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Improving the transportation accessibility of the Ellis park for all people of Johannesburg and specially the previously disadvantaged communities

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1 INTRODUCTION AND BACKGROUND

Due to the construction of the Johannesburg Stadium and the overall redevelopment of the Ellis Park Precinct, permanent traffic and transportation management plans have been implemented at the Precinct to ensure the transportation accessibility of the Precinct for all the people of Johannesburg. The aim of this project report is to provide details of the existing traffic and transportation management plans and then to recommend various enhancements to the transportation plans that could contribute towards improving the transportation accessibility of the Ellis Park Precinct for the people of Johannesburg, and especially for the previously disadvantaged communities of Johannesburg, whose needs have not been formally provided for at the Precinct. The regulatory issues related to the operation of the transport services to the Precinct are then investigated, but firstly, a brief background to the establishment of the traffic and transportation management plans at the Ellis Park Precinct is provided.

The Ellis Park Precinct is located in New Doornfontein, Johannesburg and is surrounded by dense residential, business and industrial areas. A map showing the location of the Precinct is shown in Figure 1. The Precinct is bordered by Charlton Terrace in the north, Bertrams Road in the east, Miller Street in the south, and the railway line and Siemert Road in the west. The areas immediately adjacent to the Precinct are affected by activities within the Precinct, in particular the businesses and industries between Miller Street and Bezuidenhout Street, and the businesses on Van Beek Street.

Contained within the Precinct are the Ellis Park Stadium, the Johannesburg Stadium, the Standard Bank Arena and the Ellis Park swimming pool. With the exception of the swimming pool, all of these are multi-functional venues at which sporting events, concerts, and other events are held. The Ellis Park Stadium is primarily a rugby stadium and hosted the Rugby World Cup Final in June 1995. The Johannesburg Stadium is an athletics stadium, but is also the home ground of Kaiser Chiefs, one of South Africa's most popular soccer teams. The Standard Bank Arena is primarily a tennis venue, and has hosted the World Doubles Championships on numerous occasions.

GLOSSARY OF TERMS

The Ellis Park Precinct:	That area bounded by Charlton Terrace in the north, Bertrams Road in the east, Miller Street in the south, and Siemert Road in the west. The four stadia are included within these boundaries. (Refer to Figure 1.)
Special Events:	Encompassing all events that take place within the Precinct, including sporting events, concerts, product launches, promotions, inaugurations, etc.
Previously Disadvantaged Communities:	Those communities that were marginalised by the previous political dispensation, generally depend on public transport, and live (mostly) in the so-called townships. Previously disadvantaged communities also include the physically disabled.
Accessibility:	The ease with which people are able to get to and from the Precinct via the use of a mode of transport, be it public or private transport, and if relevant, the traffic management measures necessary to ensure the uninterrupted operations of that mode.

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For my wife Kay and daughter Jenna,
for their never ending support and encouragement.

ABSTRACT

The previously disadvantaged communities of Greater Johannesburg generally rely on public transport to get from place to place. Disabled people, who can be considered to be part of the previously disadvantaged community, often do not have any form of transport available to them at all. People from these communities wishing to attend an event at the Ellis Park Precinct would either have to use the existing public transport or make their own transport arrangements.

Traffic and transportation management plans have been implemented at the Ellis Park Precinct with the intention of ensuring the Precinct's transportation accessibility for all the people of Greater Johannesburg, but the needs of the previously disadvantaged communities, who are captive to public transport, were not formally provided for. This project report provides details of the traffic and transportation management plans that have been implemented and then recommends/suggests various transportation options that could improve the transportation accessibility of the Precinct for these previously disadvantaged communities.

DECLARATION

I declare that this project report is my own, unaided work. It is being submitted for the Degree of Master of Science in Engineering in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

.....

(Signature of candidate)

.....19TH..... day of ..MAY..... 1997

IMPROVING THE TRANSPORTATION ACCESSIBILITY OF THE ELLIS PARK PRECINCT FOR ALL THE PEOPLE OF JOHANNESBURG, AND ESPECIALLY THE PREVIOUSLY DISADVANTAGED COMMUNITIES

Duncan Bernard Abelson

A project report submitted to the Faculty of Engineering, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Engineering.

Johannesburg, 1997

2.2.2 Metropolitan Bus Services (MBS)

The operating of the Park-and-Ride service to the Ellis Park Precinct is the responsibility of MBS. The complete operational details of the Park-and-Ride service are included in Section 2.5 of this project report. Besides the actual operating of the service and prior to the event, it is the responsibility of MBS to contact the stadium hosting the event and obtain the number of people expected to attend the event. This then facilitates the planning of the Park-and-Ride service as it assists in estimating the number of buses that should be deployed to the Park-and-Ride venues on the day of the event.

2.2.3 Metropolitan Public Safety

Metropolitan Public Safety is responsible for providing security personnel at the various Park-and-Ride venues. These personnel are deployed at the starting time of the Park-and-Ride service, and withdraw only once the last vehicles have left the Park-and-Ride venues after an event at the Precinct.

Metropolitan Public Safety is also responsible for switching on the high mast flood lights in the parking area of the Bezuidenhout Park Park-and-Ride venue, for all late afternoon and evening events at the Precinct. On their departure from the park after the event, Metropolitan Public Safety then turns off these lights.

2.2.4 Metropolitan Infrastructure and Technical Services

Metropolitan Infrastructure and Technical Services is responsible for the overall maintenance of the Precinct, including road surfaces, kerbs, bollards, etc. It is also responsible for cleaning litter in and around the Precinct, and at all of the Park-and-Ride venues after an event.

The most critical roleplayer, who acts as a liaison between and co-ordinator of all the above roleplayers with regard to the transportation and traffic management plans for the Ellis Park Precinct is:

- the Operations Co-ordinator.

Besides the Operations Co-ordinator, whose role is carried out by a member of Metropolitan Sport and whose responsibilities are presented in Section 2.3, it is Metropolitan Traffic and Metropolitan Bus Services that play the most crucial roles in the successful implementation of the traffic and transportation management plans respectively. The responsibilities of all the roleplayers are described below.

2.2.1 Metropolitan Traffic

Metropolitan Traffic is responsible for the controlling of traffic in and around the Precinct. This includes the control of the access of vehicles into the Precinct by the manning of booms, the closure of roads, the flipping-over of the numerous event-specific traffic signs, prosecution or removal of illegally parked vehicles and assisting pedestrians to cross the roads at key access intersections. Personnel are also deployed to do point duty at key traffic intersections, and those pointsmen deployed along Bertrams Road have the task of ensuring that Bertrams Road southbound, between Fitzroy Street and Bezuidenhout Street, is kept moving, as this is the exit route of the Park-and-Ride buses and minibus-taxis from the Precinct.

Metropolitan Traffic is also responsible for deploying pointsmen to the Bezuidenhout Park Park-and-Ride site after each event, to assist both buses and vehicles getting into and out of the Park. For bigger events, Metropolitan Traffic is responsible for assigning pointsmen to all the other Park-and-Ride venues.

Metropolitan Traffic provides barricades to the Alhambra Theatre which the staff of the Theatre then place across the parking area in front of the Alhambra Theatre, in order to safeguard this area for their use. The closing off of the entrance and exit to the slip-way on Sivewright Avenue, alongside the Johannesburg Technical College, in order to secure this area for Alhambra Theatre patrons, remains the responsibility of the Alhambra Theatre.

2 THE ELLIS PARK PRECINCT TRAFFIC AND TRANSPORTATION MANAGEMENT PLANS

2.1 Introduction

As was indicated in the international examples, the implementation of traffic and transportation management plans requires the involvement of numerous agencies or roleplayers. The roleplayers involved at the Ellis Park Precinct and their respective responsibilities are defined in this section. Also provided in this section are the complete details of the various traffic and transportation management plans that have been developed for the Precinct and are implemented on event days depending on the nature and venue of the event being held.

2.2 The Roleplayers and Their Responsibilities

Many of the roleplayers involved at the Ellis Park Precinct are Greater Johannesburg Transitional Metropolitan Council (GJTMC) Departments and include:

- Metropolitan Traffic;
- Metropolitan Bus Services;
- Metropolitan Public Safety;
- Metropolitan Infrastructure and Technical Services;
- Metropolitan Planning, Urbanisation and Environmental Planning;
- Metropolitan Sport;
- Metropolitan Parks, Botanical Garden, Nature Reserves, Cemeteries and Zoological Gardens and
- Metropolitan Corporate Services.

The non-Council roleplayers include:

- Metro-Wits Rail Services;
- the South African Police Services;
- the Johannesburg Stadium Management;
- the Ellis Park Stadium Management and
- the Standard Bank Arena Management.

1.2 The African and South African Experience

An extensive literature search was undertaken in an attempt to find similar examples of traffic and transportation management plans in Africa, but documentation of this nature was not found. In South Africa though, the necessity of implementing traffic and transportation management plans for specific venues and events is only just beginning to be realised. Consultation with the Cape Town Traffic Department revealed that traffic management plans have been established for the Newlands Cricket and Rugby Stadia in Cape Town. These plans involve the closure of certain roads around the stadia, and a section of roadway within the cordoned-off area is reserved for the parking of private hire buses and coaches. No Park-and-Ride service has been implemented by the local bus operator. Many spectators make use of the Metro rail service which has a railway station immediately adjacent to the stadia. Parking around these stadia is very limited and a number of schools in the area sell parking on their properties.

The plans for the Ellis Park Precinct are the first permanent traffic and transportation plans to be implemented in South Africa incorporating both traffic and transportation (Park-and-Ride) aspects. Since the implementation of the Ellis Park plans in 1994, more and more event spectators in Johannesburg are expecting Park-and-Ride type services to be provided to events. Examples of this are the Park-and-Ride service that has been established for the Wanderers Cricket Stadium in Johannesburg, a traffic and transportation management plan that was implemented for the African Cup of Nations Soccer Tournament at the First National Bank Stadium south of Johannesburg in early 1996 and a Park-and-Ride service that was available for a major all-day concert staged at the Kyalami Race Track north of Johannesburg, on 26 October 1996.

The reservation system could then guarantee that those with reservations would get a seat on a Park-and-Ride bus within a specific 20-minute time period. This limited possible uncertainty on the part of potential riders about the convenience of taking the bus and the people with bus reservations could be sure that they would arrive at their event on time, in comfort, and with a minimum of fuss.

