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Plain cover.

ACTION PLAN NO. 14

TRANSPORTATION PLANNING -
EASTERN DISTRICT B

RECOMMENDATIONS

Prepared by

CLARKE GAZZARD VOORHEES PTY LTD

On Behalf Of

THE COUNCIL OF THE CITY OF SYDNEY

Adopted by Council _____

May, 1974

3232/72 Action Plan No. 14 - Transportation Planning for Eastern District B - Adoption and printing.

- (a) That subject to the inclusion of the amendments detailed in the report of the City Planner dated 25th June, 1974, Action Plan No. 14 - Transportation Planning for Eastern District B, prepared by Clarke Gazzard Voorhees Pty. Ltd., as received by Council on 24th June, 1974, be adopted, and that all necessary action be taken to implement the recommendations contained therein, subject to the question of car parking requirements for restaurant uses within the area covered by the Action Plan being reviewed to possibly permit of car parking spaces being provided on a sliding scale basis having regard to the size of the restaurant, and the deferment of the question of seeking improved bus services to serve the Moore Park/Centennial Park Residential Precinct as referred to under Item 2.3 sub-paragraph (iv) of the Specific Action Priorities for Public Transport as detailed in the Plan - such matter to be considered in conjunction with the preparation of Action Plan No. 30 - Centennial Park/Moore Park, Precinct C7.
- (b) That a sum of \$1,500 be voted to Clarke Gazzard Voorhees Pty. Ltd., to amend the report as recommended, supervise the preparation of the publication, including the necessary graphics and arrange for the delivery of two hundred and fifty (250) copies of the printed Action Plan to the Town Clerk - funds for such expenditure being available in the Revenue Estimates for the current year - and that, if possible, the necessary printing be carried out by Council's off-set process.
- (c) That the Action Plan be sold to the public at a price to be determined by the Council.
- (d) That a complimentary copy of the printed Action Plan be forwarded to the Chairman, Public Transport Commission of N.S.W., the Commissioner for Main Roads, the Chairman, Planning and Environment Commission, the Minister for Transport and the Superintendent of Traffic, N.S.W. Police Department.

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b) North-Bound

A. M. peak hour north-bound cordon count across a cordon parallel to Cleveland Street and cutting Chalmers Street, Crown Street and South Dowling Street is as follows :

Chalmers Street	1, 050
Crown Street	1, 050
South Dowling Street	1, 600
Minor streets	<u>200</u>
	<u>3, 900</u> vehicles per hour

Analysis of SATS data gives the destinations of these trips as follows :

Harbour Bridge	600
C. B. D.	1, 250
Eastern District B	1, 500
Western Districts of City	<u>25</u>
Eastern Suburbs	500
Western Suburbs	<u>25</u>
	<u>3, 900</u> vehicles per hour

Figure 23 illustrates the origins and destinations of north-bound traffic crossing this southern cordon, during the a.m. peak hour, 1971.

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- I. SUMMARY EVALUATION OF ALTERNATIVES
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1. INTRODUCTION

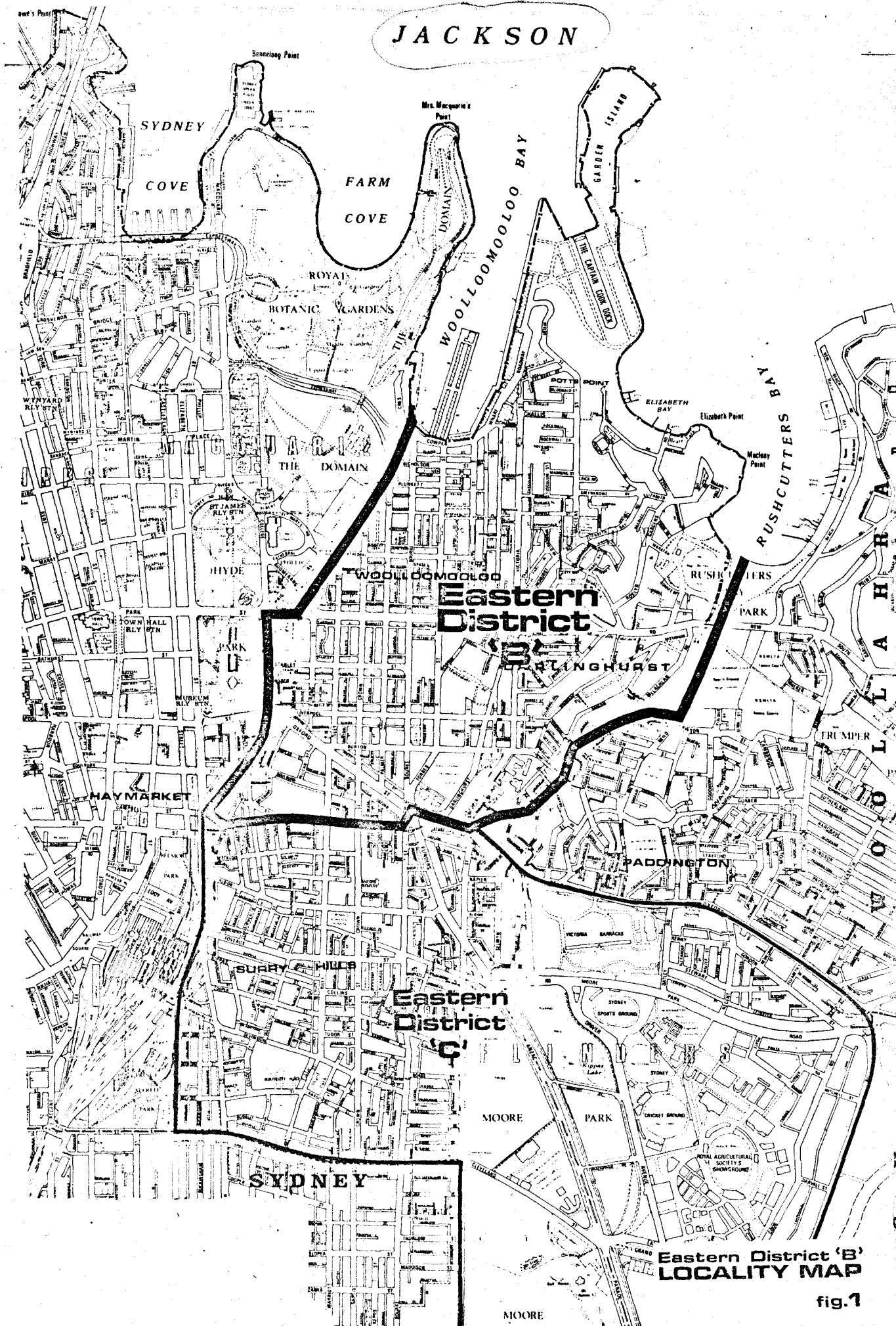
1.1 GENERAL

The area defined for this study is shown in Figure 1 and is that area immediately to the east of the Central Business District incorporating the following Precincts of Eastern District B:

- B1 Oxford Street Precinct
- B2 William Street (Boulevard) Precinct
- B3 Stanley Street Precinct
- B4 Woolloomooloo Precinct
- B5 Kings Cross Precinct
- B6 Potts Point - Elizabeth Bay Precinct
- B7 Darlinghurst Precinct
- B8 Taylor Square Precinct
- B9 Rushcutters Bay Precinct
- and also Eastern District C including
in particular the following precincts:
- C1 West Surry Hills Precinct
- C2 Flinders Street Precinct
- C3 Surry Hills Residential Village Precinct

Significant parts of the area under examination are obsolescent and require either extensive restoration and preservation, or in some cases large-scale integrated redevelopment. Review of some of the plans previously drawn up by public authorities and private developers indicated that the District would have been on the threshold of unprecedented expansion had these plans been allowed to come to fruition.

However, economic and market forces, combined with some Government decisions have averted the prospect of major expansion on an area wide basis and the prospective future of the area can be viewed in a somewhat different light. Preliminary review of Action Plans for individual Precincts within the area indicated that planning processes, aimed largely at restoration and renovation of existing development combined with some commercial development along William and Oxford Streets and residential redevelopment in Woolloomooloo, in preference to widespread demolition and redevelopment were being evolved. Consequently, the transportation planning process has been focussed on the need to contain movement within the existing social fabric rather than provide for massive new demands for movement generated by extensive expansion and redevelopment.



1.2 OBJECTIVES OF THE ACTION PLAN

1. The overall objectives of the Action Plan are to interpret and seek to implement, as effectively as possible, the Action Priorities of the 1971 City of Sydney Strategic Plan as they apply to this District, in particular, Action Priorities 5A, 5C, 6A, 6B, 6C, 7B, 7C, 7D, 7E and 8E.
2. A major objective is to apply to Eastern District B Policy 6 of the 1971 City of Sydney Strategic Plan - "SEEK FASTER CONSTRUCTION OF ROADS BYPASSING THE CITY, MANAGE TRAFFIC INSIDE THE CITY TO GIVE PRIORITY TO MOVEMENTS MOST VITAL TO EACH PRECINCT" insofar as it effects traffic movement through and within this District.
- x 3. Other objectives are :-
 - a. To review Council's Parking Policy and Control Code for this District, so as to assist Council to provide and regulate parking within this District in accordance with the likely demand subject to the capacity of the road system to carry the generated traffic.
 - b. To rationalise public transport services to provide improved accessibility to the people living and working in the District.
 - c. To rationalise land use development in conformity with the capacity of the transport systems serving the District.

1.3. REVIEW OF EXISTING CONDITIONS

1.3.1 Public Transport

The District is currently not served by rail passing through it, but parts of the District are fairly accessible to Central and Museum stations. The Eastern Suburbs Railway, when opened in late 1975, will provide a station at Kings Cross which will serve a considerable portion of the northern part of the District.

through Almost all of the buses now serving the Eastern Suburbs pass ~~the~~ the District. Prior to 1960, the District was served by five tram routes passing through it and two on its perimeter. Supplementary bus services mainly oriented towards the Central Railway end of the CBD filled in the gaps in the tram system. Following conversion from trams to buses in the late 1950's, the old tram routes were generally retained as bus routes without any significant changes being made.

The principal bus routes are Oxford Street and William Street. Oxford Street which is the principal outlet for buses to Bondi, Bronte, Clovelly, Coogee, Maroubra and intermediate areas, is easily the most heavily used street with one-way flows of 185 and 164 buses per hour during the morning and evening peak hour respectively. This is about ten percent of the peak hour vehicular flow and emphasises the importance of Oxford Street as a major thoroughfare for buses.

In addition, Oxford Street traditionally has been and still is a major shopping street. Because of the interaction between buses, pedestrians and private cars in Oxford Street, severe congestion is experienced in Oxford Street.

William Street is relatively less heavily used, but is still a very important bus outlet from the CBD, with one way flows of about 100 buses per hour during the two peak hours.

There are no exclusive bus ways or bus lanes within the District except at Taylor Square where inbound buses have exclusive use of a left turn lane between Flinders Street and Oxford Street. An exclusive bus way has been provided along the old tram right-of-way in Anzac Parade, but this terminates at Moore Park Road.

Notwithstanding this, accessibility to the District by public transport from the Eastern Suburbs is generally fairly good, and most destinations within the District can be reached from most areas in the Eastern Suburbs without the need to change buses.

But the situation for commuters from elsewhere in the Metropolitan Area is substantially different. It is generally necessary for commuters to either change their transport mode or walk substantial distances after alighting in the CBD. Those commuting by bus from the Northern Sector are particularly disadvantaged as those buses crossing the Harbour Bridge generally terminate at Carrington Street in the northern part of the CBD and those crossing Pyrmont Bridge terminate either in York Street or Circular Quay. Bus to bus transfer generally necessitates walking several blocks between bus stops and adds 15 to 20 minutes to the time and 10 to 15 cents to the cost of a trip to Eastern District B compared to the CBD.

Rail commuters are marginally better off as bus services to and through the District generally pass within close proximity of Central, Town Hall and Wynyard Stations.

1.3.2 Roads and Traffic

The original road system is typical of that of most of the inner Sydney Metropolitan Area in that it was poorly planned or more likely not planned in the first place.

There are a number of individual arterial roads which have been designed and constructed to good modern standards with median strips, provision for three lanes in each direction and, in one case (Dowling Street), adequate provision for right turning vehicles. But almost invariably they run into a poorly planned intersection and hence create a major bottleneck. Typical examples are Taylor Square and Kings Cross.

In consequence, traffic management techniques have been extensively used to get the most out of the existing road system. Interconnected traffic signals were provided in Oxford, William and Cleveland Streets in 1971, 1972 and 1973 respectively. Crown and Bourke Streets were converted to one-way operation to carry the traffic from the Cahill Expressway, some turning movements at a number of important intersections have been prohibited, clearway conditions have been proclaimed to handle peak hour traffic in a number of streets, including William, Oxford and Cleveland Streets, and major intersections have been channelised to regulate the flow of traffic.

The principal roads in the District carry very high volumes of traffic, for example, William Street (50,500 vehicles/day), Flinders Street (42,170 vehicles/day) and Oxford Street (37,120 vehicles/day) in 1971.

An appraisal made of the traffic growth between 1960 and 1971 on the major corridors linking the Eastern Suburbs (Municipalities of Waverley and Woollahra) and the CBD, showed that traffic growth was quite marked between 1960 and 1965 with an increase of four percent per annum over that five year period; but was relatively stable over the subsequent six years with the increase being restricted to about two percent per annum. Other facts noted were -

- * No traffic growth on the already saturated New South Head Road and Oxford Street over the period 1965-1971.
- * Relatively slow growth on Moore Park Road over the period 1960-1971.
- * A dramatic increase in traffic on Glenmore Road which is at best a sub-arterial road to serve Paddington. This could be due in part to the increased traffic generation in Paddington as it changes in socio-economic character, but is also a reflection of the congested conditions existing on New South Head Road and Oxford Street.

Whereas traffic growth in the Eastern Corridor has been restricted to about 2.5 percent per annum since 1965; growth in the South Eastern and Southern Corridors, as measured by a cordon count south of Cleveland Street, has been significantly higher averaging almost 5 percent per annum over the same period. This is due in part to the opening of the Southern Cross Drive which added an average of 13,000 vehicles per day from 24,410 in 1968 to 36,840 in 1971, to traffic in Dowling Street, north of Cleveland Street, and to increased traffic generated by Sydney Airport. But with the Sydney Harbour Bridge now at saturation and any significant increases in parking capacity in the CBD being severely limited by the Parking Policy and Control Code, the likelihood of significant further increases is open to considerable doubt.

1.3.3 Parking

The availability of kerbside and off-street parking varies considerably throughout the District.

Kings Cross suffers from quite a severe parking problem arising from the intensive nature of its land use and the related generation of traffic. There are the conflicting interests of a large population, a large workforce and a

large number of visitors to the active, retail, commercial and entertainment centre. Most of the population of Kings Cross and Elizabeth Bay live in apartments, many of which do not have off-street parking facilities. This, combined with the general affluence of the residential area, results in many residents seeking a kerbside space to park their car in competition with either the daytime workforce of Kings Cross and Garden Island or the daytime and evening visitors to the entertainment centre.

There is adequate parking to serve the current needs of Woolloomooloo but few kerbside vacancies exist during the day as most of the spaces not filled by the local residents or workforce are used by commuters working in the CBD, Garden Island and on the wharves.

Surry Hills West has a high workforce and a fairly limited supply of parking spaces, resulting in both a large proportion of the workers using public transport and a significant number of workers leaving their cars in adjacent residential precincts, such as Surry Hills East. Parking in the Darlinghurst Area is in short supply, particularly in the vicinity of St. Vincents Hospital and the Law Courts.

1.3.4 Pedestrian Facilities

The pedestrian facilities in the District have hardly been improved upon since the streets were first sealed, kerbed and guttered. Pedestrian movement along the traditional pavements is made a hazardous operation by the constant conflicts with moving and stationary vehicles. The visual obstruction of parked vehicles and the high speed of traffic, especially along one-way streets, is making it more and more difficult to cross a street at mid-block and, despite the provision of pedestrian phases on traffic signals, crossing a street at an intersection involves long delays.

The pedestrians' problems are not alleviated by the sophisticated techniques of traffic management now being employed to cope with the increasing number of vehicles on the roads. The roads of the District are managed for the benefit of the passing motorist and not for the benefit of the local pedestrian. For instance, traffic signals are phased to give overall minimum delay to the motorist, but not minimum overall delay to the pedestrian.

1.3.5 Land Use

The type and intensity of land use within the District varies considerably and has changed somewhat in recent years. Both population and workforce have declined partly

because of the uncertainty associated with some parts of the District.

The Potts Point/Elizabeth Bay Precinct has been a high density residential area in which the population has remained relatively unchanged in recent years. Recent home unit construction has served to stabilize the population without any real net addition.

By contrast, Surry Hills, Woolloomooloo and to a lesser extent, Darlinghurst, have had a mixture of residential and industrial land uses. Much of the workforce has been associated with industry but recent trends have been to strengthen the residential component throughout the District and let industry relocate elsewhere. The recommendations of individual Action Plans for the various Precincts *within* with the District are reinforcing this. The outflow of industrial workers scattered throughout the District is being balanced by an inflow of office workers into high rise office buildings along William and College Streets, and to a lesser extent, Oxford Street.

1.4 APPRAISAL OF PROBLEMS AND OPPORTUNITIES

1.4.1 Public Transport

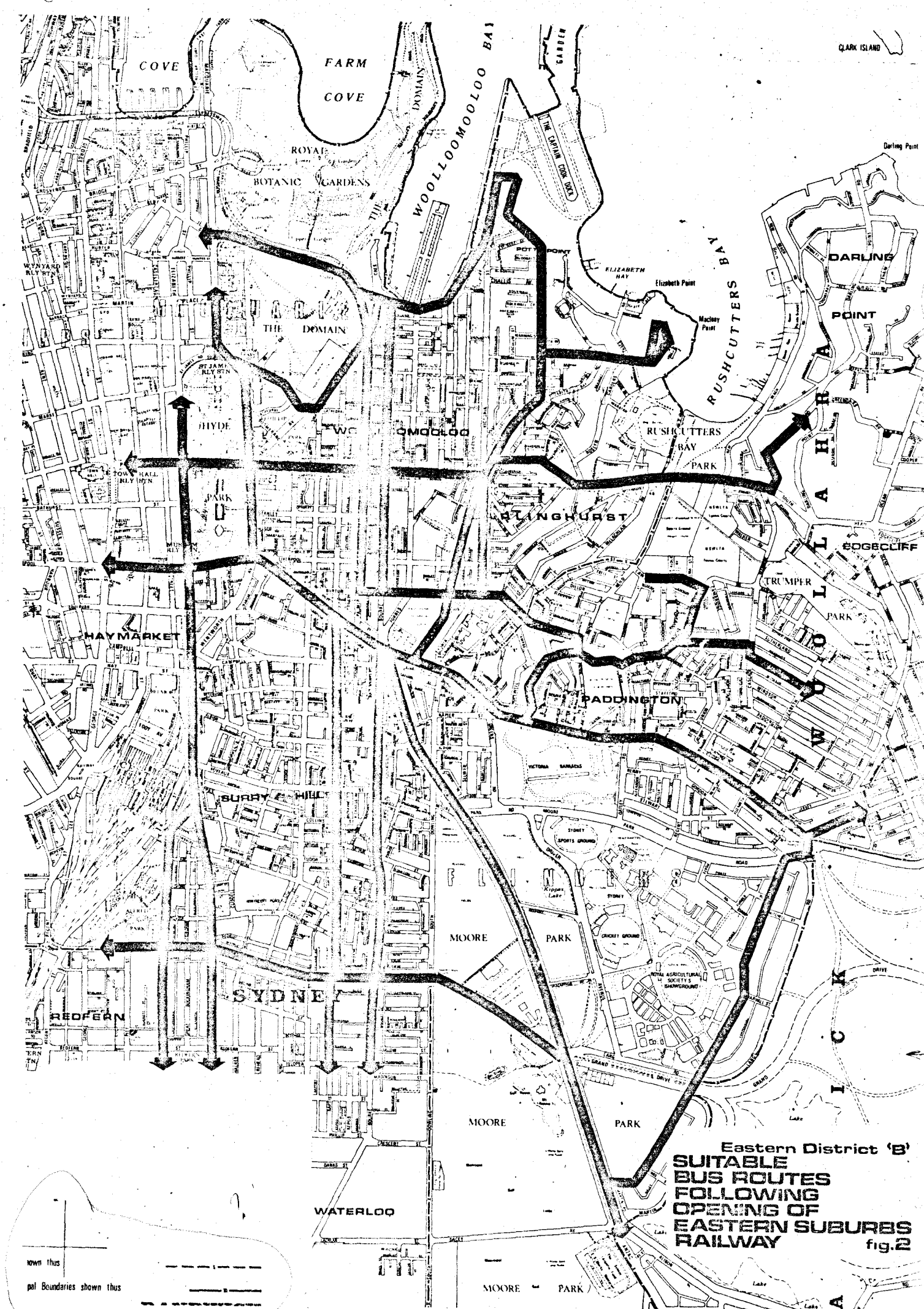
Buses: The Eastern Suburbs Railway is currently planned for completion to Edgecliff in 1976 and Bondi Junction in 1977. Bus-rail interchanges are planned at these two stations and many bus services now operating along William Street, Stanley Street-Burton Street and Oxford Street are being planned by the Public Transport Commission to terminate at these interchanges instead of continuing through to the CBD. This will result in significant reductions in the number of buses now using these routes through the District.

