

TRANSPORT PLANNING FOR THE XII COMMONWEALTH  
GAMES BRISBANE 1982

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*Abstract:*

*Transport planning for the 1982 Commonwealth Games to be held in Brisbane involves many representatives from the three tiers of Government and from private industry. Within the constraints of a single paper it is impossible to detail the considerable work being undertaken by various individuals and bodies and, as a consequence, the aim of this paper is to outline the scale and nature of transport problems which are being faced in planning for 1982.*

*The XII Commonwealth Games Foundation realises that well planned transport usually goes unnoticed. Hopefully, this paper will indicate the extent to which the many authorities, committed to Games transport planning, have gone in order for transport to remain unnoticed in 1982.*

*Unlike traditional approaches to transport problems, planning for a special "one-off" event such as the Games has to address many peculiar demands which are, to a large extent, completely unfamiliar to the Host City concerned. The XIIth Games will place a sudden and abnormally high demand upon all forms of transport infrastructure. Not only do preparations need to be made for the many thousands of spectators, but also for the specialised requirements of the many VIPs, Officials, Competitors and personnel directly concerned with the XII Commonwealth Games Foundation.*

BACKGROUND

With varying titles since 1930 the Commonwealth Games have become the second largest sporting event in the world since they were first staged in Hamilton, Canada. In March, 1975 the Australian Commonwealth Games Association selected Brisbane as Australia's proposed Host City for the 1982 Commonwealth Games. The World Body, the Commonwealth Games Federation, awarded the 1982 Games to Australia with Brisbane as Host City in July, 1976.

The XII Commonwealth Games will be held for ten days between September 30th (Thursday) and October 9th (Saturday) 1982. At this stage it is anticipated that some fifty-five Commonwealth countries and dependencies, represented by more than 2,000 competitors and team officials, will meet in Brisbane for the Games. Competition in the following sports will be staged:- athletics, archery, badminton, boxing, cycling, lawn bowls, shooting, swimming and diving, weightlifting and wrestling; in addition, two demonstration sports have been selected i.e. table tennis and Australian Rules football.

The Australian Government, the Queensland Government and the Brisbane City Council will contribute \$28 million for the provision of sporting facilities for the staging of the Games. To this figure is added a further \$7 million for the Games Village at Griffith University and \$18 million for staging, administration and contingencies; thus the projected capital expenditure for the Games is \$53 million. Operating and organisational expenses will be met by fund raising and marketing activities carried out by the Foundation.

Venues for Games events are located mainly to the south of Brisbane and, in total, there are seven venues; the

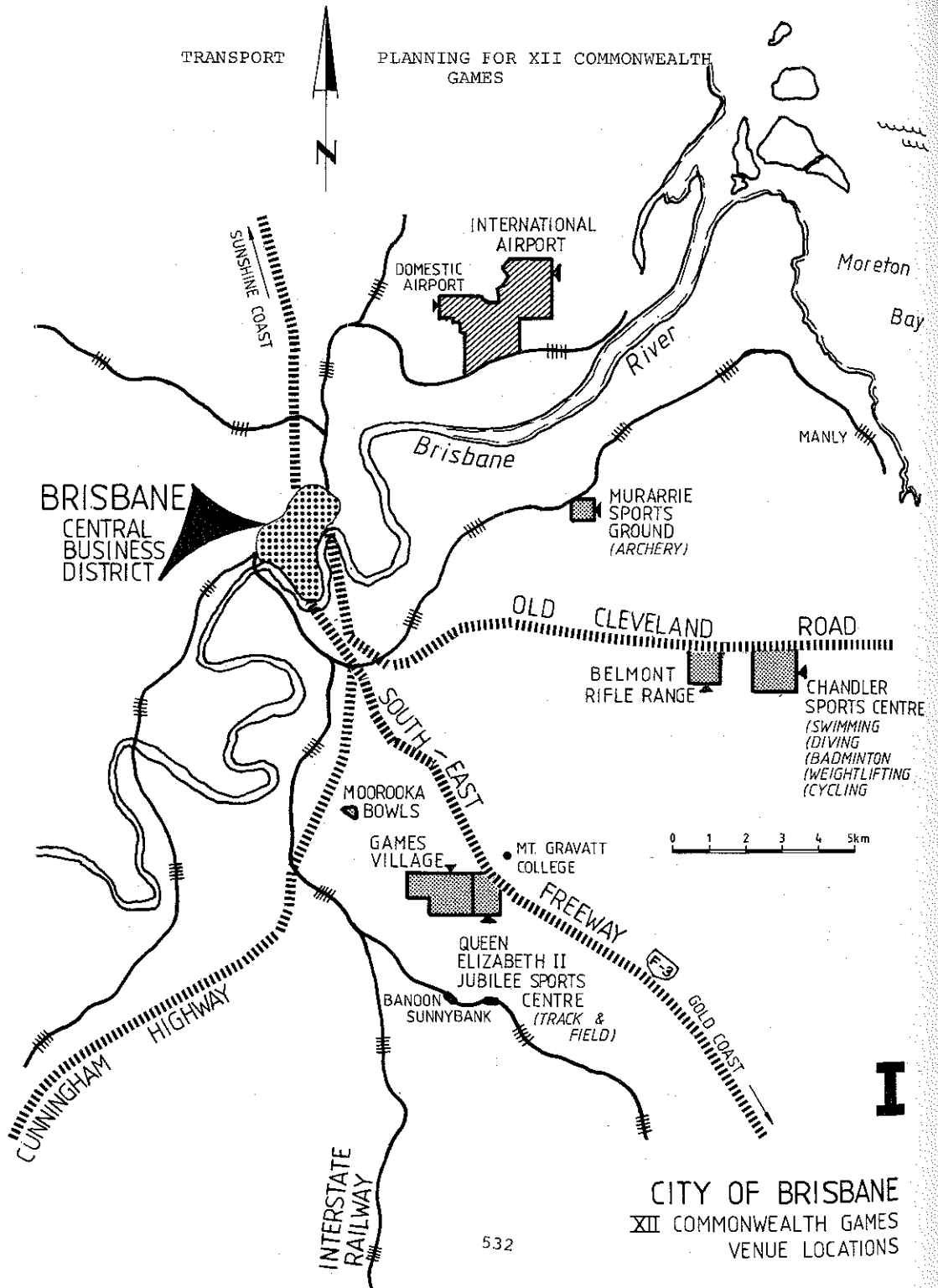
location and sporting use of these are illustrated in Fig.I (Fig. IV shows more detail around the Nathan site).

