PROPOSED RESIDENTIAL APARTMENT DEVELOPMENT

HILLY STREET PRECINCT, MORTLAKE

Assessment of Traffic, Transport and Parking Implications

September 2011

Reference 06273

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EXECUTIVE SUMMARY

The consolidated site that is the subject of this application occupies a total area of 27,431m^2 within the Mortlake Industrial Area which is subject to ongoing redevelopment for residential apartments.

The Concept Development Scheme comprises:

- *a staged development process*
- *14 building elements with basement carparking*
- *a total of 402 residential apartments*
- *extensive streetscape upgrades as well as a waterfront corridor and through site links.*

A PEA was submitted to the Department of Planning as a Part 3A Application and the Director Generals Requirements included:

The Environmental Assessment (EA) must address the following key issues:

Relevant EPI's Policies and Guidelines to be Addressed:
Planning provisions applying to the site, including permissibility and the provisions of all plans and policies.

Transport and Accessibility (Construction and Operational)
The EA shall address the following matters:

- *Provide a Transport and Accessibility Impact Assessment prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering current traffic conditions and proposed traffic generation in the immediate locality, any required road/intersection upgrades, access, carparking arrangements, measures to promote public transport usage and pedestrian and bicycle linkages. The key roads and intersections to be examined/modelled shall be undertaken in accordance with relevant correspondence from RTA and Canada Bay Council*

- *Provide an assessment of the implications of the proposed development for non-car travel modes (including public transport, walking and cycling)*
- *Identify measures to mitigate potential impacts for pedestrians and cyclists during the construction stage of the project*
- *Demonstrate the provision of sufficient on-site carparking for the proposal having regard to local planning controls and RTA guidelines (NOTE: the Department supports reduced carparking rates in areas well served by public transport).*

The potential traffic implications of the proposed development have been assessed in the context of:

- *the existing recently constructed residential apartments in the area*
- *the other already approved residential apartment developments in the area*
- *the traffic generation of the existing uses on the development site*
- *the ability of the local and collector road system to accommodate the additional traffic demands.*

The assessment documented in this report responds to the DGR's and concludes that:

- *the projected traffic generation of the proposed development will be significantly less than that of the existing uses on the site*
- *the access road system serving the site can satisfactorily accommodate the projected traffic generation*
- *the proposed measures to promote public transport usage and to encourage/ provide for the pedestrian and cyclist modes will be satisfactory*
- *the proposed parking provision will be adequate and appropriate to the objective of minimising reliance on travel by private motor vehicle*

- *the Traffic Study undertaken for Council adopts an unduly high traffic generation rate for residential apartments and fails to take account of the significant existing traffic generation of site. It is apparent therefore that the findings of this study are not reliable and do not provide an accurate reflection of the potential traffic implications of development in the area.*

1. INTRODUCTION

This report has been prepared to accompany a Part 3A Concept Plan Application to the Department of Planning for residential apartment development on a large consolidated site in the 'Hilly Street Precinct' at Mortlake (Figure 1).

A major ongoing transformation has been occurring for some time throughout the Metropolitan area where superfluous industrial lands are being redeveloped for residential apartments. This landuse change is particularly evident in desirable waterfront areas along the Parramatta River such as Rhodes Peninsula, Meadowbank and Putney. The Mortlake area is also subject to this change where industrial sites such as Breakfast Point have been and are continuing to be redeveloped for residential apartments.

The consolidated development site which is subject to the current application involves total area of some 27,431m^2 located generally to the west of Hilly Street and to the north of Edwin Street. The envisaged development would comprise:

* a staged development process with 6 precincts (stages)
* 14 building elements with basement carparking
* a total of 402 residential apartments
* upgraded streetscapes
* a waterfront shared pedestrian/cyclist corridor as well as through site linkages.

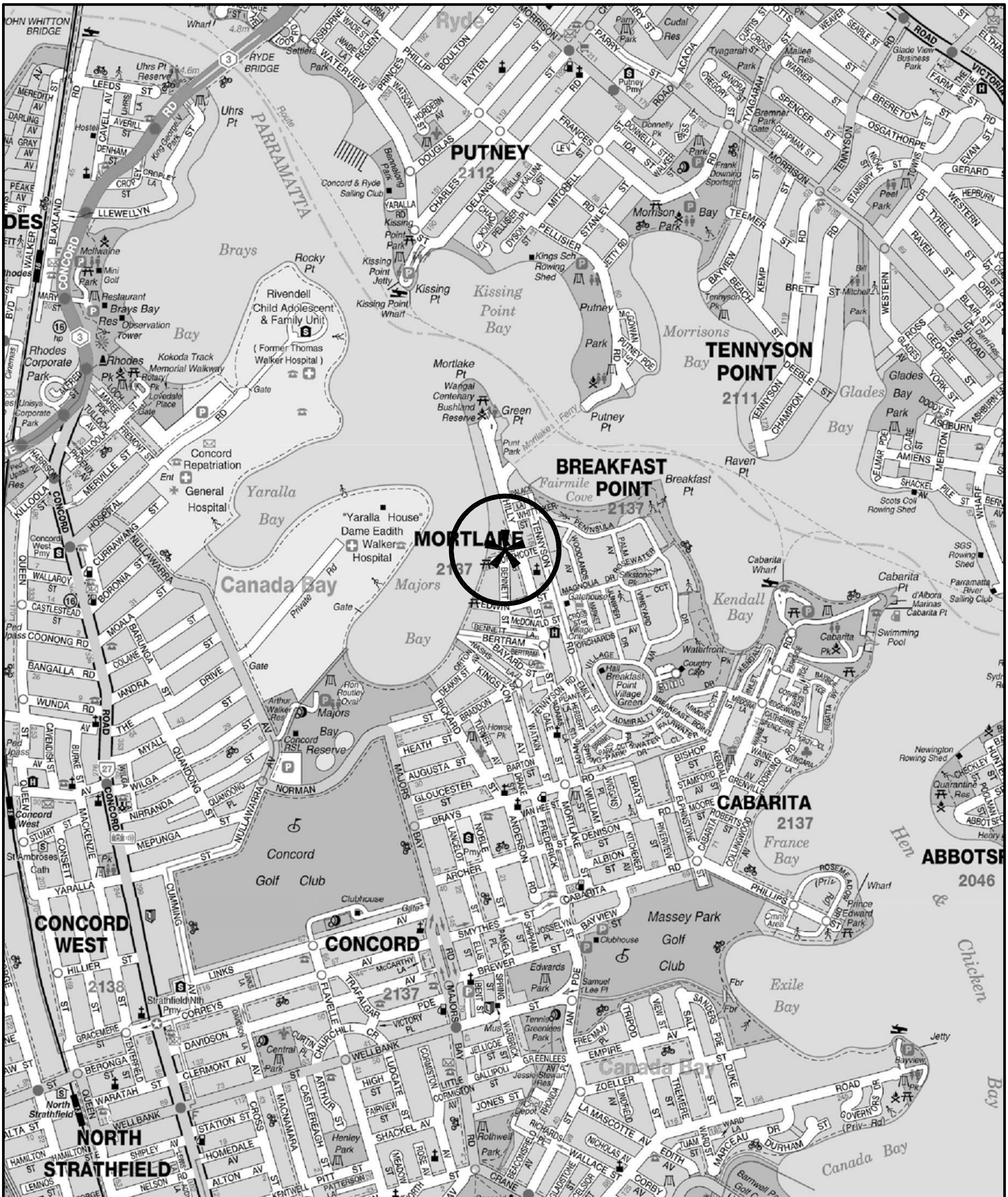
The purpose of this report is to:

* describe the site, the existing uses and the proposed development scheme as well as the other development circumstances in the area

* describe the road network serving the site and the prevailing traffic conditions

* assess the potential traffic implications of the proposed development

- assess the adequacy of the proposed parking provision
- assess the proposed provisions for pedestrians and cyclists
- assess the potential provisions to encourage and facilitate travel by public transport
- respond to the Director General's Requirements.



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LOCATION

FIG 1

2. PROPOSED MASTERPLAN

2.1 SITE, CONTEXT AND EXISTING USE

The development site (Figure 2) is a consolidation of 24 allotments occupying a total area of some 27,431m². The irregular shaped site extends easterly from Hilly Street (and northerly from Edwin Street) to the western shore of Majors Bay.

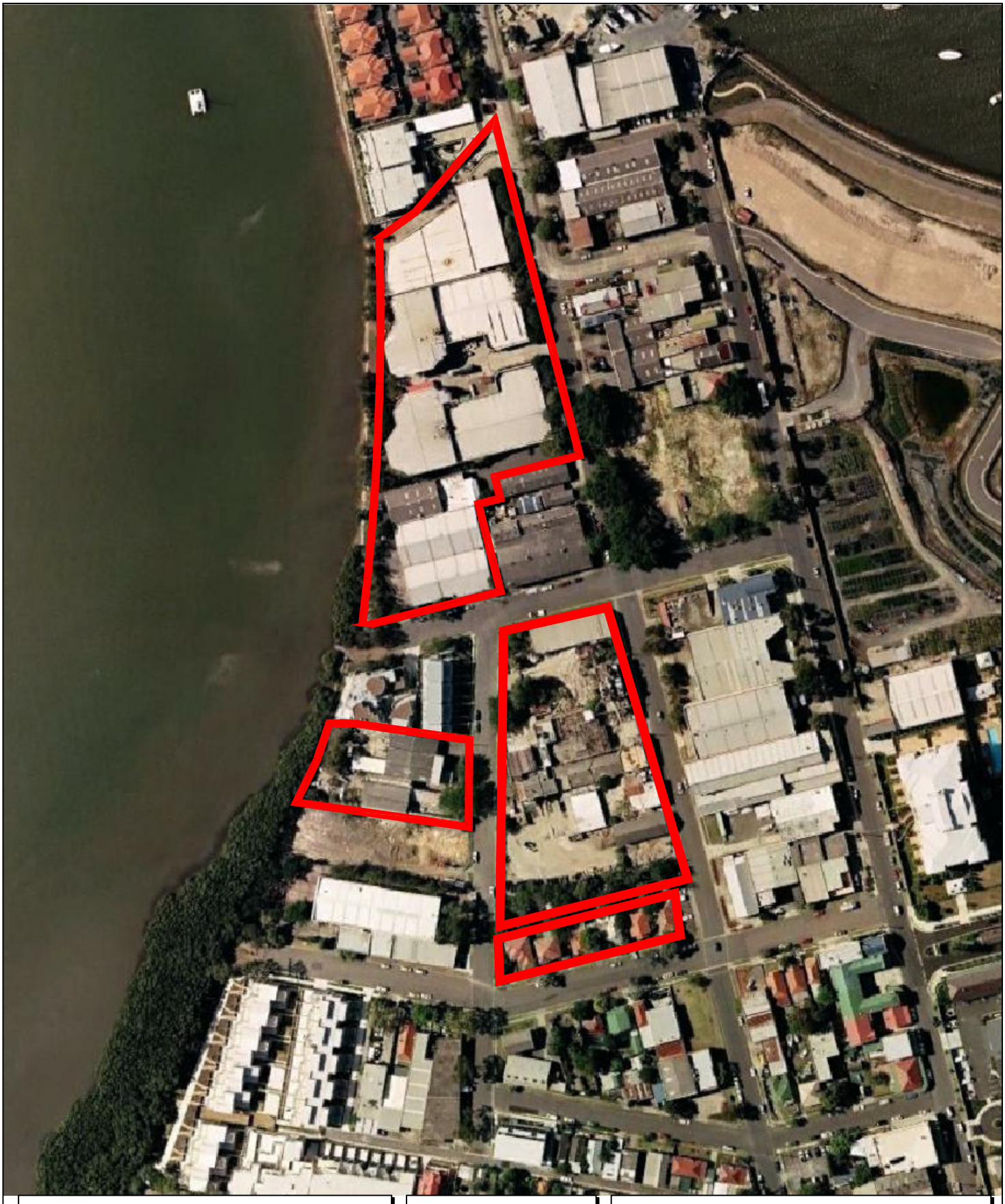
The site represents remnants of the Mortlake Industrial Area where numerous sites have been or are being redeveloped for residential apartments including the large 'Breakfast Point' site located just to the east. There are existing adjoining residential developments extending to the north along Hilly Street as well as other recently completed developments in the vicinity.

The development site is subject to a range of current and former industrial uses together with 6 'cottage' dwellings along the Edwin Street frontage. The existing uses are identified in the schedule provided in Appendix A and summarised in the following:

* 17,015m^2 GFA manufacturing/office
* 1,635m^2 GFA warehouse
* 242 employees/tenants
* 6 dwellings.