For example, a reduction of 80 per cent to about 20 buses per hour could be achieved per peak hour one way flow in William Street. Bus services likely to be affected include services Nos. 306, 323, 324, 325, 327, 328, 330, 365, 375, 384, 387 and 388. Similarly, a 33 percent reduction to about 120 buses per hour could also be achieved in Oxford Street with curtailment of services Nos. 333, 360, 379, 380, 381 and 382.

In addition, services Nos. 389, 390 and 392 now passing through Darlinghurst and Paddington could be oriented more to local needs than is currently the case; and the need to operate Express Bus Services 383 and 386 through Campbell and Albion Streets would be removed. A unique opportunity therefore exists to completely replan the bus system throughout Eastern District B.

Figure 2 shows the type of restructuring of routes that should be sought following the opening of the Eastern Suburbs Railway to Bondi Junction.

The principal feature of this scheme is the proposed concentration of buses along Oxford Street. This street will always be an important bus route even if the Eastern Suburbs Railway is completed to Kingsford. This could take another five years or more following completion of the railway to Bondi Junction. Consequently, short to medium term plans should be made on the basis of the railway terminating at Bondi Junction. There is scope for providing bus lanes along Flinders Street and Oxford Street, but the location and spacing of bus stops may need to be altered to maximise the benefits to bus passengers. Bus lanes would serve to divert some of the through road traffic in Oxford Street to Campbell Street and elsewhere; and, if made sufficiently attractive compared with private car travel, may divert some commuters from cars to buses.



Whether bus lanes should be kerbside lanes or whether they should be located in an exclusive two lane facility on one side of the road would need to be the subject of detailed operational studies. Factors to be considered include the volume of buses, the proportion of express buses, pedestrian accessibility to bus stops, location of bus stops in relation to intersections, and possible traffic signal phasing and timing.

Buses now using Campbell Street could also be diverted to Oxford Street to further emphasise it as a major bus thoroughfare provided that there is sufficient capacity in the bus lane. But these diverted buses would need access to Crown Street for inbound movement and Bourke Street for outbound movement until such time as Crown Street can be restored to two-way operation between Oxford Street and Cleveland Street. Following this, Crown Street could be developed as a major two-way bus route to serve Surry Hills and Bourke Street dropped as a bus route.

Other changes which should be made following the opening of the Eastern Suburbs Railway to Bondi Junction include -

- * Removal of all bus services from Moore Park Road (local bus services along Oxford Street should be adequate to serve the South Paddington Precinct);
- * Opening a loop service following Oxford Street, Cook Road, Robertson Road and Anzac Parade to serve the South Paddington and the Moore Park-Centennial Park residential precincts;
- * Possible re-routing of buses from Paddington and Darlinghurst now travelling to the CBD via Burton and Stanley Streets. There is no real reason why buses should continue to follow Yurong Street and Stanley Street merely because of the historical fact that the old tramline did;
- * Re-routing of express buses to the Clovelly, Randwick and Kingsford areas from Elizabeth Street to College Street.

Looking to the longer term, preliminary examination of plans for the Eastern Suburbs Railway have shown that the benefits, in terms of travel time to the CBD compared with buses, diminish substantially for stations between Randwick and Kingsford Junction. The section of the railway to Bondi Junction is scheduled for completion in 1977 and construction of this section is in progress. Plans for construction past Bondi Junction have not been finalised and no firm commitments to send them out for tender have yet been made by the Public Transport Commission.

Commuters in the Clovelly, Randwick and Kingsford areas enjoy a relatively free outwards run along Anzac Parade via an exclusive busway location on the old tramway alignment. Congestion due to traffic is experienced only in the section along Flinders and Oxford Streets and within the CBD.

As many buses on Anzac Parade are express buses from the CBD and in particular, the Tank Stream Precinct, there is a strong case for re-routing these along the Eastern Distributor (when and if built either as presently envisaged or in a modified form) and Cahill Expressway in lieu of along Oxford and College or Elizabeth Streets.

In 1971, an estimated 65 percent (91,000) of the 139,000 office workers within the CBD worked in the Tank Stream Precinct which is principally located north of King Street. By 1985, this is expected to increase to about 110,000 out of a total CBD workforce of 175,000.* Correspondingly, the proportion of Eastern Suburbs office workers who work in the City is also expected to increase from 54 percent (27,983) in 1971 to 62 percent (about 34,500) in 1985. This represents an absolute increase of about 23 percent. By contrast, the non-central function office workforce oriented to the City is expected to fall from 24,082 to about 21,000. This is indicative of the likely continued and probably increasing demand for express bus services between the Tank Stream Precinct and the south-eastern suburbs within the Municipalities of Randwick and Botany in the event of the Eastern Suburbs Railway not being extended past Bondi Junction.

In the short to medium term, prior to the Eastern Distributor being available, the capacity of College Street to handle express buses should be increased by introduction of peak hour clearway restrictions on this street, and thus leave the inner city streets between Elizabeth and George Streets to carry local buses scheduled to pick up and set down at intermediate points within the City, south of the high density Tank Stream Precinct.

Garden Island is a major workforce generator with over 5,000 workers, both Naval and Civilian. Being on a peninsula, it is inaccessible to most regular bus services. Special bus services operate from Taylor Square serving the Eastern Suburbs; and from St. James Station and to a lesser extent Wynyard serving the balance of the Metropolitan Area.

* 1974 Review of City of Sydney Strategic Plan.

Sp. ?
 The latter services are somewhat circuitous. Following the opening of the Eastern Suburbs Railway, the opportunity would exist to route buses from Taylor Square past the Kings Cross Station. In addition, buses operating from the Town Hall Station would be more effective than from the other stations as this station will continue to be the only station within the core of the CBD serving all metropolitan lines focussed on Sydney.

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 At present, a large number of employees travel by private car. Analysis of the SATS data indicated that this proportion is about 40 percent of day workers. The parking capacity of the naval dockyard is very substantial (1000 cars), but the current demand exceeds this capacity by several hundred cars. These surplus cars compete with local residents for kerbside spaces in lower Woolloomooloo and Potts Point. Improved bus services should reduce the number travelling by car to match the capacity of the dockyard car park and thus ease the demand on residential kerbside space.

St. Vincents Hospital is another special case, located some distance from some of the major bus routes and also from the Kings Cross Railway Station. Working hours of many of the staff are staggered beyond normal business hours to allow for a three shift operation and the walk from the hospital to Kings Cross can become somewhat inconvenient or hazardous in wet weather or at night. It is expected that revision of bus services following the opening of the Eastern Suburbs Railway will make better provision for local buses travelling to Paddington via East Sydney and Darlinghurst. Operating these past Town Hall or Wynyard Railway Stations would provide more convenient bus-bus or train-bus transfer points. Introduction of transfer tickets would reduce the overall fare. The current location of the fare section in Burton Street between Darlinghurst Road and Forbes Street is most disadvantageous to public transport commuters and visitors to St. Vincents Hospital as it adds to the cost of travel from the CBD.

1.4.2 Roads and Traffic

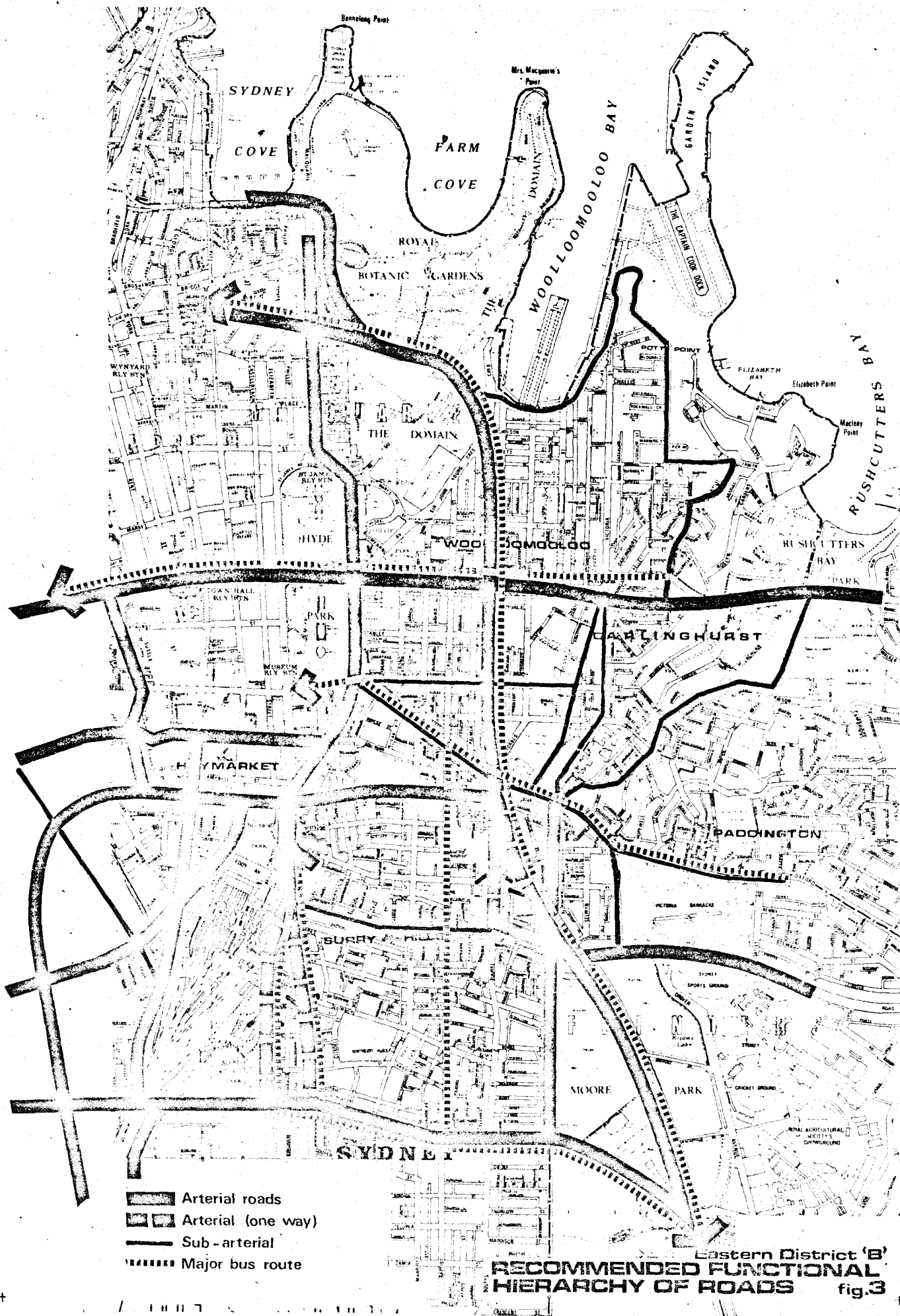
The principal problems related to roads and traffic are typical of those problems encountered elsewhere in the inner suburbs of Metropolitan Sydney. These are inadequate capacity on the major arterial roads and overflow of through traffic onto local streets in residential areas. The worst examples include Macleay Street, Greenknowe Avenue and Waratah Street. One of the principal reasons for the problems associated with the flow of north-south traffic within the District is the lack of continuity between the Cahill Expressway and Dowling Street and also between the Sydney Harbour Bridge and the airport and industrial areas in South Sydney. Continuity in the east-west direction is better than north-south except in the Oxford Street/Campbell Street corridor. But the capacity of some roads, in particular Cleveland Street should be improved. Figure 3 shows a recommended functional hierarchy of roads for the City of Sydney as it affects Eastern District B. This is somewhat schematic and should be the long term objective of the road system. Major roadworks will be needed to overcome many of these problems, but progress is likely to be slow because of the high cost and time involved in resuming the necessary properties. In addition, the magnitude of some of the existing plans for future freeway construction in inner urban areas, and in particular on the east side of the CBD, are being questioned as being over-ambitious and unwarranted.

In this regard, the following factors are relevant -

* Future Population Growth in the Eastern Suburbs

The Municipalities of Woollahra, Waverley and Randwick are major dormitory areas for the workforce of the City of Sydney. Population growth in Woollahra and Waverley has been almost static for a number of years. Notwithstanding that much redevelopment has taken place and probably will continue to take place in these areas, the prospects of any significant population increase are very slight. This is because of the already high residential density in areas zoned for this purpose and the more stringent requirements of current development control codes compared with those existing at the time when much of the current stock of high density housing was constructed.

Vehicle ownership is already high and hence the scope for increased traffic generation resulting from further increases in vehicle ownership is not great. Any further increases in vehicle ownership would be a reflection of a trend towards multi-car households.



The situation in Randwick Municipality is slightly different as there is some potential for population growth in the southern sections of this Municipality. But redevelopment of existing high density residential areas is not likely to produce population increases for the same reasons as in Woollahra and Waverley. In addition, the trend towards rezoning low density residential areas to high density appears to have met with severe local opposition and recent events indicate that such practices are likely to be discontinued, or at least, substantially curtailed.

The net result is that although traffic generated by the Randwick Municipality may increase, the major proportion of any increase is likely to be in the southern part of the Municipality. This traffic should be much easier to divert around this District via Cleveland Street and other east-west routes south of Cleveland Street, than traffic generated in areas further north in Waverley and Woollahra.

Table 1 shows the population of each Municipality for the years 1961, 1966 and 1971, together with the State Planning Authority projections for the years 1985 and 2000 as published in the Authority's Technical Bulletin No. 4 of November, 1973.

TABLE 1

POPULATION TRENDS IN EASTERN SUBURBS

	1961	1966	1971	1985	2000
Woollahra	63,000+	62,653	59,964	61,000	63,000
Waverley	64,999	63,629	65,539	68,000	66,000
Randwick	108,814	113,731	123,865	132,000	130,000
Botany	28,904	31,873	38,236	46,000	46,000

+ estimated to account for boundary changes

* The Future Size of the CBD Workforce and the Future Availability of Parking Spaces Within and Adjacent to the CBD

The CBD workforce is expected to increase from 206,000 in 1971 to about 236,000 by 1985 and to stabilise at or slightly above that figure thereafter.

X Council's Parking Policy and Control Code allows for a substantial reduction in the stock of kerbside car parking spaces to serve the CBD. A major contributor to this reduction is likely to be future restraint on commuter parking in fringe areas such as Surry Hills, Darlinghurst and Woolloomooloo because of the need to allocate kerbside space for resident parking during the day. Discussion elsewhere in this report highlights the prospect of a growing need for special provision for resident parking in a number of areas and the likely substantial reduction in the stock of spaces now available in Woolloomooloo following redevelopment. Extensive open lot off-street car parking for CBD commuters (~~as illustrated on the cover of this report~~) is likely to disappear.

The likely reduction in the number of eastern fringe area parking spaces to serve the CBD will be partially or wholly offset by the provision of parking stations on the western perimeter of the CBD, but the net effect would be a westwards shift in the distribution of parking serving the CBD. Hence CBD oriented traffic from the south may tend to use western access routes to the CBD in preference to eastern access routes if the former were made available. However, any increase in all-day parking on the western perimeter of the CBD could lead to an increase in east-west traffic from the Eastern Suburbs through Eastern District B in lieu of into this District.

* The Capacity of the Sydney Harbour Bridge

Notwithstanding increased residential and commercial development on the northern side of the Harbour, the traffic capacity of the bridge has reached saturation and any growth in traffic crossing the bridge is being accompanied by a spreading of the peak period rather than an increase in traffic volume during the peak hour. Consequently, while the existing hourly volumes of peak traffic flow through the District is not likely to grow, the length of time over which these volumes will be sustained will increase as will the total daily flow.

Table 2 shows the relative growth of peak hour and off-peak traffic on the Sydney Harbour Bridge between 1966 and 1972.

TABLE 2.

TRAFFIC ON SYDNEY HARBOUR BRIDGE

	1966	1972	Percent Increase (1965 - 1972)
Midnight - 7 am	9,614	10,340	7.5
7 am - 8 am	9,210	11,256	22.2
8 am - 9 am	11,617	13,040	12.2
9 am - 12 noon	18,076	23,968	32.6
12 noon - 4 pm	21,991	29,838	35.6
4 pm - 5 pm	9,293	11,438	23.1
5 pm - 6 pm	10,630	13,034	22.6
6 pm - Midnight	29,928	36,054	20.4
Annual Average Daily Traffic	107,650	136,200	26.6

Increases in the peak hour flow are significantly less than in the off-peak flow and are indicative of saturation conditions being encountered. Average flow per lane has increased from 1,450 to 1,630 and from 1,330 to 1,630 vehicles per hour during the morning and evening peak hours respectively. These increases result from improvements made by the Department of Main Roads to the access roads feeding the bridge on its northern and southern approaches and the introduction of the one-way toll. It appears that just about everything possible has been done to extract extra capacity from the bridge and because of the narrow lane width on the bridge, it is very doubtful if sustained flows of greater than 1,700 vehicles per lane per hour can be achieved on all eight lanes, notwithstanding that flows of 1,800 vehicles per lane or more may be achieved on individual lanes for short periods. Another indication of the saturation flows being encountered on both the Harbour Bridge and the Cahill Expressway is pronounced spreading of the peak hour flow on the Cahill Expressway across Circular Quay as illustrated in Table 3.

TABLE 3.

TRAFFIC ON CAHILL EXPRESSWAY

	1965	1972	Percent Increase (1965 - 1972)
<u>Eastbound in Morning Peak</u>			
7 am - 8 am	2,630	3,250	23.4
8 am - 9 am	3,280	3,400	3.5
9 am - 10 am	2,020	2,810	19.1
10 am - 11 am	1,310	2,080	59.3
<u>Westbound in Evening Peak</u>			
3 pm - 4 pm	1,600	2,760	58.1
4 pm - 5 pm	2,840	3,310	16.7
5 pm - 6 pm	2,870	3,190	11.3
6 pm - 7 pm	1,840	2,790	51.3
Annual Average Daily Traffic	47,210	60,750	28.6

In addition, the length of the peak period during which tidal flow arrangements can provide for six lanes in the major direction appears to be shortening. With increasing pressure on flow in the minor direction it is not inconceivable that future tidal flow arrangements may be able to incorporate provision for only five lanes in the major direction throughout the peak period. This is likely to have a throttling effect on the hourly volume of through traffic that can pass through Eastern District B.

* Changes in Employment Structure within Eastern District B

The overall workforce in the District, Precincts B1 to B9, and C1 to C3 inclusive, is estimated to increase marginally from 48,807 in 1971 to about 49,700 in 1985. But the composition is expected to change significantly with an increase in the clerical, professional and administrative component from 19,175 to about 25,000. Almost all of this increase will occur along William Street and Oxford Street within easy walking distance of railway stations or major bus routes. By contrast, a net decrease from

16,142 to about 11,000 craftsmen and process workers is expected throughout the District.

These changes in composition of the workforce are likely to affect the modal choice with a decrease in private car-oriented workers scattered throughout the District, and an increase in public transport-oriented workers concentrated along the major public transport corridors. This should lead to a net drop in vehicular trip generation throughout the District.

Detailed action planning for individual Precincts within this District and in particular, Woolloomooloo, has been directed towards increasing the residential population by the restoration of existing good quality terrace housing supplemented by medium density redevelopment. Many of these people will be sufficiently close to the CBD and to the William Street and Oxford Street corridors to walk to work.

* Changes in Employment Structure to the West and South-West of the CBD

Overall employment in these areas within the City of Sydney is expected to fall from 46,167 in 1971 to about 42,300 by 1985, and this should lead to a slight drop in work trips from the Eastern Suburbs to these areas.

* The Effect of the Eastern Suburbs Railway

For all practical purposes, the catchment area of the Eastern Suburbs Railway as constructed to Bondi Junction in 1977, will be confined to the Municipalities of Woollahra and Waverley. In 1971, the modal split for travel between these areas and the CBD during the peak 2 hours was 24, 70 and 6 percent for car, bus and walk respectively. The total number of trips was about 13,800. This approximates the maximum number of commuters available as potential patrons. The likely usage of the Eastern Suburbs Railway will be heavily dependent on a number of factors including frequency and reliability of service, comfort and cost, probably in this order of importance. Notwithstanding that modern transfer facilities are being provided at Edgecliff and Bondi Junction, the fact that people have to transfer from one mode to another could have a significant effect on potential patrons' choice of transport modes. Given peak hour frequencies less

frequent than five minute intervals, this is likely to be adverse and induce commuters currently using public transport to use private cars. Conversely a comfortable and frequent service on this line could attract current car users to rail, but to an unknown extent. The likely and desired changes in travel habits of the Eastern Suburbs population following the opening of the railway would need to be the subject of a separate study sponsored by the Public Transport Commission.

