROADS.
9. A Loading Dock Management Plan (LDMP) shall be prepared to Council's satisfaction and shall incorporate appropriate measures to prevent a vehicle entering the site when the loading area is fully occupied. In addition, the LDMP shall outline measures to minimise conflict between trucks and other vehicles. The LDMP shall be submitted for approval, prior to the release of the Occupation Certificate.
10. All loading and unloading must be carried out on site.

CONSTRUCTION

11. A Demolition and Construction Traffic Management Plan detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be submitted to the Department of Planning and Council for approval, prior to the issue of a construction certificate.
12. All demolition and construction vehicles are to be contained wholly within the site, as no parking will be permitted on Old Canterbury Road.
13. The developer is to arrange with the RTA's Transport Management Centre (TMC) for any required road occupancy licence during the construction.

14. Any traffic control during construction must be carried out by an accredited RTA approved traffic controllers.

EXCAVATION

15. If any excavation works are to occur adjacent to Old Canterbury Road and Longport Street the RTA requires the submission of civil design plans which provide details on the level of excavation and a Geotechnical Report to the RTA for approval prior to the commencement of excavation on the site.

NOISE

16. The proposed development should be designed such that road traffic noise from Old Canterbury Road and Longport Street is mitigated by durable materials and comply with the requirements of Clause 102 – (Impact of road noise or vibration on non-road development) of State Environmental Planning Policy (Infrastructure) 2007.

HYDRAULICS

17. Council shall ensure that post development storm water discharge from the subject site into the RTA drainage system does not exceed the pre-development application discharge.

Should there be changes to the RTA's drainage system then detailed design plans and hydraulic calculations of the stormwater drainage system are to be submitted to the RTA for approval, prior to the commencement of any works.

Details should be forwarded to, The Sydney Asset Management, Roads and Traffic Authority, PO Box 973, Parramatta CBD 2124.

A plan checking fee will be payable and a performance bond may be required before the RTA's approval is issued. With regard to the Civil Works requirement please contact the RTA's Project Engineer, External Works Ph: 8849 2114 or Fax: 8849 2766.

ROAD SAFETY

18. Further details are required on the channelisation of pedestrians to safe crossing locations.
19. The proposed development will generate additional pedestrian movements in the area. Consideration should be given to ensuring pedestrian safety.
20. The required sight lines to pedestrians or other vehicles in or around the car park or entrances should not be compromised by landscaping, signage, fencing or display materials. In addition, measures should be implemented to improve visibility to pedestrians and other vehicles where sight distance is restricted.
21. All vehicle movements must enter and exit the subject site in a forward direction.
22. The developer shall be responsible for all public utility adjustments/relocation works necessitated by the above work and as required by the various public utility authorities and/or their agents.
23. All works/regulatory signposting associated with the proposed development shall be at no cost to the RTA.



Appendix B

Reduced Plans

17.1_Detailed Concept Floor Plan

[illegible]

Schedule of Areas

Project	Lewisham	Project No.	815																																
Project Address:	Old Canterbury Road, Lewisham																																		
Bounding Streets:																																			
Site Area:	13,115 sq.m	17 th JUNE 2011																																	
Consent Authority:	Department of Planning																																		
Current Issue No:																																			
		<table><tr><td>D</td><td>12</td><td>07</td><td>15</td><td>19</td><td>23</td><td>10</td><td>14</td><td>22</td><td>24</td><td>04</td></tr><tr><td>M</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>03</td><td>03</td><td>03</td><td>03</td><td>04</td></tr><tr><td>Y</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>11</td><td>11</td><td>11</td><td>11</td><td>11</td></tr></table>	D	12	07	15	19	23	10	14	22	24	04	M	10	10	10	10	10	03	03	03	03	04	Y	10	10	10	10	10	11	11	11	11	11
D	12	07	15	19	23	10	14	22	24	04																									
M	10	10	10	10	10	03	03	03	03	04																									
Y	10	10	10	10	10	11	11	11	11	11																									