The main venues for the Games are located in the suburbs of Nathan and Chandler. The latter venue, the Chandler Sports Complex, has a total capacity of 15,000 spectators and, in comparison with Nathan, it presents fewer and less significant problems in transport planning. Chandler will cater for five sports, perhaps the most popular being swimming and diving. The Complex is being constructed by the Brisbane City Council and it is situated 12 kilometres from the city on a major arterial road; this road is presently being upgraded to provide for four lanes of traffic.

The Queen Elizabeth II Jubilee Sports Centre (QEII) at Nathan is the venue for the track and field events and for the Opening and Closing Ceremonies. The existing stadium of 10,000 seats will be supplemented during the Games by 48,000 seats in temporary stands surrounding the track. On peak attendance days, therefore, the stands will hold 58,000 spectators. The Centre occupies a 36 hectare site on the corner of Kessels and Mains Road and it is a few hundred metres from the main south-east freeway from the city. It is adjacent to Griffith University and the Games Village and so it overcomes a traditional problem of the commuting distance between Village and the main stadium. However, as far as spectator transport is concerned, this venue will create significant planning problems. Indeed, most of the attention of planners thus far has been directed to this venue. The dimensions of these problems will be discussed later in the paper.

#### ORGANISATION

The Australian Commonwealth Games Association is



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VENUE LOCATIONS

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entrusted with the organisation of the Games. This responsibility has been delegated to the XII Commonwealth Games Australia (1982) Foundation Limited, a company formed in Brisbane. The Foundation Board has established twenty-one Divisions to undertake the detailed planning of the Games. Each of these Divisions is responsible for a particular task in the overall process of staging the Games; for example there are the Venues, Sports, Protocol, Transportation, Tickets, Accommodation and Security Divisions etc.

The Transportation Division was established in 1978 prior to the departure of Foundation Board Directors to observe the running of the XI Commonwealth Games in Edmonton. Briefly, the charter of this Division is:-

- (a) To provide transportation for competitors, officials, media and their baggage from the time of arrival in Brisbane until departure following the completion of the Games;
- (b) To co-ordinate the provision of a smooth transportation system for Games spectators;
- (c) To co-ordinate the transport requirements of the Foundation.

These responsibilities can, conventionally, be seen as addressing the transport needs of the "Public" and the "Games Family". Games Family is the general term used for the staff, guests, volunteers, competitors and officials who will be actively involved in staging the Games. Transport planning for the Games Family will be outlined later in the paper.

SPECTATOR TRANSPORT

At the initial meetings of the Transportation Division it was made clear that the Games would, in some cases, create significant demands upon both the public transport system and road networks. Specific attention was drawn to the anticipated problems at the main venue where capacity audiences were expected at Opening and Closing Ceremonies and at final events for several popular track and field events. Capacity audiences at Nathan will involve 58,000 spectators attending a site which, under normal conditions, would not attract more than 10,000 people.