2.2 DEVELOPMENT SCHEME

The envisaged development scheme involves an arrangement of contemporary residential apartment buildings of various levels with basement carparking involving 6 stages of development. The development would retain the existing forms of the long established public roads with significant streetscape enhancements and provisions for pedestrian access and circulation. These enhancements will include



LEGEND

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SITE

FIG 2

'through site' links and the envisaged 14 buildings will range from 3 to 9 levels surrounded by extensive public and private open space areas including a dedicated foreshore strip. The envisaged 'make up' of the development is as follows:

60 x one-bedroom
201 x two-bedroom
141 x three-bedroom
Total 402 apartments

Parking would be accommodated in basement levels with 6 separate access connections to the frontage roads.

Details of the Concept Development Scheme are provided on the plans prepared by Cox Richardson Architects which accompany the application and are reproduced in part overleaf.

2.3 OTHER DEVELOPMENT CIRCUMSTANCES

There are other development circumstances in the Mortlake area and it is appropriate that assessment of the proposed development scheme has regard for the traffic implications of:

* developments which are approved and not constructed on individual sites (46 apartments)

* the remaining apartments to be constructed in the Breakfast Point development (880 apartments).

3. ROAD NETWORK AND TRAFFIC CONDITIONS

3.1 ROAD NETWORK

The road network serving the site (Figure 3) comprises:

- *M4* Motorway – a private toll road and major arterial route connecting between Concord and Penrith

- *Great Western Highway (Parramatta Road)* – a State Highway and arterial route which connects between the City and the Blue Mountains crossing

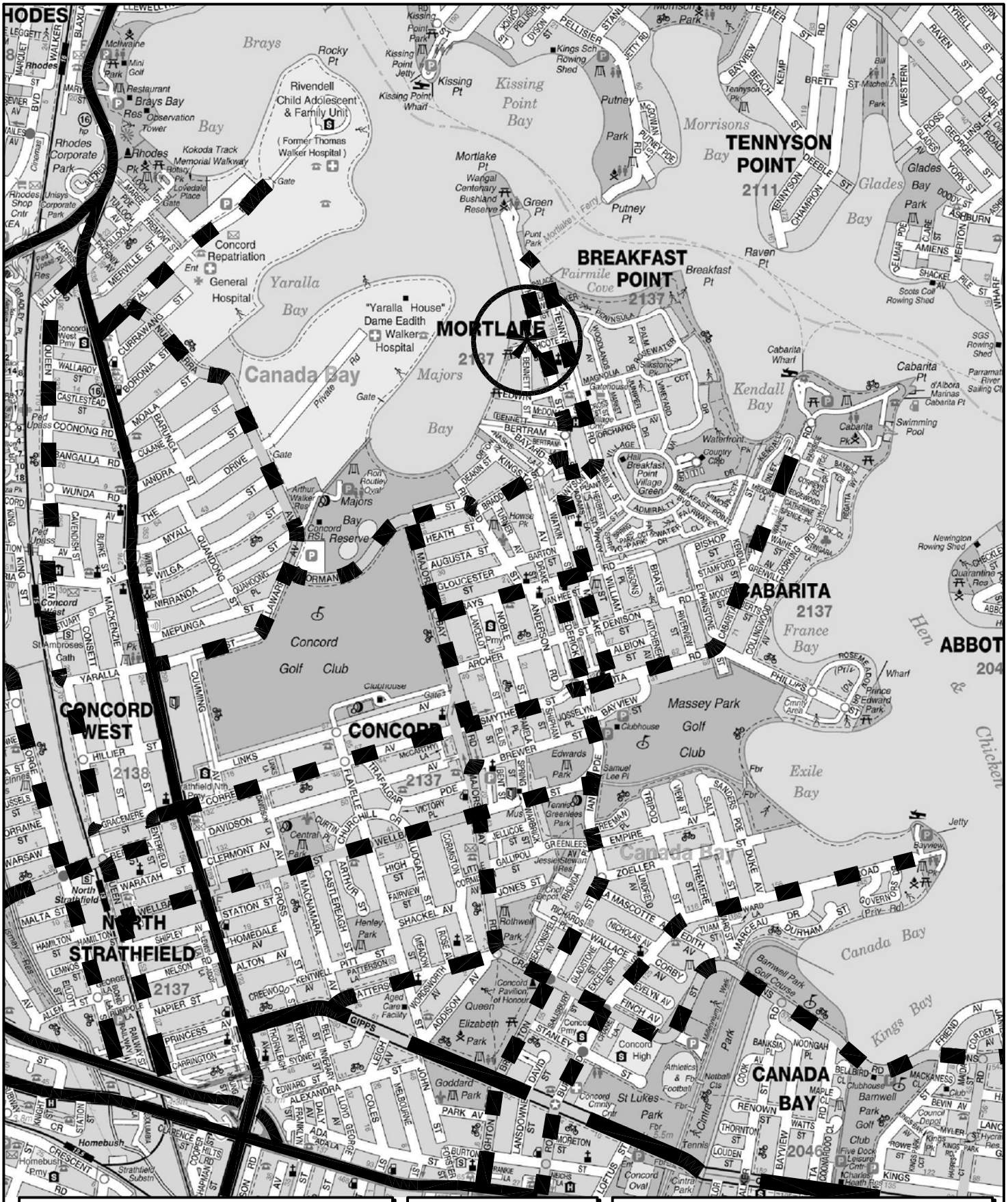
- *Homebush Bay Drive and Concord Road (north)* – a State Road and arterial route being part of METROAD 3 connecting north-south across the Metropolitan area

- *Concord Road (south)* – a State Road and sub-arterial route connecting between Strathfield and Rhodes

- *Patterson Street-Gipps Street-Queens Road* – a State Road and sub-arterial route running parallel to Parramatta Road between Strathfield and Five Dock

- the 'higher order' collector road system involving the Regional Roads of:

    - Nullawarra Avenue/Norman Street/Hospital Road
    - Majors Bay Road/Crane Street/Lyons Road
    - Lyons Road
    - Broughton Road
    - Burwood Road



LEGEND

- ARTERIAL
- SUB-ARTERIAL
- COLLECTOR

N

ROAD NETWORK

FIG 3

∗ the 'lower order' minor collector road routes of:

- Tennyson Road/Gale Street/Mortlake Street/Ian Parade
- Correys Road/Smythes Street/Cabarita Road
- Wellbank Street
- Hilly Street/Braddon Street.

3.2 ROAD GEOMETRY

Hilly Street and Bennett Street are relatively level in the vicinity of the site while Mortlake Street and Edwin Street have downgrades towards the west. The roadways in the vicinity of the site have the following dimensions:

	Total Reserve	**Roadway**	**Footways**
Hilly Street	16.0	10.6	2.7
Whittaker Street	20.0	13.0	3.5
Northcote Street	20.0	13.0	3.5
Bennett Street	16.0	10.6	2.7
Edwin Street	20.0	13.0	3.5

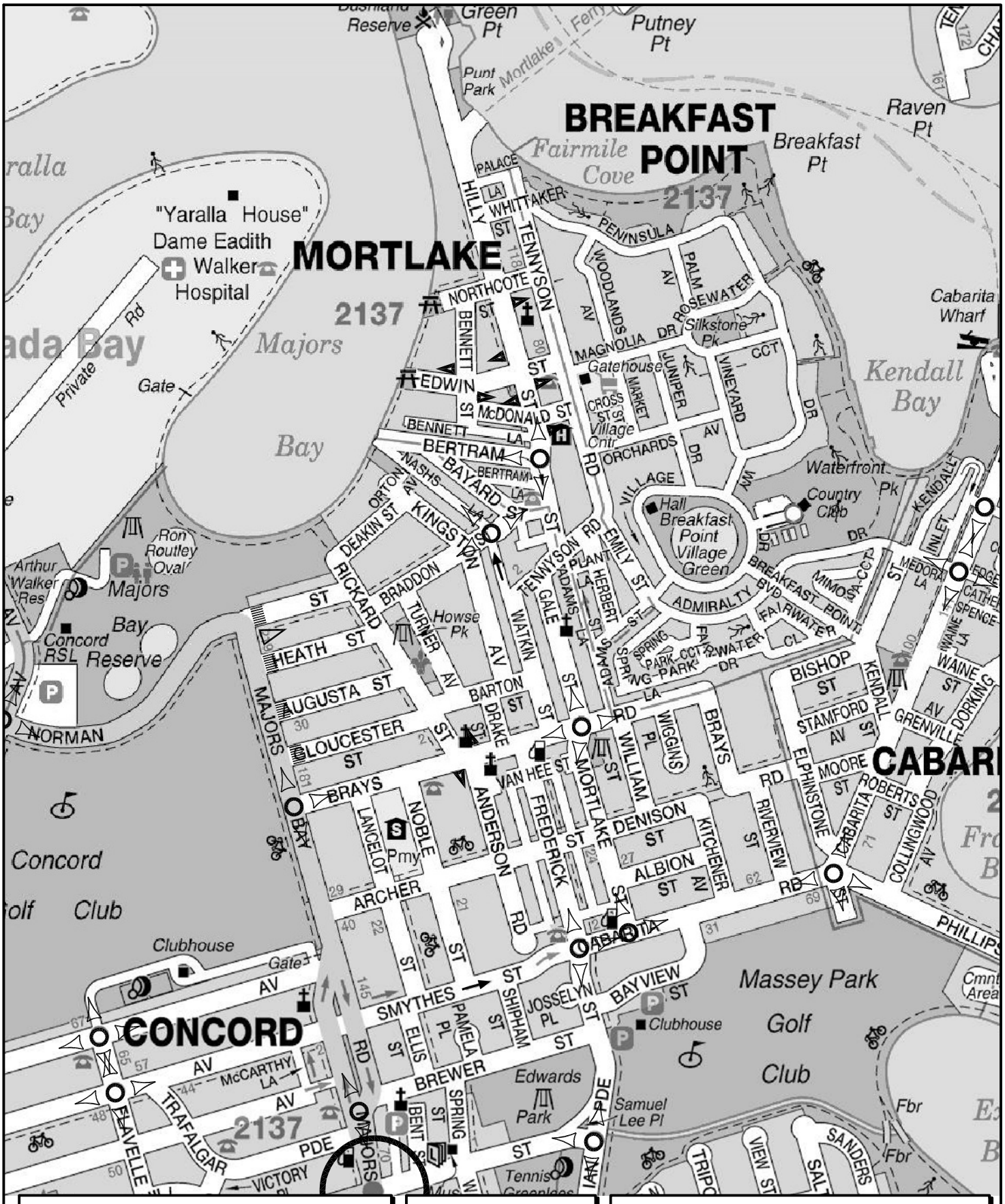
3.3 TRAFFIC CONTROLS

The traffic controls which have been applied to the road system relative to the site are depicted on Figure 4a (State and Regional Road controls) and Figure 4b (Precinct Controls). The major access controls comprise:

∗ the traffic signals along Concord Road including the Hospital Road, Correys Road, Wellbank Street and Paterson Street intersections

∗ the traffic signals along Parramatta Road including the Concord Road, Broughton Street and Burwood Road intersections

∗ the traffic signals at the Majors Bay Road/Wellbank Street intersection



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- TRAFFIC SIGNAL CONTROL
- ROUNDABOUT
- RESTRICTED TURNING MOVEMENT
- ONE WAY
- GIVE WAY
- LATM

TRAFFIC CONTROLS

FIG 4

- the traffic signals along Crane Street at the Broughton Street and Burwood Road intersections. Details of these intersection are provided on the traffic signal design plans reproduced in Appendix B

- the roundabouts at intersections along Flavelle Street, Majors Bay Road and Nullawarra Avenue

- the closure of road connections along the eastern section of Crane Street/Lyons Road

- the numerous right-turn prohibitions at intersections along the arterial routes.

The local precinct controls comprise:

- roundabouts at the intersections of:
    - Hilly Street/Bertram Street
    - Braddon Street/Watkin Street
    - Mortlake Street/Brays Road
    - Cabarita Road/Frederick Street
    - Cabarita Road/Phillips Street
    - Wellbank Street/Ian Parade

- GIVE WAY/SIGN signs at the following:
    - Northcote Street at Hilly Street
    - Edwin Street at Hilly Street
    - McDonalds Street at Hilly Street
    - Edwin Street at Bennett Street
    - Norman Street (east) at Majors Bay Road

- ONE-WAY restrictions on Smythes Street and Watkin Street

- LATM constraints along Frederick Street and the roads connecting with the northern section of Majors Bay Road

* the central median island along Tennyson Road across the Gale Street intersection.

3.3 TRAFFIC CONDITIONS

An indication of the existing traffic conditions on the road system in the vicinity of the site is provided by data[1] published by the RTA and traffic surveys undertaken as part of this assessment.

The data provided by the RTA is expressed in terms of Annual Average Daily Traffic (AADT) and the latest recordings are provided in the following:

	2005	**2002**	**1999**	**1996**
Concord Road north of Correys Road	24752	23405	26217	27668
Parramatta Road west of Walker Street	84732	84708	82062	81342
Lyons Road at Canada Bay	19248	18653	20400	17216
Queens Road west of Walker Street	25669	24764	26761	25632
Putney Punt	241	228	255	277
Burwood Road at Gipps Street	10315	11781	11342	11817
Correys Road at Concord Road	7082	6516	5323	4952
Broughton Road (southbound) at Parramatta Road	4250	3718	3934	3732
TOTAL	**176289**	**173773**	**176294**	**172636**

This traffic data indicates relatively stable traffic flow circumstances with some minor fluctuations over the past decade and prevailing flows which are generally very similar to those recorded in 1999.