FSR			
Level		FSA	
Lower Ground floor	Residential Units	3436.1 sqm	
	Shop top	726 sqm	
	Retail	292.5 sqm	
	storage	918.3 sqm	
	Sub-total	5372.9 sqm	
Ground Floor	Retail /cafe	446.5 sqm	
	Residential Units	5048.7 sqm	
	Sub-total	5495.2 sqm	
Level 1	Residential Units	5772.5 sqm	
Level 2	Residential Units	5866.2 sqm	
Level 3	Residential Units	5034.1 sqm	
Level 4	Residential Units	4240.6 sqm	
Level 5	Residential Units	4123.1 sqm	
Level 6	Residential Units	2102.4 sqm	
Level 7	Residential Units	2024.1 sqm	
Level 8	Residential Units	1264 sqm	
	Total	41295.1 sqm	
Site area		13,115 sqm	
FSR		1 :	3.15

Residential Units Mix								
Building	Retail	Cafe	SOHO	STUDIO	1 BED	2BED	3BED	Total
A	5	1			9	41	9	65
B					14	51	12	77
C	5				12	61	11	89
D					0	69	5	74
E			12	7	6	29	2	56
F					1	35	13	49
G			7		4	20	0	31
Total per Type	10	1	19	7	46	306	52	441
Mix %	2.3%	0.2%	4.3%	1.6%	10.4%	69.4%	11.8%	

Residential SOLAR COMPLIANCE			
Building	Solar units	Total residential units	%
A	50	59	84.75%
B	63	77	81.82%
C	42	84	50.00%
D	60	74	81.08%
E	31	44	70.45%
F	35	49	71.43%
G	20	24	83.33%
Total per Type	301	411	73.24%

Residential VENTILATION COMPLIANCE			
Building	VENTILATED UNITS	Total residential units	%
A	47	59	79.66%
B	59	77	76.62%
C	44	84	52.38%
D	63	74	85.14%
E	37	44	84.09%
F	45	49	91.84%
G	23	24	95.83%
Total per Type	318	411	77.37%

GFA			
Total Residential and storage area		39830.1sqm	
Total Retail/Shop top Area		1465sqm	
GFA breakdown			
Total Residential area		38911.8sqm	
Total Retail Area		739sqm	
TotalShop Top Area		726sqm	
Total Storage Area		918.3sqm	
NON- GFA breakdown			
Deep Soil		3648sqm	
Central Soft Landscape Area		3466.8sqm	
Total Soft Landscape Area		5322.3sqm	
Site Coverage		6090sqm	46.44%

CAR SPACES REQUIREMENTS (Base on Marrickville council DCP – Parking Area 2 provisions)			
Unit Type	No. of Units/m2	Car spaces required	Car spaces provided Requirement
Retail			
Retail	739 m2	13	13 (7+1 PER45m2)
Sub Total		13	13
RESIDENTIAL			
shop top (2 bed)	19 units	19	19 (1 PER UNIT)
studio	7 units	2	2 (1 PER 4 UNIT)
1 bedroom	46 units	12	12 (1 PER 4 UNIT)
2 bedroom	306 units	306	306 (1 PER UNIT)
3 bedroom	52 units	52	52 (1 PER UNIT)
visitors	44 units	44	44 (1 PER 10 UNIT)
Disable parking		83	44 (1 per adaptable unit – 20% of units)
Sub Total		544	479
TOTAL		557	492

SPACES PROVIDED	492
TOTAL REQUIRED	557



Appendix C

Traffic Distribution & Tables



Appendix C1

Traffic Generation & Distribution

Job No: 09 141
Project: Lewisham Part3A Concept Application

TRAFFIC GENERATION:

	No. Units / Area	Rate	Traffic Generation	AM Peak		PM Peak	
				Adopted	In	Out	In
Residential	430	0.4	172.0	180	36	144	144
Retail	739	0.023	17.0	20	15	5	10
"Site A Total"				200	51	149	154
"Site B"				58	11.6	46.4	46.4
Total McGill St Precinct				258	62.6	195.4	200.4

DISTRIBUTION:
Based on Summer Hill Flour Mill Rezoning Assessment "Forecast Distribution"