Having regard to these factors, there does not appear to be any real reason for providing for significant growth in traffic through this District. Consequently, it is necessary to determine whether or not a scaled down version of the proposed Eastern Distributor would suffice. The existing plan envisages a high speed road facility occupying a full city block in width with an intricate ramp structure to provide ingress and egress at a number of locations and a major interchange providing full grade separation of all traffic movements at the intersections of Dowling Street, Moore Park Road, Flinders Street and Anzac Parade. The amount of land between the Cahill Expressway and Moore Park Road necessary to be acquired is about 33 acres. This would cost about \$45,000,000 at an average rate of \$30 per sq. ft. The economic benefits flowing from a road facility costing this amount of money for a 1.1 mile length are highly questionable, but it is likely that some of the land has already been acquired by the Department of Main Roads for a lesser amount and this could reduce the overall cost.

X An analysis was carried out to determine whether it would be possible to divert sufficient traffic from the Cahill Expressway and Dowling, Crown and Bourke Streets, to the Western Distributor and Southern Freeway to justify complete abandonment of plans to construct any of the Eastern Distributor; and still contain the residual through traffic within one route through Darlinghurst and Woolloomooloo. It was concluded that this could not be achieved without providing partial grade separations at William Street, Taylor Square and possibly at Moore Park Road. But this route need not be designed to full freeway standard, and a select link analysis of SATS data for peak traffic flows on the Sydney Harbour Bridge and Cahill Expressway indicates that the proportion of north-south traffic from the Cahill Expressway and passing right through the District is sufficiently high to justify very little mid-length access to the route between Moore Park Road and the Cahill Expressway. During the morning peak hour, a total of approximately 1,500 vehicles per hour travel from the Cahill Expressway to destinations south of Taylor Square. About two thirds of these cross Cleveland Street at Dowling and Bourke Streets. This supports the contention that the real

role of any upgraded road link between the Cahill Expressway and South Dowling Street is that of a by-pass road for north-south traffic and not as part of an Eastern Freeway. This is illustrated in Figure 4.

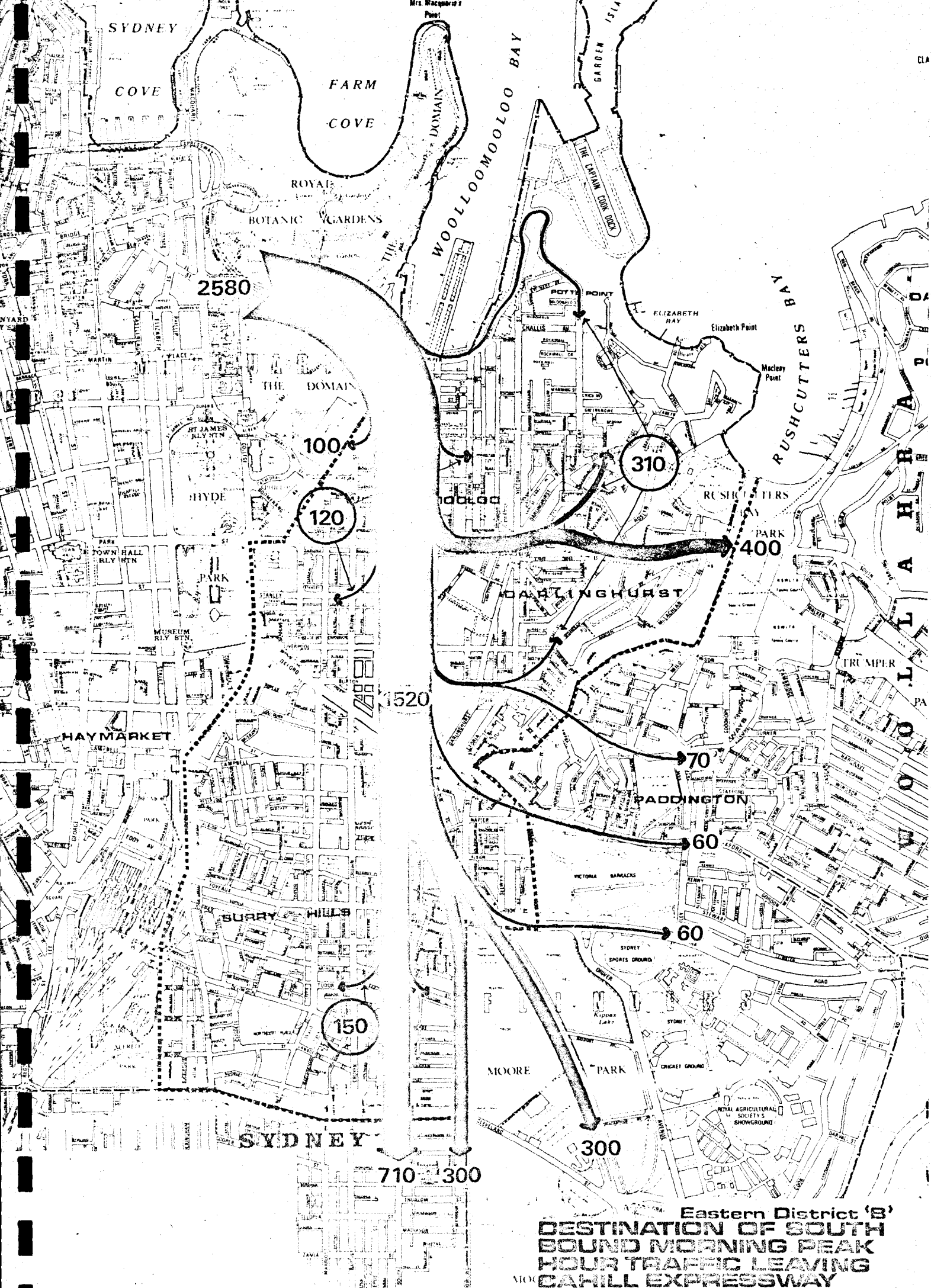
Deletion of the Eastern Freeway between Anzac Parade and Ocean Street, Woollahra from the proposed freeway network, as recommended by the Sydney Area Transportation Study, will reduce the need for a major interchange in the Flinders Street-Dowling Street corridor, and hence the amount of land that will eventually need to be acquired will be very substantially reduced. In fact, within the overall context of plans now being developed for Woolloomooloo and Darlinghurst, a through traffic facility with two lanes northbound and two lanes plus possibly a climbing lane for buses southbound should suffice. This could either be in open cut or in shallow tunnel constructed under the existing street system by cut and cover methods.

Numerous options are available but a complete Environmental Impact Study containing all the relevant Engineering, Economic, Environmental and Social issues and preferably sponsored jointly by the Australian, New South Wales and relevant Local Governments, will be necessary. It is likely that in some inner urban areas, the relative cost of property acquisition has outpaced that of road construction in recent years. Consequently, the economic criteria that might have dictated a certain form of road construction in preference to another in recent years, may no longer be relevant.

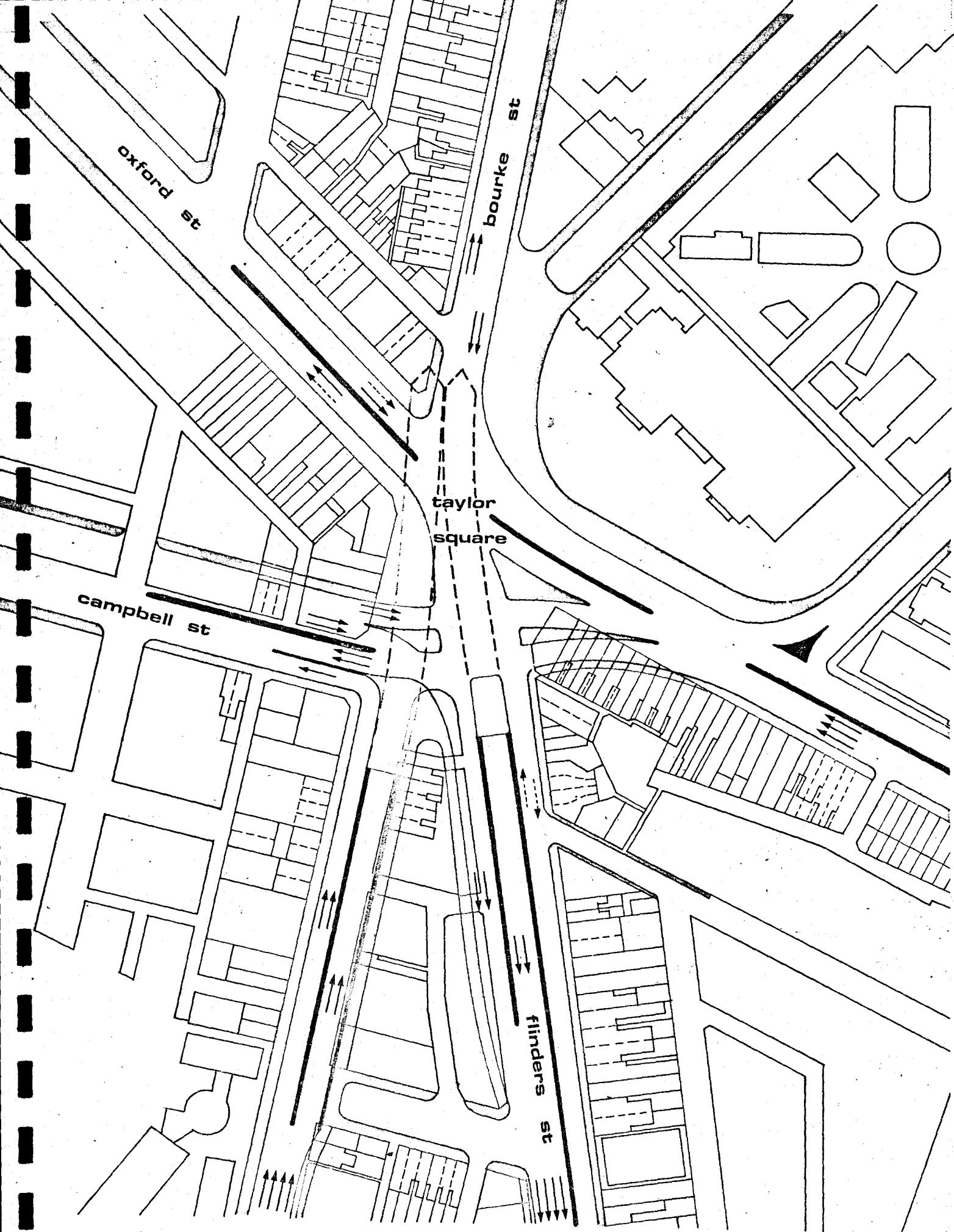
Figure 5 illustrates a road layout that could be planned at Taylor Square to minimize property acquisition along Flinders Street. This envisages the southern approaches to Taylor Square being one-way north bound in Bourke Street, and one-way south bound in Flinders Street. Fitzroy Street would need to be widened on the south side between Dowling Street and Bourke Street to take four moving lanes. In addition, the south bound carriageway of Dowling Street may need to be grade separated over Moore Park Road.

Alternatively, retention of the Flinders Street corridor for both north bound and south bound access to tunnels under Taylor Square would require substantially more land acquisition on the eastern end of Flinders Street.

Figure 6 shows how the link could be provided through Woolloomooloo in shallow cut and cover tunnels in Bourke and Palmer Streets, and with an at grade intersection with Sir John Young Crescent. Figure 7 also illustrates a scheme based on an at grade intersection with Sir John Young Crescent but in open cut requiring half of the block between Bourke and Palmer Streets.



Eastern District 'B'
DESTINATION OF SOUTH
BOUND MORNING PEAK
HOUR TRAFFIC LEAVING
CAHILL EXPRESSWAY
1971
fig.4

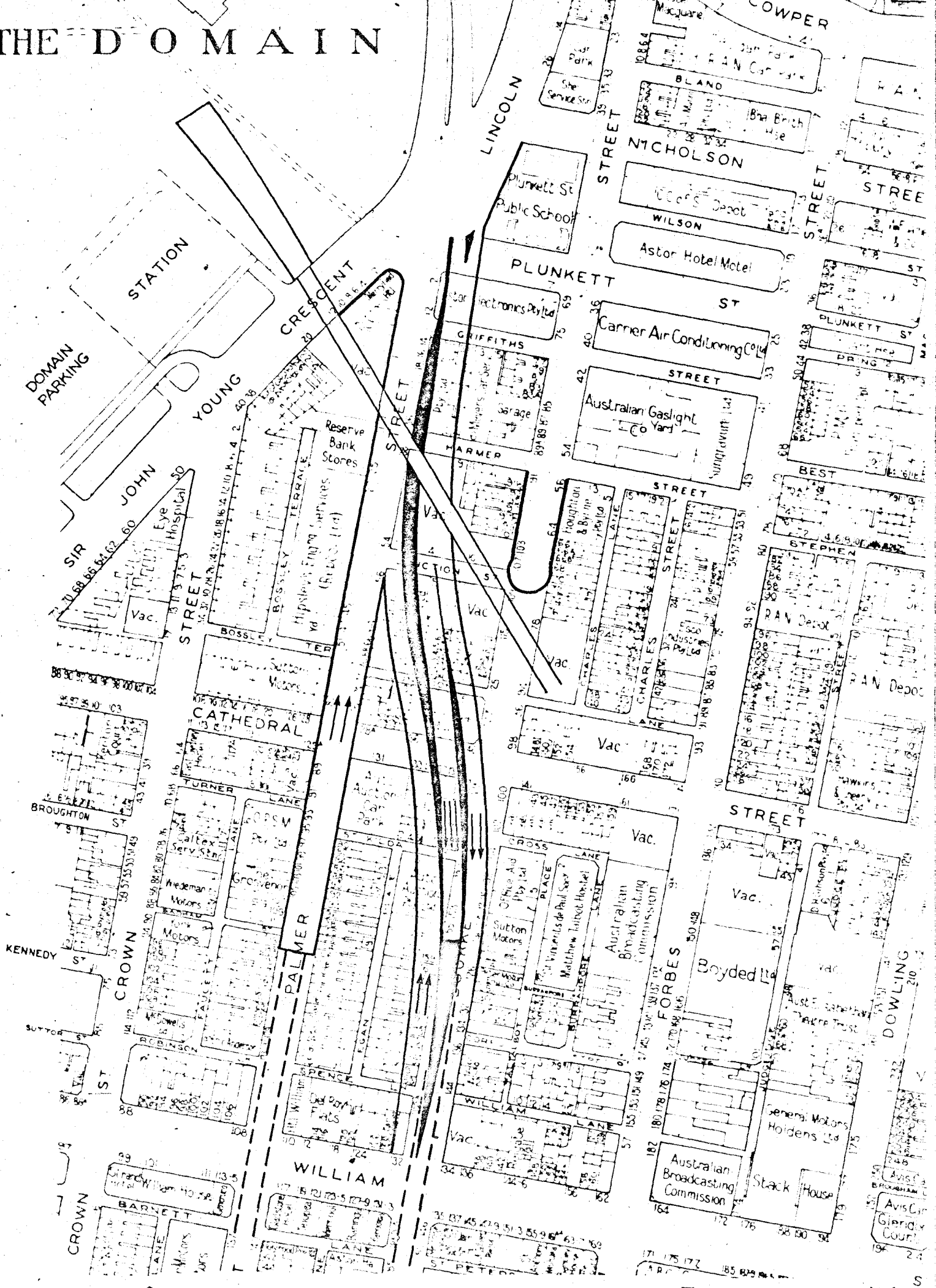


2chs. = 1in.

← car
← bus

Eastern District 'B'
**A POSSIBLE GRADE
SEPARATED SCHEME
FOR TAYLOR SQUARE**

THE DOMAIN



3chs. = 1in.

Eastern District 'B'
**POSSIBLE ALTERNATIVES FOR
 EASTERN DISTRIBUTOR**
ALTERNATIVE NO. 1

fig. 6

Eastern District 'B'

POSSIBLE ALTERNATIVES FOR EASTERN DISTRIBUTOR

ALTERNATIVE NO 2

fig. 7

**POSSIBLE ALTERNATIVES FOR
EASTERN DISTRIBUTOR
ALTERNATIVE N°2** fig. 7

↑
n
3chs.= 1in.

Figure 8 shows a grade separated intersection with Sir John Young Crescent and also a grade separation involving a loop left turn at William Street for vehicles seeking to make a right turn northbound from William Street to the Cahill Expressway. The layout is, in effect, a simplified version of the scheme currently being investigated by the DMR which is shown as Figure 9.

A preliminary assessment was made of a single tunnel carrying two lanes of traffic in each direction. This would require the full width of the Bourke Street road reserve. Cut and cover construction would require underpinning of properties at their boundary lines or, alternatively, partial demolition and restoration of properties. This combined with complex and extensive problems associated with utility relocation, and substantially inferior road design standards compared with other alternatives would suggest that the scheme, although environmentally desirable, would be unworkable in practice.

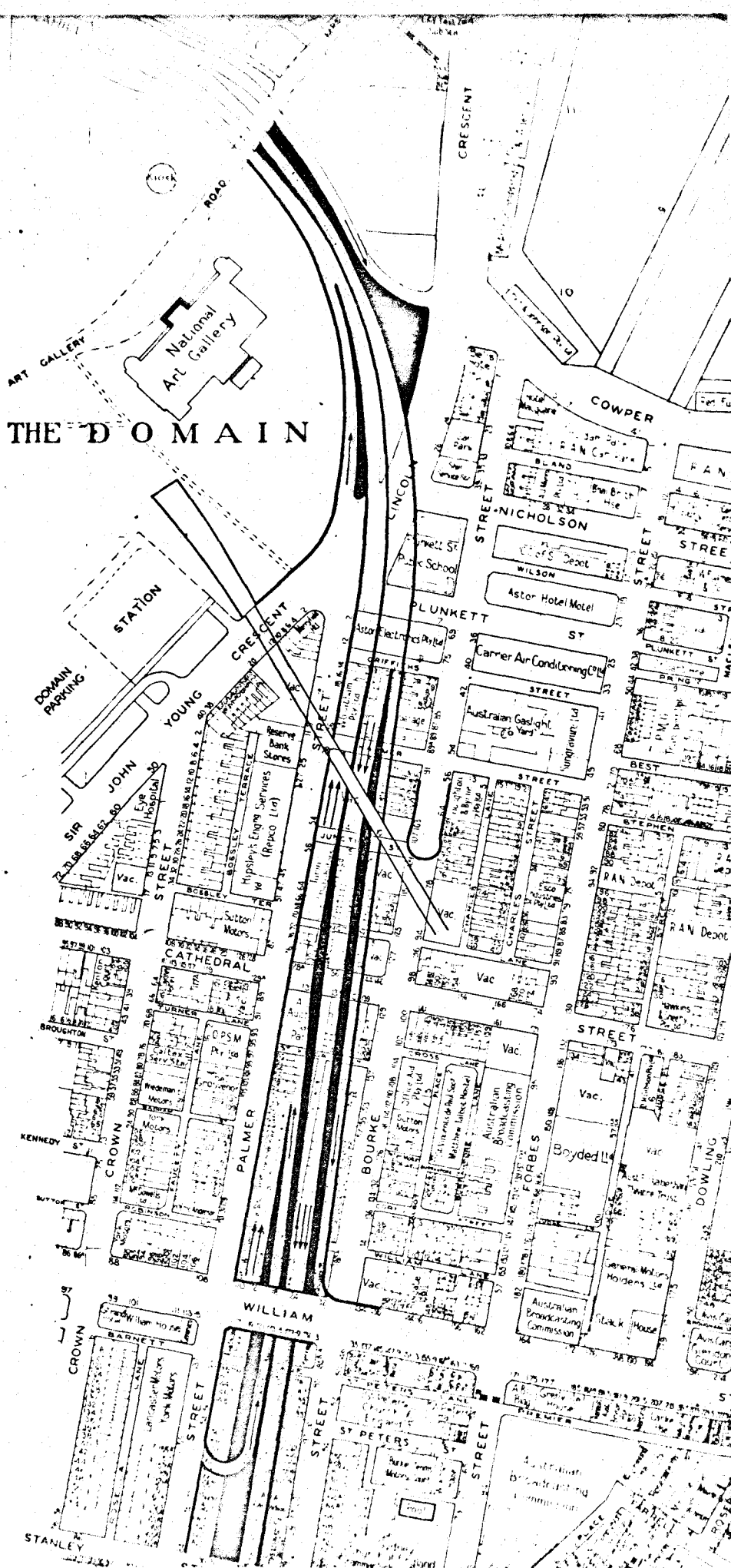
Irrespective of the type of scheme found to be most suitable for Woolloomooloo, it should be possible to provide a simplified and scaled down facility between Stanley Street and Moore Park Road which will function as a bypass road and not have intermediate access at Liverpool and Burton Streets. Detailed assessments of the actual requirements would need to be made as part of an Environmental Impact Study for the area.