Recognising the limited transportation infrastructure (particularly public transport) in the immediate vicinity of the major athletics stadium, the M.T.A. included a research study in its Planning and Research programme to address this issue. The resultant report (1) forms the basis of on going detailed transport planning for the Games (2).

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- (1) Alan M. Voorhees & Partners Pty Ltd Transport Study for XII Commonwealth Games 1982; prepared for: Metropolitan Transit Authority, December 1978. Mr D.K. Johnston was at that time the Consultant Project Manager.

A Technical Advisory Group was formed in the preparatory phases of this study to provide liaison and a forum for the exchange of information and ideas between various agencies and authorities responsible for public transport.

- (2) The M.T.A. also agreed to the seconding of one of its analysts to the Foundation to assist in transport planning.

Summary of Travel Demands

The estimation of spectator travel demands associated with the Games is subject to many uncertainties which make accurate forecasting impossible. However, by analysing a range of reasonable assumptions for each determinant of demand, the nature and extent of the travel demands have been identified. The uncertainties about travel demands will persist even up to the time of the Games, which means that the transport strategy must be flexible enough to cope with a range of outcomes.

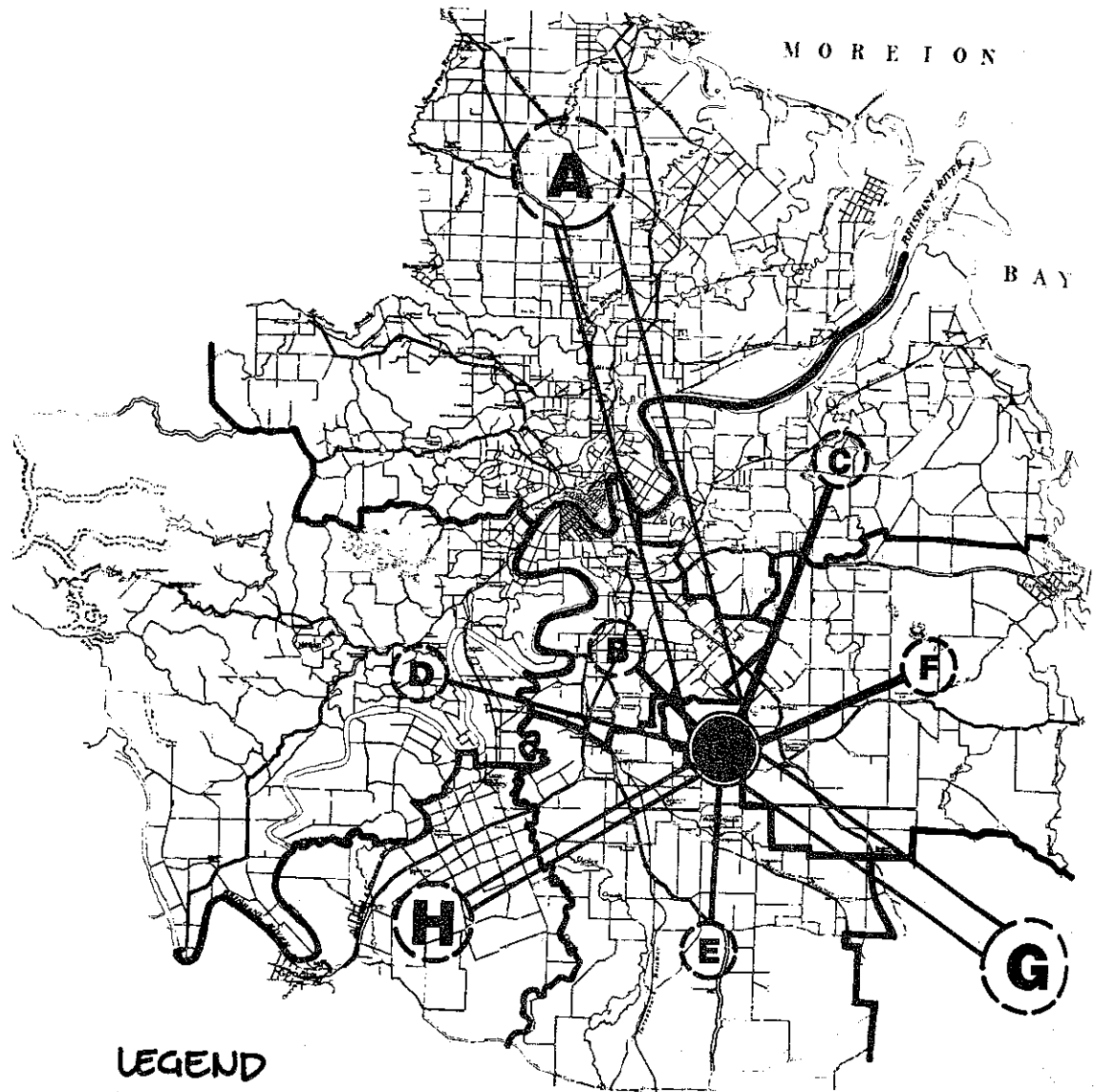
Maximum Demands

Because the opening day is planned for a Thursday, the combination of the normal evening peak period traffic and the return of Games attendees from the opening ceremony will constitute the peak travel demand to be accommodated. Equally important however, is the provision of efficient transport services to the venues during the ten days of the Games, particularly on final days and for the closing ceremony. The estimated distribution and level of demand for trips to the QEII centre on opening and closing days is illustrated in Figure II. A similar distribution of demand is likely at Chandler. Experience from previous Games indicates that it is desirable to cater for these demands within one hour of the completion of the programme.

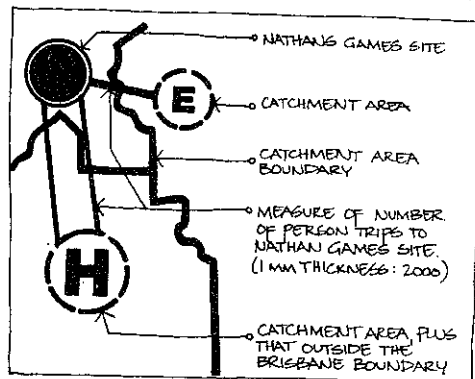
Mode Usage

Because of the non-central location of the main venues at Nathan and Chandler, the existing public transport services are not well placed to provide access.

TRANSPORT PLANNING FOR XII COMMONWEALTH GAMES



LEGEND



PERSON TRIPS TO NATHAN SITE FOR CAPACITY CROWD

A	23,000	E	2,000
B	2,700	F	3,000
C	3,100	G	14,800
D	2,400	H	7,000

**II**

DISTRIBUTION OF TRIPS TO MAIN GAMES VENUE. 536



However, the prospect of catering for the majority of arrivals at the main Games site by car is highly undesirable for a number of reasons, including:-