AM		Site A		Site B		Sites A+B	
Direction:	Proportion	IN	OUT	IN	OUT	IN	OUT
North	20%	10	30	2	9	13	39
East	30%	15	45	3	14	19	59
South	20%	10	30	2	9	13	39
West	30%	15	45	3	14	19	59
Total	100%	51	149	11.6	46.4	62.6	195.4

Total
258

PM		Site A		Site B		Sites A+B	
Direction:	Proportion	IN	OUT	IN	OUT	IN	OUT
North	20%	31	9	9	2	40	12
East	30%	46	14	14	3	60	17
South	20%	31	9	9	2	40	12
West	30%	46	14	14	3	60	17
Total	100%	154	46	46.4	11.6	200.4	57.6

Total
258

Effective Distribution:		Site A		Site B		Sites A+B	
AM	Direction:	Proportion	IN	OUT	IN	OUT	IN
	Parramatta Rd (via uturn from Brown)		0	5	0	1	0
	Parramatta Rd (via William)		0	36	0	11	0
	Parramatta Rd (via Hudson)		0	36	0	11	0
	Parramatta Rd (via McGill)		11	0	3	0	14
	Railway Tce		11	9	2	3	13
	Toothill		12	25	3	8	14
	Old Canterbury (southwest)		18	22	4	7	22
	Grosvenor		0	1	0	0	0
	Longport		0	13	0	4	0
	Total		51	149	11.6	46.4	63

PM		Site A		Site B		Sites A+B	
Direction:	Proportion	IN	OUT	IN	OUT	IN	OUT
Parramatta Rd (via uturn from Brown)		0	1	0	0	0	2
Parramatta Rd (via William)		0	11	0	3	0	14
Parramatta Rd (via Hudson)		0	11	0	3	0	14
Parramatta Rd (via McGill)		33	0	12	0	45	0
Railway Tce		32	3	7	1	40	3
Toothill		35	8	11	2	46	10
Old Canterbury (southwest)		53	7	16	2	69	9
Grosvenor		0	0	0	0	0	0
Longport		0	4	0	1	0	5
Total		154	46	46.4	11.6	200	57.5

OUT				IN			
Site A				Site B			
North	East	South	West	North	East	South	West
5.0%			7.0%				
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
	20.0%				10.0%		
	40.0%	25.0%			50.0%	25.0%	
		75.0%			75.0%		
5.0%				5.0%			
			30.0%				30.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

OUT				IN			
Site A				Site B			
North	East	South	West	North	East	South	West
5.0%			7.0%				
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
	20.0%				10.0%		
	40.0%	25.0%			50.0%	25.0%	
		75.0%			75.0%		
5.0%				5.0%			
			30.0%				30.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

OUT				IN			
Site A				Site B			
North	East	South	West	North	East	South	West
5.0%			7.0%				
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
	20.0%				10.0%		
	40.0%	25.0%			50.0%	25.0%	
		75.0%			75.0%		
5.0%				5.0%			
			30.0%				30.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

OUT				IN			
Site A				Site B			
North	East	South	West	North	East	South	West
5.0%			7.0%				
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
45.0%	20.0%		31.5%	47.5%	20.0%		35.0%
	20.0%				10.0%		
	40.0%	25.0%			50.0%	25.0%	
		75.0%			75.0%		
5.0%				5.0%			
			30.0%				30.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



Appendix C2

Comparison with ARUP Modelled Volumes

**Revised Traffic Distribution Calcs
(Not including McGill Site B)**

Intersection: Old Canterbury / Edward

AM		Existing		Existing + Site A		Existing + Site A + Mills		Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change	Total Change	Total Veh HV
Weston (south)	Left	3	0	3		3	0	0	3 0
	Through	1	0	1		1	0	0	1 0
	Right	3	0	3		3	0	0	3 0
Old Canterbury (east)	Left	1	0	1		1	0	0	1 0
	Through	532	7	555	23	578	0	23	578 7
	Right	69	0	69		84	15	15	84 0
Edward (north)	Left	85	0	100	15	134	19	34	134 0
	Through	1	0	1		1	0	0	1 0
	Right	5	0	5		32	27	27	32 0
Old Canterbury (west)	Left	36	0	36		41	5	5	41 0
	Through	1081	13	1098	17	1126	12	29	1126 13
	Right	4	0	4		4	0	0	4 0