To facilitate the flow of Park-and-Ride buses, the freeway off-ramps closest to the Olympic venues were designated as "bus only" and bus priority streets were established in the surrounding area so that buses had dedicated, exclusive lanes in both directions entering and leaving the area. In order to direct Olympic spectators to the Park-and-Ride sites, and to manage traffic most effectively, a series of Olympic traffic signs were designed and placed on the freeways and streets. To market the services, an Olympic section in the Los Angeles Times featured Olympic-related transportation hints, advising spectators to use the Park-and-Ride service to Olympic events. Also, just prior to the Games, a ticket buyers guide, emphasising bus transportation, was mailed to all Olympic ticket holders.

At the recent Atlanta Olympics in July 1996[7], no parking was available at the Olympic venues. Instead, a Park-and-Ride system was set up and car parks were built at strategic points around the freeways which circle Atlanta from where spectators were bused to venues or used the light rail system. Freeways had lanes dedicated to this Olympic traffic so that buses could be speedy and reliable. The cost of using this transportation was then built into the ticket price for the Olympic venue, so that on the day it was valid, the event ticket could be used on the buses or light rail for the whole day.

From the above international experiences and examples it can be seen that due to the increase in the number of major special events, extensive prior planning for such events is becoming essential, especially with regard to traffic and transportation management plans, or in simple terms, in getting spectators to and from the event with the minimum of delay and inconvenience and with minimal impact on adjacent areas. The examples demonstrate the common aspects in the planning considerations in ensuring that the most effective plans are implemented so that the event can be a success.

ii) More people use public transport leaving the event than use it to the event. This was attributed to people getting a lift to the event and then using public transport to get home.

iii) Public transport fares have a significant impact on the public transport modal share.

The study concluded by recommending the following:

i) When at all possible, a regularly scheduled public transport service should be provided to the events.

ii) Special events should be held on weekends; alternatively their starting times on weekdays should be delayed to allow event attendees more time after work to form car pools or use public transport.

iii) Public transport vehicles should be given priority at the event venue, to make it more attractive to use public transport.

As part of the last recommendation, the study indicated that private vehicle drivers need to be given incentives to shift from their private vehicle to public transport. Such incentives include closed-in parking and drop-off points for public transport vehicles, right-of-way entrance and exit from the event site and bus-only lanes on approaches to the site.

The most obvious example of events for which specific traffic and transportation plans are established is for the Olympic Games, wherever they might be held. At the Los Angeles Olympics in 1984[6], an advance reservation system was designed for the Park-and-Ride service that was set up and this proved successful. The goals of this reservation system were two-fold: one goal was to provide an attractive service to patrons and the other goal was to enable the level of service provided to be tailored to demand, which also enabled the efficient use of personnel and equipment. Reservations were available by mail, over the telephone and in person.

In 1987, the Washington University drew up a transportation management program to accommodate the increased capacity of its sports stadium[4]. The main components of that program included the creation of Park-and-Ride sites, incentives to use public transport and a marketing program to promote increased use of non-automobile modes. The successful implementation of the plan required the continuing and co-operative effort between all the agencies involved in setting up the plan. Also, a monitoring program was set up to ensure that the goals of the plan were met and to provide a means to revise the plan if required.

Efforts to market the program included:

- promotional information mailed to season ticket holders;
- public service announcements on local radio and television;
- public service messages on the stadium scoreboard and
- special promotional events to publicise the Park-and-Ride and other public transport services.

Operational aspects of the Park-and-Ride that were carefully considered included establishing the required number of bus supervisors, the number of buses, the routing of buses to the stadium and most importantly, the loading of passengers at the conclusion of the game. A colour-coded system was established to assist passengers in finding their post-game loading area. Colour-coded signs were placed in the front and side windows of the Park-and-Ride buses corresponding to large, coloured signs held by Park-and-Ride attendants. To speed the loading process, people paid for the bus trip only as they alighted from the bus at the Park-and-Ride parking area.

In 1990, a study was conducted in nine large metropolitan areas in the United States to gain further knowledge of the impact of major special events such as concerts and sporting events[5]. The results of that study, and particularly as they relate to public transport, were as follows:

i) At venues where public transport was available, an average of 8.9 percent of the total spectators attending that event used the public transport.

A key element in the success of such traffic and transportation management plans is effective co-ordination and communication between all parties involved in devising and implementing them.

In 1986, a World Exposition was held in the City of Vancouver, Canada[3]. In attempting to provide transportation services to this event it was recognised that maximum dependency should be placed on operational, low-cost system improvements, such as investigating transportation system management options, rather than major capital investments in system improvements. From the transportation planning experience gained from this Expo, guidelines for the planning of major events were drawn up. These included:

i) The most critical challenge affecting transportation planning is the prediction of the total level and distribution of visitor attendance. This input is a function not only of the characteristics of the event, but also of the marketing efforts for the event.

ii) Generally, there is sufficient flexibility within an urban structure to accommodate the major increases in transportation access and parking requirements associated with major special events.

iii) While transportation planning procedures and parameters for major special events are sufficiently well-defined to provide guidance, the uniqueness of the event, its site and regional context are enough to produce very different problems and solutions.

iv) It is quite feasible to plan and implement major special events within the context of established institutional structures, with the co-ordination of the many relevant agencies being the major challenge. The only difficulty associated with the co-ordination function has to do with budgetary contributions.

ii) **Traffic officer controls**: this involves the use of traffic officers for the event to provide controls at signalised intersections and at other critical intersections.

iii) **Signing**: traffic control signs for the event including regulatory signing, guidance signing and warning signs. These include permanent as well as temporary signs. A procedure that has received considerable success is the use of colour-coded guidance signs.

iv) **Crowd control**: this relates to such activities as traffic officer direction of traffic at conflict points between vehicle and pedestrian movements and the establishment of vehicle-free zones near the stadia.

v) **Transportation use incentives**: these largely involve operational procedures to favour the routing of public transport vehicles as well as public information systems to encourage the use of public transport.

vi) **Special parking zones**: this primarily relates to the concept of establishing bus-only parking zones or zones for the private hire buses close to the venue.

What is also crucial is a good public information system. The best plans can fall apart if the travelling public do not know of these plans. Another crucial aspect is that the established plans should be flexible so that they can be moulded to fit each type of event that occurs at the facility. For example, an all-day athletics meeting at a venue which results in a number of people coming and going throughout the day, will place a different demand on the road network to a soccer match, with the same traffic plans implemented to different degrees.

One of the principal objectives of a traffic management plan is to maximise the traffic-carrying capacity of the road system with low-cost traffic engineering measures. Usually, only limited funds are available for major capital improvements such as road widening or even parking structures.

1.1 The International Experience

In his paper entitled "Transportation Planning for Stadia and Arenas", Joseph Guyton[1] provides some insight into the changing perceptions regarding major special events. He points out that it was not long ago that some traffic planners followed the philosophy that the major sporting or other events occurred on such few occasions in a year that they did not deviate from the philosophy of designing facilities for the 30th highest hour traffic volume of the year. In other words, traffic flows might exceed the 30th highest hour of the year, but they did so only five or six times a year. However, the increasing number of major events and the increasing interest in such events, has highlighted the need for sound planning to accommodate the crowds attending such events.

It is essentially when demand exceeds supply that alternative planning becomes necessary, i.e. traffic may be greater than street capacity, and the delays may be unacceptable and even seem intolerable. Usually, parking demand exceeds the site parking capacity and there is often a very negative public reaction. Even though the spectators of major events often expect a traffic problem at the event, there is an inherent limit to public acceptance of that inconvenience, particularly when these occurrences become more frequent.

In most cases "permanent" solutions to these situations are unaffordable and it is at these times that the traffic engineer is often called upon to implement "quick fix" measures. The recognition of the need to implement such measures is demonstrated by the Institute of Transportation Engineers[2] establishing a committee entitled "Transportation Planning for Stadia and Multipurpose Arenas", tasked to prepare an Information report on this subject. That committee identified traffic operations procedures that have been used to ease the traffic flow and circulation for these major events. Generally speaking, these operational measures can be grouped into six categories:

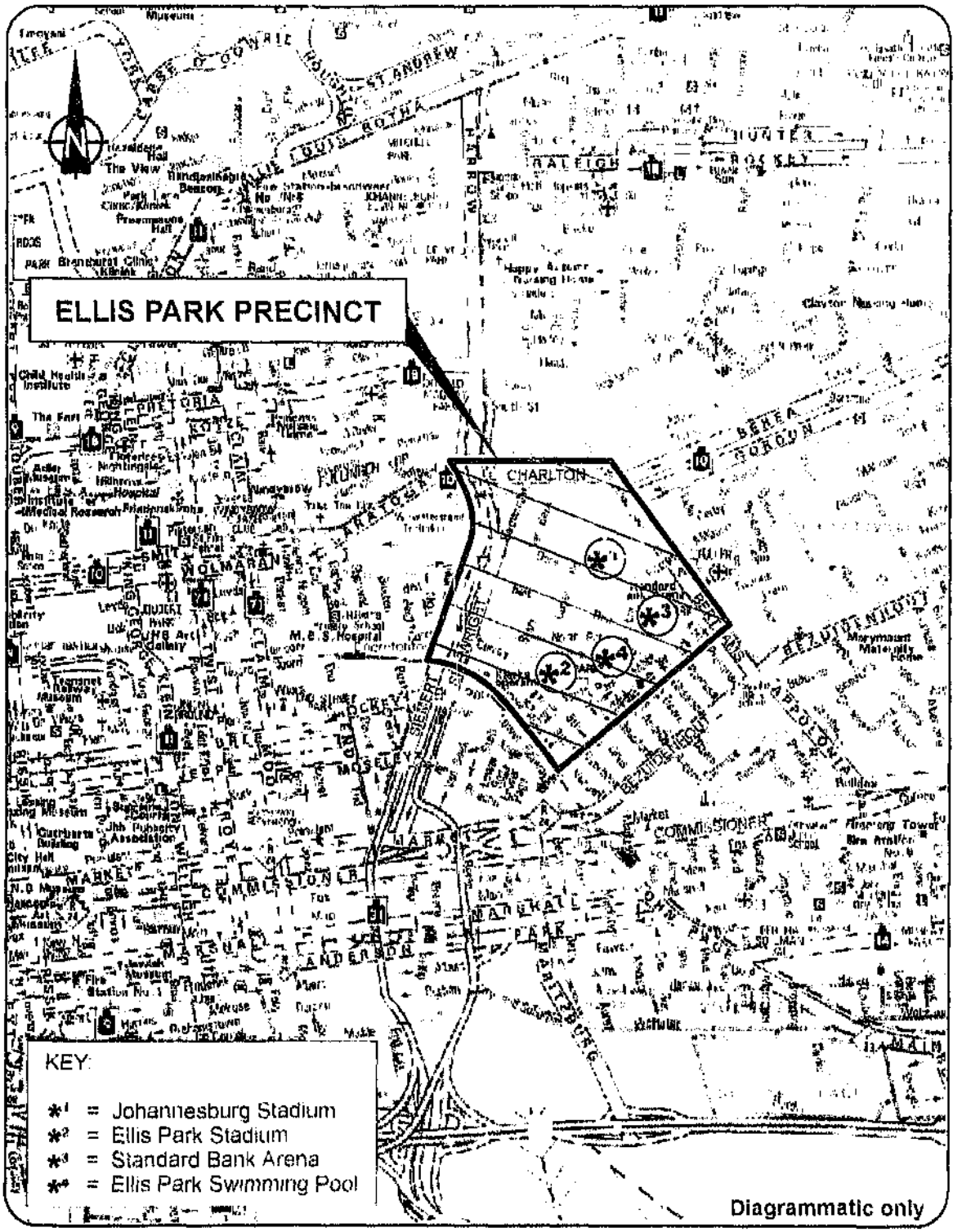
i) **Increased street capacity**: this involves measures such as converting two-way streets to one-way streets, using parking prohibitions along major access routes and the use of turning restrictions.