Detail traffic surveys have recently been undertaken at intersections in the Mortlake area during the morning and afternoon peak periods and the results of those surveys are provided in Figures 5a and 5b. The additional recorded traffic flows at 3 of the principal collector road intersections during the peak periods are summarised in the following:

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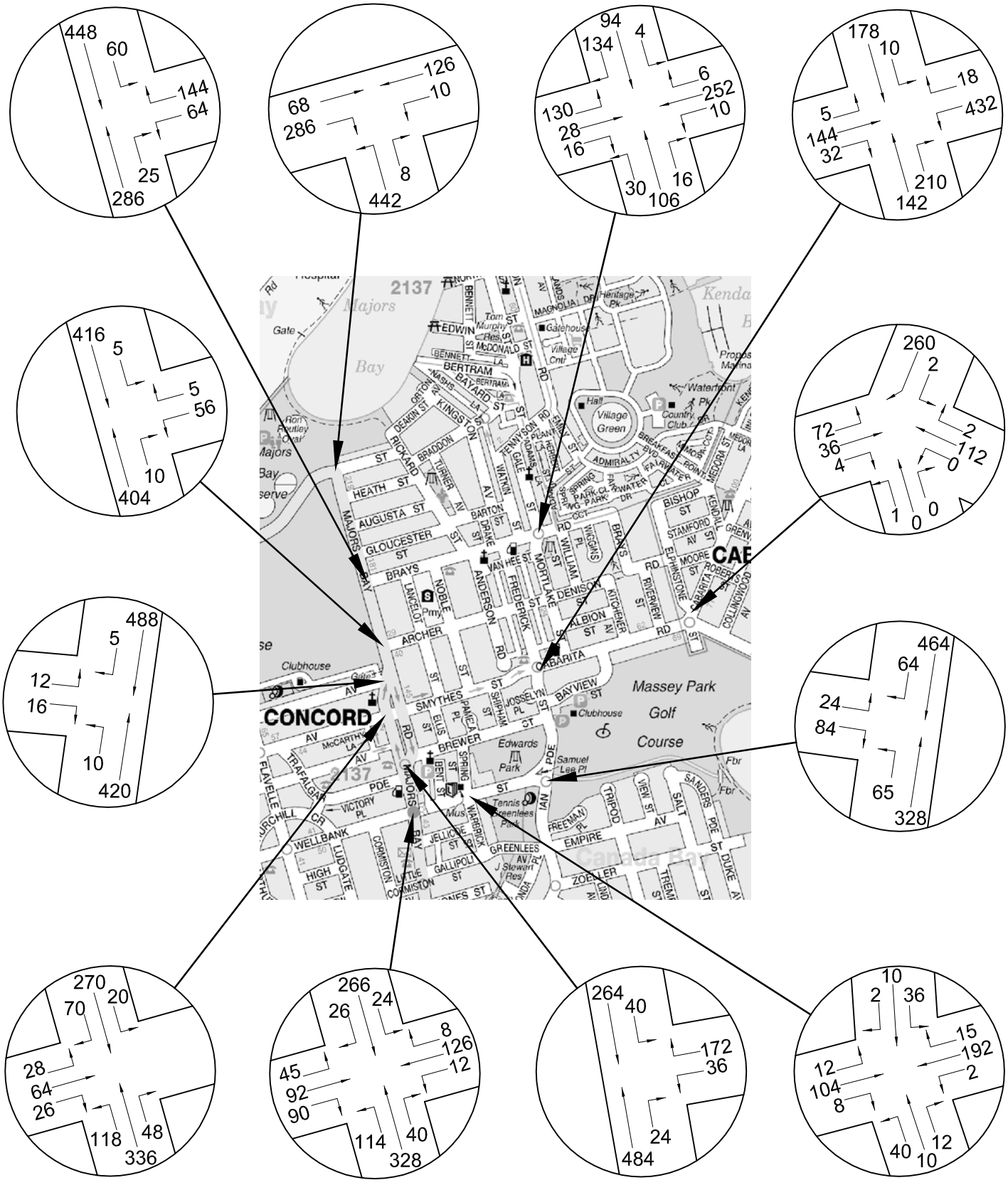
[1] *Traffic Volumes for Sydney Region*
Roads and Traffic Authority of NSW



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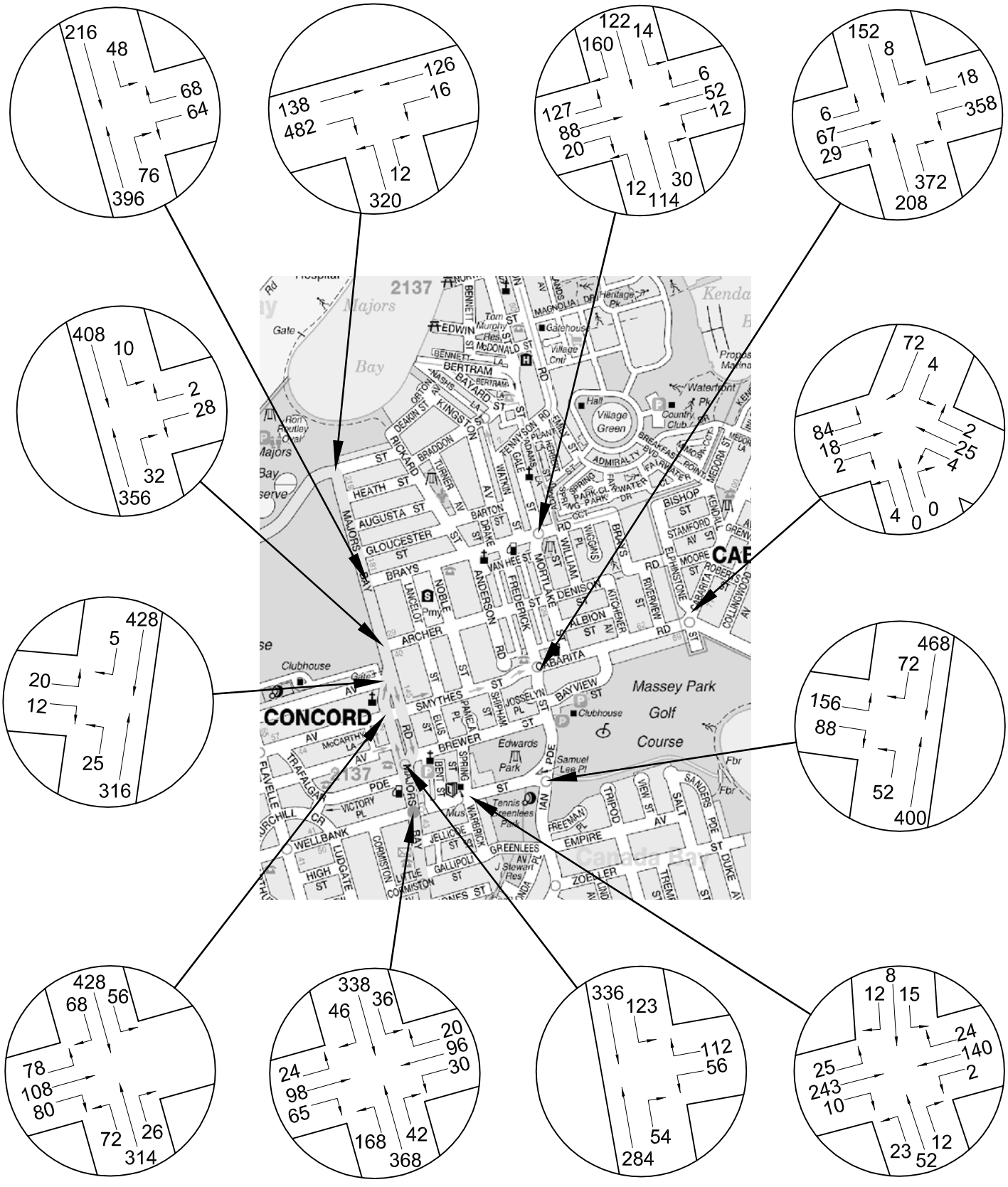
EXISTING MORNING PEAK TRAFFIC VOLUMES

FIG 5a



LEGEND

EXISTING AFTERNOON PEAK TRAFFIC VOLUMES

FIG 5b

		AM	PM
Burwood Road	Northbound	40	108
	Right-turn	91	97
	Left-turn	96	150
	Southbound	109	81
	Right-turn	9	10
	Left-turn	155	79
Crane Road	Eastbound	567	724
	Right-turn	147	203
	Left-turn	11	14
	Westbound	764	784
	Right-turn	35	148
	Left-turn	69	85
Broughton Road	Northbound	153	254
	Right-turn	67	114
	Left-turn	89	158
	Southbound	245	214
	Right-turn	6	15
	Left-turn	258	254
Crane Street	Eastbound	400	573
	Left-turn	6	13
	Westbound	593	553
	Right-turn	150	265
	Left-turn	126	126
Paterson Street	Eastbound	107	200
	Left-turn	24	41
Crane Street	Westbound	207	233
	Right-turn	448	459
Majors Bay Road	Right-turn	16	44
	Left-turn	279	391

The traffic flows (total two-way) along the principal access routes during the morning and afternoon peak periods are summarised in the following:

	AM	**PM**
Norman Street west of Majors Bay Road	922	1066
Ian Parade south of Wellbank Street	941	1088
Correys Road west of Majors Bay Road	306	406
Wellbank Street west of Majors Bay Road	493	497
Majors Bay Road south of Wellbank Street	850	1011

Peak hour traffic flows in urban areas traditionally represent some 10% of the AADT flow (Austroad Section 3) and on that basis the flows along the important collector road routes providing access to and through the area are provided in the following:

	AM/PM Peak
Burwood Road at Gipps Street	1000
Broughton Road at Parramatta Road	850
Correys Road at Concord Road	700
Lyons Road at Canada Bay	1900

The traffic flows on these collector roads are quite significant, however it is relevant that the flows contain a substantial element of ‘regional’ flows which are bypassing the congested Parramatta Road arterial route and connecting intersections.

4. PUBLIC TRANSPORT AND BICYCLE NETWORKS

Public Transport

The Mortlake area has public transport services which comprise:

Bus Services

The bus services are operated by Sydney Buses and details of these routes are Shown on Figures 6a and 6b and comprising:

Route 460 – A daily daytime service between Five Dock, Burwood, Concord and Concord Hospital.

Route 462 – A daily early morning and evening service between Mortlake, Burwood (Railway Station), Croydon Park and Ashfield (Railway Station).

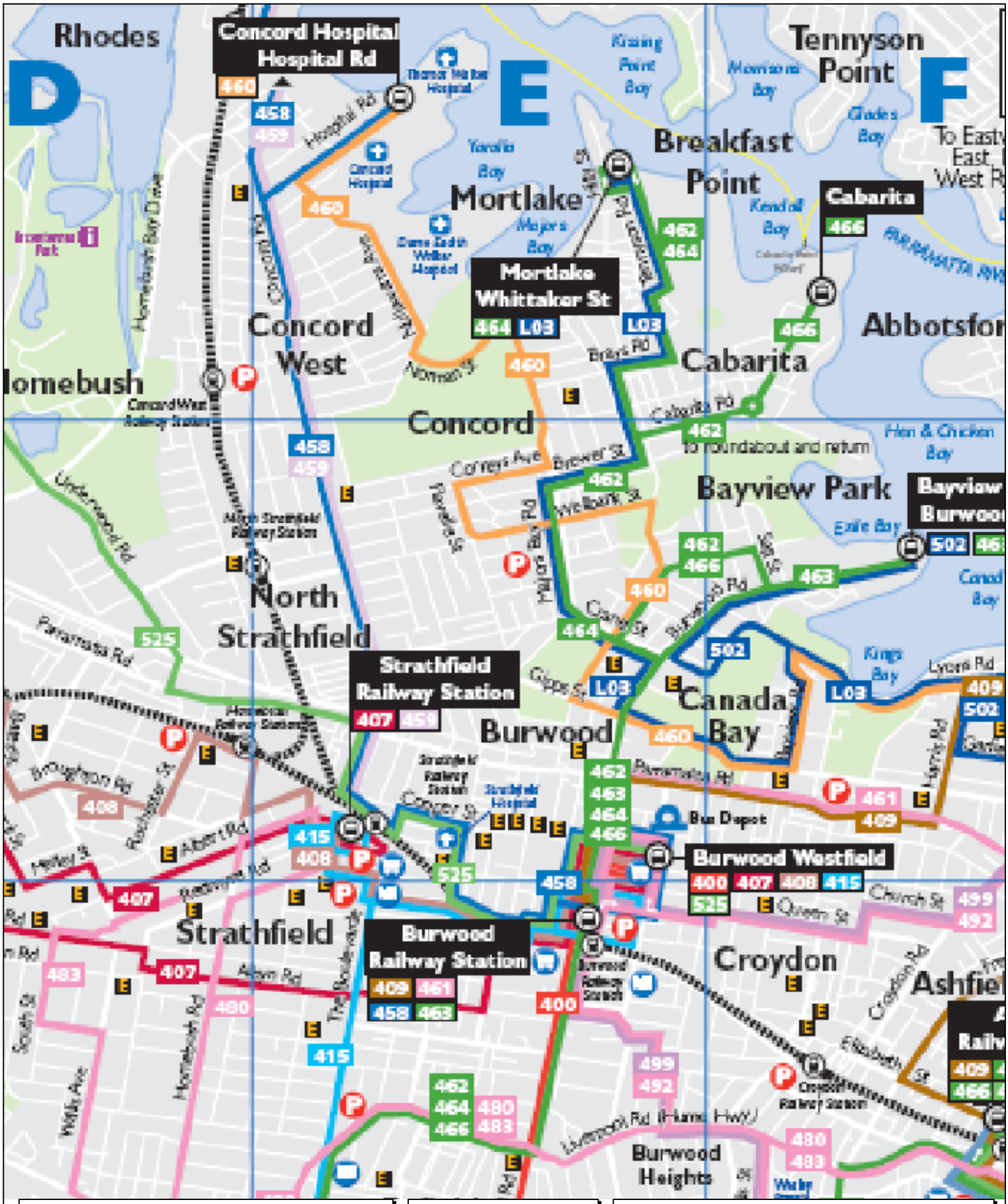
Route 464 – A daily daytime service between Mortlake, Burwood (Railway Station), Croydon Park and Ashfield (Railway Station).