55

PM		Existing		Existing + Site A		Existing + Site A + Mills		Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change	Total Change	Total Veh HV
South	Left	6	0	6		6	0	0	6 0
	Through	0	0	0		0	0	0	0 0
	Right	2	0	2		2	0	0	2 0
East	Left	13	0	13		13	0	0	13 0
	Through	1192	0	1199	7	1205	0	7	1192 0
	Right	115	0	115		150	35	35	115 0
North	Left	84	0	88	4	111	18	22	84 0
	Through	1	0	1		1	0	0	1 0
	Right	13	0	13		30	17	17	13 0
West	Left	33	0	33		42	9	9	33 0
	Through	639	6	693	54	765	19	73	639 6
	Right	6	0	6		6	0	0	6 0

Intersection: Old Canterbury / Toothill

AM		Existing		Existing + Site A		Existing + Site A + Mills		Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change	Total Change	Total Veh HV
Toothill (south)	Left	163	2	163		167	4	4	167 2
	Through			0		0	0	0	0 0
	Right	264	2	275	11	286	0	11	275 2
Old Canterbury (east)	Left	189	6	189		189	0	0	189 6
	Through	434	7	444	10	466	11	21	455 7
	Right			0		0	0	0	0 0
Access Rd (north)	Left			0		0	0	0	0 0
	Through			0		0	0	0	0 0
	Right			0		0	0	0	0 0
Old Canterbury (west)	Left			0		2	2	2	2 0
	Through	859	12	867	8	910	34	42	901 12
	Right	328	3	354	26	399	19	45	373 3

56

PM		Existing		Existing + Site A		Existing + Site A + Mills		Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change	Total Change	Total Veh HV
South	Left	279	3	279		288	9	9	279 3
	Through			0		0	0	0	0 0
	Right	279	0	315	36	351	0	36	279 0
East	Left	242	0	242		271	29	29	242 0
	Through	1081	5	1114	33	1145	-3	30	1081 5
	Right			0		0	0	0	0 0
North	Left			0		0	0	0	0 0
	Through			0		0	0	0	0 0
	Right			0		0	0	0	0 0
West	Left			0		0	0	0	0 0
	Through	524	4	551	27	613	35	62	524 4
	Right	193	3	201	8	228	20	28	193 3

Intersection: Old Canterbury / Railway Tce

AM		Existing		Existing + Site A		Existing + Site A + Mills		Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change	Total Change	Total Veh HV
Old Canterbury (south)	Left	70	4	70		70	0		70 4
	Through	937	4	1011	74	1011	32		937 4
	Right	4	4	4		4	0		4 4
Railway (east)	Left	30	4	30		30	4		30 4
	Through	731	3	741	10	741	16		731 3
	Right			0		0	0		0 0
Old Canterbury (north)	Left	134	5	134		134	0		134 5
	Through	597	8	607	10	607	7		597 8
	Right			0		0	0		0 0
Longport (west)	Left	173	0	178	5	178	11		173 0
	Through	902	1	911	9	911	19		902 1
	Right			0		0	0		0 0

109

PM		Existing		Existing + Site A		Existing + Site A + Mills		Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change	Total Change	Total Veh HV
South	Left	119	0	119		119	0	0	119 0
	Through	668	0	690	22	745	33	55	668 0
	Right	3	3	3		3	0	0	3 3
East	Left	66	4	66		74	8	8	66 4
	Through	812	5	845	33	929	52	85	812 5
	Right			0		0	0	0	0 0
North	Left	76	4	76		76	0	0	76 4
	Through	1229	2	1262	33	1312	16	49	1229 2
	Right			0		0	0	0	0 0
West	Left	84	0	85	1	94	7	8	84 0
	Through	687	1	690	3	702	10	13	687 1
	Right			0		0	0	0	0 0