The areas between these stadia have been beautified with the planting of trees, grass and shrubs, and traffic calmed through the introduction of roundabouts and speed humps. On most event days, those roads that pass through the Precinct are closed to private vehicles, and the Precinct is pedestrianised, allowing the free flow of pedestrians around and between the stadia. An informal trading management system has been established with numerous informal trading stalls scattered throughout the Precinct. These stalls are hired out to informal traders on event days, and trading in the Precinct is allowed to take place only from these stalls.

The Ellis Park Stadium has a capacity of about 65 000 people seated, the Johannesburg Stadium, 37 000 seated and the Standard Bank Arena, about 5 000 people seated. However, the Precinct does not have any formal parking available for the spectators to these venues, except for some areas that are reserved for very important person (VIP) parking. On event days at any of these venues, the streets surrounding the Precinct are jam-packed with parked vehicles, and most businesses and industries sell their off-street parking areas to these spectators.

In 1994, when the construction of the Johannesburg Stadium and the upgrading of the Precinct began, the then Roads Directorate of the Greater Johannesburg Transitional Metropolitan Council (GJTMC) recognised the impact that these projects would have on the accessibility of the Precinct in that the parking space that had been available in the Precinct, would be lost. (The area on which the Johannesburg Stadium is built, was vacant land previously used for parking on event days.) It was this that prompted the then Roads Directorate to investigate and implement traffic and transportation management plans for the various stadia and the Precinct as a whole.

The implementation of such traffic and transportation management plans is in line with the international approach whereby proper plans are set up to accommodate large crowds at events. In order to establish the general rationale behind such planning, the international experience was investigated.



LOCATION OF THE ELLIS PARK PRECINCT

Figure 1

2.4.4 The Ellis Park Swimming Pool

No traffic management measures are put into place for events at the Ellis Park Swimming Pool, as shown in Figure 5.

2.4.5 Simultaneous events

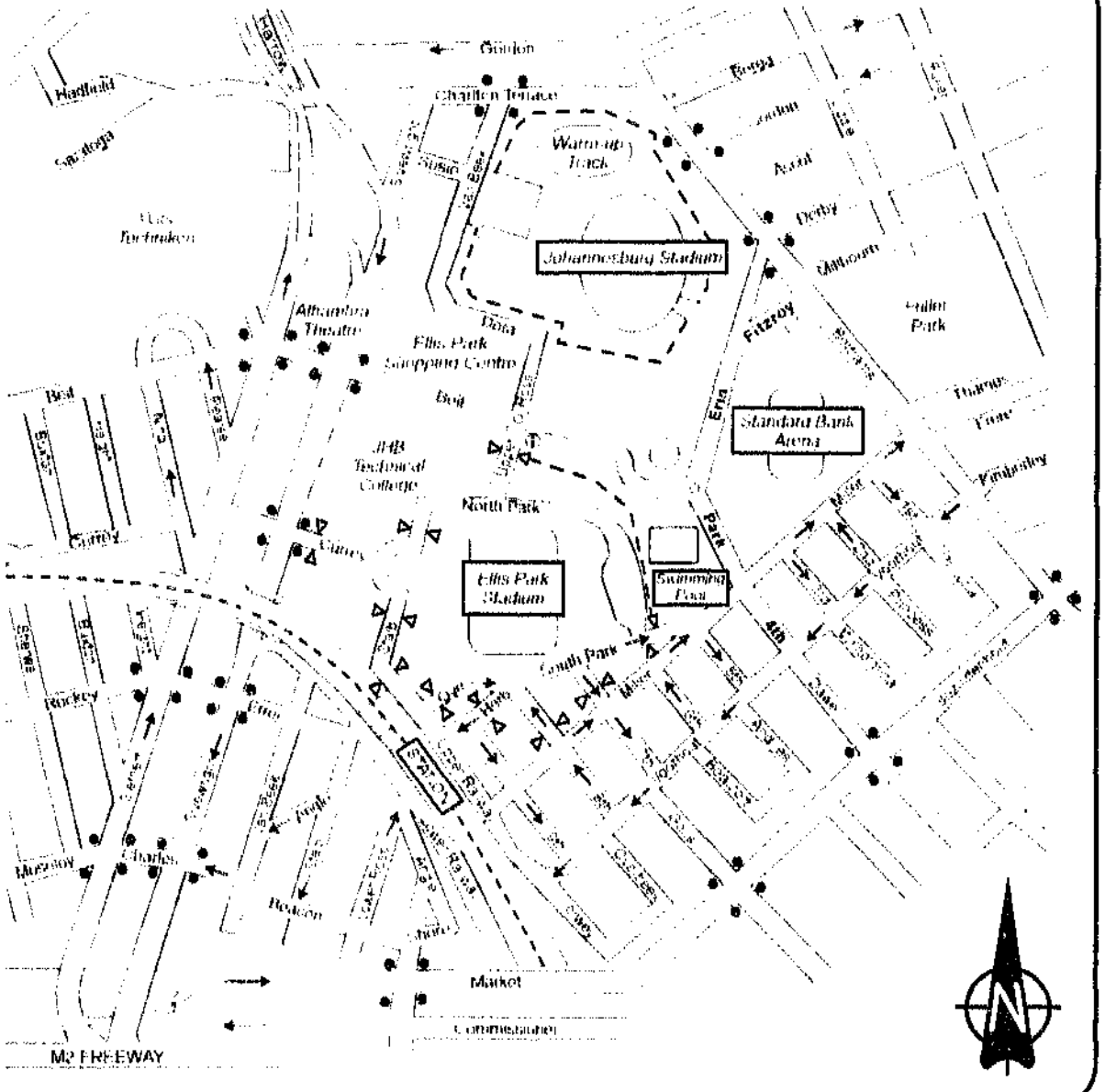
When events are scheduled for the swimming pool as well as one, two or all of the other stadia in the Precinct simultaneously, and the Park-and-Ride is in operation, special provision is made for the swimmers attending the event at the swimming pool. It is not feasible to suggest that the swimmers make use of the Park-and-Ride service, and therefore vehicles transporting the swimmers are allowed into the traffic cordon to park in the parking area to the east of the swimming pool. The area opposite this parking area (across Erin/Park Street) can also be used to accommodate overflow parking. Numerous galas at the swimming pool have in the past been cancelled because no provision had been made for swimmers on days when the other stadia also had events.

ELLIS PARK PRECINCT

STANDARD BANK ARENA AND SWIMMING POOL

(No Park-and-Ride Operating and No Road Closures)

FIGURE 5



KEY:

- Perimeter Fence
- Information Kiosk
- Traffic signals
- Security gates Closed only for Ellis Park Stadium events
- Bus and Minibus-Taxi Rank
- Ellis Park Station