However, in the light of studies already made and the SATS recommendation to delete the Eastern Freeway, it is now possible to reduce the amount of land that should continue to be reserved on the City of Sydney Planning Scheme for future County Road purposes. For example the deviation of Lincoln Crescent and Cowper Wharf Roadway should be deleted. Figure 10 shows the recommended changes to the area to be zoned as County Road until the completion of an Environmental Impact Study and a subsequent redesign and scaling down of the Eastern Distributor south of Stanley Street. Following this, it should be possible to further reduce the land required for County Road purposes.

On the basis that a scaled down version of the Eastern Distributor will be found suitable following an Environmental Impact Study, and a particular scheme adopted as a long term plan, consideration will still be needed concerning staging of this project during the short to medium term.

There are a number of projects recently completed in the course of implementation that will have an effect on north-south traffic through Eastern District B. These are:-

THE DOMAIN

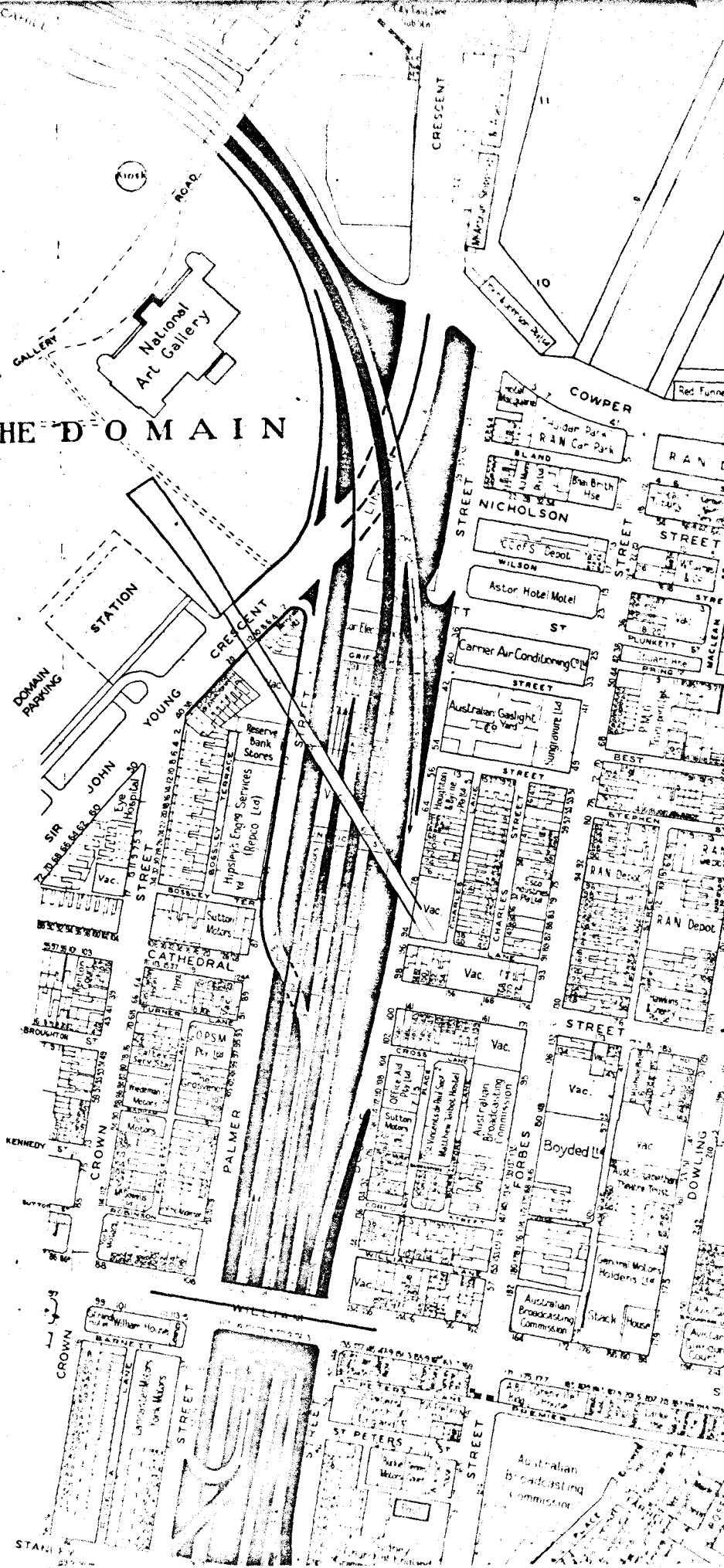


N
3ch. 11in.

Eastern District 'B'
POSSIBLE ALTERNATIVES FOR
EASTERN DISTRIBUTOR
ALTERNATIVE N93

fig. 8

THE DOMAIN



↑
3 ch. 1 in.

Eastern District 'B'
POSSIBLE ALTERNATIVES FOR
EASTERN DISTRIBUTOR
ALTERNATIVE N°4 fig 9



BOTANICAL

GARDENS

WOOLLOOMOOLOO BAY

Blue
Deletion from County Road Reserve
Red
Addition to County Road Reserve

THE DOMAIN

ELIZABETH BAY

CITY OF SYDNEY

HYDE

PARK

RUSHCUTTERS BAY

RUSHCUTTERS BAY PARK

WOOLLA

CENTRE

DEFENCE VICTORIA BARRACKS

Eastern District 'B'
RECOMMENDED CHANGES
TO AREAS RESERVED FOR
PROPOSED COUNTY ROADS

fig. 10

* The Western Distributor

The first stage was completed in 1973 and has provided substantial relief to traffic congestion on the western side of the CBD. In addition, it has opened up a new route on the west side of the CBD for northbound traffic from South Sydney to the Harbour Bridge. Because of the existing street configurations around Railway Square requiring one-way operation of Regent Street, the route for southbound traffic is not as attractive as for northbound traffic following Regent, Harris, Pier, Harbour and Day Streets.

* Railway Square

Work is in progress to provide a pedestrian subway under Railway Square and to reconstruct the roadways to provide improved access between the Broadway and George, Pitt and Lee Streets. Following completion of this work, it should be possible to restore Regent Street between Lee Street and the Broadway to two-way operation and provide an attractive southbound link from the Western Distributor to South Sydney.

* The City Markets

These are scheduled for relocation to Flemington between 1974 - 75 and opportunity exists for providing an improved road link between Harbour Street and Ultimo Road as an alternative to the route via Pier Street. Relocation of the markets could also reduce the incidence of peak hour delays to traffic occasionally caused by slow moving heavy vehicles from the markets. But the benefits flowing from this are not likely to be significant except early in the morning peak.

* The North-Western Freeway (City to Glebe)

Work is in progress on this project which is likely to be completed by about 1980. The project includes realignment of Day Street and the Port Roadway between the Western Distributor and Harbour Street. In addition, a direct connection for southbound traffic will be available between the Western Distributor and Harris Street, but the corresponding northbound movement will be slightly more circuitous. These are scheduled for completion during the early stages of the overall project.

* Botany Road

Widening is progressing from Mascot northwards to link with Regent Street at St. Pauls Square in Cleveland Street.

The combined effect of these will be to provide, within the next two to three years, a significantly more attractive surface street by-pass to the west of the CBD than previously existed before the

opening of the first stage of the Western Distributor. But St. Pauls Square, unless widened, could become a bigger bottleneck than at present and partly negate the beneficial effects of the other projects.

With the development of an improved by-pass route to the west of the CBD, it should be adequately signposted to inform motorists of its existence. Following the reconstruction of Railway Square and the relocation of the City Markets late in 1974 or early in 1975, one or more defined routes between the Western Distributor and St. Pauls Square should be selected and signposted as a route to follow between the Harbour Bridge and the airport - South Sydney area. The co-operation of the South Sydney Council should be sought in maintaining continuity of signposting where necessary in that area. Following completion of the section of the Northwestern Freeway between the CBD and Ultimo in 1977 - 78 some changes in signposting may be necessary.

Notwithstanding the likely indirect benefits of these roadworks on traffic flow through Eastern District B, there will continue to be a need for improved roadworks within and immediately adjacent to this District. Council has local widening schemes on Fitzroy Street between Dowling and Bourke Streets, Elizabeth Street between Kippax Street and Cleveland Street, and on Chalmers Street north of Devonshire Street. In addition, more extensive widening schemes are proposed in Cleveland and Campbell Streets, but the cost of implementing these in their entirety is likely to be considerable. However, these can be carried out in stages and the following are recommended as first priority projects to reduce through traffic in Surry Hills :

- * Widen the intersection of Cleveland and Dowling Streets
- * Widen Fitzroy Street between Dowling and Bourke Streets
- * Widen Chalmers Street north of Devonshire Street.
- * Improve the intersection of Cleveland and Elizabeth Streets.
- * Widen St. Pauls Square and Cleveland Street approaches.

It should then be possible to return Bourke and Crown Streets south of Fitzroy Street to two-way operation as local streets.

Recommendations concerning the subsequent detailed staging of elements of the Eastern Distributor are beyond the scope of this report and could be made only after evaluation of the recommendations of the Sydney Area Transportation Study and an Environmental Impact Study relating to an Eastern Bypass. Programming of an Eastern Bypass would need to be related to that for the Southern Freeway as they both carry out similar functions.

This discussion has so far related to provision for north-south traffic. But provision for east-west traffic is almost of equal importance. This traffic is confined to several corridors. These are -

- * William Street
- * Liverpool-Burton Streets
- * Oxford-Goulburn-Campbell Streets
- * Albion-Foveaux Streets
- * Cleveland Street

Completion of the Kings Cross Road Tunnels will reduce the importance of the Liverpool-Burton Street corridor and increase the importance of William Street. It will also greatly reduce through traffic in Macleay Street, Greenknowe Avenue and Waratah Street. Completion of the Eastern Suburbs Railway to Bondi Junction will reduce the bus loadings in William Street and Oxford Street, and increase their capacity to carry motor vehicle traffic.

William Street is planned to be widened following the opening of the Kings Cross Tunnels, but it is now necessary to review the access arrangements which had previously been planned for William Street. Proposals formulated by the Department of Main Roads for access to and from William Street have been based on retention of the existing street system in Woolloomooloo. However, plans currently being prepared by the City Council, in collaboration with the Australian Government Department of Urban and Regional Development, the N.S.W. Government Planning and Environment Commission and the Housing Commission will radically alter the street system of Woolloomooloo north of William Street. This scheme envisages a complete redevelopment of the area north of the Eastern Suburbs Railway viaduct and east of Bourke Street. Low income housing is planned retaining buildings worthy of rehabilitation and replacing the balance with new terrace or courtyard housing. Road access would be restricted to Cowper Wharf Roadway and the reserve of the Eastern Suburbs Railway would be used as a buffer zone. Roads crossing this buffer zone east of Bourke Street would be closed and car parking for commuters to the CBD prohibited.

The section south of the Eastern Suburbs Railway would be comprehensively redeveloped as a mixture of institutional, high density housing, commercial and hotel uses integrated with existing buildings worthy of preservation. Only parts of the existing street system would be retained and new access roads are being planned as part of this redevelopment.

It will be necessary to consider such changes in conjunction with overall traffic planning for the principal arterial roads in the area and liaise with the relevant State Government Authorities, particularly in respect of access arrangements for William Street.

Another factor requiring resolution is the necessity to retain Goulburn Street and Campbell Street as a pair of east-west connectors linking the Western Freeway (if built) to the Eastern Distributor. These roads were originally planned to serve a large workforce in that section of Woolloomooloo, Kings Cross and Surry Hills zoned as County Centre under the County of Cumberland Planning Scheme in 1951.

Subsequent studies have indicated that the workforce in these areas will not achieve the size previously envisaged, and the recommendations of the individual Action Plans for Precincts within this area have recommended an increase in residential activities at the expense of commercial and industrial activities. Analysis carried out in the light of this indicates that either Goulburn or Campbell Streets would suffice. Consideration of the existing and planned land use and street configuration indicates that Campbell Street should be retained as an important east-west traffic artery across Surry Hills and that Goulburn Street could be reduced in importance on the eastern side of Wentworth Avenue. But Campbell Street between Bourke and Crown Streets would need to be widened to eight lanes, particularly if the role of Oxford Street as a major traffic artery is downgraded in the future and this street is reduced in width to carry buses and local traffic.

Analysis of the DMR 1971 Origin and Destination Survey for the CBD indicates that a large proportion of the traffic in the Albion-Foveaux Street corridor travels between these streets and The Broadway. This varies between 30 and 50 percent at various times of the day. Given more capacity in Cleveland Street, it is likely that a considerable proportion of the traffic in this corridor could be diverted to Cleveland Street. Such diversion would be most desirable.

Traffic volumes in Boundary Street (10150 veh/day in 1973) do not warrant widening of Boundary Street beyond the current width of 42 feet. In fact, this volume is likely to drop following the opening of the Kings Cross Tunnels as much of the traffic now using Liverpool Street-Boundary Street as a bypass route should divert to William Street and the Kings Cross Tunnels. But the provision for widening in the section west of West Street and leading to Victoria Street should be retained to allow design alterations to be incorporated into the intersection of Oxford Street, Victoria Street and Dowling Street.

1.4.3 Parking

The Parking Policy and Control Code for new development has been in operation for the past two years. It has served to limit to varying extents the type of parking that should be permitted within this District. The preparation of individual Action Plans for different precincts within this District, together with this Action Plan for transport to serve the District, has provided the opportunity to review the effectiveness of the Code in the industrial Precincts. In the light of this, a number of revisions have been made to the Parking Control Code as it affects Eastern District B. The principal changes are as follows -

- * Adjustments have been made to the requirements for off-street loading and unloading spaces for small shops, supermarkets and boutiques, as these generate considerably more delivery vehicle traffic than do Department Stores.
- * As large hotels, and to a lesser extent, motels, depend on international and interstate visitors travelling by air for their residential clientele, the off-street car parking requirement for large hotels and motels has been relaxed.
- * The limitation on the maximum number of spaces that may be provided on site in the Kings Cross Precinct has been altered to allow for on-site provision of the required spaces in the area adjacent to Kings Cross Road and zoned Residential 2(e). Because of the zoning restrictions in the area zoned Residential 2(c), there is no need to retain the previous on-site limitation.

Because of the acute shortage of parking spaces in Kings Cross, there is and will continue to be a need to provide for substantial off-street parking for visitors to the Kings Cross Precinct irrespective of any plans to reserve kerbside spaces for residents by the introduction of special windshield stickers or some other means. Such provision is best located on the perimeter of the Precinct and in close proximity to the arterial road system. Consequently, a prime site would be the airspace over the Kings Cross Road Tunnels now under construction. A large parking station with a capacity of up to 800 cars could be integrated with a major commercial redevelopment scheme and be linked to the Kings Cross Precinct by a grade-separated pedestrian crossing over Kings Cross Road.

A parking station in this location would have major advantages in having access to both Kings Cross Road and Craigend Street which are one-way streets being widened in association with the Kings Cross Road Tunnel scheme. It is envisaged that operating conditions would favour short-term visitor parking in preference to all day commuter parking. One of the problems associated with such a scheme is the reluctance of the Department of Main Roads to incorporate a major parking station in any development on the site.

In addition, there is an opportunity to incorporate a public parking station into the Kinneil site, a large redevelopment site having frontages to Barncleuth Square and Elizabeth Bay Road to serve as a secondary parking station for the Kings Cross/Potts Point area.

Concerning resident parking, supply and demand comparisons for Eastern District B as a whole indicate that there is currently an overall surplus of kerbside and off-street car parking spaces over the requirements of the workforce and residents within the District. This surplus is available for visitors to the District and for commuters to the CBD. However, the surplus is far from uniformly distributed and, in fact, there are substantial deficits in West Surry Hills, Kings Cross and Darlinghurst. Many of the available kerbside spaces in these areas are occupied by cars belonging to CBD commuters and this accentuates the deficits to residents and local workers.

In addition, it is very likely that following the redevelopment of Woolloomooloo most, if not all, of the surplus of 3,000 spaces available for CBD commuters in 1971 will disappear.

Often the surplus is available in places where it is least useful for either local residents, workers or visitors or for commuters to the CBD, for example, in south-east Surry Hills. But within the next decade, the overall situation will deteriorate and this overall surplus could change to an overall deficit with the continuing increase in car ownership by residents. This will intensify existing parking problems and create additional problems in areas where they do not now exist.

Current car ownership throughout the District is very low (5.6 to 12.1 persons per car) in all areas except Potts Point, Elizabeth Bay and Rushcutters Bay, where the ownership ranges from 3.4 to 4.3 persons per car. This latter range is also below the average for the Sydney Metropolitan Area. Consequently, there is every reason to accept that, notwithstanding the general proximity of these areas to the CBD, car ownership is well below saturation levels and likely to increase substantially over the next decade. In areas selected for rehabilitation

and restoration, the likelihood of extensive provision for off-street parking is low and consequently the additional resident cars will need to park in the street.

In addition to the general problem, there are two major workforce generators which create parking problems peculiar to themselves. These are the Garden Island Naval Base and St. Vincents Hospital. Garden Island is served by special buses, but as discussed in Section 1.4.1. these should be re-routed to improve their accessibility and hence patronage. The current situation is that many of the Garden Island workforce park in the streets in Potts Point and the north-eastern section of Woolloomooloo, thus denying this space to local residents. If the planned redevelopment of the north-eastern section of Woolloomooloo for residential use, as currently envisaged, comes to fruition, there simply will not be any kerbside spaces available for commuters to Garden Island or the CBD. This will impose an increasing demand on the kerbside spaces in Potts Point and necessitate some form of priority for residents of this area. Provision of residential car parking permits for Potts Point or for any other area within the City will present some complex problems in respect of eligibility and enforcement. Special studies will need to be undertaken by Council in co-operation with the relevant State Government Authorities to overcome these problems. Such studies would need to review the following -

- * The number and distribution of existing kerbside spaces available for long term parking
- * The existing car ownership index and likely future changes in the car ownership index in the area being studied.
- * The extent to which off-street grouped or community parking facilities might be provided.
- * The number of cars per household that should be granted resident windscreen stickers.
- * The amount that should be levied per car as a Licence Fee for exemption from parking restrictions.
- * The type of parking restrictions from which the Licence or Permit Holder should be exempted.
- * The extent of the area and type of streets in which the Licence or Permit is valid
- * The tenure of the Licence or Permit
- * Proof of eligibility of the vehicle to be issued with a windscreen sticker indicating the granting of a Licence of Permit
- * The method of enforcement

It is highly likely that adequate provision of kerbside space for residents of Potts Point and Woolloomooloo will necessitate all parking serving Garden Island to be located within the Garden Island Dockyard Reserve. But there is adequate space within the Reserve for this purpose and these requirements should be met in this manner.

Detailed investigation of the requirements of St. Vincent's Hospital indicates a special demand unique to hospital usage. The hospital has a total staff of 1972 persons in 1973, an increase of 33 percent between 1969 and 1973. A significant proportion of these workers are people starting before 7 am or finishing after 11 pm. These people are largely dependent on private car transport due to the inadequacies of public transport services in the early morning and late evening and require all day parking in close proximity to the hospital. The hospital also has need for special short term parking spaces for visiting honorary doctors and senior medical students working on tight schedules. But most of the kerbside spaces within convenient walking distance of the hospital are short term parking spaces (generally 2 hours) available to visitors to the general area, including the East Sydney Technical College, the Law Courts or the Oxford Street shopping centre on a first come first served basis. Because of the activity generated by these uses, the chances of obtaining a short-term space close to the hospital are minimal.

But the hospital owns a considerable amount of land within the area zoned for hospital usage and which is not actually being used for that purpose. Consequently, many of the hospital parking problems should be capable of being progressively solved by the hospital itself.

Any future plans for expansion should include not only off-street parking facilities to serve the additional requirements for the expansion projects, but also off-street parking facilities to serve the existing hospital requirements. However, in the immediate future special kerbside provision for medical staff vehicles may be necessary and a special study would need to be undertaken by Council, the hospital and the Police to overcome some of the complex problems that would be associated with granting the necessary priorities. Such a study would need to review the following :-

- * The number and distribution of existing kerbside spaces available for short-term parking within reasonable walking distance of the hospital and not conflicting with the parking requirements of existing residential areas or of other institutions such as the East Sydney Technical College.

- * The eligibility of the various components of the hospital staff to be granted special kerbside spaces.
- * The likely accumulation of the number of cars eligible for reserved short term spaces.
- * The proof of eligibility and suitable methods of identification to the enforcement authority.
- * The tenure of the period of eligibility.
- * The time of day that short term spaces should be available.
- * The method of enforcement.
- * The amount that should be levied per car as a Licence Fee for being eligible for allocation of special kerbside spaces or for exemption from certain parking restrictions.
- * The type of parking restrictions from which the eligible cars should be exempted.
- * Suitable penalties for non-eligible cars parking in restricted spaces reserved for hospital usage.
- * The likely date of future provision of off-street parking facilities by the Hospital.

1.4.4

Pedestrians

Planning for redevelopment in the Kings Cross, William Street, Woolloomooloo and Oxford Street Precincts has emphasised the needs of the pedestrian in commercial precincts and the Action Plans for each have made special provision for pedestrian-vehicular grade separation and continuous pedestrian paths where possible. These will significantly add to the safety and well being of pedestrians.