Route 466 – A daily daytime service between Cabarita Wharf, Burwood (Railway Station), Croydon Park and Ashfield.

Route L03 – a weekday peak period service between Mortlake and Wynyard with 5 trips leaving Mortlake in the morning and 5 trips leaving the City in the afternoon.

Route 463 – A weekday daytime service between Cabarita Wharf, Cabarita Junction and Burwood (Railway Station).

Between 7.00am and 9.00am there are 10 buses departing from Mortlake (Whittaker Street) while between 7.00am and 9.00am there are 10 buses departing from



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BUS SERVICES

FIG 6(a)

Cabarita Wharf. Thus, there is a total of 20 buses departing from Cabarita junction (Frederick Street/Cabarita Road intersection) during the 2 hour morning period with a similar number returning during the 2 hour afternoon peak.

Route 502 – A weekday peak hour service between Bayview Park and Wynyard.

The existing bus stops in the Mortlake area are devoid of any supplementary facilities except for the shelter which is provided on the eastern side of Tennyson Road at Breakfast Point.

Ferry Services

Ferry services operate from Cabarita Wharf with 7 services departing to Darling Harbour and Circular Quay between 7.30am and 9.30am in the morning and 6 services returning between 5.30 and 7.30pm in the afternoon.

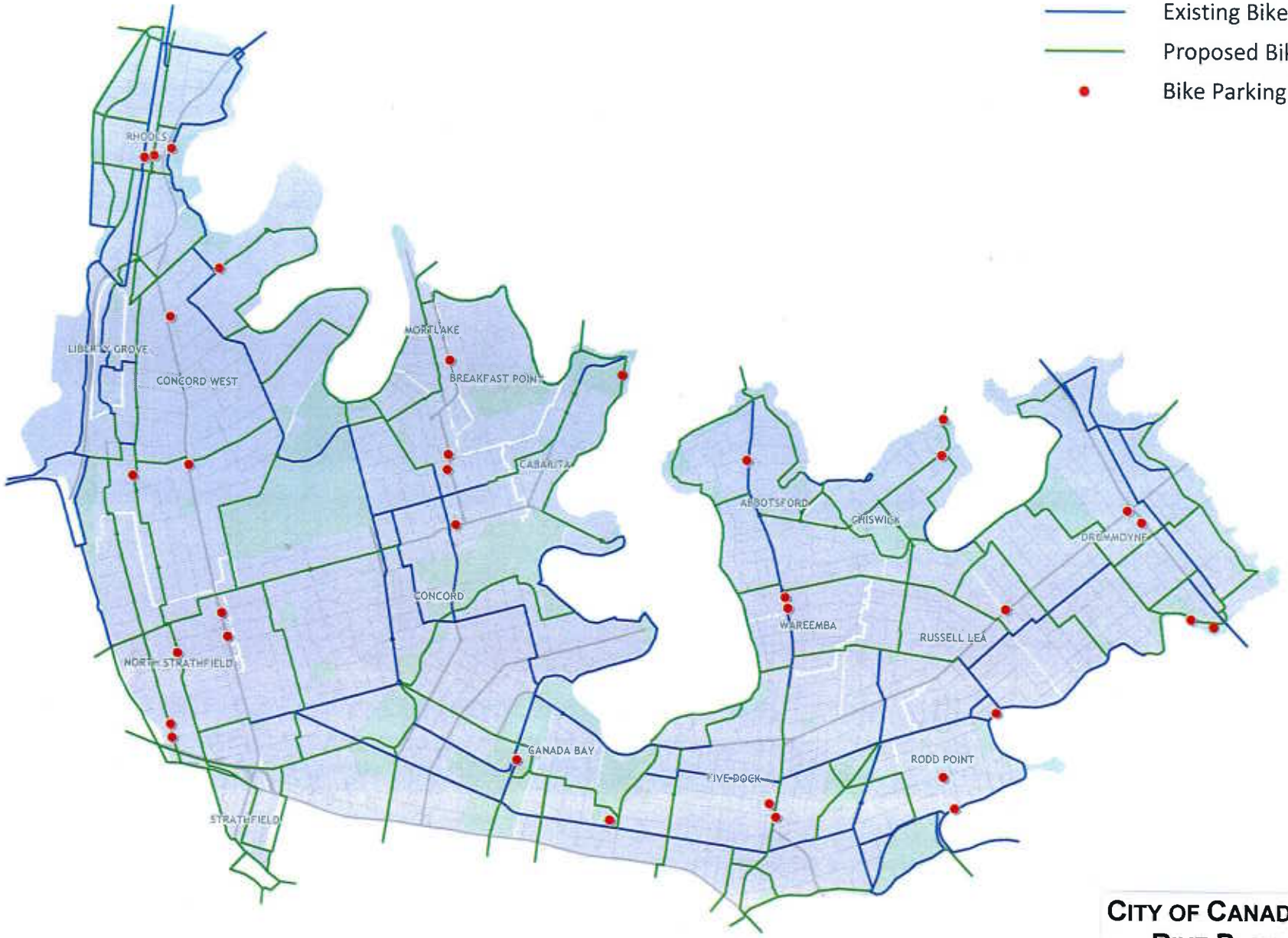
Rail Services

Rhodes and Concord West Railway Stations are located some 3 kms to the west and can be accessed by kiss'n'ride travel.

Bicycle Network

Details of Council's existing and proposed bicycle route provision are identified on the plan overleaf. There are no existing routes in the Mortlake area, however future routes are proposed along the shore of Majors Bay (where the development of the subject site will make a significant contribution) with linkage to the existing route along Majors Bay Road and Norman Street.

Another link route is proposed along Hilly Street and along the Breakfast Point foreshore.



CITY OF CANADA BAY BIKE PLAN

Scale 1 : 25,000 @ A4

5. ACCESS

5.1 ACCESS ROAD SYSTEM

The principal immediate access route to/from the development site will be the existing collector road route of Mortlake Street, Gale Street and Tennyson Road linking to Hilly Street, Edwin Street, Northcott Street and Bennett Street (where the site accesses will be located). There will be some movement to/from the Norman Street/Nullawarra Avenue collector route and via the other collector routes of Hospital Road, Correys Road and Wellbank Street while Majors Bay Road/Ian Parade/Broughton Street and Burwood Road/Crane Street will make up the collector road distribution.

The access roads adjacent to the site would be upgraded while retaining their existing general form. This upgrading will involve:

* widened footways and patronage
* indented parking bays
* street trees
* lighting.

Because of the existing relatively narrow road reserves it will not be possible to provide dedicated bicycle lanes, however the footways will be a minimum of 2.5 metres wide providing for shared pedestrian/bicycle use. Details of the proposed street sections are provided on the drawings provided overleaf.

5.2 SITE ACCESS

Vehicle access for the envisaged 14 individual buildings would involve 6 separate access driveways and the principles which have been followed in deriving these access points are as follows:

- no accesses on the Hilly Street collector route
- combined building accesses where possible.

The identified vehicle access points will:

- avoid concentration of access movements
- provide flexibility of access routes
- ensure that vehicles can enter and depart accesses in a forward direction.

6. TRAFFIC

6.1 TRAFFIC GENERATION

The Roads and Traffic Authority's Guide to Traffic Generating Developments contains criteria relevant to 'high density' residential apartment buildings. This data was established by survey of some 20 buildings located in various Metropolitan areas including some near railway stations (eg Chatswood) and some away from good public transport (eg Brighton-Le-Sands). The RTA criteria for residential (high density) apartments is 0.29 vtph per apartment during the morning and afternoon on-street peak periods.

In order to establish the intrinsic traffic generation characteristics of residential apartments in the Mortlake area surveys were undertaken of 5 fully occupied apartment blocks in the Breakfast Point Precinct. These surveys involved recording the vehicle movements IN and OUT during the morning and afternoon peak periods for:

'Mulberry Hill'	60 apartments
'Celeste'	40 apartments
'Rosewood'	40 apartments
'Ascot'	20 apartments*
'Carolina'	40 apartments*
Total	**200 apartments**

** common access*

The results of those surveys are provided in Appendix C and summarised in the following:

TOTAL ACCESS MOVEMENTS

AM		PM	
IN	**OUT**	**IN**	**OUT**
8	52	47	7
60 vtph		**54 vtph**	

These results indicate average generation rates per apartment of:

AM	-	0.30 vtph
PM	-	0.27 vtph

6.2 MODE SPLIT AND DISTRIBUTION

In order to establish the intrinsic travel mode split and car route distribution for apartment occupiers in the Mortlake area questionnaires were delivered to some 200 existing occupied apartments in Breakfast Point. Details of the questionnaire are provided in Appendix E and the results of the responses are provided in the Supplementary Papers and summarised in the following:

Mode Split

Car	71% (includes car to train)
Bus	12%
Ferry	12%

Retiree 3%

Work at Home 2%

Vehicle Access Point

A.	Hospital Road at Concord Road	23%
B.	Correys Road at Concord Road	21%
C.	Wellbank Street at Concord Road	9%
D.	Paterson Street at Concord Road	1%
E.	Broughton Street at Parramatta Road	5%
F.	Burwood Road at Parramatta Road	1%

G.	Queens Road		2%
H.	Lyons Road		18%
I.	Putney Punt		20%
		Total	**100%**

6.3 TRAFFIC IMPACT

The potential traffic implications of development have been considered in relation to the existing development on the subject site and approved redevelopment on other sites in the vicinity.