Revised Traffic Distribution Calcs

Intersection: Old Canterbury / Edward

AM		Existing		Existing + McGill		Existing + McGill + Mills		Total Change	Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change		Total Veh	HV
Weston (south)	Left	3	0	3		3	0	0	3	0
	Through	1	0	1		1	0	0	1	0
	Right	3	0	3		3	0	0	3	0
Old Canterbury (east)	Left	1	0	1		1	0	0	1	0
	Through	532	7	562	30	591	0	30	591	7
	Right	69	0	69		84	15	15	84	0
Edward (north)	Left	85	0	104	19	143	19	38	143	0
	Through	1	0	1		1	0	0	1	0
	Right	5	0	5		32	27	27	32	0
Old Canterbury (west)	Left	36	0	36		41	5	5	41	0
	Through	1081	13	1102	21	1134	12	33	1134	13
	Right	4	0	4		4	0	0	4	0

70

Intersection: Old Canterbury / Toothill

AM		Existing		Existing + McGill		Existing + McGill + Mills		Total Change	Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change		Total Veh	HV
Toothill (south)	Left	163	2	163		167	4	4	167	2
	Through			0		0	0	0	0	0
	Right	264	2	278	14	292	0	14	278	2
Old Canterbury (east)	Left	189	6	189		189	0	0	189	6
	Through	434	7	449	15	476	11	26	460	7
	Right			0		0	0	0	0	0
Access Rd (north)	Left			0		0	0	0	0	0
	Through			0		0	0	0	0	0
	Right			0		0	0	0	0	0
Old Canterbury (west)	Left			0		2	2	2	2	0
	Through	859	12	867	8	910	34	42	901	12
	Right	328	3	362	34	414	19	53	381	3

71

Intersection: Old Canterbury / Railway Tce

AM		Existing		Existing + McGill		Existing + McGill + Mills		Total Change	Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change		Total Veh	HV
Old Canterbury (south)	Left	70	4	75	5	75	0		70	4
	Through	937	4	1034	97	1034	32		937	4
	Right	4	4	4		4	0		4	4
Railway (east)	Left	30	4	32	2	32	4		30	4
	Through	731	3	741	10	741	16		731	3
	Right			0		0	0			
Old Canterbury (north)	Left	134	5	134		134	0		134	5
	Through	597	8	610	13	610	7		597	8
	Right			0		0	0			
Longport (west)	Left	173	0	179	6	179	11		173	0
	Through	902	1	914	12	914	19		902	1
	Right			0		0	0			

145

PM		Existing		Existing + McGill		Existing + McGill + Mills		Total Change	Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change		Total Veh	HV
South	Left	6	0	6		6	0	0	6	0
	Through	0	0	0		0	0	0	0	0
	Right	2	0	2		2	0	0	2	0
East	Left	13	0	13		13	0	0	13	0
	Through	1192	0	1200	8	1209	0	8	1192	0
	Right	115	0	115		150	35	35	115	0
North	Left	84	0	89	5	113	18	23	84	0
	Through	1	0	1		1	0	0	1	0
	Right	13	0	13		30	17	17	13	0
West	Left	33	0	33		42	9	9	33	0
	Through	639	6	709	70	797	19	89	639	6
	Right	6	0	6		6	0	0	6	0

PM		Existing		Existing + McGill		Existing + McGill + Mills		Total Change	Future Volumes	
Approach	Movement	Surveyed Total Flow	HV	Demand Flow	Change	Demand Flow	Change		Total Veh	HV
South	Left	279	3	279		288	9	9	279	3
	Through			0		0	0	0		
	Right	279	0	325	46	372	0	46	279	0
East	Left	242	0	242		271	29	29	242	0
	Through	1081	5	1134	53	1184	-3	50	1081	5
	Right			0		0	0	0		
North	Left			0		0	0	0		
	Through			0		0	0	0		
	Right			0		0	0	0		
West	Left			0		0	0	0		
	Through	524	4	551	27	613	35	62	524	4
	Right	193	3	203	10	232	20	30	193	3