- (a) the parking requirements would be in the order of 15,000 - 25,000 vehicles (depending on car occupancy) or a land area of some 60 hectares adjacent to the main venue;
- (b) the presence of such a large number of vehicles on the roads surrounding the venues would severely affect residential amenity and make bus operations particularly difficult.

Similarly, the prospect of catering for the majority of movements by bus and rail to the main venues is infeasible because of the limited supply of buses and the limits on rail capacity.

The physical restrictions on parking space at the QEII centre and the limited availability of buses and train capacity indicate that to a large extent mode usage will need to be influenced rather than allowing spectators a free choice. The balance to be achieved and the methods of achieving it are the central issues to be addressed by the transport strategy.

At Chandler, the estimated parking demand is in the region of 4,000 - 6,000 vehicles (assuming approximately 20% of arrivals by bus and a car occupancy of between 2 and 3). Short term facilities for parking this number of vehicles within walking distance of the site can be provided and the absence of any major constraints suggests that this should be encouraged.

This is reinforced by the constraint on available buses and the large bus fleet needed to serve the QEII centre.

Even under highly optimistic assumptions about public transport usage and car occupancy, it is anticipated that the road system will be heavily taxed with demands exceeding existing volumes by two or three times. In particular, the lack of road capacity between QEII centre and the Gold Coast area combined with the high travel demands from this direction indicate that this corridor requires particularly careful planning.

Fortunately, the travel demands generated by the Games spectators and the ambient level of travel demand are both subject to some degree of modification by management strategies. Some of the available options are:-

- (a) ensuring that the scheduling of events on each day provides for the maximum discharge rate from the venues to occur on either side of the normal peak traffic times;
- (b) the introduction of a public holiday on the Games opening day to reduce the work travel demand;
- (c) the shifting of school holidays to coincide with the period of the Games to reduce school travel demand;
- (d) encouraging spectators to "come early and stay late" to reduce the peak arrival and discharge rates from the venues;
- (e) encouraging, through advertising, pricing and other means, the achievement of high car occupancy for travel to the Games;

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- (f) the use of signing to ensure that non-Games related road traffic has easily identifiable routes which circumvent the areas of the main venues (as far as practicable).