The proposed development of 402 apartments, on the basis of the established generation characteristics, would generate the following traffic movements in the morning and afternoon peak periods:

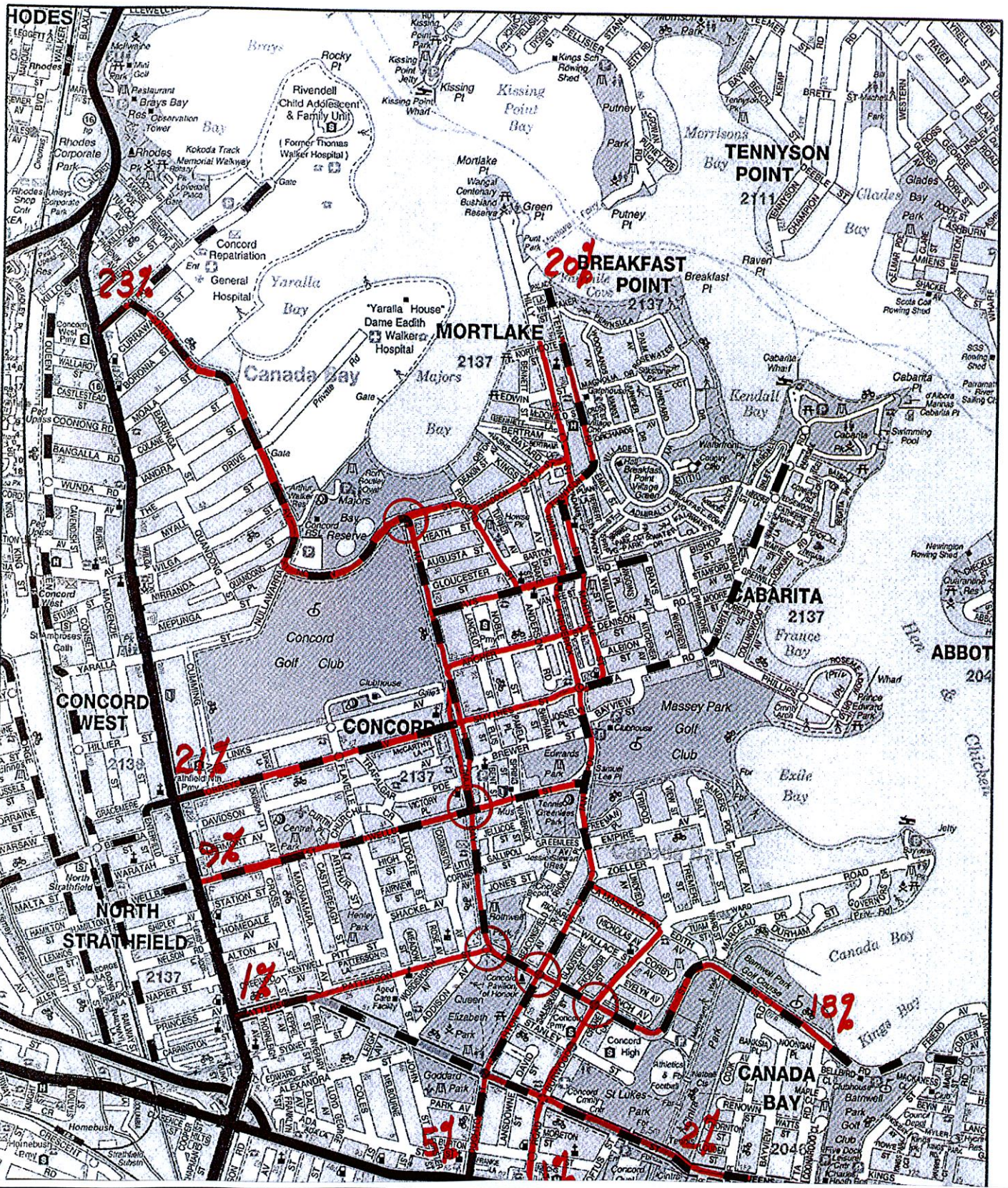
@ 0.30 vtph in AM	121 vtph
@ 0.27 vtph in PM	109 vtph

The existing industrial uses on the site (as depicted in Appendix A) comprise:

- 17,015m^2 GFA of industry/office
- 1,635m^2 GFA warehouse/storage
- 6 dwellings
- 242 employees

Application of the traffic generation criteria contained in the RTA's Development Guidelines to these existing uses would indicate the following morning and afternoon peak traffic generation.

17,015m^2 Industry/Office @ 1.0 vtph per 100m^2	-	170 vtph
1,635m^2 Warehouse/Storage @ 0.5 vtph per 100m^2	-	8 vtph
6 dwellings @ 0.85 vtph	-	5 vtph
Total	**-**	**183 vtph**



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TRAFFIC DISTRIBUTION

FIG 7

This can be compared with an employee based assessment of:

242	-	10% public transport
218	-	1.1 per car
198 vehicle trips + deliveries/service vehicles say 220 vt		
220	-	0.75* IN 1 hour
Total	**-**	**165 vtph**

** 75% arrive/depart in peak hour*

It is therefore apparent that the traffic generation of the proposed apartment development on the site will be significantly less than that of the existing traffic generation of the site.

In regard to the context of the subject site in relation to the landuse and development circumstances in the Mortlake area there are 2 scenarios, namely:

A. Site traffic generation for continuing or upgraded industrial use (RTA rates)
B. Site traffic generation for proposed residential apartment development.

Comparison of the traffic generation outcomes for each of those scenarios in terms of vehicle trips per hour during the morning and afternoon peak periods is provided in the following:

A.	**AM**	**PM**
Site (industrial)	183	183
926 apartments*	278	251
Total	**461 vtph**	**434 vtph**

B.	**AM**	**PM**
Site (402 apartments)	121	109
926 apartments*	278	251
Total	**399 vtph**	**360 vtph**

** other sites approved*

It is apparent that the difference between the outcome under industrial development on the site and the proposed development scheme is as follows:

	Industrial	**Proposed**
AM	461 vtph	399 vtph (- 62)
PM	434 vtph	360 vtph (- 74)

The existing traffic generation of the site uses (and potential upgraded industrial uses) is very much ingress during the morning peak and egress during the afternoon peak. The traffic generation of residential apartments is largely the opposite, although there is some 20% in the reverse direction.

All of the principal access points on the arterial and major collector roads are controlled by traffic signals which operate with cycle lengths of 120 – 140 seconds in peak periods. Because the proposed development will result in a decreased traffic over that currently generated by the site (only a directional change) the difference will not be perceptible and would not be identifiable on any traffic modelling.

7. PARKING AND SERVICING

Parking

Because the proposal is for a 'staged' development process there is the potential for the apartment 'mix' to vary in the future and it is desirable to maintain some flexibility in the rate of parking provision. Council's DCP specifies the following parking provision in relation to residential apartments:

	Minimum
Small	1 space per dwelling
Medium	1.5 spaces per dwelling
Large	2.0 spaces per dwelling
Visitors	0.5 spaces per dwelling

This provision is not entirely in accordance with the Department's principle for reduced carparking rates, certainly the provision for visitors would appear to be highly unusual when the criteria specified in the RTA's Development Guidelines for 'High Density Residential' is 1 space per 5 – 7 dwellings (as compared to 1 space per 2 dwellings in the DCP). In accordance with the guiding principles the proposed parking criteria for the development is as follows:

	Minimum	**Maximum**
Small (one-bedroom	0.5 spaces	1 space
Medium (two-bedroom)	1.0 space	1.5 spaces
Large (three-bedroom)	1.5 spaces	2 spaces
Visitors*	1 per 10 apartments	1 per 5 apartments

* *including on-street spaces*

In addition, provision for motorcycle parking will be made in the basement areas on the basis of 1 space per 20 apartments. Disabled parking for residents and visitors will be made in the basement areas in accordance with AS 2890.6 and there will be

1 formal disabled driver space provided in Northcote Street to facilitate access to the public foreshore.

Servicing

There will not be a need to provide access for large service vehicle access into the basement carpark areas. Small service vehicles (service personnel) including vans and SRV's etc will be able to use the visitor spaces. Provision will be made for garbage trucks to access in close proximity to garbage storage areas within the sites (adjacent to the access driveways).

8. PEDESTRIANS AND CYCLISTS

The proposed development scheme would make very conspicuous and tangible provision for pedestrians and cyclists. These provisions include:

* various 'through site' linkages
* upgraded footways and shared pathways
* considerate location of vehicle access points
* significant open space areas.

Provisions will also be made for bicycle storage within the buildings in accordance with Council's DCP criteria of:

* Residents: 1 storage space per dwelling
* Visitors: 1 parking space per 12 dwellings.

9. PUBLIC TRANSPORT SERVICES

It is a fortuitous circumstance where the development site is able to take full advantage of the existing STA bus services being at the 'service commencement' point where full capacity is available. These buses provide for direct travel to/from the City and connection to rail services at Burwood (as well as the City).

The STA has no proposals at present to augment these services, however the Authority:

* will respond to increased patronage demands as development takes place in the area

* will expect that facilities are provided as part of the ongoing development in order to accommodate and encourage travel by bus.

At present the Whittaker Street bus stop has no supplementary facilities and it would be proposed to upgrade this facility with:

- shelter
- seats
- lighting
- paving (including tactile)
- service information

It would also be possible to alter the Route 460 service so that it accessed into the Mortlake high density residential precinct and extended to terminate at Rhodes Railway Station with more frequent services. This would provide a far more expedient rail connection than the current bus services connections available to Burwood Railway Station.

It is proposed to pursue and promote this change with the State Transit Authority.

10. RESPONSE TO DIRECTOR GENERAL'S REQUIREMENTS

Metropolitan Transport Plan 2010

The Metropolitan Transport Plan (see overleaf) is to be 'read' in conjunction with the Metropolitan Strategy. The Metropolitan Transport plan delivers:

- a 25 year vision for landuse planning for Sydney, and a 10 year fully funded package of transport infrastructure to support it

- a new Sydney Metropolitan Development Authority to work across State agencies, local government and the private sector to deliver new housing, infrastructure and investment in key centres and corridors

- a commitment to building Parramatta as our second CBD, and recognition of its role as an essential transport interchange for Western Sydney

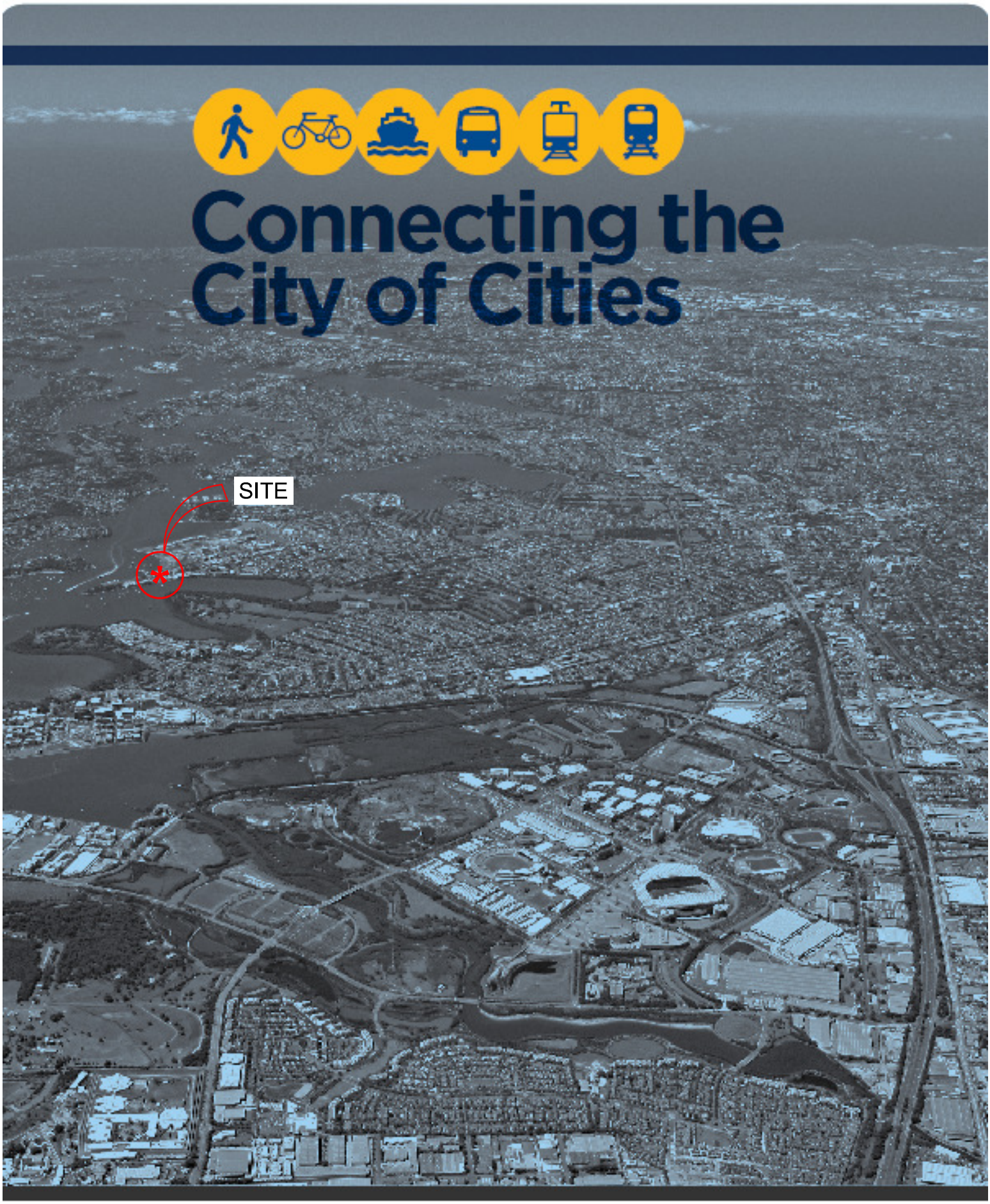
- an historic partnership between the City of Sydney and the NSW Government to delivery integrated landuse planning, infrastructure and funding in Central Sydney.