In residential areas such as Surry Hills, local street closures are recommended to provide better continuity and safety for the pedestrian, and every attempt should be made to ensure that the amenity of the pedestrian is not prejudiced by overemphasis on the need to keep road traffic moving through residential areas.

1.4.5 Land Use

Throughout the District there is a mixture of obsolescent residential and industrial buildings interwoven with a considerable number of residential buildings worthy of restoration and preservation rather than demolition and replacement. Much of this housing does not have provision for off-street parking and, in many cases, extensive provision of this would be detrimental to the environment of local areas. But the amount of kerbside space is not unlimited and the demands for residential parking spaces for resident vehicles will increase. Consequently any available opportunities to provide small pockets of resident off-street parking in addition to that parking required in a new development should be utilised.

One remarkable opportunity for reorganizing land use has been the chance to re-plan Woolloomooloo as a residential area following recent collaboration between the Australian and State Governments and the City Council. With good provision being made for people in all income groupings, Woolloomooloo should become a very desirable dormitory area for the workers of the City. Provision of safe and pleasant pedestrian walkways is likely to encourage many future residents to walk to nearby places of employment and provide some relief to an already overloaded transport system. By contrast, high density office development for a workforce of 35,000 in Woolloomooloo as previously envisaged, would have thrown unmanageable loads on to the road, rail and bus systems serving it.

Here it should be noted that within the area designated as the William Street Boulevard Precinct, each unit of Floor Space Ratio for the Boulevard Precinct as a whole would provide accommodation for between 2,500 and 3,000 workers. Restriction of the average Floor Space Ratio for commercial development to the range of 5:1 to 6:1 would limit the total workforce to a range 12,000 to 18,000 people. This workforce would require a shuttle bus service of up to 120 buses per hour to service it during the peak hours and is about the maximum number that should be planned for on both sides of William Street.

The current Action Planning Program has enabled a more balanced relationship to be achieved between density of new development and off-street parking requirements. At the time of adoption of the Parking Control Code and the Floor Space Ratio Code in 1971, there was provision in the latter

for high density redevelopment within the Oxford Street, Kings Cross and West Surry Hills Precincts to an extent which would create excessive parking on-site. The Parking Control Code made provision for restricting on site parking and contributions in lieu to the Parking Stations Trust Fund. But the Action Plan for Oxford Street has reduced the allowable maximum Floor Space Ratio to the extent that all required off-street parking should be capable of being catered for on-site, and similar action is likely in respect of the West Surry Hills Action Plan.

Floor space ratio codes have not been finalised for the Woolloomooloo, William Street Boulevard and Stanley Street Precincts within Eastern District B but these should also make similar provisions for limiting floor space ratios when finalised.

1.4.6 Integrated Transportation Planning

Prior to the commencement of the Sydney Area Transportation Study, there has never been a single State Government Authority charged with the responsibility of and capable of controlling or implementing detailed planning of all modes of transport serving the Sydney Metropolitan Area or any sub-area such as the City of Sydney. The Sydney Area Transportation Study has been the first real attempt to do so. For the purpose of carrying out this Study, special staff were engaged or seconded from the relevant State Government Authorities concerned with transport. The task involved was considerable and included extensive data collection, analysis and testing; widespread projections and forecasts and a large number of recommendations on a Metropolitan-wide basis.

The Study could be expected to make only broad recommendations concerning overall policy matters and major road and rail projects. It could not, within the time allocated for its completion, be expected to make detailed recommendations concerning distributor roads and detailed staging of major road projects; and it is understood that it has not attempted to do so at this stage. In many cases, it has presumably defined specific transportation policies and provided guidelines for their implementation without actually providing the detailed solutions.

But following the receipt and adoption in principle of the recommendations made by the Study, there should be a continuing opportunity to review and refine these general recommendations and make further detailed recommendations concerning their staging and implementation.

This can be achieved only by the retention of a suitable organization familiar with the data base already created by the Study; familiar with local areas and problems not covered in detail by the Study; and capable of pursuing these problems through to the implementation of their solutions. It is envisaged that Local Government Authorities and, in particular, the Council of the City of Sydney, can be of considerable assistance in this respect provided that their viewpoints are sufficiently wide to be capable of recognising problems affecting others outside their own particular area of influence, and making due allowance for these.

2. ACTION PLAN RECOMMENDATION A : PUBLIC TRANSPORT

2.1 GOAL IDENTIFICATION

Accessibility for workers in the District is not good, except from the Eastern suburbs. Bus to bus transfers and rail to bus transfers add to the cost and time incurred in the typical journey to work from the Northern, Southern and Western Suburbs.

In addition, plans to encourage residential development within the District will need to be accompanied by corresponding increases in public transport services both during the peak and off peak periods. Much residential development is in areas where both kerbside and off-street parking is in short supply and the potential demand for increased car ownership and parking spaces in the inner areas could be dampened by improved public transport services.

Consequently, there is a need to improve the service offered to residents and workers alike by re-routing some services, introducing new services and simplifying the fare structure by the introduction of transfer tickets.

2.2 POLICY RECOMMENDATIONS

Improve accessibility by public transport for residents and workers within the District.

Provide where practicable, separate rights of way or reserved bus lanes for public transport between the CBD and the outer eastern suburbs.

2.3 SPECIFIC ACTION PRIORITIES

- (i) Cooperate with the Public Transport Commission to achieve, following the opening of the Eastern Suburbs Railway, short-term improvements in the routing, stopping and standing places and ease of movement of buses within the District, and in particular, along Oxford and William Streets, including the introduction of bus priority lanes in Oxford Street west of Taylor Square, and in Flinders Street, forming a continuation of the Anzac Parade bus-way.
- (ii) Develop in cooperation with the relevant State Government Authorities, short range plans for the routing of express buses along College Street and long range plans for routing them along the Eastern Distributor when and if built.
- (iii) Seek improved regular and special bus services to Garden Island and St. Vincents Hospital in order to reduce the dependence of workers in those employment centres on private cars to travel to work.

- (iv) Investigate jointly with the Planning Team on Action Plan No. 30 - Centennial Park/Moore Park Residential Precinct - the possibility of improved bus services to serve the precinct in conjunction with the preparation of that Action Plan.
- (v) Seek the removal of express buses from Campbell and Albion Streets following the extension of the Eastern Suburbs Railway to Bondi Junction.
- (vi) Seek the improvement of local bus services between Paddington-Darlinghurst and the City following opening of the Eastern Suburbs Railway.

3. ACTION PLAN RECOMMENDATION B : ROADS AND TRAFFIC

3.1 GOAL IDENTIFICATION

It is desirable to reduce the amount of through traffic passing through individual Precincts on local roads and to confine this traffic to designated arterial and sub-arterial roads. These roads should be made more attractive to users through increased capacity, improved traffic management and more informative directional signposting. Conversely, local streets should, where possible, be made less attractive, but reasonable access to the abutting properties should be retained. This can be achieved by selective road closures and the introduction of one-way movements. In addition, it can create a better pedestrian environment.

It is also desirable that improvements to designated arterial roads and expressways be made with the minimum disruption to property, and consequently existing road plans require review to see whether much the same result cannot be obtained with less property acquisition than currently envisaged.

3.2 POLICY RECOMMENDATIONS

Adopt a hierarchy of arterial and sub-arterial roads shown in this Action Plan (Figure No. 3).

Seek to divert as much through traffic as possible to arterial roads flanking the District.

Seek to reduce the size of the Eastern Distributor and the area of land zoned "County Road" along the route of the Eastern Distributor.

Adopt Campbell Street as a major east-west arterial road.

3.3. SPECIFIC ACTION PRIORITIES

- (i) Initiate the necessary traffic management techniques including introduction of Clearway conditions and local road widening to upgrade the College Street, Wentworth Avenue and Elizabeth Street-Chalmers Street route as a major inner by-pass route, separating the CBD and Eastern District B.
- (ii) Seek the extension of Clearway conditions from peak hours to business hours along Cleveland Street.

- (iii) Initiate, following the removal of the City Markets and the reconstruction of Railway Square, the necessary traffic management techniques and local road widening including St. Pauls Square, to provide improved routes linking the Sydney Harbour Bridge to the industrial areas of South Sydney via an improved surface street system to the west of the CBD and hence provide indirect relief to traffic congestion on the Cahill Expressway and in the Bourke Street/Crown Street corridor.
- (iv) Improve directional sign posting throughout the City to guide through traffic to designated arterial roads within and around Eastern District B, and in particular designate a western bypass to the CBD following reconstruction of Railway Square and removal of the City Markets.
- (v) Widen Fitzroy Street between Dowling Street and Bourke Street to carry four lanes of traffic.
- (vi) Press for early improvements in the intersection of Cleveland Street and South Dowling Street in order to divert north-south traffic from Bourke and Crown Streets to South Dowling Street.
- (vii) Seek the early progressive widening of Cleveland Street west of Dowling Street in stages to overcome local bottlenecks, in particular at Elizabeth Street and St. Pauls Square and thus improve east-west traffic flow to the south of the City.
- (viii) Liaise with the Department of Main Roads in reviewing access to William Street in the light of current planning proposals for Woolloomooloo and Darlinghurst.
- (ix) Seek an Environmental Impact Study jointly sponsored by the Australian, State and relevant Local Governments of the relevant engineering, economic, environmental and social issues to determine the most suitable form, location and staging of an eastern by-pass through Woolloomooloo and Darlinghurst.
- (x) Provide incentives for property owners to realign their property boundaries in conformity with a plan to provide for the realignment and widening of Campbell Street to a width of 117 feet between Bourke and Crown Streets and varying widths between 95 and 106 feet between Crown Street and Elizabeth Street to accommodate two three-lane carriageways plus right turn bays at Crown and Elizabeth Streets.
- (xi) Within the Oxford Street Precinct provide for an undivided four lane carriageway (66 feet road reserve) along Goulburn Street between Wentworth Avenue and Riley Street.
- (xii) Close Riley Street north and south of Oxford Street and Burton Street between Riley and Crown Streets and between Crown and Palmer Streets.

- (xiii) Retain road closures at Ulster Street, Elizabeth Street, Newcombe Street, Regent Street and Stewart Street in the South Paddington Precinct.
- (xiv) Link Kings Cross Road and Elizabeth Bay Road via the widened Kellett Avenue and Ward Avenue and a through block link on the Kinneil Site in Elizabeth Bay Road to serve as an alternative two-way internal route to Darlinghurst Road.
- (xv) Close Elizabeth Bay Road between Darlinghurst Road and Baroda Street and close Barncleuth Square between Elizabeth Bay Road and Barncleuth Lane.
- (xvi) Convert Darlinghurst Road into a one-way street north bound and reduce the carriageway width.
- (xvii) Convert other local streets within the Kings Cross Precinct to one-way operation as detailed under Action Plan Recommendation B of Action Plan No. 8 - Kings Cross Precinct.
- (xviii) Resolve to apply immediately to the Minister for the suspension of the provisions of the City of Sydney Statutory Planning Scheme of the area shown in blue on Figure 10. as reserved for proposed Country Road or for County Road widenings and to vest Interim Development Control Powers in the Council.
- (xix) Resolve to apply immediately to the Minister for the suspension of the provisions of the City of Sydney Statutory Planning Scheme of the areas shown in red on Figure 10. as reserved for Business General and to reserve the land for County Road purposes.
- (xx) Resolve that Council's Chief Statutory Planner prepare Draft Interim Development Orders applicable to these areas in accordance with the recommendations of the Action Plans for the relevant precincts.

4. ACTION PLAN RECOMMENDATION C : PARKING

4.1 GOAL IDENTIFICATION

This District, being in close proximity to the CBD, is a medium density support area containing a wide variety of uses and reasonably well served by public transport. Consequently, off-street car parking should be provided on a controlled basis, commensurate with the capacity of the street system. Where the density of off-street car parking serving commercial premises is likely to overload the adjacent street system, a proportion of it will need to be provided for via special parking stations strategically located in close proximity to the arterial road system. Provision has already been made for this in Council's Parking Control Code for New Development, but this requires review in the light of experience gained over the two year period since its adoption.

Much of the existing residential housing within the District does not have any provision for off-street parking. A considerable amount of this housing is worthy of restoration and preservation rather than renewal and redevelopment. A number of Action Plans for the various Precincts have made specific recommendations concerning this. Because of increasing affluence and hence car ownership of the existing and likely future residents of the District, it will be necessary to make special provision for resident car parking either in special off-street car parks or at the kerbside. Preliminary investigations showed that off-street parking would not be economically feasible and that efforts should be focussed on allocating kerbside spaces for resident car parking.

In addition, a number of large institutions including St. Vincents Hospital, and the East Sydney Technical College, do not have adequate off-street parking facilities and some provision will need to be made for allocation of additional kerbside car spaces for these uses.

4.2 POLICY RECOMMENDATIONS

Adopt the revised Parking Policy and Control Code for this District.

Provide a system of readily accessible car parking stations at strategic points on the perimeters of Precincts within the District, and having direct access to the arterial road system.

Provide priority kerbside space in residential areas to serve the needs of the local residential community.

Provide additional parking space to serve St. Vincents Hospital for the use of key medical staff serving that Institution.

4.3 SPECIFIC ACTION PRIORITIES

- (i) Seek the cooperation of the Department of Main Roads in utilising the air rights over the top of Kings Cross Road Tunnels to provide a major car parking station with at least 800 spaces reserved for public use, as part of a major comprehensive commercial redevelopment over the Tunnels, with the fee structure and hours of operation to be under the control of the Sydney City Council; and limit the extent of development that a developer would be permitted to provide on the site without incorporating a major public car parking station within the development.
- (ii) Provide a major car parking station with at least 400 spaces reserved for public use on the Kinneil site, fronting Barnacleuth Square and Elizabeth Bay Road to serve the Kings Cross Area, with a fee structure and hours of operation to be under the control of the Sydney City Council.
- (iii) Investigate in cooperation with the Police Department, the feasibility of providing special car parking permits for residents in Surry Hills, Potts Point, Darlinghurst and other relevant areas within the District.
- (iv) Carry out, in cooperation with the Police Department and St. Vincents Hospital, a detailed investigation into the kerbside and off-street parking requirements in the short term and long term of the St. Vincents Hospital complex, combined with those of the Darlinghurst Law Courts and the East Sydney Technical College.
- (v) Insist that St. Vincents Hospital provides within the next stage of the Hospital work programme adequate off-street parking facilities for its own requirements, before Development Approval is granted for any further extensions.
- (vi) Seek to have the Royal Australian Navy expand the parking facilities inside Garden Island to meet the requirements of the naval and civilian workforce on Garden Island.

5. ACTION PLAN RECOMMENDATION D : PEDESTRIANS

5.1 GOAL IDENTIFICATION

The opening of the Kings Cross Railway Station will bring changes to the pedestrian network within the Kings Cross Precinct and adjacent areas. Additional space will be required in such busy streets as Darlinghurst Road and Bayswater Road.

A similar situation occurs in the Oxford Street Precinct where extensive redevelopment is planned and bring changes to the pedestrian network linking Oxford Street to the Museum Railway Station.

Pedestrian links through whole blocks, and over streets will be necessary as part of an overall pedestrian network. Vertical separation of pedestrians and vehicles should be provided at focal points within these and other Precincts within the District.

5.2 POLICY RECOMMENDATION

It is recommended that an integrated traffic-free pedestrian network be implemented in the Kings Cross, Woolloomooloo and Oxford Street Precincts as part of the City-wide pedestrian network.

5.3 SPECIFIC ACTION PRIORITIES

- (i) Carry out footpath widenings and low cost streetscape improvements as detailed in the relevant Action Plans for each Precinct.
- (ii) Carry out, in association with the Traffic Advisory Committee, a road closing program in the Kings Cross Precinct, as detailed in the Kings Cross Action Plan following the opening of the Kings Cross Road Tunnels.
- (iii) Provide grade separated pedestrian crossings and through-block pedestrian links as identified in the relevant Action Plans for individual Precincts.
- (iv) Select in consultation with the Traffic Advisory Committee local streets which can be closed off and wholly or partially converted to mini-parks, childrens playgrounds or pedestrian malls, as detailed in the relevant Action Plans for individual Precincts.

6. ACTION PLAN RECOMMENDATION E : LAND USE

6.1 GOAL IDENTIFICATION

The City of Sydney Strategic Plan identified the need to concentrate city development in a north-south linear spine well served by rail; and for the fringe areas to be support areas of low to medium density with residential, commercial and industrial land uses as appropriate, but with the areas of higher workforce density in close proximity to public transport.

6.2 POLICY RECOMMENDATION

Encourage land use forms and densities to be compatible with the capacity of the transportation systems serving the District.

6.3 SPECIFIC ACTION PRIORITIES

- (i) Adopt development control codes which encourage the higher density commercial and residential developments to locate near public transport corridors.
- (ii) Adopt development control codes which do not permit new developments to be of such density that their off-street car parking requirements, as specified in the Parking Control Code, cannot be met on-site.
- (iii) Adopt development control codes which do not permit new development to be of such density that it is likely to overload the public transport system.

7. ACTION PLAN RECOMMENDATION F : INTEGRATED TRANSPORTATION PLANNING

7.1 GOAL IDENTIFICATION

The City of Sydney Strategic Plan and subsequent Action Plans associated with transportation have collected and analysed a considerable amount of data which will require updating and review at periodic intervals. This data can be used as input to studies commissioned by the State Government to follow the broader study completed by the Sydney Area Transportation Study. The Council should always be in a position to utilize this data and its own local knowledge to assist the State Government in formulating transportation policies and implementing projects which will benefit the City as well as being acceptable in the context of overall Metropolitan Transportation Planning.

7.2 POLICY RECOMMENDATIONS

Press the State Government for the retention of the Sydney Area Transportation Study in order to continue to provide an integrated transportation planning body capable of implementing in stages compatible with local planning, the planning decisions made in the light of the recommendations of the SATS 1974 Report.

Continue to cooperate with the Sydney Area Transportation Study or any other Transportation Planning Authority appointed by the State Government and seek to participate in the work of such Authorities by making available data and proposals analysed for the City's strategic and action plans.

7.3 SPECIFIC ACTION PRIORITIES

- (i) Maintain a continuing inventory of existing land use, population and workforce data in a form capable of being used as inputs to sub-area analyses based on the overall Sydney Area Transportation Study and focussed on the City of Sydney.
- (ii) Maintain in a form capable of being used as inputs to a continuing Sydney Area Transportation Study, a continuing record of future land use and planning proposals likely to affect population, workforce and hence movement to, from and within the City of Sydney.
- (iii) Prepare, in association with the relevant State Government Authorities, three to five year rolling programmes of roadworks necessary to bring to fruition in stages, the recommendations of the Sydney Area Transportation Study as they affect the City of Sydney.

APPENDIX A - PROJECT TEAM

Alderman Andrew Briger (Chairman, City Development Committee) acted as liaison officer between Council and the Consultants. The co-ordination of the Action Plan within Council's Action Planning Programme was the responsibility of the Deputy Chief Planner (M. Llewellyn-Smith).

PROJECT TEAM

Project Director - PETER CASEY B.E., M.Eng.Sc., Dip T.C.P.,
M.I.E. Aust., M.I.T.E.

STAFF

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Bruce Stark
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CONSULTATIONS

Council of the City of Sydney, City Planning and Building Department.

Council of the City of Sydney, City Engineer's Department.

Department of Main Roads
Department of Motor Transport
Public Transport Commission
State Planning Authority
Police Department

Development Planning and Research Associates
(Action Plan No. 15 - Oxford Street)

UDPA Planners (Action Plan No. 16 - Darlinghurst)

APPENDIX B - RESOLUTIONS OF COUNCIL IN
RELATION TO ACTION PLAN NO. 14

Council's Resolution of the meeting held on March 27, 1972, authorising and commissioning Council's Action Plan Programme for 1972, stated -

"That arising from consideration of a minute dated 14th March, 1972, by the Chairman of the City Development Committee (Alderman Andrew Briger) as amended, in respect of Action Plan No. 14 and as recommended by the City Development Committee, it be resolved that the Action Plan Programme for the year 1972 be approved and -

- i) that the various Consultants as set out in the minute by the Chairman of the City Development Committee (Alderman Andrew Briger) be engaged directly by the Council for a fixed fee under new separate agreements to prepare the Action Plans as set out in the Schedule accompanying such minute and that each nominated project director personally liaise with the Chief Planning Officer;
- ii) that the agreements provide that the Consultants may, at their own expense, engage sub-consultants for specialist tasks subject to the approval of the Chairman of the City Development Committee (Alderman Andrew Briger);
- iii) that the agreement provide that the maximum amounts shall cover consultations on Development Applications in the Action Plan areas;
- iv) that the Common Seal of Council be affixed, if required, to any relevant documents;
- v)
- vi) that the Chairman of the City Development Committee (Alderman Andrew Briger) be empowered to liaise with the various Consultants in connection with the implementation of such Action Plans."