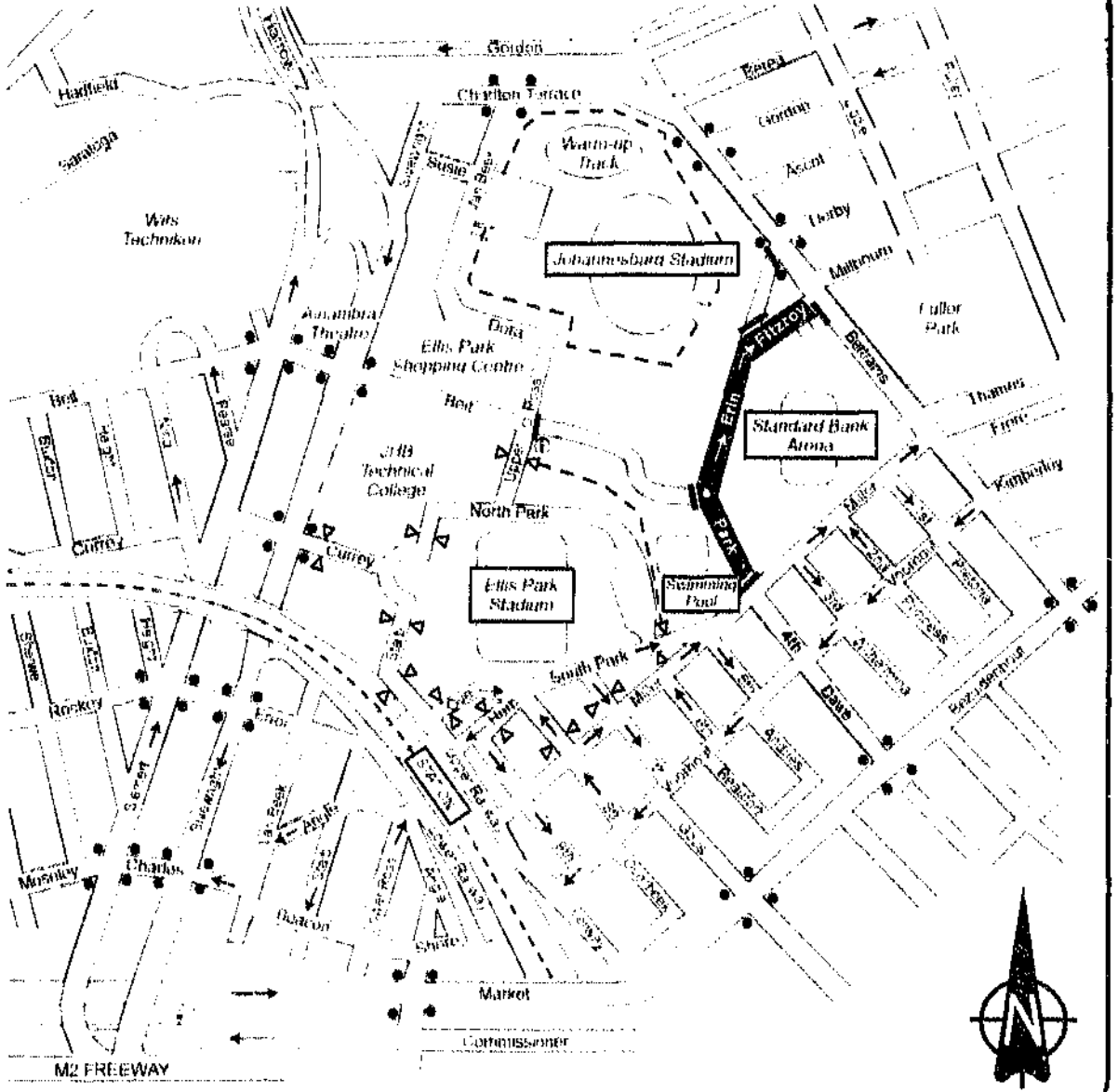
Diagrammatic only

ELLIS PARK PRECINCT

STANDARD BANK ARENA

(Park-and-Ride Operating)

FIGURE 4



KEY:

- Perimeter Fence
- Information Kiosk
- Traffic signals
- No stopping on event days
- No access on event days
- Security gates Closed only for Ellis Park Stadium events
- Stopping for JTD and Roodepoort buses (Event days Park-and-Ride)
- Bus and Minibus-Taxi Rank
- STATION Ellis Park Station

Diagrammatic only

ELLIS PARK PRECINCT

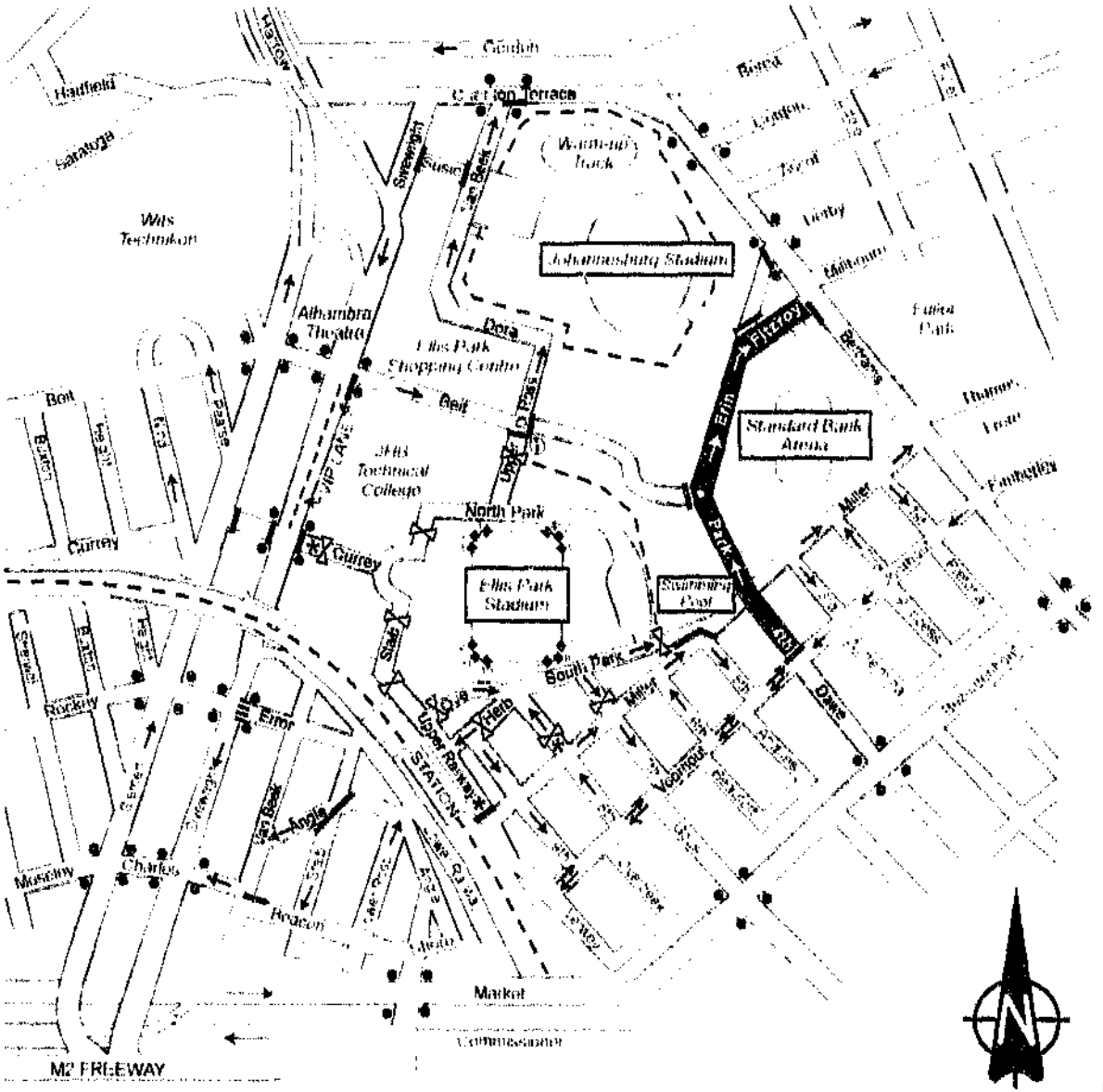
ELLIS PARK STADIUM

(Park-and-Ride Operating)

FIGURE 3

KEY:

- Perimeter Fence
- Information Kiosk
- Traffic signals
- No stopping on event days
- No access on event days
- Security gates. Closed only for Ellis Park Stadium events
- Stopping for JTD and Roodepoort buses (Event days Park-and-Ride)
- Parking for private hire transport vehicles on event days
- Access for private hire transport and businesses on event days
- STATION — Ellis Park Station
- 1 — Entrance gate numbers
- * — Access to Permit Holders



Diagrammatic only

ELLIS PARK PRECINCT

NESBURG STADIUM

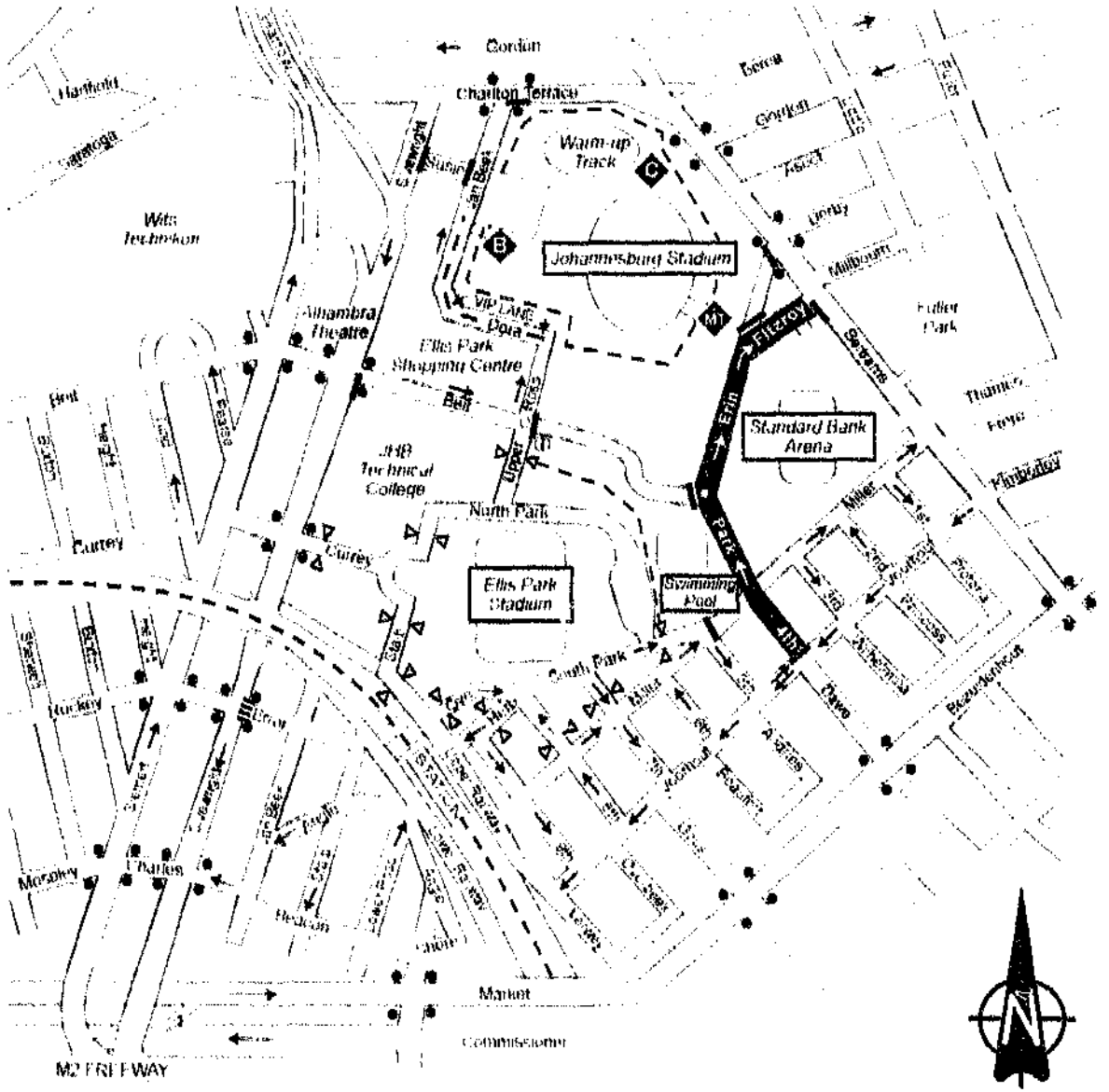
ark and Ride Operating)

KEY

FIGURE 2

- Perimeter Fence
- Information Kiosk
- Traffic signals
- No stopping on event days
- No access on event days
- Security gates Closed only for Ellis Park Stadium events
- Stopping for JTD and Reddepoort buses (Event days Park-and-Ride)
- Parking for private hire transport vehicles on event days
- Access for private hire transport and businesses on event days
- STATION Ellis Park Station
- A Entrance gate numbers
- MT Marathon Tunnel

Diagrammatic only



2.4 The Traffic Management Plans for the Stadia in the Ellis Park Precinct

The traffic management plans that are implemented prior to an event taking place at any of the stadia within the Precinct were formulated in close consultation with Metropolitan Traffic. The Technical Division of Metropolitan Traffic is responsible for the setting out of all the necessary equipment required to implement these plans and the erection and flipping-over of all signage. Separate traffic management plans have been established for each of the stadia and details of these plans are provided in this section.