An assessment of compliance of the proposed development with the planning objectives and strategies of the Metropolitan Transport Plan are summarised in the following:

Planning Objectives	Strategies	Compliance
- Effectively link Sydney's landuse planning with its transport network - Create a working, connected sustainable City - Improve quality of life boost the economy and help face future challenges - Integrate with the Metropolitan Strategy providing an effective framework for housing and employment growth and development in Metropolitan Sydney	- Provide 70% of new housing in established areas - Diversity with a variety of renewed neighbourhoods - Ample transport connections - Contain congestion - Concentrate development and supporting transport services in centres - Make better use of existing infrastructure	✓ ✓ ✓ ✓ ✓ ✓

NSW GOVERNMENT

METROPOLITAN TRANSPORT PLAN



Transport and Accessibility

Provide a Transport and Accessibility Impact Assessment

This document provides that assessment and an appraisal of Council's Traffic Study is provided in the following:

Council commissioned the study 'Mortlake Redevelopment Traffic Impact Assessment – Transport and Urban Planning August 2011' to provide an assessment of the potential traffic implications of residential development under a number of FSR scenarios. This assessment however appears to deal incorrectly with two fundamental issues, namely:

* Traffic Generation

  The stated objective (1.0 Introduction) is to assess the impact of traffic generated by future 'medium density' and 'high density' residential development. However, the adopted traffic generation criteria for the assessment is limited to the 'medium density' rate from RTA's Guide to Traffic Generating Development (0.5 vtph/unit for one and two-bedroom and 0.65 vtph/unit for three-bedroom). There is no application of the RTA's criteria for 'high density' residential of 0.29 vtph/unit.

  The RTA definition for medium density is '*a residential flat building containing at least 2 but less than 20 dwellings, this includes villas, townhouses, semi-detached houses, terrace or row houses.'* The RTA definition for high density is *'a building containing 20 or more dwellings usually more than 5 levels with basement carparking and in close proximity to public transport services'.*

  It is quite apparent that the proposed development is high density residential apartment buildings of up to 9 levels with more than 20 dwellings per building and basement carparking in close proximity to public transport services.

  The traffic assessment for the proposed development could, quite legitimately, have simply adopted the RTA traffic generation criteria for high density, however extensive surveys were undertaken at 5 nearby apartment buildings in

the Breakfast Point development (total 200 apartments) and the results derived the traffic generation rates of:

AM - 0.30 vtph per apartment
PM - 0.27 vtph per apartment

These rates were applied in the traffic assessment whereas the Council Study adopted a medium density average rate of 0.5225 vtph per apartment which is between 74% and 93% more than the established intrinsic rate for residential apartments in the precinct. Hence, the assessed total potential traffic generation in the Council Study significantly over estimates the outcome to the extent that the conclusions are considered to be errant.

* Existing Traffic

The recorded existing traffic movements identified in the Council Study indicate significant traffic volumes ingressing into Mortlake in morning and egressing in the afternoon (P9 some 300 vph just at the Brays Road/Gale Street intersection alone). This is traffic which is generated by existing industrial/commercial uses on the sites which will be redeveloped for residential apartments. However, the assessment does not in any way discount this existing traffic generation from the future traffic generation as a result of redevelopment. The assessment simply adds the adopted residential traffic generation onto the existing volumes.

* Conclusion

The assessment undertaken for Council is seriously flawed because of the 'compounding' errors of overestimated traffic generation as a result of residential apartment development and a failure to deduct the traffic generation of existing industrial/commercial uses on these sites.

In the case of the subject site it has been clearly demonstrated that existing traffic generation is in fact greater than that which will result from the redevelopment for residential apartments.

Because the proposed development will generate less traffic than the existing uses on the site, including significant truck movements, it is concluded that the development does not create a need for road or intersection upgrades.

Provide an Assessment in Relation to Non-Car Travel Modes

Planning for the development has been focussed on:

* provision to encourage and facilitate pedestrian activity
* provision to encourage and facilitate cycling
* provision to encourage and facilitate travel by public transport.

The Public Domain Landscape Plan which accompanies the application clearly demonstrates the considerable measures and provisions which will be made for pedestrian movements and the integration of that with the external pedestrian network.

The nature of some existing roads (ie Hilly Street) and existing barriers present some impediments to an optimum outcome in relation to cyclist provision (ie continuity along the waterfront). However, the development will add immeasurably to the provision for cyclists in the area. In particular, the development will complete parts of Council's planned network in:

* provision of the section along Majors Bay foreshore and along Northcote Street (shared footway)
* provision of the section along Hilly Street (shared footway).

Appropriate storage and parking for bicycles will also be provided in the development in accordance with Council's DCP criteria.

The use of public transport will be encouraged by:

* the provision for pedestrian connection

* the upgrading of the Whittaker Street bus stop provisions

- engagement with the STA to extend Route 460 to enable connection to/from Rhodes Railway Station and for a potential connection through Breakfast Point to/from the Cabarita Ferry Wharf.

Construction Impacts

The construction works for development of the site will be undertaken in numerous stages and this will act to minimise the magnitude of construction vehicle activity at any one time. Construction vehicle routes will be designated to the shortest and most appropriate route to/from the arterial road system (ie Concord Road).

Each stage of works would follow a program of demolition, remediation, excavation and construction with each stage taking some 12 to 18 months to complete. The associated road upgrade works will similarly to undertaken in stages relative to the development stage which they are associated with.

Access to properties, services and for buses will be maintained at all times, although there is likely to be the need for temporary one-way restrictions (eg Hilly Street one-way north in part). Pedestrian access and cyclist movements will be maintained, although movement may be restricted to one side of the road at times.

Conspicuous warning and direction signs will be installed in accordance with the RTA Guidelines and Traffic Controllers will be employed to supervise any diversions, temporary closures, vehicles reversing situations etc.

Loading/unloading and materials handling will be confined to each stage area wherever possible. Sites will be securely fenced and WORKS ZONE with B Class hoarding utilised where crane lifting needs to be employed over areas accessible by pedestrians.

Detailed Construction Traffic Management Plans will be prepared and submitted to Council for each development stage detailing:

- program for work
- construction hours

- truck route, type and number
- materials handling and storage
- fencing/hoarding
- vehicle access
- worker parking
- WORKS ZONE and other traffic facilities
- traffic controller position
- warning and advisory signs
- site induction
- pedestrian and cyclists provision
- measures to mitigate potential impacts for pedestrians, cyclists and public transport services.

Traffic Control Plans will be prepared and submitted to Council for ach process affecting the public road. These plans will be prepared in accordance with the appropriate standards and requirements by qualified personnel and works will not proceed until the plans are approved by Council. All mobile crane deployment or oversize loads will be subject to appropriate authorisation.

Particular planning and documentation will be prepared in relation to maintenance of suitable access for the existing adjoining uses and for bus and other services.

Parking Provision

The proposed parking provision has regard for the Department's preference for reduced carparking. The proposed provision is somewhat less than Council's DCP permits and is specified as a minimum – maximum range to retain flexibility for mix and design outcomes.

11. CONCLUSION

The development scheme for the Hilly Street precinct at Mortlake reflects a contemporary residential apartment complex replacing industrial uses in a sensitive waterfront environment. Assessment of the scheme has concluded that:

* the potential traffic generation of the site under the proposed development scheme will be less than that which occurs at present under the industrial uses and will not have any unsatisfactory implications or require any upgrading to roads or intersections

* the proposed provisions for pedestrians, cyclists and public transport will encourage travel by these modes and will be quite suitable and appropriate

* the proposed parking provisions will be flexible and will respond to the principle of constrained parking provision being somewhat less than that permitted under Council's DCP.

APPENDIX A

EXISTING SITE USES

Mortlake Areas

				AREA BY TITLE		Building Size	Building	Building	Historical Use	No. of Staff	Current use	No. of Staff
Number	Street	Lot	DP	Area By Title	Sub-Totals	*Est. Total Area*	*Est.Warehouse Area (m2)*	*Estimated Office Area (m2)*		*Historical*		*Current*
SITE 1												
31	Edwin	5	309043	455.3	455.3	182.12	House		Residential		Residential	3
29	Edwin	4	309043	448.9	448.9	179.56	House		Residential		Residential	3
27	Edwin	3	309043	385.7	385.7	154.28	House		Residential		Residential	3
25	Edwin	2	309043	417.3	417.3	166.92	House		Residential		Residential	2
23	Edwin	1	309043	379.4	379.4	151.76	House		Residential		Residential	5
21	Edwin	63	1937	177	↓	↓	↓	-	↓	↓	↓	↓ 4
21	Edwin	64	1937	177	354	141.6	House		Residential		Residential	3
Carpark	Edwin	8	227984	164.4	164.4	65.76		-				-
Dunny Lane	Edwin	13	747109	152.8	152.8	61.12		-				-
15-23	Bennett	A	356064	550.1								
15-23	Bennett	B	356064	1062								
15-23	Bennett	15	Sec 4/1559	765.1								
15-23	Bennett	16	Sec 4/1559	752.5								
15-23	Bennett	17	Sec 4/1559	708.2								
15-23	Bennett	18	Sec 4/1559	682.9								
15-23	Bennett	19	Sec 4/1559	657.6								
15-23	Bennett	20	Sec 4/1559	626								
15-23	Bennett	3	31644	575.4								
15-23	Bennett	4	31644	404.7								
15-23	Bennett	1	588807	1258	8042.5	6000	4000	2500	Paint Factory	120	Recycling & Dumper depot	20
SITE 2												
16-18	Bennett	1	124953	1518	1518	800	800	0	Paint Factory	25	Storage & distn	7
20-22	Bennett	1	812692	1393	1393	835.8	670	165	Manufacturing	15	Storage & distn	5
SITE 3												
1	Northcote	4	210632	739.8								
1	Northcote	6	210632	942.2								
1	Northcote	1	661962	335.1	↓	↓	↓		↓	↓	↓	↓
1	Northcote	1	570384	374	2391.1	2000	1600	200	Manufacturing	47	Manufactuing & Distn	35
14	Hilly	101	610982	1684	1684	1050	700	350	Manufacturing	25	Research & Development	60
16	Hilly	21	733003	3718	3718	2974.4	1215	1500	Manufacturing & Office	85	Research & Development	20
18	Hilly	200	774260	3246	3246	2596.8	1215	1500	Manufacturing & Office	60	Storage & Office	45
20-22	Hilly	102	635035	2998	2998	2398.4	1678	720	Manufacturing & Office	65	Manufacturing & Office	50
Total:				**27,748.40**	**27748**	**19758.52**	**11878**	**6935**		**442**		

F:\All\Property Investment\Mortlake JV\Consultants\Traffic\Site Bldg. Staff No. Analysis 30.3.07.x