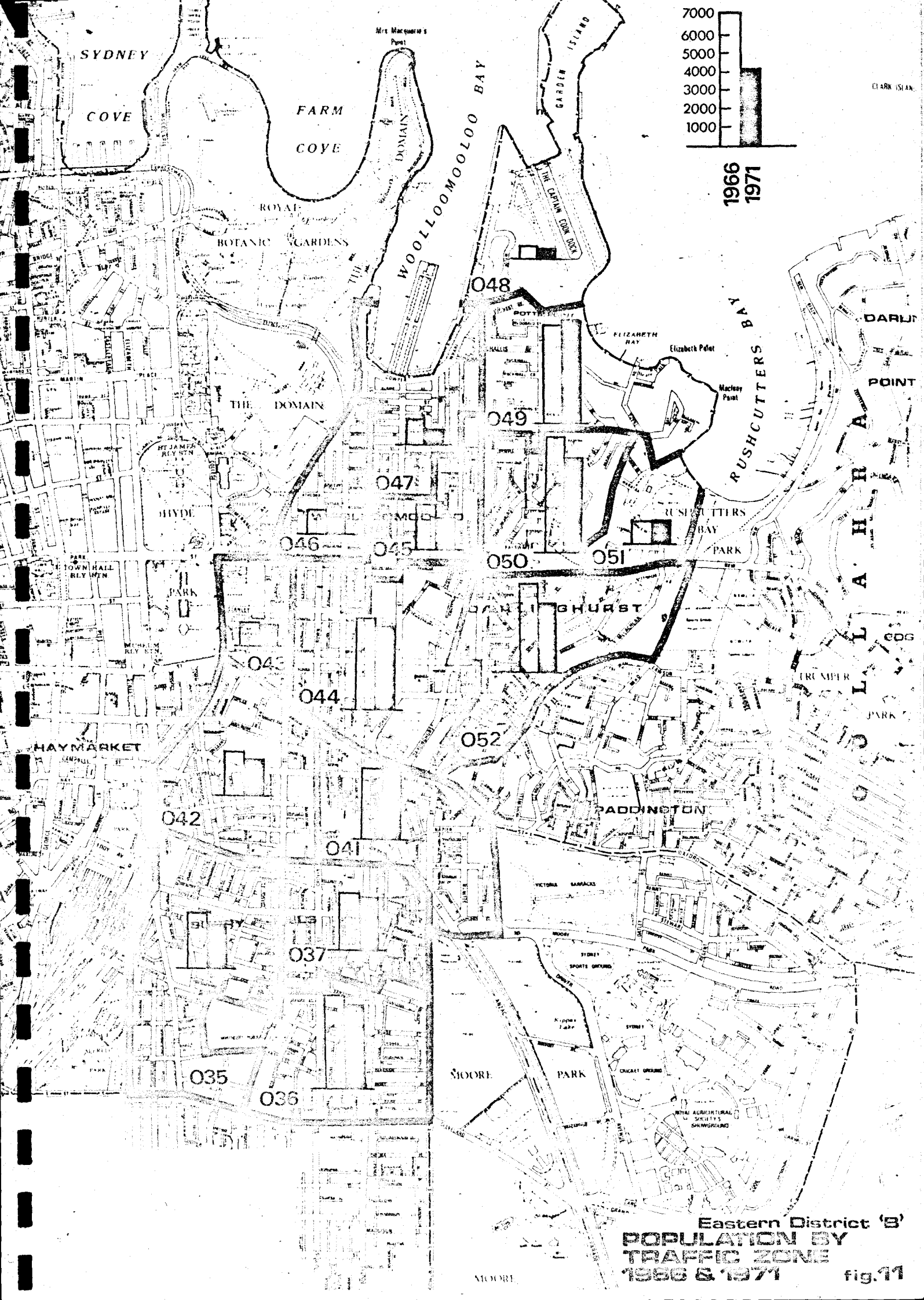
Similarly, Council's Resolution of the meeting held on February 26, 1973, authorising and commissioning Council's Action Plan Programme for 1973, stated -

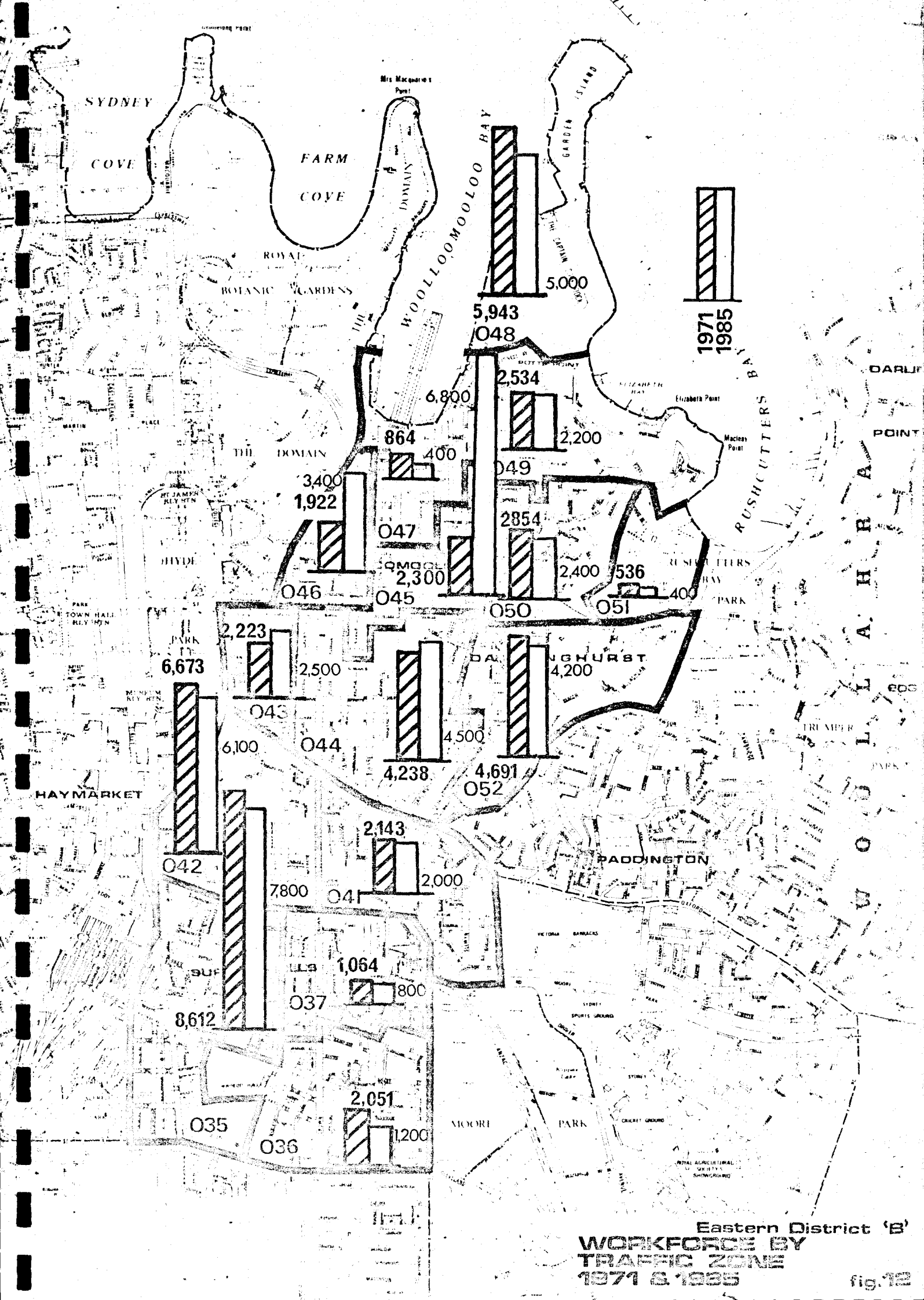
"That arising from consideration of a minute dated 21st February, 1973, by the Chairman of the City Development Committee (Alderman Andrew Briger) it be resolved that the Action Plan Programme for the year 1973, as detailed in the Schedule accompanying such minute, be approved."

APPENDIX C - POPULATION AND WORKFORCE

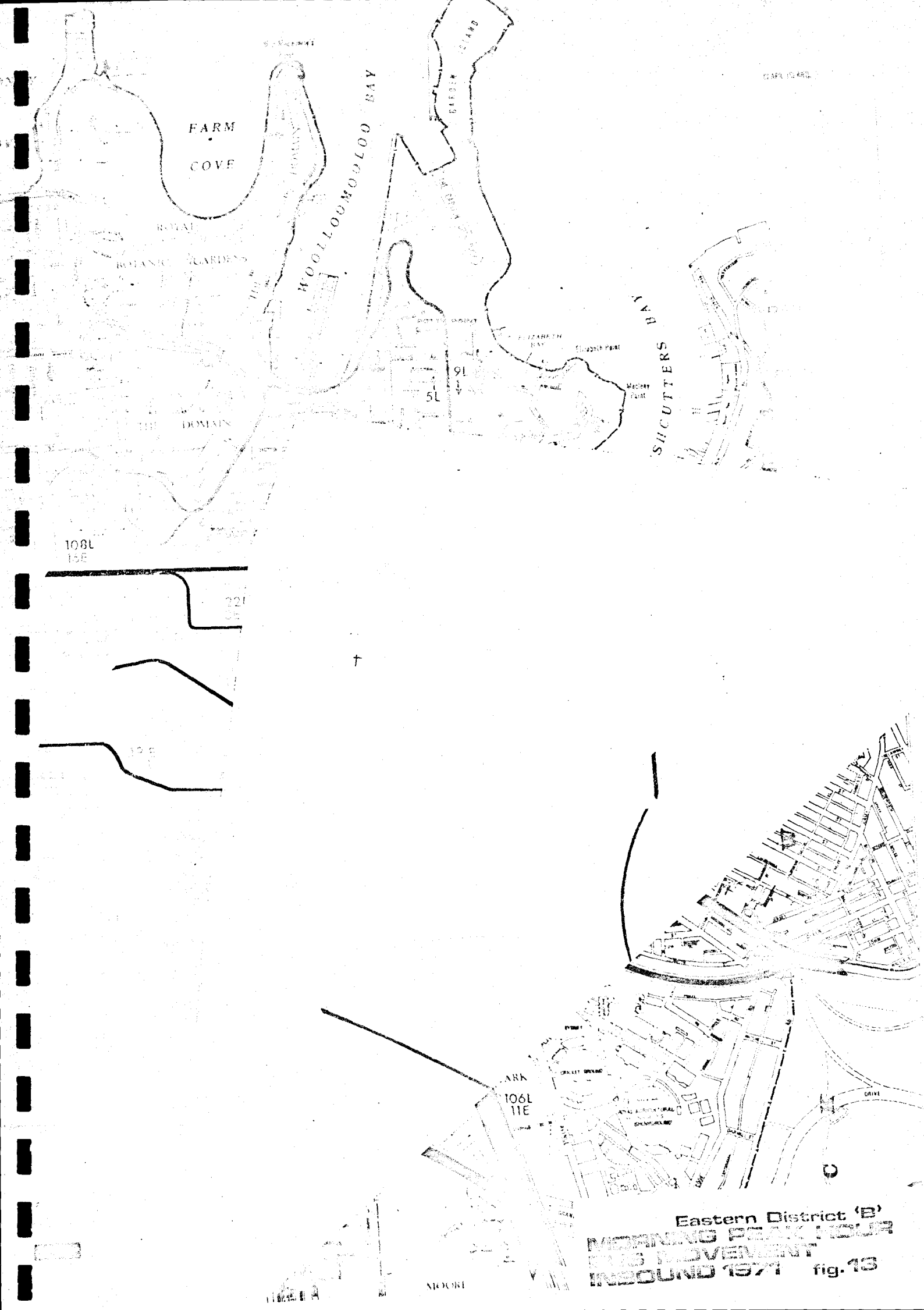
TABLE 4 : POPULATION AND WORKFORCE BY TRAFFIC ZONE
(SYDNEY AREA TRANSPORTATION STUDY.)

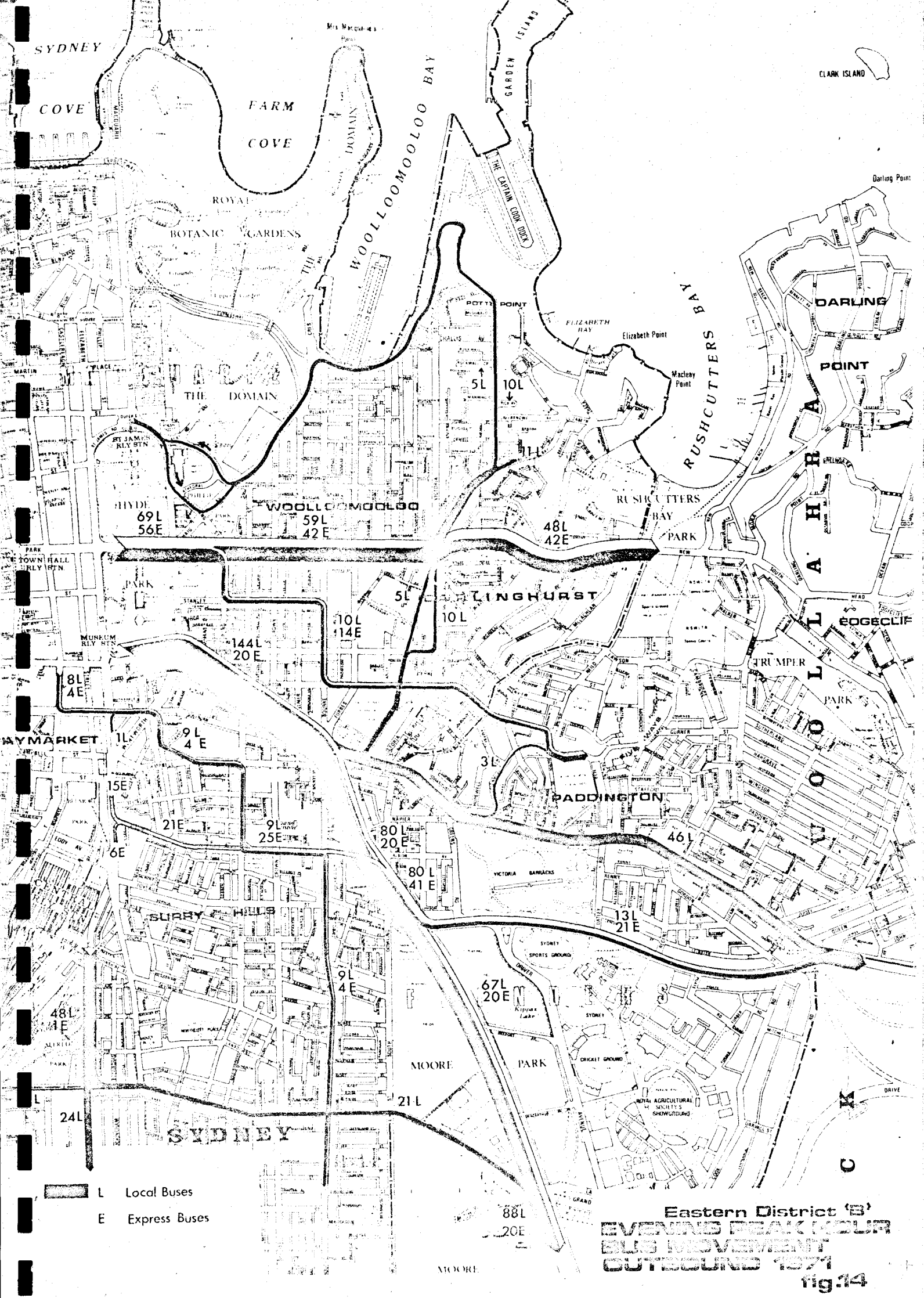
	Traffic Zones														
	035	036	037	041	042	043	044	045	046	047	048	049	<u>050</u>	051	052
1966 Population	3,079	4,942	3,104	3,817	2,324	1,167	4,997	2,599	1,213	1,279	647	5,397	6,202	1,213	4,843
1971 Population	2,417	4,336	2,802	3,870	1,980	1,145	4,426	1,722	829	857	521	5,564	5,133	1,223	3,696
1971 Workforce	8,612	2,051	1,064	2,143	6,673	2,223	4,238	2,300	1,922	864	5,943	2,534	2,854	536	4,691
1985 Workforce (estimated)	7,800	1,200	800	2,000	6,100	2,500	4,500	6,800	3,400	400	5,000	2,200	2,400	400	4,200





APPENDIX D - PUBLIC TRANSPORT





L Local Buses
E Express Buses

Eastern District 'B'
EVENING PEAK HOUR
BUS MOVEMENT
OUTBOUND 1971
fig.14

APPENDIX E - MODAL SPLIT

TABLE 5

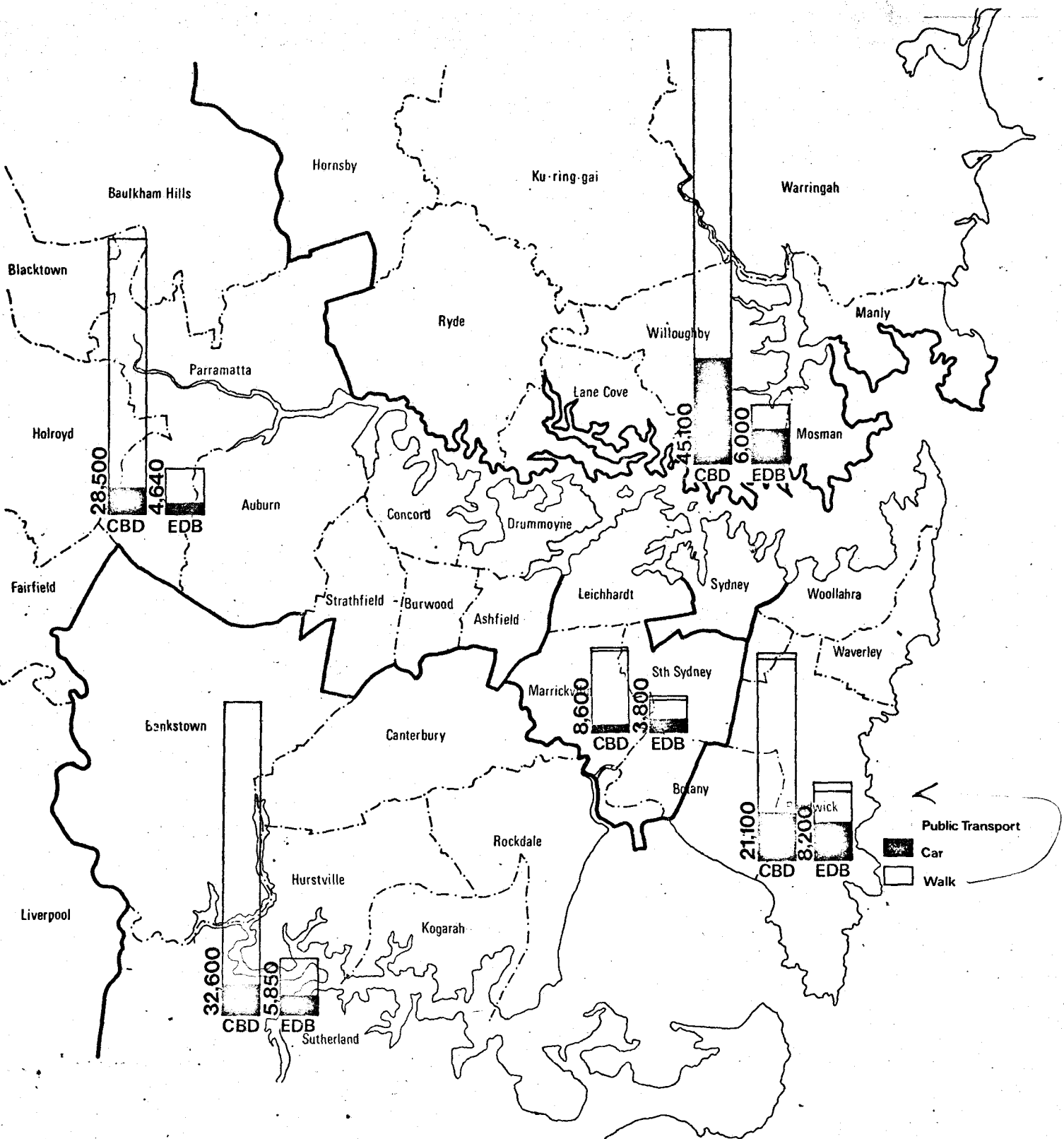
MODAL SPLIT OF HOME BASED TRIPS TO CBC AND EASTERN DISTRICT B -
MORNING PEAK 2 HOURS - 1971
(Excludes trips from City of Sydney)