2.4.1 The Johannesburg Stadium

The traffic management plan that is put into place prior to, during and until at least one hour after an event at the Johannesburg Stadium, is shown in Figure 2. The figure is self-explanatory.

2.4.2 The Ellis Park Stadium

The traffic management plan that is put into place prior to, during and until at least one hour after an event at the Ellis Park Stadium, is shown in Figure 3. The figure is also self-explanatory.

2.4.3 The Standard Bank Arena

Traffic management measures are only put into place for events at the Standard Bank Arena when the Park-and-Ride service is in operation. The traffic management plan that is put into place prior to, during and until at least one hour after an event at the Arena, is shown in Figure 4. Again, the figure is self-explanatory. If the Park-and-Ride service is not in operation, no traffic management measures are put into place, as shown in Figure 5.

vii) Liaison with Metro-Wits Rail Services to ensure that the train service is not ignored. Once the re-development of the Johannesburg Station has been completed, the availability of this service should also be extensively marketed.

Finally, the Operations Co-ordinator continually looks for ways to market the bus Park-and-Ride service and is assisted in this regard by Metropolitan Bus Services. Marketing of the train Park-and-Ride service should also be included in any marketing efforts, once this service is available.

iii) Providing the promoters of concerts all the details about the Park-and-Ride service. The onus is then on the promoter to assist in the marketing of the use of the Park-and-Ride service, by including the relevant information in their advertising of the concert.

For sporting events, the Operations Co-ordinator is responsible for the timeous drafting of a press release, detailing the Park-and-Ride service, which is then distributed to the media.

iv) Forwarding the details of the Park-and-Ride service to all the contact people at the Park-and-Ride venues prior to each event. These venues include:

- Marks Park;
- Milpark Holiday Inn Garden Court;
- Devonshire Hotel;
- Parktonian Hotel;
- Carlton Hotel;
- Johannesburger Hotel and
- Wits University.

v) Liaison with all the venues at the Ellis Park Precinct in order to obtain regular updates of fixture lists for each venue, including the swimming pool. This enables, to some degree, the forward planning of the Park-and-Ride service. Details of forthcoming events are relayed to Metropolitan Bus Services, Metropolitan Traffic and Metropolitan Public Safety to enable them to schedule their personnel for these events.

vi) The continual monitoring of the Park-and-Ride service in order to ensure that any problems that arise are addressed timeously. This includes problems at the Precinct as well as at the Park-and-Ride venues.

2.3 The Operations Co-ordinator

The Operations Co-ordinator is responsible for liaison between and co-ordination of all the roleplayers, including both the Council and non-Council roleplayers. The Operations Co-ordinator has a working knowledge of all the aspects pertaining to the operations of the Park-and-Ride service, as well as all the related aspects that need to be addressed prior to each event at the Precinct for which the Park-and-Ride operates. The Operations Co-ordinator is also responsible for the following, prior to each event for which the Park-and-Ride service operates:

i) Providing Metropolitan Traffic with the Park-and-Ride information so that this information can be included on the variable message signs that are located on the freeway's around Johannesburg.

ii) Liaison with the Motorways Division of Metropolitan Infrastructure and Technical Services to arrange for the details and date of a forthcoming event at the Precinct for which the Park-and-Ride service will be operating, to be included on the Park-and-Ride direction signs that have been erected around each Park-and-Ride venue. The Motorways Division is informed which Park-and-Ride venues will be in operation for a particular event, since, for Standard Bank Arena events, only two Park-and-Ride venues are used.

The Park-and-Ride direction signs are located at all the strategic intersections around the Park-and-Ride venues, directing motorists to these venues. The signs show the universal Park-and-Ride symbol on them and specify "Ellis Park Events". They were designed with loose, removable slats on them and it is on these slats that specific event details and dates are placed. As soon as possible after an event, Motorways Division removes these slats from the signs, so as to avoid the slats being stolen, as happened after the Rugby World Cup. A plan showing a typical Park-and-Ride direction sign is contained in Appendix A.

Permanent signs of this nature are also intended to serve as a form of marketing of the Park-and-Ride service.

The Ellis Park Stadium Management is responsible for appointing a security company to man the security gates around their stadium, which are closed on Ellis Park Stadium event days. An initial ticket check is done at these gates and the personnel from the various businesses within the security cordon gain access to their premises through the gates on the southern side of the stadium. It is also the responsibility of the Ellis Park Stadium Management to ensure that these security gates are properly and securely re-opened after an event at the stadium.

2.2.9 Metro-Wits Rail Services

Metro-Wits Rail Services is responsible for operating a train shuttle service to the Ellis Park Station from the Johannesburg Station. Also, all Metro train services passing through the Ellis Park Station, stop at the station on event days. Metro-Wits is also responsible for providing security personnel on those trains that are specifically operated for major events at the Precinct. Details of the train operations to the Precinct are provided in Section 2.5.3.

2.2.10 The South African Police Services (SAPS)

The SAPS is responsible for law enforcement in and around the Ellis Park Precinct, and their visibility is particularly required in areas around the Precinct where large groups of people gather, such as at the Park-and-Ride pick-up points after an event. It is here that pick-pockets have been known to operate. For evening events in particular, strong SAPS presence is required in and around the Precinct. For major international events such as the Rugby World Cup that was held in May and June 1995, the SAPS is responsible for the surveillance of the Park-and-Ride venues and the bus routes to the Ellis Park Precinct. The Precinct falls under the jurisdiction of the Jeppe Police Station.

2.2.11 The Johannesburg Stadium, Ellis Park Stadium and Standard Bank Arena management

The stadia managements have their own responsibilities with respect to the hosting of an event at their respective stadia. It is however their responsibility to liaise with the relevant GJTMC Departments on matters of relevance to those Departments, and vice versa. The various stadia also liaise with the Operations Co-ordinator in order to distribute their respective fixture lists and co-ordinate such matters as the Park-and-Ride service, or any other Precinct matters.

2.2.5 Metropolitan Planning, Urbanisation and Environmental Planning

The Public Convenience Section of Metropolitan Planning, Urbanisation and Environmental Planning is responsible for the cleaning, supply of stores/materials and the repairs/maintenance of all public toilet facilities in and around the Precinct including the facilities in the bus terminus to the south of the Ellis Park Stadium. This excludes all public conveniences inside the stadia.

2.2.6 Metropolitan Sport

A representative of Metropolitan Sport serves as the Operations Co-ordinator and is responsible for the overall co-ordination of all the activities in and around the Precinct, including the "supervision" of all of the tasks and functions listed here. The full responsibilities of the Operations Co-ordinator are defined in Section 2.3. Metropolitan Sport also assists in the distribution of media information and is responsible for all issues related to the Ellis Park Swimming Pool.

2.2.7 Metropolitan Parks, Botanical Garden, Nature Reserves, Cemeteries and Zoological Gardens

Metropolitan Parks, Botanical Garden, Nature Reserves, Cemeteries and Zoological Gardens is responsible for any issues that might arise pertaining to some of the Park-and-Ride venues, for example, Bezuidenhout Park and the Rand Stadium, which are located on Council property.