APPENDIX B

INTERSECTION DETAILS


CRANE STREET AND BURWOOD ROAD
©2009 Google


CRANE STREET AND BROUGHTON STREET
© 2009 Google


MAJORS BAY ROAD AND NORMAN STREET


MAJORS BAY ROAD AND SMYTHES STREET
©2009 Google


MAJORS BAY ROAD AND WELLBANK STREET
Google

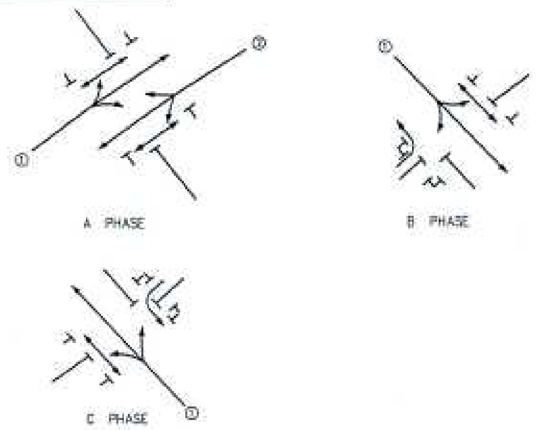

MAJORS BAY ROAD AND PATTERSON STREET
©2009 Google

7000.093.VV.1125

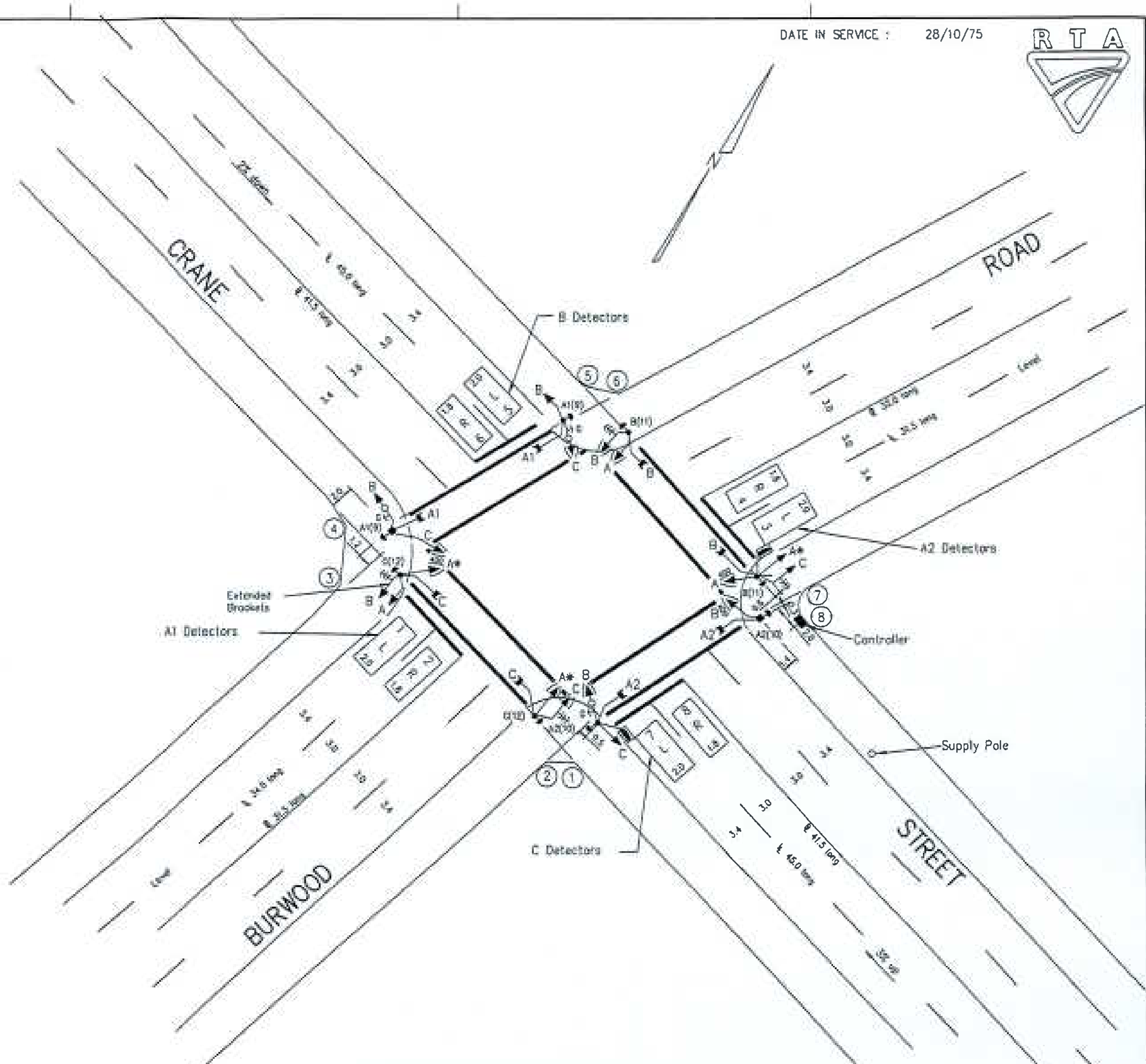
DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE : 28/10/75

R T A



MOVEMENT DIAGRAMS



DETECTOR SPECIFICATION

Detector		Specifications			
A1	FN	A(L)	A(E1)		
	SG/PS	A	A		
	DS	–	–		
A2	FN	A(L)	A(E2)		
	SG/PS	A	A		
	DS	–	–		
B	FN	B(L)	B(E1)		
	SG/PS	B	B		
	DS	–	–		
C	FN	C(L)	C(E1)		
	SG/PS	C	C		
	DS	–	–		
A1 P.B.	FN	A(PB)	C(L)		
	SG/PS	A1(WALK)	A.A1(WALK)		
	DS	–	B.C		
A2 P.B.	FN	A(PB)	B(L)		
	SG/PS	A2(WALK)	A.A2(WALK)		
	DS	–	B.C		
B P.B.	FN	B(PB)	A(L)		
	SG/PS	B(WALK)	B.B(WALK)		
	DS	–	A.C		
C P.B.	FN	C(PB)	A(L)		
	SG/PS	C(WALK)	C.C(WALK)		
	DS	–	A.B		

NOTES

1. SPECIAL POST DETAILS
   Post 1 is 4.1 long, type 2
   Post 2 is 4.0 long, type 1
   Post 4 & 8 is type 6.
2. All push buttons are audio tactile.

SPECIAL SIGNAL GROUP DISPLAY SEQUENCE

SIGNAL GROUP	TABLE TYPE	REMARKS
B (LT)	12	R.A Protection for A1 pedestrian
C (LT)	12	R.A Protection for A2 pedestrian

A ORIGINAL ISSUE
J Issue: Drawing converted to CADD format. For original signatures and previous issue details, refer to Sheet (7000.093.VV.1125) Issue I. Cadvision Conversion Date: 18/07/02
K Issue: PLAN REVISED TO W.A.E. F.P./M.M. 16/6/06

APPROVED
NAME F. E. FIDO
POSITION MANAGER,PROJECT DESIGN SERVICES
DATE 5.8.75

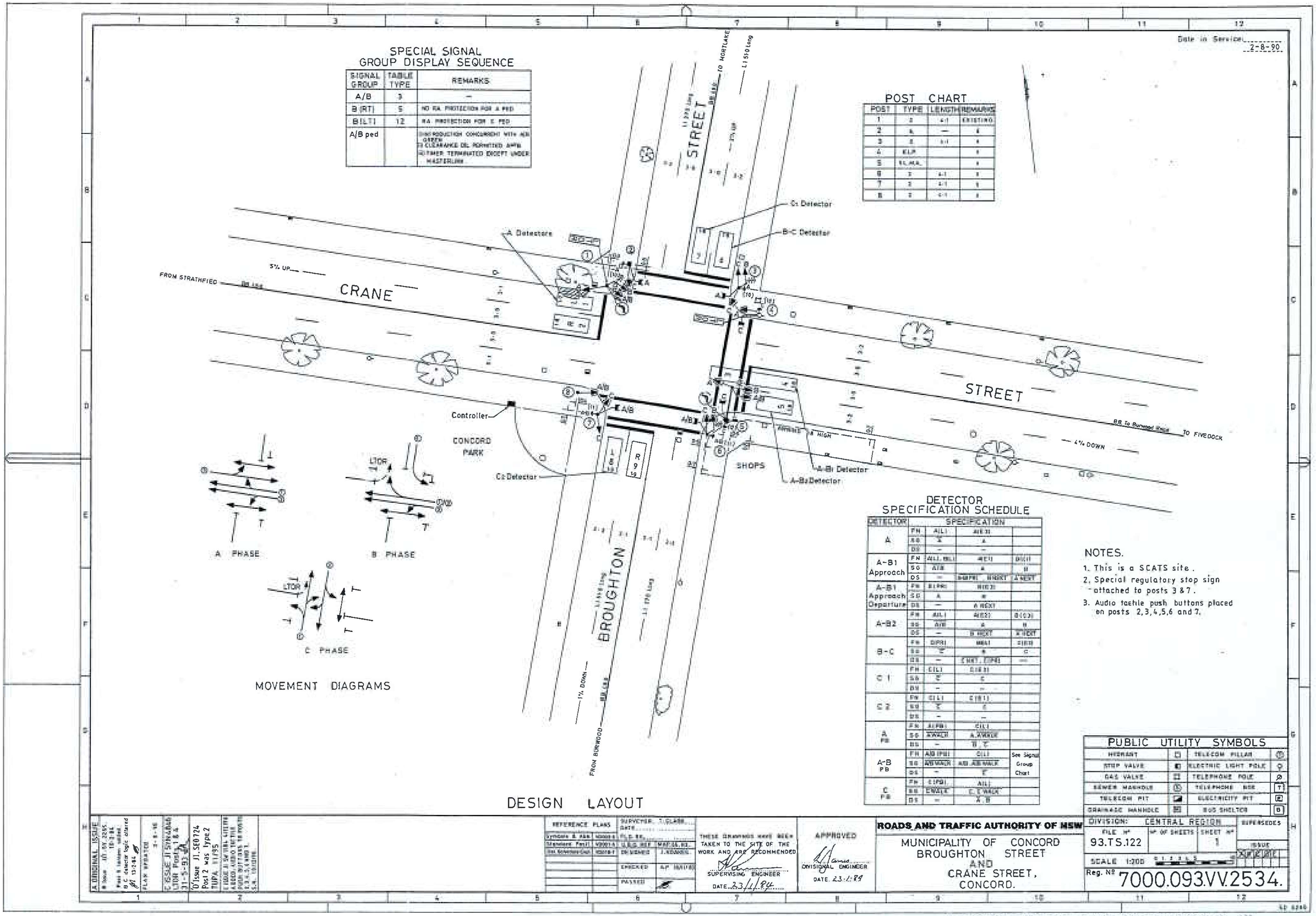
THIS DRAWING IS RECOMMENDED FOR ACCEPTANCE
NETWORK OPERATIONS TEAM LEADER
DATE
ACCEPTED
DATE

Roads and Traffic Authority,N.S.W

BURWOOD ROAD &
CRANE STREET
CONCORD

DESIGN LAYOUT
TCS No. 1125

DESIGN OFFICE PARRAMATTA – PROJECT DESIGN SERVICES
CADD FILE: VV1125_1K.dgn
SCALE (1:200)
FILE 093 TS 119
ISSUE K
REGN 7000.093.VV.1125
SHEET 1



SPECIAL SIGNAL GROUP DISPLAY SEQUENCE
POST CHART
Date in Service: 2-8-90
CRANE
STREET
BROUGHTON
STREET
FROM STRATHFIED
TO MORTLAKE
TO FIVEDOCK
FROM BURWOOD
A Detectors
C1 Detector
B-C Detector
A-B1 Detector
A-B2 Detector
C2 Detector
Controller
CONCORD PARK
SHOPS
A PHASE
B PHASE
C PHASE
MOVEMENT DIAGRAMS
DETECTOR SPECIFICATION SCHEDULE
NOTES.
1. This is a SCATS site.
2. Special regulatory stop sign attached to posts 3 & 7.
3. Audio tactile push buttons placed on posts 2,3,4,5,6 and 7.
PUBLIC UTILITY SYMBOLS
DESIGN LAYOUT
ROADS AND TRAFFIC AUTHORITY OF NSW
MUNICIPALITY OF CONCORD
BROUGHTON STREET AND CRANE STREET, CONCORD.
DIVISION: CENTRAL REGION
FILE Nº 93.T.S.122
SCALE 1:200
Reg. Nº 7000.093.VV.2534.
APPROVED
DIVISIONAL ENGINEER
DATE 23-1-84
SUPERVISING ENGINEER
DATE 23/1/84

APPENDIX C

TRAFFIC GENERATION SURVEYS

R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client :T.T.P.A.
Job No/Name :1684 Concord Traffic Counts
Day/Date :Tuesday 18th Marcl 08

MELBERRY HILLS Vehicles			
Time Per	IN	OUT	TOTAL
0700 - 0715	0	4	4
0715 - 0730	0	8	8
0730 - 0745	0	7	7
0745 - 0800	1	4	5
0800 - 0815	0	7	7
0815 - 1830	0	3	3
0830 - 0845	1	2	3
0845 - 0900	0	0	0
Period End	2	35	37

CELESTE Vehicles			
Time Per	IN	OUT	TOTAL
0700 - 0715	0	4	4
0715 - 0730	0	1	1
0730 - 0745	0	4	4
0745 - 0800	1	4	5
0800 - 0815	0	3	3
0815 - 1830	1	2	3
0830 - 0845	0	1	1
0845 - 0900	0	1	1
Period End	2	20	22

ROSEWOOD Vehicles			
Time Per	IN	OUT	TOTAL
0700 - 0715	1	3	4
0715 - 0730	0	1	1
0730 - 0745	0	2	2
0745 - 0800	1	4	5
0800 - 0815	0	5	5
0815 - 1830	1	2	3
0830 - 0845	1	3	4
0845 - 0900	1	1	2
Period End	5	21	26

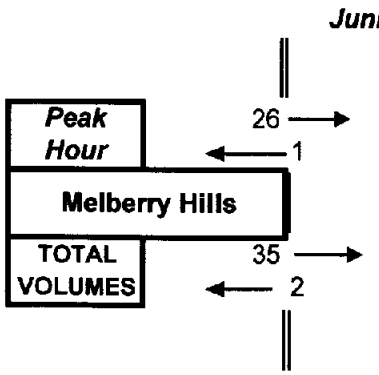
ASCOT & CAROLINA Vehicles			
Time Per	IN	OUT	TOTAL
0700 - 0715	0	1	1
0715 - 0730	0	1	1
0730 - 0745	0	5	5
0745 - 0800	0	5	5
0800 - 0815	1	3	4
0815 - 1830	0	3	3
0830 - 0845	1	4	5
0845 - 0900	1	4	5
Period End	3	26	29

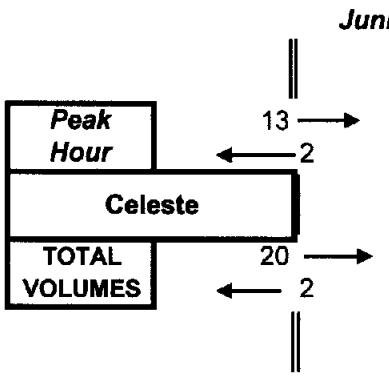
MELBERRY HILLS Vehicles			
Peak Per	IN	OUT	TOTAL
0700 - 0800	1	23	24
0715 - 0815	1	26	27
0730 - 0830	1	21	22
0745 - 0845	2	16	18
0800 - 0900	1	12	13
PEAK HR	1	26	27