### THE TRANSPORTATION STRATEGY

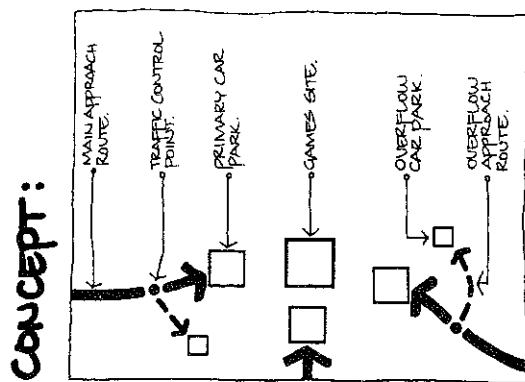
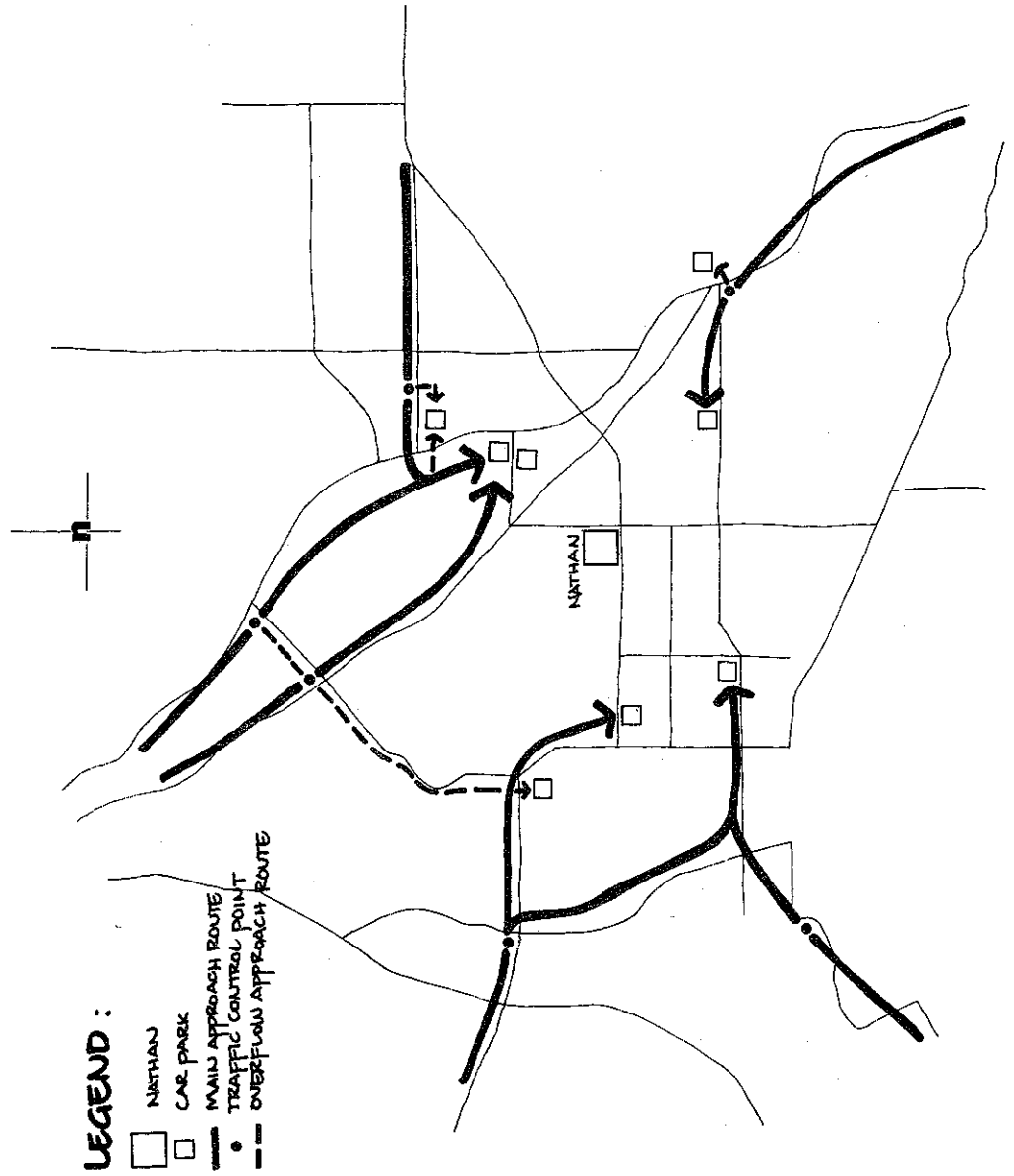
#### Description

The constraints of the site chosen for the main venue indicate clearly that direct car access to the site will be difficult for all. Neither is the public transport network capable of catering for the entire spectator travel demands. The transport strategy therefore must be developed in a manner which:-

- (a) utilises each available mode to its peak efficiency;
- (b) is flexible enough to respond to the uncertainties of the spectator demands; and
- (c) is built upon an organisation structure which can cope with variations from the expected.