Origin Sector	CENTRAL BUSINESS DISTRICT			EASTERN DISTRICT B		
	Car	Walk	Public Transport	Car	Walk	Public Transport
Eastern	4,834 (23%)	970 (4%)	15,258 (73%)	3,659 (45%)	1,014 (12%)	3,531 (43%)
Northern	11,413 (25%)	190 (-)	33,517 (75%)	3,890 (64%)	-	2,149 (36%)
Inner Western	666 (8%)	247 (3%)	7,670 (89%)	1,320 (34%)	299 (7%)	2,218 (59%)
Western	2,537 (9%)	-	25,978 (91%)	1,133 (24%)	-	3,508 (76%)
Southern	3,733 (11%)	-	28,911 (89%)	1,951 (33%)	-	3,903 (67%)
TOTAL	23,183 (17%)	1,407 (2%)	111,334 (81%)	11,953 (42%)	1,313 (5%)	15,309 (53%)

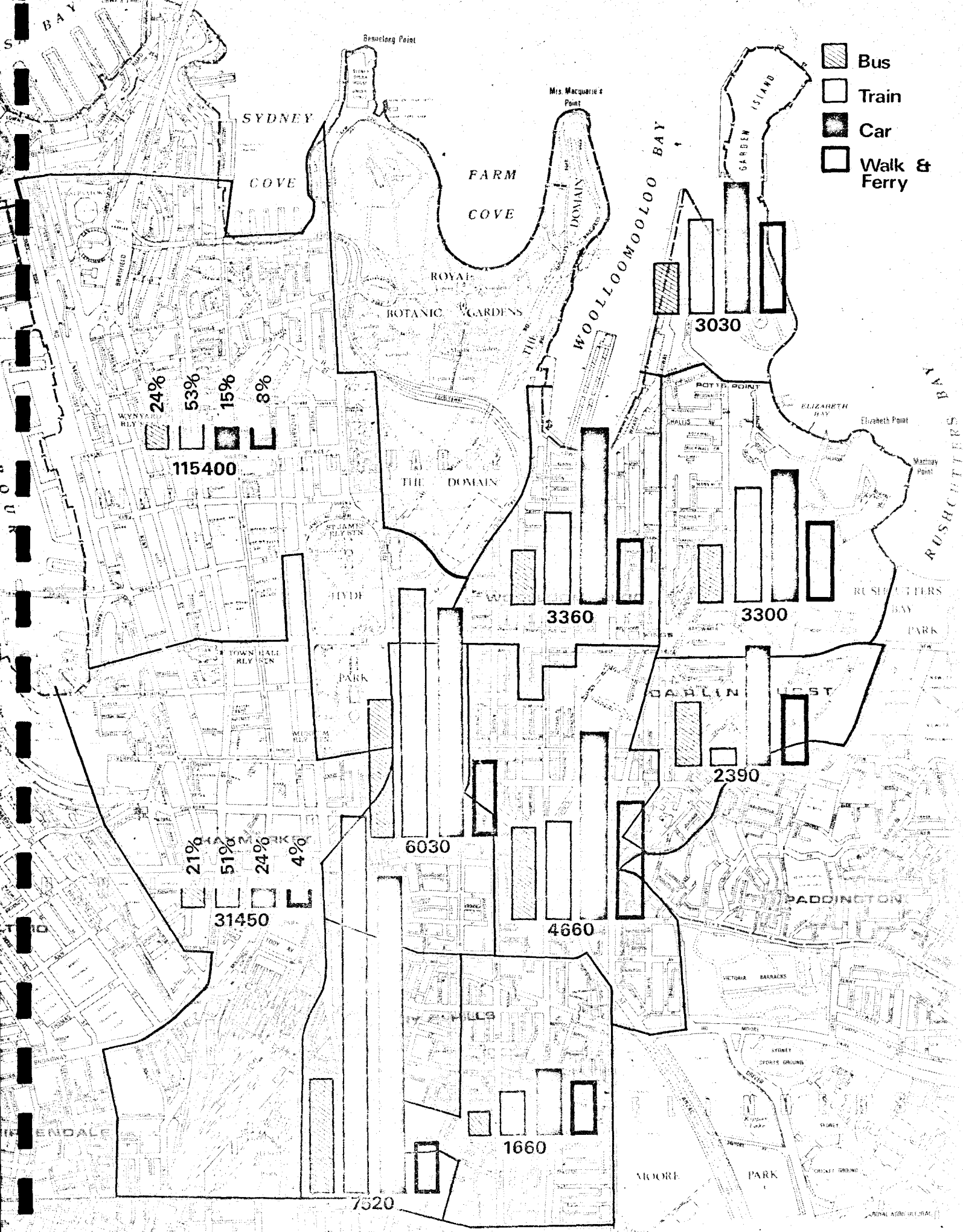
TABLE 6

MODAL SPLIT OF HOME BASES TRIPS TO EASTERN DISTRICT B -
MORNING PEAK 2 HOURS - 1971

Destination Zone	Car	Walk	Ferry	Train	Bus	
West Surry Hills	2,747 (37%)	419 (6%)	81 (1%)	3,307 (44%)	971 (13%)	7,525
East Surry Hills	726 (36%)	347 (21%)	-	364 (22%)	221 (13%)	1,658
Taylor Square	1,553 (34%)	1,173 (25%)	71 (2%)	831 (18%)	1,032 (22%)	4,660
East Sydney	1,981 (33%)	530 (9%)	104 (2%)	2,202 (36%)	1,211 (20%)	6,028
Woolloomooloo	1,504 (45%)	487 (14%)	119 (4%)	776 (23%)	478 (14%)	3,364
Garden Island	1,173 (39%)	211 (7%)	535 (18%)	784 (26%)	330 (11%)	3,033
Kings Cross - Potts Point	1,110 (34%)	623 (19%)	78 (2%)	989 (30%)	490 (15%)	3,300
Darlinghurst	1,055 (44%)	575 (24%)	64 (3%)	144 (6%)	550 (23%)	2,388
TOTAL	11,849 (37%)	4,365 (14%)	1,052 (3%)	9,397 (29%)	5,283 (17%)	31,956
CBD	(17%)	(2%)	(6%)	(52%)	(23%)	



Eastern District 'B'
**MODAL SPLIT OF HOME-BASED
 TRIPS TO C.B.D. AND
 EASTERN DISTRICT 'B'
 MORNING PEAK 2 HOURS
 1971**



Eastern District 'B'
**MODAL SPLIT OF HOME BASED
 TRIPS TO EASTERN DISTRICT 'B'
 MORNING PEAK 2 HOURS**
 1971 fig. 16

APPENDIX F - TRAFFIC VOLUMES AND GROWTH

Tables 7 and 8 show the traffic growth between 1960 and 1971 across cordons immediately to the east and south of the City of Sydney respectively.

TABLE 7

ANNUAL AVERAGE DAILY TRAFFIC CROSSING EASTERN
CORDON LINE (Eastern Corridor)

	1960	1965	1968	1971
New South Head Road	41,300	48,560	49,900	48,790
Oxford Street	19,100	25,800	25,310	26,070
Moore Park Road	17,950	15,280	17,130	21,180
Sub-Total Arterial Roads	78,350	89,640	92,340	96,040
Glenmore Road	7,110	11,950	16,000 (est.)	19,920
Lawson Street	1,910	2,410	2,460	3,850
Dillon Street	310	880	850	850
Sub-Total Other Roads	9,330	15,240	19,200	24,620
Total	87,680	104,880	111,500 (est.)	120,660

TABLE 8

ANNUAL AVERAGE DAILY TRAFFIC CROSSING SOUTHERN
CORDON LINE (South Eastern and Southern Corridors)

	1960	1965	1968	1971
Anzac Parade	34,000(est)	43,890	46,640	44,520
Dowling Street	12,890	13,120	14,760	33,640
Bourke Street	11,700	9,430	11,670	12,260
Baptist Street	3,645	8,910	10,480	12,430
Marriott-Walker Streets	6,010	6,910	7,070	10,000 (est)
Elizabeth Street	14,850	13,190	17,590	13,700 (est)
Great Buckingham Street	835	910	1,000	1,000
Chalmers Street	3,150	5,570	5,670	10,900
Pitt Street	2,110	2,970	6,450	4,840
George Street	3,850	5,190	4,970	5,220
Regent Street	22,700	17,790	19,790	20,300
Total (rounded)	116,000	128,000	146,000	169,000

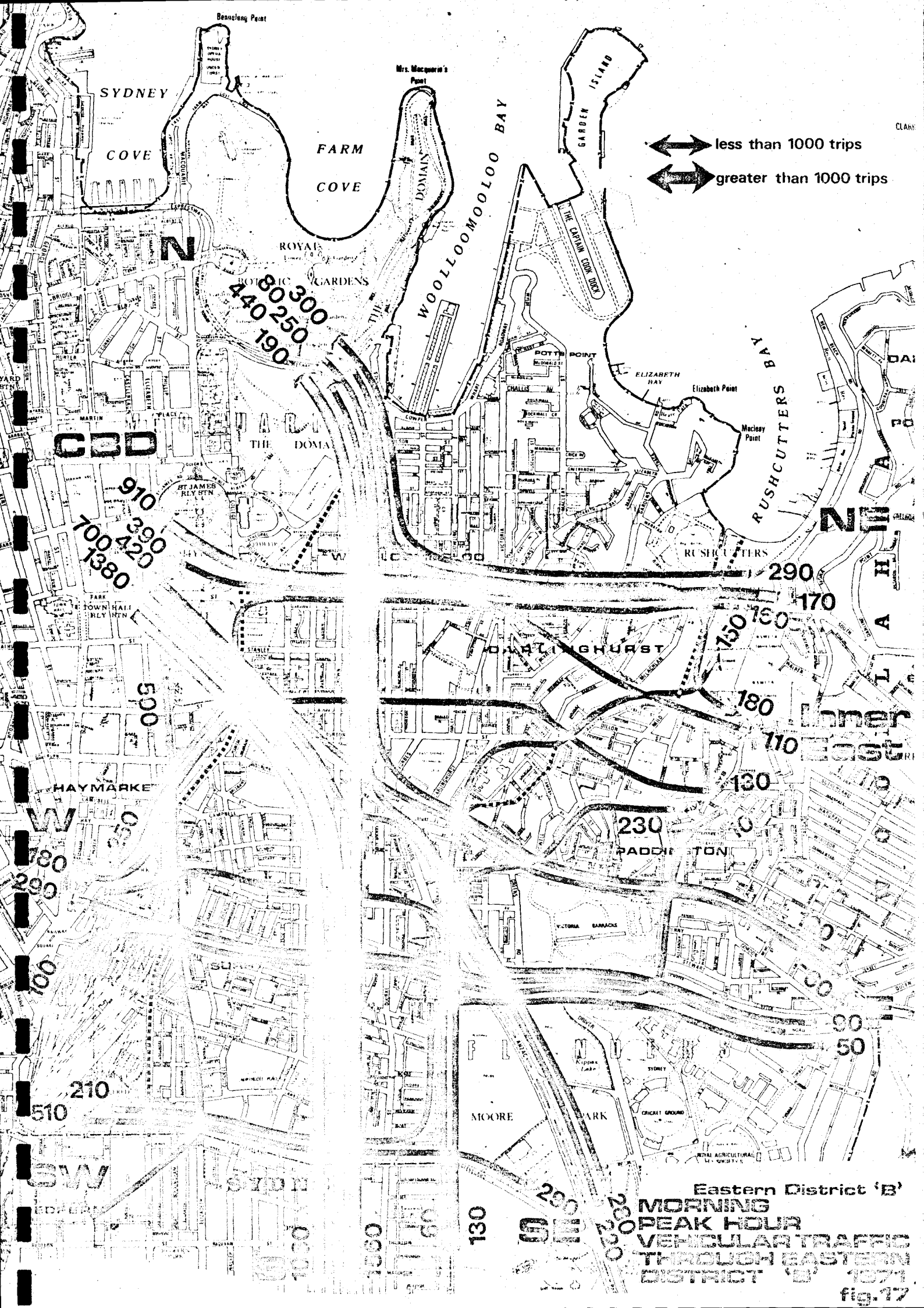
APPENDIX G - TRAFFIC ORIGINS AND DESTINATIONS

OVERALL TRAFFIC FLOWS

Vehicular traffic using the roads within Eastern District B was analysed and divided into nine components for a typical 1971 morning peak hour, as follows. Components 3 to 9 are illustrated in Figure 17 as assigned to a particular route on an all-or-nothing basis.

1. Local traffic generated within the District and having both origin and destination within the District :
1,280 v.p.h.
2. Traffic generated within the District and having an origin or destination elsewhere :
7,360 v.p.h. inbound
3,500 v.p.h. outbound
3. Through traffic between the Eastern Suburbs and the CBD :
1,720 v.p.h. from East to CBD
340 v.p.h. from CBD to East

(Traffic to or from the "Eastern Suburbs" implies the use of roads to the north of Moore Park - Centennial Park. Traffic to Randwick which uses Anzac Parade is included with the "Southern Suburbs")
4. Through traffic between the Eastern Suburbs and the West :
1,030 v.p.h. from East to West
440 v.p.h. from West to East
5. Through traffic between the Eastern Suburbs and the Harbour Bridge :
630 v.p.h. from East to Harbour Bridge
590 v.p.h. from Harbour Bridge to East
6. Through traffic between the Southern Suburbs and the CBD :
2,580 v.p.h. from the South to CBD
1,280 v.p.h. from the CBD to South
7. Through traffic between the Southern Suburbs and the Harbour Bridge:
630 v.p.h. from South to Harbour Bridge
1,840 v.p.h. from Harbour Bridge to South
8. Peripheral through traffic between the Eastern Suburbs and the South :
190 v.p.h. from East to South
380 v.p.h. from South to East
9. Peripheral through traffic between the Southern Suburbs and the West :
510 v.p.h. from South to West
290 v.p.h. from West to South



NORTH-SOUTH TRAFFICa) South-Bound

A.M. peak hour south-bound cordon count across a cordon parallel to Cleveland Street and cutting Elizabeth Street, Bourke Street, South Dowling Street, and Cleveland Street (east of South Dowling Street) is as follows :

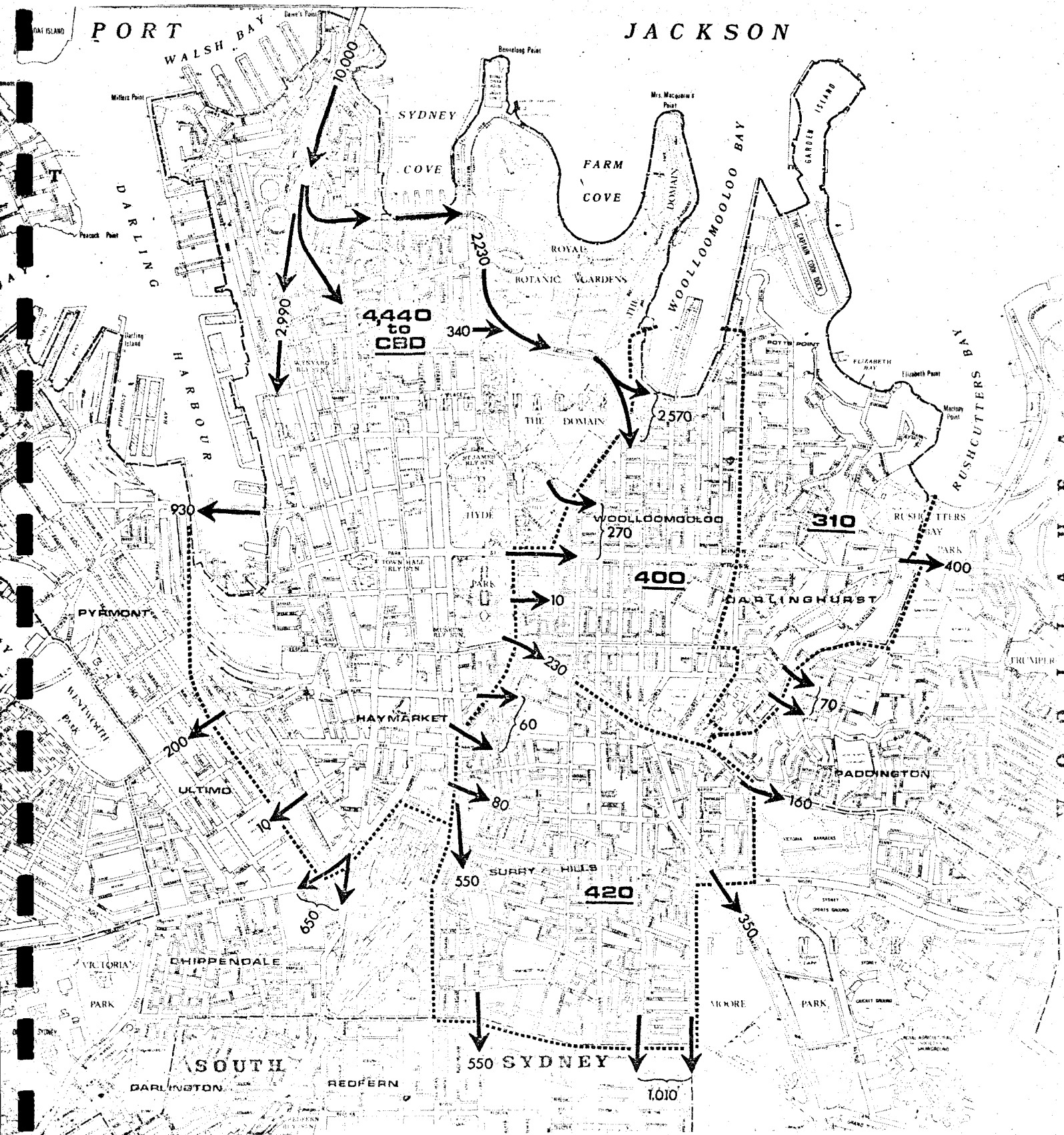
Elizabeth Street	1, 100
Bourke Street	1, 300
South Dowling Street	1, 100
Cleveland Street	600
Minor streets	<u>400</u>
	<u>4, 500</u> vehicles per hour

Analysis of S.A.T.S. data gives the origins of these trips as follows :

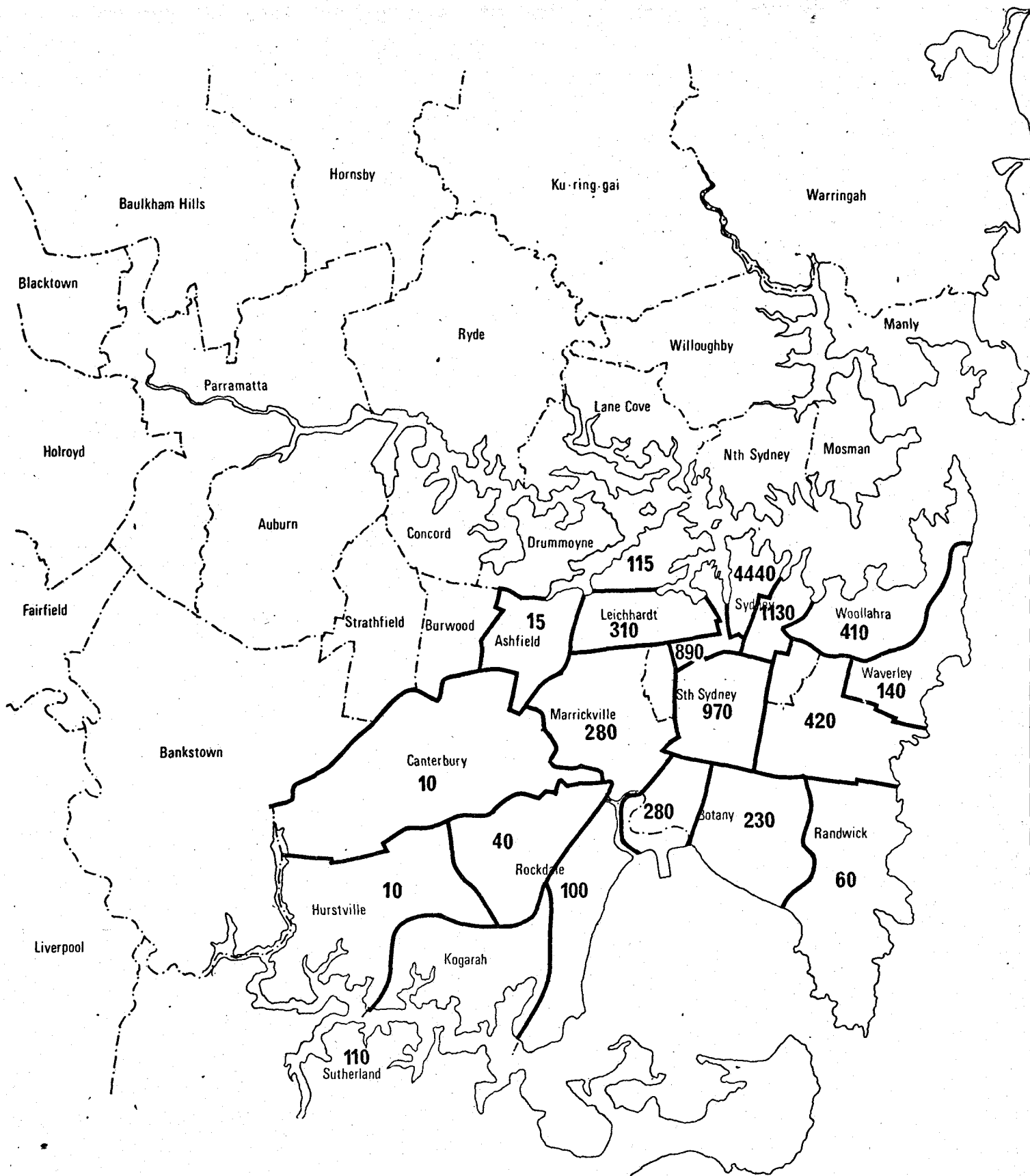
Harbour Bridge	1, 660
CBD	890
Eastern District B	770
Western Districts of City	140
Eastern Suburbs	270
North Western Suburbs	200
Western Western Suburbs	570 (via Cleveland Street)
	<u>4, 500</u> vehicles per hour

The distribution of south-bound Harbour Bridge traffic throughout the CBD and Eastern District B is shown in Figure 18. The distribution of final trip-ends is shown in Figure 19.