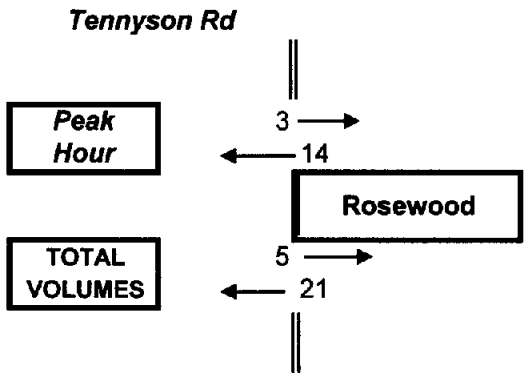
CELESTE Vehicles			
Peak Per	IN	OUT	TOTAL
0700 - 0800	1	13	14
0715 - 0815	1	12	13
0730 - 0830	2	13	15
0745 - 0845	2	10	12
0800 - 0900	1	7	8
PEAK HR	2	13	15

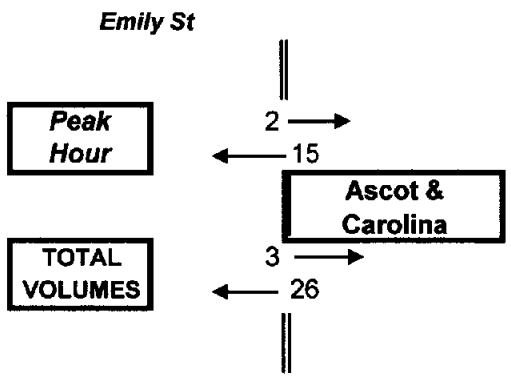
ROSEWOOD Vehicles			
Peak Per	IN	OUT	TOTAL
0700 - 0800	2	10	12
0715 - 0815	1	12	13
0730 - 0830	2	13	15
0745 - 0845	3	14	17
0800 - 0900	3	11	14
PEAK HR	3	14	17

ASCOT & CAROLINA Vehicles			
Peak Per	IN	OUT	TOTAL
0700 - 0800	0	12	12
0715 - 0815	1	14	15
0730 - 0830	1	16	17
0745 - 0845	2	15	17
0800 - 0900	3	14	17
PEAK HR	2	15	17









R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client :T.T.P.A.
Job No/Name :1684 Concord Traffic Counts
Day/Date :Tuesday 18th March 2008

	MELBERRY HILLS Vehicles		
Time Per	IN	OUT	TOTAL
1600 - 1615	2	2	4
1615 - 1630	1	0	1
1630 - 1645	1	0	1
1645 - 1700	1	0	1
1700 - 1715	2	0	2
1715 - 1730	8	0	8
1730 - 1745	0	1	1
1745 - 1800	3	0	3
Period End	18	3	21

	CELESTE Vehicles		
Time Per	IN	OUT	TOTAL
1600 - 1615	0	0	0
1615 - 1630	1	1	2
1630 - 1645	2	1	3
1645 - 1700	3	1	4
1700 - 1715	1	0	1
1715 - 1730	3	0	3
1730 - 1745	0	0	0
1745 - 1800	2	1	3
Period End	12	4	16

	ROSEWOOD Vehicles		
Time Per	IN	OUT	TOTAL
1600 - 1615	0	0	0
1615 - 1630	0	2	2
1630 - 1645	0	0	0
1645 - 1700	3	1	4
1700 - 1715	4	0	4
1715 - 1730	5	0	5
1730 - 1745	3	1	4
1745 - 1800	2	0	2
Period End	17	4	21

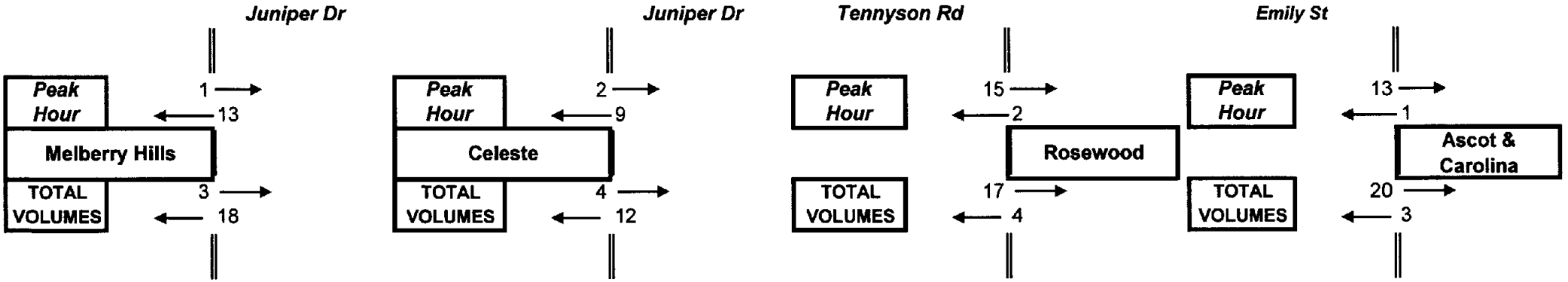
	ASCOT & CAROLINA Vehicles		
Time Per	IN	OUT	TOTAL
1600 - 1615	1	0	1
1615 - 1630	1	1	2
1630 - 1645	1	1	2
1645 - 1700	3	1	4
1700 - 1715	5	0	5
1715 - 1730	3	0	3
1730 - 1745	2	0	2
1745 - 1800	4	0	4
Period End	20	3	23

	MELBERRY HILLS Vehicles		
Peak Per	IN	OUT	TOTAL
1600 - 1700	5	2	7
1615 - 1715	5	0	5
1630 - 1730	12	0	12
1645 - 1745	11	1	12
[illegible]	13	1	14
PEAK HR	13	1	14

	CELESTE Vehicles		
Peak Per	IN	OUT	TOTAL
1600 - 1700	6	3	9
1615 - 1715	7	3	10
[illegible]	9	2	11
1645 - 1745	7	1	8
1700 - 1800	6	1	7
PEAK HR	9	2	11

	ROSEWOOD Vehicles		
Peak Per	IN	OUT	TOTAL
1600 - 1700	3	3	6
1615 - 1715	7	3	10
1630 - 1730	12	1	13
[illegible]	15	2	17
1700 - 1800	14	1	15
PEAK HR	15	2	17

	ASCOT & CAROLINA Vehicles		
Peak Per	IN	OUT	TOTAL
1600 - 1700	6	3	9
1615 - 1715	10	3	13
1630 - 1730	12	2	14
[illegible]	13	1	14
1700 - 1800	14	0	14
PEAK HR	13	1	14



APPENDIX D

TRAVEL QUESTIONNAIRE FORUM

A study is being undertaken in relation to potential further residential development in the Mortlake/ Breakfast Point Area. The study will address road/traffic, public transport, pedestrian, cyclist and other related issues and your response to this simple questionnaire will assist this study and the development of improvements for the area.

Question 1:

A principal issue is the travel routes being used to access the precinct to/from the arterial road system during the weekday morning and afternoon peak periods. If car travel is normally undertaken to/from this household in the morning and afternoon peak periods which entry/exit point is normally used (see attached map):

	A	B	C	D	E	F	G	H	I	
Morning	☐	☐	☐	☐	☐	☐	☐	☐	☐	(✓ as appropriate)
Afternoon	☐	☐	☐	☐	☐	☐	☐	☐	☐	(✓ as appropriate)

Question 2:

If not as above what other route is used:

External (arterial connection) .....

Internal (within map area) .....

(ie to school, shops, workplace, recreation)

Question 3:

If travel is normally undertaken from this household involving public transport in the morning and afternoon peak periods please specify:

Bus ☐ Where boarded .....

Ferry ☐

Train ☐ Where boarded .....

Clarification

(eg means of travel to/from train) .....

Question 4:

What changes or improvements would you like to see implemented in relation to traffic and transport for this area (please add separate sheet if necessary).

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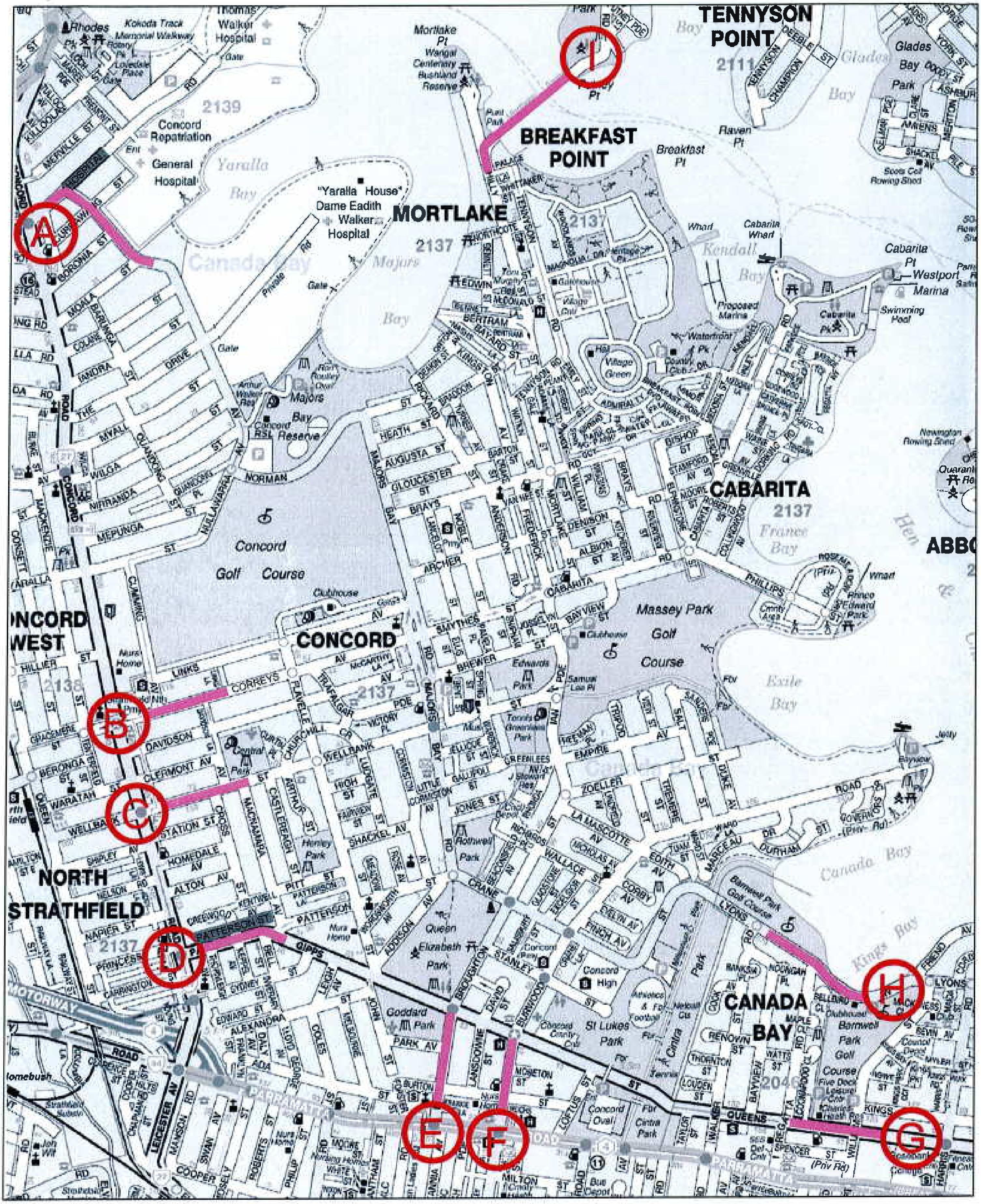
A
B
C
D
E
F
G
H
I
TENNYSON POINT
2111
BREAKFAST POINT
MORTLAKE
2137
CABARITA
2137
CONCORD
2137
CONCORD WEST
2138
NORTH STRATHFIELD
2137
CANADA BAY
2046
2139
Concord Repatriation General Hospital
Yaralla Bay
"Yaralla House" Dame Eadith Walker Hospital
Canada Bay
Majors Bay
Concord Golf Course
Massey Park Golf Course
Exile Bay
France Bay
Kendall Bay
Cabarita Wharf
Cabarita Pt
Westport Marina
Swimming Pool
Breakfast Pt
Raven Pt
Mortlake Pt
Village Green
Queen Elizabeth Park
Goddard Park
St Lukes Park
Concord Oval
Rothwell Park
Edwards Park
Henley Park
Barnwell Park Golf Course
Kings Bay
Canada Bay
Concord High
Kokoda Track Memorial Walkway
Rhodes
Thomas Walker Hospital
MOTORWAY
PARRAMATTA ROAD
Homebush
QUEENS
GIPPS
PATTERSON ST
CORREYS
CROSS
NORMAN
LYONS
ABBO