The major physical components of the strategy are:-

- (a) a series of peripheral car parks located to intercept motorists approaching the main venue from all directions (providing approximately 15,000 car parking spaces) - Figure III illustrates the concept;
- (b) shuttle bus services operating between the car parks and the main stadium;
- (c) special rail services operated to Banoon and Sunnybank stations with shuttle bus services to the main stadium;



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- (d) the closure of major roads in the vicinity of the main stadium to give bus movements priority and protect the surrounding areas from a massive influx of vehicles parking on-street;
- (e) the provision of bus priority treatments on major approach routes; and
- (f) the control of traffic at major intersections surrounding the site to allow only accredited vehicles (such as buses, taxis, residents' vehicles, VIPs, etc.) to pass.

The operational components of the strategy anticipate:-

- (a) the rail system being used to its maximum capacity; and
- (b) the encouragement of high levels of car occupancy.

The emphasis on rail travel in the strategy is particularly important since the use of this system significantly reduces bus requirements and parking spaces. In the southern corridor the promotion of a park-and-ride rail service is envisaged in order to reduce the very high demand for road space in this corridor.

Major improvements to the two primary stations, Banoon and Sunnybank, are required to provide adequate bus/rail interchanging facilities and passenger amenities.

Existing traffic delays on Boundary Road, caused by the presence of two railway level crossings are expected to be magnified enormously during the period of the Games. At this time there will occur simultaneous increases in rail services on the crossings and road traffic demand. Grade separation of these crossings will be almost a

necessity if the transport service strategy is to succeed. The completion of the Granard Road - Kessels Road connection will also relieve this pressure on Boundary Road. (Fig.IV).

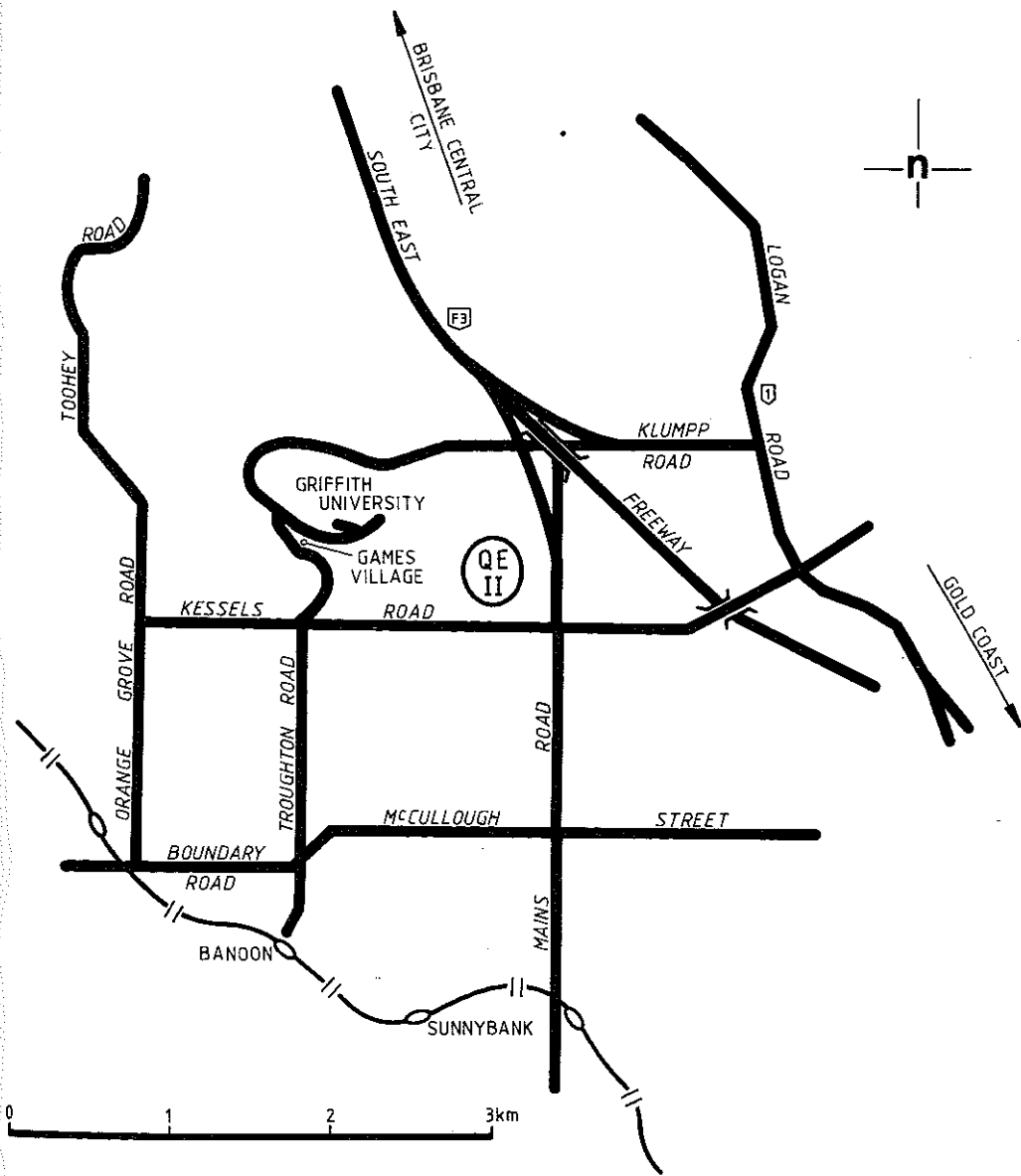
Other aspects of the strategy include inter-site bus services, competitor bus services, arrival/departure transport for the competitors and officials, bus parking, taxi ranks, protectional shopping centre access, protection of residential amenity, signing, etc.