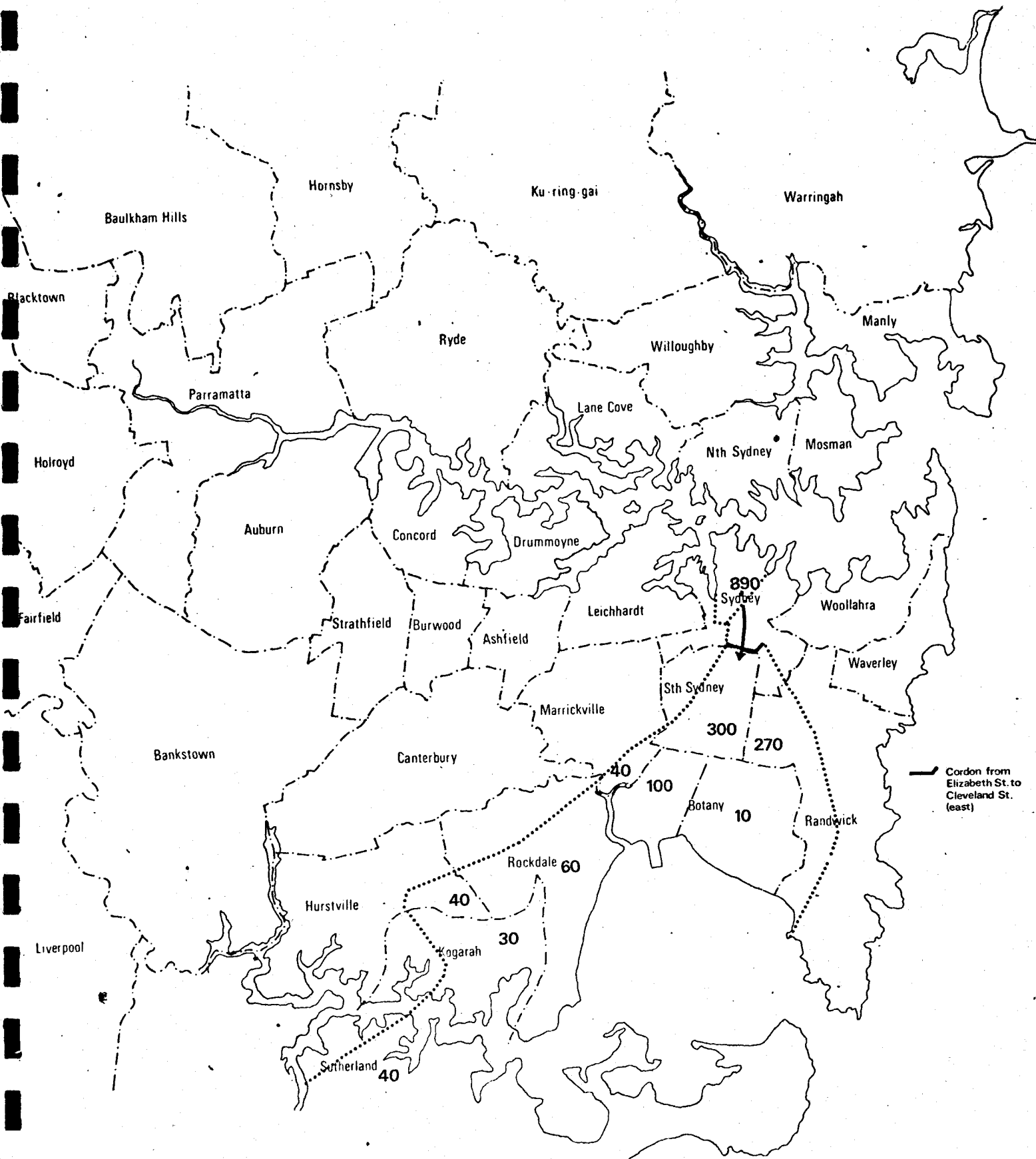
The distribution of south-bound Harbour Bridge traffic passing through the above cordon is shown in Figure 20. Similar distributions of vehicles originating in the CBD and in Eastern District B and passing through this cordon are shown in Figures 21 and 22 respectively



Eastern District 'B'
MORNING PEAK HOUR
HARBOUR BRIDGE
SOUTH BOUND TRAFFIC
1971
fig 18



Eastern District 'B'
MORNING PEAK HOUR
HARBOUR BRIDGE
SOUTH BOUND TRIP
DESTINATIONS 1971
fig.19



Eastern District 'B'
**MORNING PEAK HOUR TRIPS
 FROM C.B.D. VIA SOUTH
 CORDON OF EASTERN
 DISTRICT 'B' 1971** fig.21



Eastern District 'B'
 MORNING PEAK HOUR TRIPS
 FROM EASTERN DISTRICT 'B'
 VIA SOUTH CORDON OF
 EASTERN DISTRICT 'B'
 1971

b) North-Bound

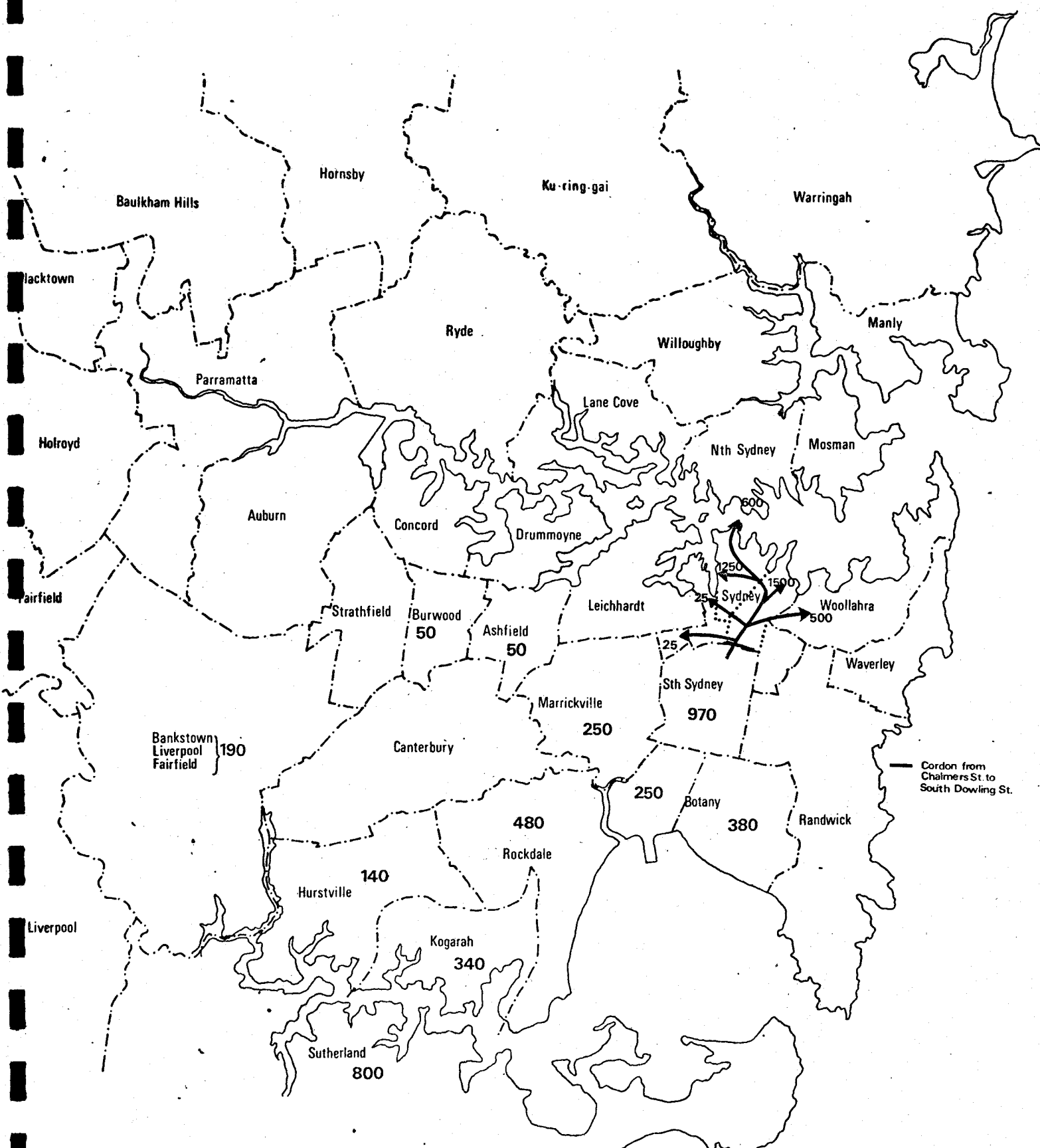
A. M. peak hour north-bound cordon count across a cordon parallel to Cleveland Street and cutting Chalmers Street, Crown Street and South Dowling Street is as follows :

Chalmers Street	1, 050
Crown Street	1, 050
South Dowling Street	1, 600
Minor streets	<u>200</u>
	<u>3, 900</u> vehicles per hour

Analysis of SATS data gives the destinations of these trips as follows :

Harbour Bridge	600
C. B. D.	1, 250
Eastern District B	1, 500
Western Districts of City	25
Eastern Suburbs	500
Western Suburbs	<u>25</u>
	<u>3, 900</u> vehicles per hour

Figure 23 illustrates the origins and destinations of north-bound traffic crossing this southern cordon, during the a.m. peak hour, 1971.



Eastern District 'B'
**MORNING PEAK HOUR TRIPS
 NORTH BOUND ACROSS
 SOUTH CORDON OF
 EASTERN DISTRICT 'B'**
 1971

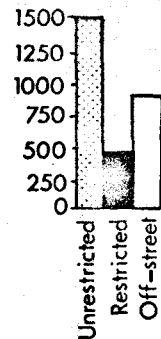
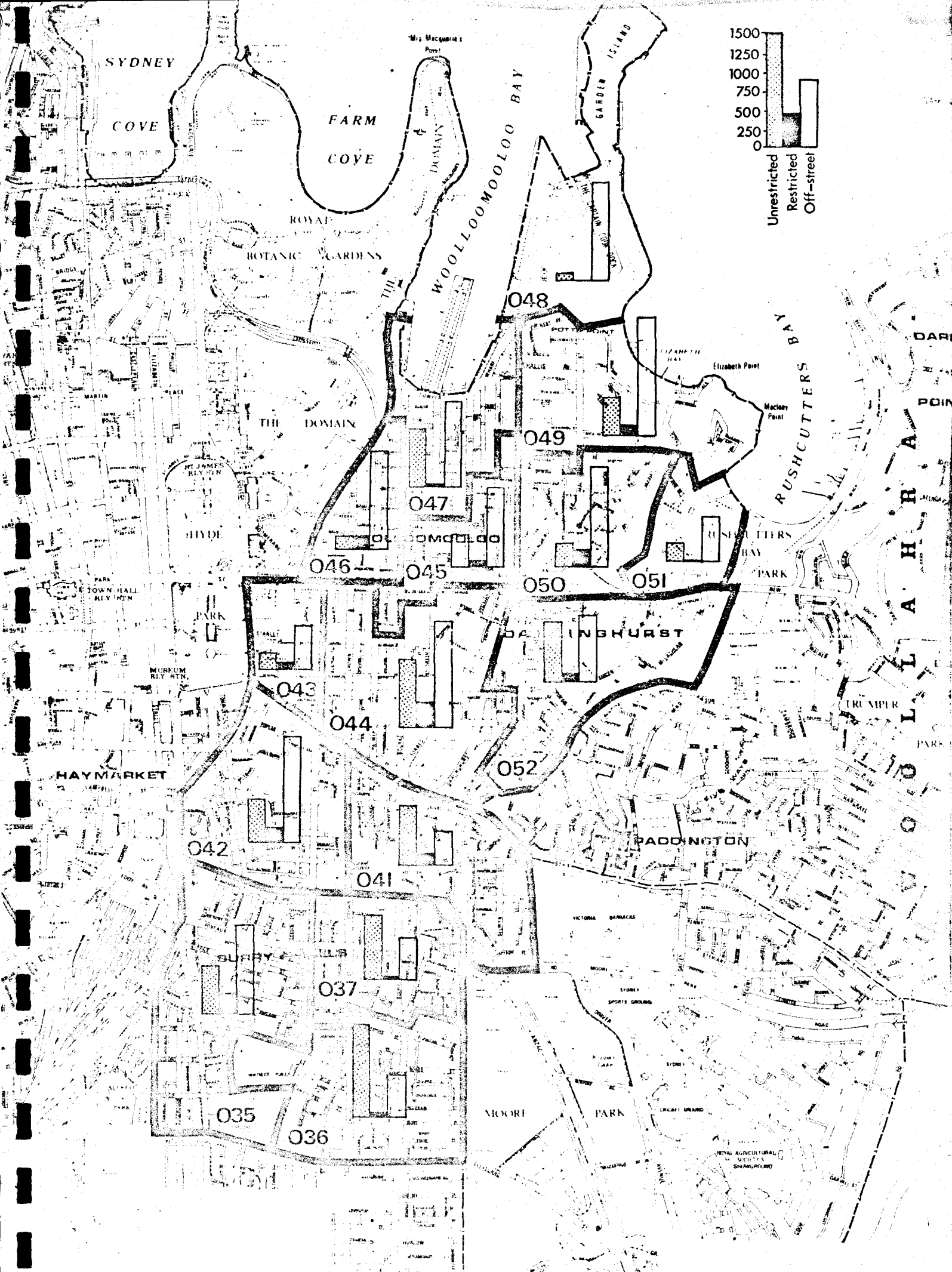
APPENDIX H - PARKING

TABLE 9

PARKING SUPPLY BY TRAFFIC ZONE - 1971

	035	036	037	041	042	043	044	045	046	047	048	049	050	051	052
OFF-STREET															
Licensed	62	0	0	94	127	100	60	117	0	0	0	267	593	100	43
Unlicensed (Residential) *	33	252	33	83	10	107	113	101	38	39	157	968	389	160	95
Unlicensed (Commercial) *	1,079	306	503	245	1,232	378	1,212	793	1,256	1,012	1,092	24	80	167	747
Unlicensed (Hotel)	6	0	1	11	1	0	0	43	0	76	29	309	276	143	0
OFF-STREET TOTAL	1,180	558	537	433	1,370	585	1,385	1,054	1,294	1,127	1,278	1,568	1,338	570	885
ON-STREET - Business Hours															
Metered up to 2 hours	0	0	20	36	125	53	63	39	17	0	0	31	52	0	4
Metered more than 2 hours	0	0	0	0	0	0	12	0	12	0	0	0	0	0	0
Metered Sub-Total	0	0	20	36	125	53	75	39	29	0	0	31	52	0	4
Unmetered, up to 2 hours	263	55	15	110	84	31	251	47	133	29	0	104	173	3	91
Unmetered, more than 2 hours	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unmetered, Restricted, Sub-Total	263	55	15	110	84	31	251	47	133	29	0	104	173	3	91
Restricted Sub-Total	263	55	35	146	209	84	326	86	162	29	0	135	225	3	95
Unrestricted	634	1,207	853	778	580	209	895	406	166	750	106	510	303	236	787
ON-STREET TOTAL - Business Hours	897	1,262	888	924	789	293	1,221	492	328	779	106	645	528	239	882
ON-STREET - TOTAL - EVENING (All Unrestricted)	1,209	1,301	934	1,045	1,023	393	1,496	540	397	773	106	684	658	248	916

* The distinction between off-street residential and unlicensed commercial spaces cannot be made accurately from the inventory maps, so although for each Zone the sum of these two figures is accurate, the apportioning may not be.



Eastern District 'B'
PARKING SUPPLY BY
TRAFFIC ZONE 1971 fig. 24

TABLE 10

SUPPLY AND DEMAND FOR COMMERCIAL OFF-STREET AND UNRESTRICTED KERBSIDE PARKING SPACES DURING BUSINESS HOURS - 1971

	REVISED TRAFFIC ZONES														
	035	036	037	041	042	043	044	045	046	047	048	049	050	051	052
SUPPLY															
Off-street licenced	62	0	0	94	127	100	60	177	0	0	0	267	593	100	43
Off-street unlicenced (Commercial)	1,079	306	503	245	1,232	455	1,212	864	1,256	1,012	1,092	24	80	167	747
Kerbside all-day	634	1,207	853	778	580	209	895	406	166	750	106	510	303	236	787
Total All-Day Supply	1,775	1,513	1,356	1,117	1,939	764	2,167	1,387	1,422	1,762	1,198	801	976	503	1,577
ESTIMATED CURRENT DEMAND (1971)															
i) By residents (approx.)	210	440	240	340	160	20	380	80	30	40	20	570	200	130	240
ii) By workforce @ 30 cars per 100 workers	2,400	550	280	580	1,800	600	1,140	630	520	240	1,590	670	620	140	1,020
Total Demand	2,610	990	520	920	1,960	620	1,520	710	550	280	1,610	1,240	820	270	1,260
SURPLUS (for visitors and commuters to CBD)		520	840	200		140	640	680	870	1,480			150	230	320
DEFICIT	840				20						410	440			
ESTIMATED FUTURE DEMAND (1980-1985)															
i) By residents (approx.)	330	790	380	550	240	90	620	With comprehensive redevelopment, residential supply will match demand			20	570	200	130	400
ii) By workforce @ 30 cars per 100 workers	2,200	350	210	550	1,650	660	1,200				1,340	600	530	100	920
Total Demand	2,530	1,140	590	1,040	1,890	750	1,820				1,360	1,170	730	230	1,320
SURPLUS (for visitors and commuters to CBD)		370	770	80	50	10	350	NIL 1,000 - 2,000 depending on size of workforce					240	270	260
DEFICIT	760										160	370			

APPENDIX I - SUMMARY EVALUATION OF ALTERNATIVES
FOR EASTERN DISTRIBUTOR THROUGH
WOOLLOOMOOLOO

Alternative No. 1

Two one-way tunnels from south of Taylor Square to north of William Street with no mid-length access. Tunnels to run under the centres of Palmer and Bourke Streets. Bourke Street to be reconstructed as a concrete deck to carry local and turning traffic. Palmer Street from William Street to approximately Cathedral Street can be built on above the tunnel. At-grade intersection with Sir John Young Crescent and Lincoln Crescent.

Advantages: Relatively little land acquisition necessary. Little visual or noise impact.

Problems: High initial construction costs of tunnels. Complicated utility relocation. High and continuing maintenance cost of mechanical ventilation.

Alternative No. 2

Through roadway in open cut on one half of the block between Bourke and Palmer Streets. The through carriageways would be in tunnel under William Street and Taylor Square. Access from William Street would be via a right turn north through a median break at Palmer Street. At-grade intersection with Sir John Young Crescent and Lincoln Crescent.

Advantages: Simpler construction than Alternative No. 1 with less tunnel requiring mechanical ventilation. Less disruption to utilities.

Problems: Loss of property facing Palmer Street. Heavy turning movement across William Street.

Alternative No. 3

Grade separation at Sir John Young Crescent/Lincoln Crescent intersection. Right turn north from William Street provided by a continuous grade-separated left turning loop.

Advantages: Continuous grade-separated traffic flow between the Cahill Expressway and Flinders Street. Less delay to local and turning traffic at the Sir John Young Crescent intersection and to east-west traffic on William Street. Less tunnel requiring mechanical ventilation than in Alternative No. 1.

Problems: More land in Woolloomooloo required for road purposes. Local traffic in Woolloomooloo will have to detour to Yurong Street to cross William Street. Higher acquisition and construction costs than for Alternative No. 2. Possibility of structure casting shadow over adjacent houses in Woolloomooloo.

Alternative No. 4

Provision for grade separation of local traffic at William Street as well as for through traffic at Sir John Young Crescent and William Street.

Advantages: Continuous grade-separated traffic flow between Cahill Expressway and Flinders Street. Better access to south for traffic generated in Woolloomooloo.

Problems: More land in Woolloomooloo required for road purposes than in Alternative No. 2. Higher acquisition and construction costs than Alternative Nos 2 and 3. Possibility of structure casting shadow over adjacent houses.