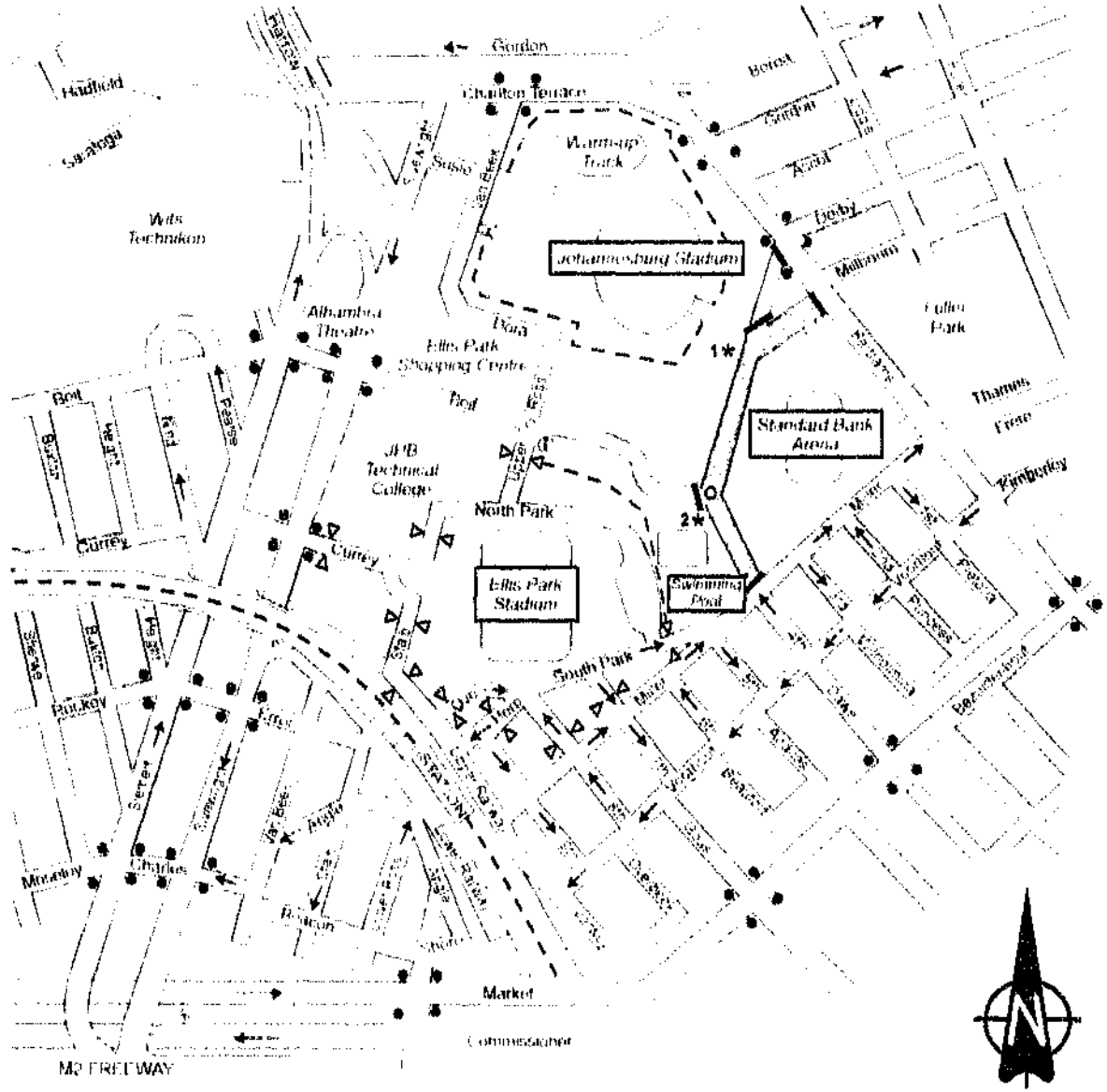
2.2.8 Metropolitan Corporate Services

Metropolitan Corporate Services assists Metropolitan Sport with media correspondence, as well as arranging for the inclusion of relevant information on the on-hold message that is played when a person has telephoned the Council.

ELLIS PARK PRECINCT

DROP-OFF AND PICK-UP POINTS FOR PARK-AND-RIDE BUSES TO STANDARD BANK ARENA

FIGURE 10



KEY:

- Perimeter Fence
- Information Kiosk
- Traffic signals
- Security gates Closed only for Ellis Park Stadium events
- Bus and Minibus-Taxi Rank
- STATION Ellis Park Station
- * Drop-off and Pick-up Points
- 1* Bezuidenhout Park
- 2* Wits University, Devonshire, Parktonian and Johannesburger Hotels

Diagrammatic only

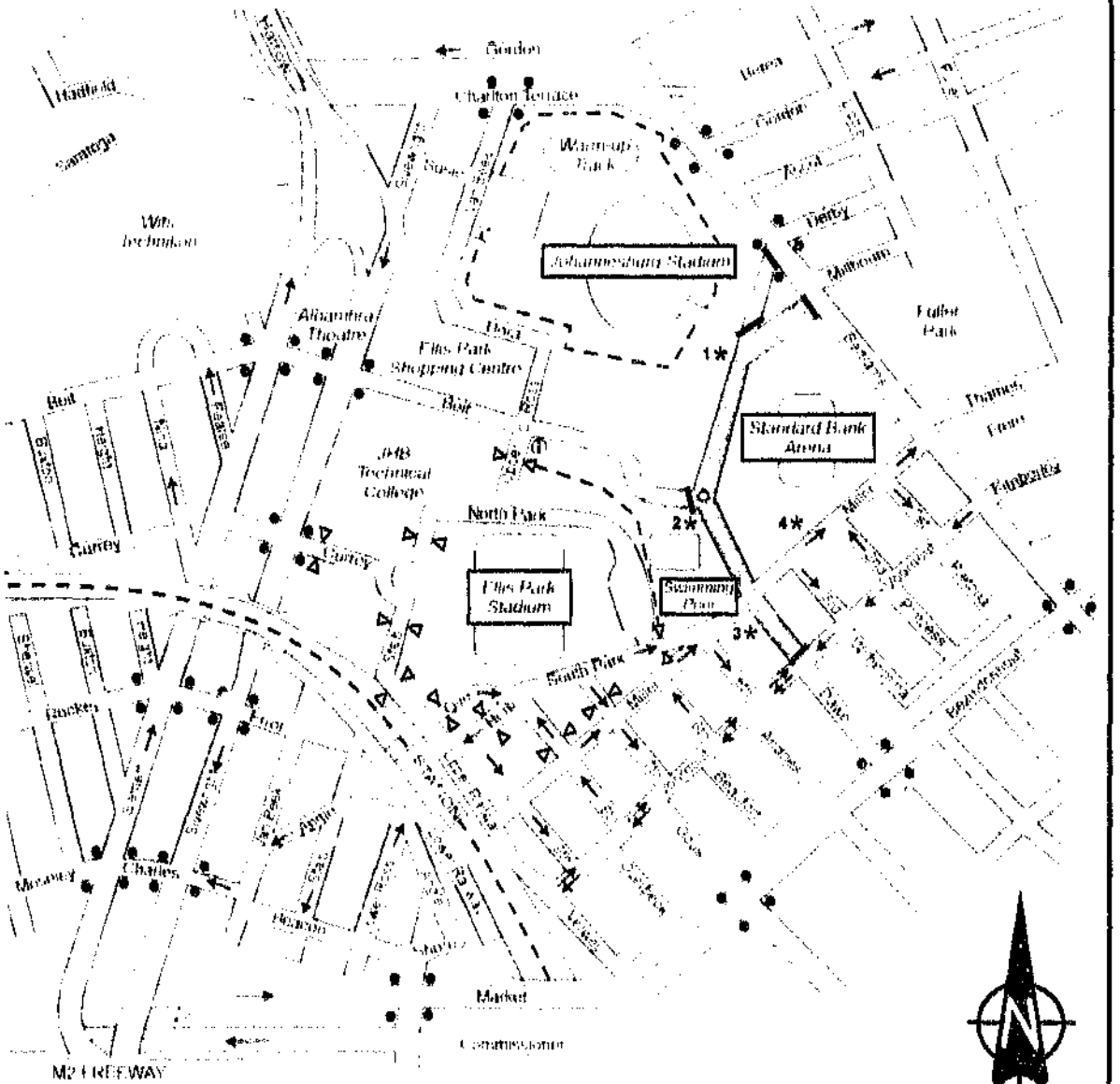
ELLIS PARK PRECINCT

DROP-OFF AND PICK-UP POINTS FOR PARK-AND-RIDE BUSES TO JOHANNESBURG AND ELLIS PARK STADIA

FIGURE 9

KEY:

- Perimeter Fence
- Information Kiosk
- Traffic signals
- Security gates Closed only for Ellis Park Stadium events
- Bus and Minibus-Taxi Rank
- STATION — Ellis Park Station
- * Drop-off and Pick-up Points
- 1* Bezuidenhout Park
- 2* Marks Park & Milpark Holiday Inn
- 3* Wits University, Devonshire Parktonian and Johannesburger Hotels
- 4* Rand Stadium



Diagrammatic only

Security at the Park-and-Ride venues

Metropolitan Public Safety deploys personnel to all of the Park-and-Ride venues that are being used on an event day. (See Section 2.2 on Roleplayers and Responsibilities.)

Fares and ticket selling

At the time of preparing this project report, a return ticket for the Park-and-Ride service cost R5,00 per person from all the Park-and-Ride venues. Tickets are bought at the Park-and-Ride venues, either from a hand-held ticket dispensing machine operated by a MBS official, or from ticket selling vans that MBS sometimes places at the Park-and-Ride venues. For major events at the stadia in the Precinct, such as international concerts or sports matches, the ticket selling vans should be used, particularly at the more popular Park-and-Ride venues such as Marks Park and Bezuidenhout Park.

Drop-off and pick-up points in the Precinct

The Fourth, Park, Erin and Fitzroy Streets corridor is a one-way bus corridor on event days, as is Miller Street eastbound between Park Street and Bertrams Road. The buses drop off their passengers at the designated drop-off points along these corridors within the Precinct. This ensures that passengers know exactly where to find their correct buses after the event. Permanent flip-signs, colour-coded according to the colours of the Park-and-Ride routes, have been designed to both indicate the Park-and-Ride pick-up points in the Precinct, and to direct spectators to the various other Park-and-Ride pick-up points in the Precinct. The designated drop-off and pick-up points are shown in Figure 9 for the Johannesburg and Ellis Park Stadia and Figure 10 for the Standard Bank Arena, while the flip-signs used to indicate the Park-and-Ride pick-up points are shown in Appendix C.

* Concerts: Johannesburg Stadium and Ellis Park Stadium

For concerts that take place on Saturday and Sunday, the Park-and-Ride service begins three hours prior to the starting time of the support act of the concert. This enables those concert-goers who have bought standing room tickets, to get to the venue relatively early and "reserve" their place. On weekdays, the service begins at 18:30, again because of the municipal bus service that MBS operates. However, for the Bon Jovi Concerts at the Johannesburg Stadium in November and December 1995, an early afternoon service operated between 13:00 and 14:30 from one of the Park-and-Ride venues. This enabled parents, concerned about the safety of their children going to the concerts, to drop off their children at this Park-and-Ride venue and then fetch them from this venue after the concerts. This also assisted in relieving traffic congestion at the Precinct, as parents did not have to fetch their children from outside the stadium. For future concerts, a similar arrangement should be considered.

The service runs every 20 minutes, and operates until half-an-hour before the main act is due on stage.

After the concert, the buses continue to operate until one hour after the concert has ended, or at least until all concert-goers have left the Precinct.

* Concerts: Standard Bank Arena

For concerts that take place on Saturday and Sunday, the Park-and-Ride service begins two hours prior to the starting time of the support act of the concert. On weekdays, the service begins at 18:30. The service runs every half-an-hour, and operates until half-an-hour before the main act is due on stage.

After the concert, the buses continue to operate until one hour after the concert has ended.

Bus routes

The bus routes have been specifically identified as the routes with the least traffic congestion, both before and after an event. Although the routes might be a little longer in distance and might seem to be indirect, it is on these routes that the buses keep moving and do not get caught in traffic jams. The Park-and-Ride bus routes are included in Appendix B. Also shown on these plans are the locations of the pick-up points outside the hotels along these routes. Permanent signs, indicating these locations, have been erected outside each of these hotels.