#### Organisation

The provision of spectator transport services should be a co-operative effort involving every transport-related authority. This co-operation is evident in the present structure of the Transportation Division and its sub-Committees. All relevant public transport bodies and transport planning agencies are represented.

Various elements of the transport strategy ie. traffic control, bus deployment, car park operation and Games Family transportation will all require the appointment of managers. A central transportation monitoring and control centre is envisaged to integrate these elements. This centre would be the hub of an extensive communications network.

The Transportation Division accepted this proposal in principle and proceeded to the second stage recommended by the report which "aimed at detailing (a) preferred strategy (that) will entail the design of facilities, refinement of bus fleet requirements, scheduling of services and detailing of traffic management operations".



# IV

## QE II JUBILEE SPORTS CENTRE & ENVIRONS

This "finer grain" work has been carried out by a Technical Working Group represented by the Queensland Police Department, Queensland Rail, Metropolitan Transit Authority, Brisbane City Council, the Main Roads Department and the Commonwealth Games Foundation. To date considerable work has been done by this group for the Foundation in producing the final transport plan for the Games.

#### Car Parks

The Brisbane City Council has agreed to the use, as peripheral car parks, of many areas of open land which it owns near the main venue. Similarly the Transportation Division has added to this potential "basket" of car parks by obtaining agreements from private and state schools within the area and also from other Government Departments which own open land near the stadium. "Official" public car parks will be designated, at a later date, and these will be well publicised before the Games and signed on the day so that motorists will be able to head to a known location of a car park. These sites will all be pre-checked for the safety standards of parking and access and egress. Closer to the Games some of these car park spaces may be pre-sold in order to reduce "searching" behaviour by motorists. It is anticipated that sufficient spaces for 15,000 vehicles will be made available within two kilometres of the main venue.

#### Bus Shuttles

In an effort to reduce traffic congestion near the venue and to maximise the use of the rail system bus shuttle services will run from two rail stations south of Nathan.



These two stations will be completely modernised by the time of the Games and they have been especially designed by the Metropolitan Transit Authority to handle large crowds of spectators; the rail line connecting these stations north to the city and south to Kingston will be fully electrified by 1982. Spectators disembarking at either of these stations will board buses which will shuttle them the 4.5 kilometres to the venue. It has been estimated that, at peak times (e.g. after the Opening Ceremony), there will be a need for up to 100 buses to operate these shuttle services.

Bus shuttle services to peripheral car parks will require almost as many buses. These shuttle services will only be required for the seven days on which events will be held at Nathan, and only three or four of these days can expect attendances of greater than 70% occupancy.

Initially the strategy plan had seen a need for up to 270 buses<sup>(1)</sup> to operate these shuttle services. It was feared by many agencies that such a fleet would not be found, given that most private coach companies would be catering for school holiday demands. However, the strategy plan assumed that all spectators travelled by bus and that no park and walk sites could be found. Several options have since been explored in an effort to reduce this estimated demand.