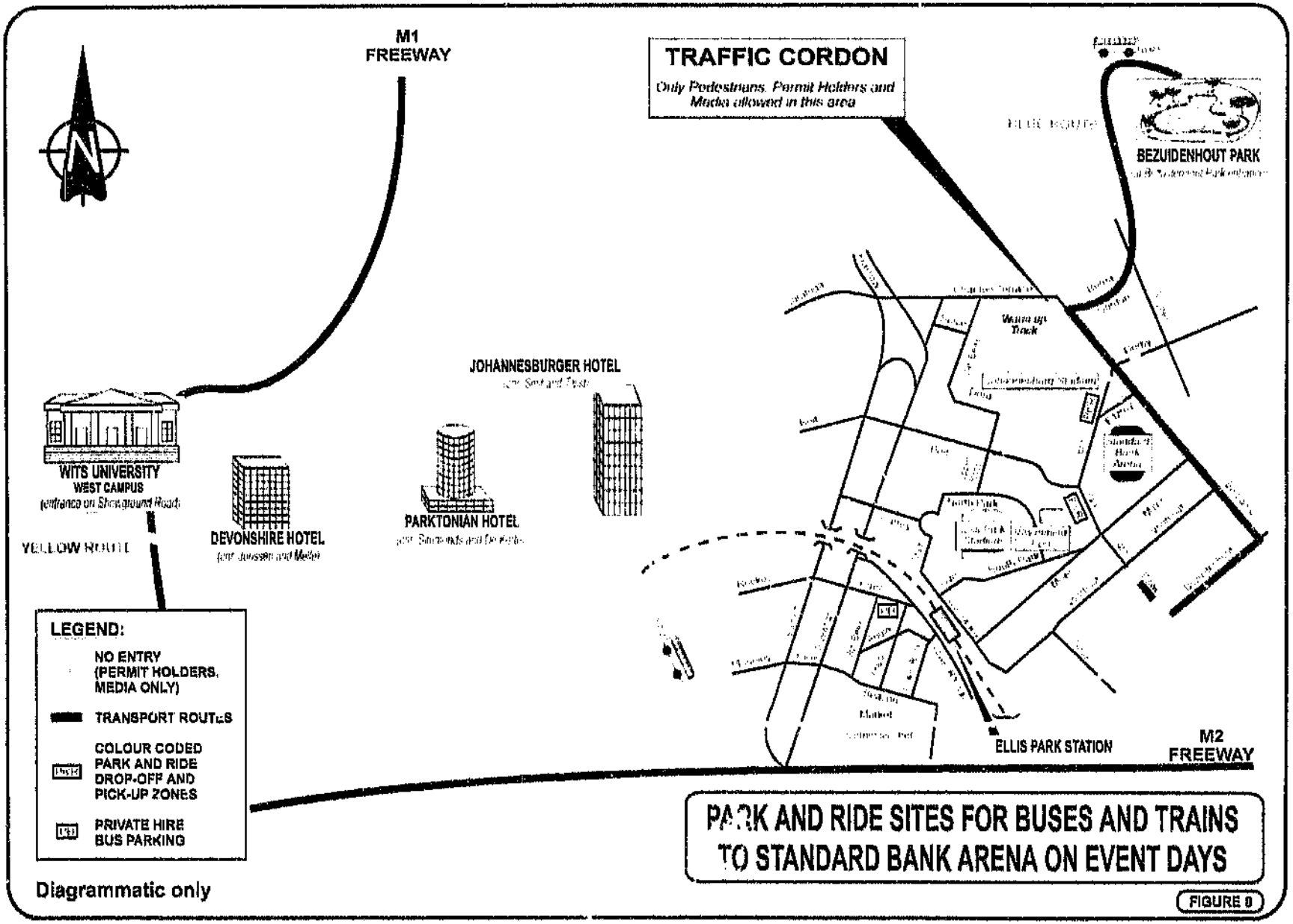
Park-and-Ride timetable

The starting time of the Park-and-Ride service is dependent on the nature of the event taking place in the Precinct, and also the day of the week.

* Rugby and Soccer Matches

For rugby and soccer matches that take place on Saturday and Sunday, the Park-and-Ride service begins one hour before the first curtain-raiser, or if there is no curtain-raiser, two-and-a-half hours prior to the kick-off time of the match. On week days, because of MBS's commitment to operate the municipal bus service, the Park-and-Ride begins at 18:30. The service runs every 20 minutes, and operates until half-an-hour before the kick-off time of the main match.

After the main match, the service runs until one-and-a-half hours after the final whistle. This enables spectators in the numerous suites to enjoy the hospitality of the suites before leaving the stadia.