It is hoped that the Opening Ceremony day will be a public holiday. This will mean that the coincidence of peaks is negated on that day and buses from the Brisbane City Council will not have their normal commitments to the peak hour rush. No other day is expected to create

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<sup>1</sup> The Brisbane City Council bus fleet is 550 buses; this demand is just under half of their present fleet.

the demands for buses that are envisaged for this first day as the Foundation itself will need a substantial fleet to cater for the 2,000 or so performers appearing at this initial ceremony.

#### Traffic Control Zone

Preliminary examinations of anticipated traffic flows to the venue have been undertaken. These studies, summarised in Table 1, indicate that the outflow of Games Traffic should be kept from coinciding with local evening peak period traffic. Although preliminary, these figures attest to the adoption of some form of traffic control zone. It is evident that the narrow suburban streets near QEII will swiftly become saturated with spectator traffic which will, within a short period of time, encourage illegal parking behaviour and conflict with local motorists returning from work.

In order for spectator traffic to be controlled and for the road links between the peripheral facilities and the stadium to remain relatively uncongested, there will be a need for strict traffic control through the creation of a limited access area surrounding the venue. During the running of events, and especially on peak days, this zone will only be accessible to the vehicles of local residents which will be easily identified with special stickers. This system will assist in preventing the suburban areas which are closer to this venue from becoming choked with vehicles and will thus protect residential amenity.

The successful operation of this Traffic Zone will obviously depend on the monitoring of flows and parking

TABLE 1  
AGGREGATE TRAFFIC DEMAND FOR GAMES RELATED TRAVEL AND LOCAL  
TRAVEL FOR QEII CENTRE P.M. PEAK PERIOD (5PM-6PM)

Screenline	No. of Lanes *	1982 Local Traffic	Aggregate Games and Local Travel	Volumes per lane of roadway		Ratio of Aggregate Volume to Normal Volume	
				out 1hr flow	out 2hr flow	out 1hr flow	out 2hr flow
1. Logan/Ipswich SE freeway (northbound)	6	4,800	10,700	1,780#	1,290#	2.2	1.6
2. Ipswich/Beaudesert (southbound)	4	3,200	4,600	1,150	975	1.4	1.2
3. Logan (s/bound)	2	1,600	3,600	1,800#	1,296#	2.3	1.6
4. Capalaba (eastbound)	1	1,100	1,600	1,600#	1,340#	1.6	1.3
5. Creek/Newnham	1	550	1,230	1,230	890	2.2	1.6

# Capacity exceeded  
\* Capacity assumed as 1,200 VPH/lane

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by the Queensland Police. For its part, the Transportation Division will ensure that the operational and locational aspects of this zone are well publicised and promoted.

#### GAMES FAMILY TRANSPORT

The overall transport plan for the Games Family can be conveniently divided into six phases i.e. Arrival, Training, Opening Ceremony, Competition, Closing Ceremony and Departure. Each of these phases will place different transport demands upon the Transportation Division. For example, planning of the Arrival phase has focussed upon the Brisbane domestic and international airports. The Federal Department of Transport has assisted the Division in this regard by providing parking spaces, office areas and special handling facilities for Games Family. The Training phase is traditionally a very mobile period of about two weeks during which the competitors will travel daily to many training locations; see Figure I. Perhaps the greatest challenge for every Division will be the Opening Ceremony phase. The Transportation Division will not only be responsible for co-ordinating the movements of the Family during this phase, but also those of the many performers who will provide the entertainment at this ceremony. During the Competition phase, there will be regular services to competition venues. Competition will increase the demands on special bus services because of media personnel covering the Games. The Closing Ceremony will create similar transport problems to the opening day, however, the scale of these should be much more manageable as traditionally there is less emphasis on performers. With the Departure phase the Division can expect a sudden peak in demand as the Family leaves after the Games.

Apart from drawing up the operational plans for these six phases the Division will have many other transport planning responsibilities e.g.

- \* traffic management plans for venues, official accommodation sites, training locations and for special events;
- \* approaching the three tiers of Government for assistance in providing vehicles for the Foundation's use up to and during the Games;
- \* approaching private enterprise, through the Marketing Division, in order to gain their assistance through the provision of vehicles, road signs, fuel and oil etc; and
- \* creating a file of suitable volunteer drivers for the fleet of Games' vehicles.

#### CONCLUSION

The pre-planning for the XII Commonwealth Games transport requirements are well underway. The strategy planning activities were conducted early enough to identify major problem areas and to allow time for major physical works to be undertaken. The detailed implementation of the strategy components is well advanced but it is recognised that in a situation of this kind success depends largely upon a co-operative effort between many agencies.

It is hoped that the approach adopted here will avoid the recent fiasco at the winter olympics in Lake Placid where one television commentator reported "the only true amateurs at Lake Placid are the Organisers".