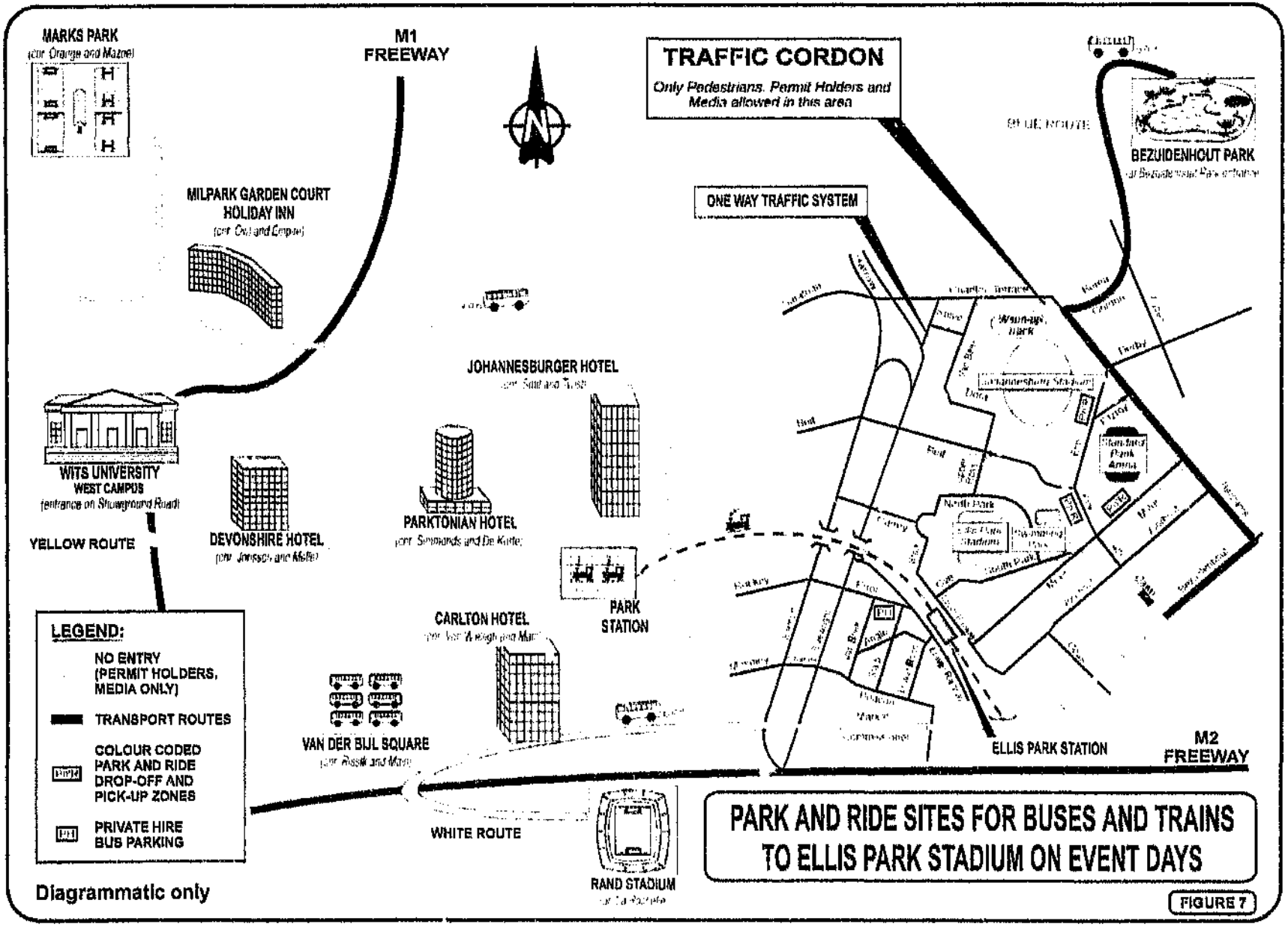
PARK AND RIDE SITES FOR BUSES AND TRAINS TO STANDARD BANK ARENA ON EVENT DAYS

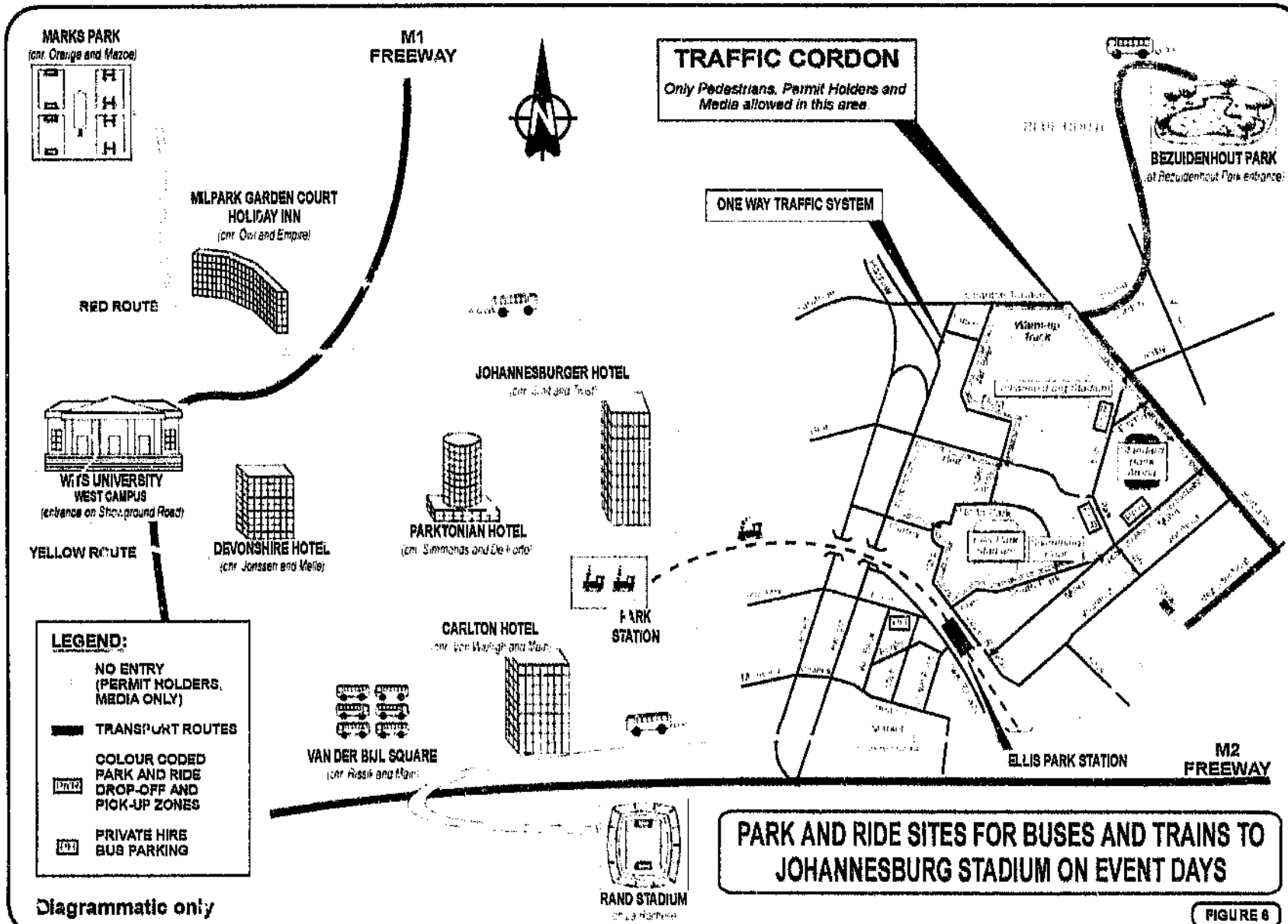
FIGURE 8

All the buses operating on the Park-and Ride routes are identified by a plaque of the relevant colour, placed on the front of each bus, specifying that bus's destination. The intention of these plaques is to enable passengers to quickly, and confidently, identify and board buses after an event.

For major international events at the Standard Bank Arena, only two of the four Park-and-Ride routes are operated. This is due to the capacity of the Arena being much smaller than that of the Ellis Park and Johannesburg Stadia. The two Park-and-Ride routes to the Standard Bank Arena, and the related traffic cordon, are shown diagrammatically in Figure 8, and include:

1.	**Venue Name:**	**University of the Witwatersrand**
	Venue Address:	Enoch Sontonga Drive entrance
		West Campus
	Colour of Route:	Yellow
*	**Pick-up Point en Route:**	**Devonshire Hotel**
	Address:	in front of Hotel
		Jorissen Street
		BRAAMFONTEIN
*	**Pick-up Point en Route:**	**Parktonian Hotel**
	Address:	cnr Simmonds/Harrison Street & De Korte Street
		BRAAMFONTEIN
*	**Pick-up Point en Route:**	**Johannesburger Hotel**
	Address:	cnr Smit Street and Twist Street
		JOUBERT PARK
2.	**Venue Name:**	**Bezuidenhout Park**
	Venue Address:	Observatory Avenue entrance
		Bezuidenhout Park
		DEWETSHOF (Near Cyrildene)
	Colour of Route:	Blue


MARKS PARK
(cnr Orange and Mazoe)
M1
FREEWAY
TRAFFIC CORDON
Only Pedestrians, Permit Holders and Media allowed in this area
BLUE ROUTE
BEZUIDENHOUT PARK
MILPARK GARDEN COURT
HOLIDAY INN
(cnr Owl and Leopard)
ONE WAY TRAFFIC SYSTEM
JOHANNESBURGER HOTEL
WITS UNIVERSITY
WEST CAMPUS
(entrance on Showground Road)
YELLOW ROUTE
DEVONSHIRE HOTEL
(cnr Jansen and Melle)
PARKTONIAN HOTEL
(cnr Sunninghill and De Korte)
PARK
STATION
CARLTON HOTEL
(cnr Van Wouw and Main)
VAN DER BIJL SQUARE
(cnr Rissik and Main)
WHITE ROUTE
RAND STADIUM
ELLIS PARK STADIUM
ELLIS PARK STATION
M2
FREEWAY
LEGEND:
NO ENTRY
(PERMIT HOLDERS,
MEDIA ONLY)
TRANSPORT ROUTES
COLOUR CODED
PARK AND RIDE
DROP-OFF AND
PICK-UP ZONES
PRIVATE HIRE
BUS PARKING
Diagrammatic only
PARK AND RIDE SITES FOR BUSES AND TRAINS
TO ELLIS PARK STADIUM ON EVENT DAYS
FIGURE 7



PARK AND RIDE SITES FOR BUSES AND TRAINS TO JOHANNESBURG STADIUM ON EVENT DAYS

FIGURE 6

3.	**Venue Name:**	**Rand Stadium**
	Venue Address:	Fields adjacent to the Rand Stadium Entrance via the service road between the Rand Stadium and Hector Norris Park La Rochelle Road GLENESK (Near Turffontein)
	Colour of Route:	White
*	**Pick-up Point en Route:**	**Van Der Bijl Square Bus Terminus**
	Address:	On Main Street, between Rissik and Eloff Streets JOHANNESBURG CBD
*	**Pick-up Point en Route:**	**Carlton Hotel**
	Address:	in front of Hotel Main Street JOHANNESBURG CBD
4.	**Venue Name:**	**Bezuidenhout Park**
	Venue Address:	Observatory Avenue entrance Bezuidenhout Park DEWETSHOF (Near Cyrildene)
	Colour of Route	Blue

All the bus routes enter the Ellis Park Precinct from the southern side, via Bezuidenhout and Dawe Streets. This is the desired route since it has proved to be the least congested of all the routes into the Precinct, and enables easy access for the buses into the dedicated bus route through the Precinct. (This bus route is clearly identified on Figures 2, 3 and 4, which show the traffic management plans for the various stadia.) Figures 6 and 7 show diagrammatic representations of the Park-and-Ride venues and their routes to the Johannesburg Stadium and Ellis Park Stadium respectively, and their related traffic cordons.

The Park-and-Ride venues and routes

For events at the Johannesburg Stadium and the Ellis Park Stadium, four Park-and-Ride routes operate. These routes are colour-coded and include:

1.	**Venue Name:**	**Marks Park**
	Venue Address:	Orange Road entrance cnr Orange Road and Mazoe Road EMMARENTIA
	Colour of Route:	Red
*	**Pick-up Point en Route:**	**Milpark Garden Court Holiday Inn**
	Address:	cnr Owl Street and Empire Road MILPARK
2.	**Venue Name:**	**University of the Witwatersrand**
	Venue Address:	Enoch Sontonga Drive entrance West Campus
	Colour of Route:	Yellow
*	**Pick-up Point en Route:**	**Devonshire Hotel**
	Address:	in front of Hotel Jorissen Street BRAAMFONTEIN
*	**Pick-up Point en Route:**	**Parktonian Hotel**
	Address:	cnr Simmonds/Harrison Street & De Korte Street BRAAMFONTEIN
*	**Pick-up Point en Route:**	**Johannesburger Hotel**
	Address:	cnr Smit Street and Twist Street JOUBERT PARK

2.5 The Transportation Management Plans for the Ellis Park Precinct

The transportation management plans for the Ellis Park Precinct are designed for all the modes of public transport operating to the Precinct on event days, including buses, minibus-taxis, trains, private hire vehicles and metered-taxis. The major focus of the bus operations to the Precinct is the Park-and-Ride service operated by Metropolitan Bus Services (MBS). The transportation management plans are closely linked to the traffic management plans as it is the latter plans that ensure the priority movement of the public transport vehicles to, within and from the Precinct on event days.

Along all the main pedestrian thoroughfares within the Precinct, and at all the major exits from all the stadia, public transport direction signs have been erected, directing spectators leaving the stadia to the Park-and-Ride service, the private hire bus-rank, the Ellis Park Station and the metered-taxi rank. These signs facilitate the free-flow of pedestrians through and out of the Precinct after an event.

2.5.1 The Park-and Ride service operated by MBS

Parking close to the Precinct is very limited, and the parking that is available is either at a premium, or vehicles are very vulnerable to a criminal element that is a constant problem in the area. The Park-and-Ride service to the Ellis Park Precinct was, therefore, implemented to offer spectators secure parking, remote from the Precinct.

In identifying Park-and-Ride venues, every attempt was made to utilise Council-owned property. However, to locate them strategically, some of the Park-and-Ride venues were located on private property, and payment agreements were negotiated between these venues and MBS. Since the inception of the Park-and-Ride service in May 1994, some problems were experienced at some of the preferred Park-and-Ride venues, which meant that other, alternative venues had to be found. Problems included venues not being available to accommodate Park-and-Ride vehicles on days when events had been arranged at these venues themselves and therefore a consistent service could not be provided. Also, it was difficult to provide secure parking at some of the proposed venues.

3.2 Minibus-Taxi Operations to the Ellis Park Precinct

The short-term, first phase of the minibus-taxi operations to the Ellis Park Precinct has been implemented and was presented in Section 2.5.2. The medium-term, second phase would be dependent on the minibus-taxi industry being formalised and regulated, which would then enable the proper control and enforcement of their operations to, from and at the Precinct. Designated collection points could be identified in the townships at which spectators could gather and be transported to Ellis Park by the minibus-taxi industry, and then returned to these collection points after the event. The formalisation and regulation of the industry should allow for such a service to operate without creating conflict and violence. The White Paper on National Transport Policy[4], approved in September 1996, states that "the public passenger transport system in South Africa will be based on regulated competition" and that "the regulation will be in the form of a permission, contract or concession awarded in terms of a passenger transport plan and supported by strict law enforcement." The implementation of this policy would then enable the minibus-taxi associations to apply to provide dedicated services to the Precinct on event days. More details on the White Paper are provided in Section 4.

By allowing only those taxis that are granted permissions or contracts to operate the dedicated routes to Ellis Park, into the traffic cordon at the Precinct, the number of taxis that would need to be accommodated at the Precinct can be determined and would enable the proper planning of traffic measures and transport in and around the Precinct. If only a few collection points are identified within the townships, designated drop-off and pick-up points for the minibus-taxi operations can be established and signposted in the Precinct, just as for the Park-and-Ride service operated by MBS. The ability of the bus lane to accommodate both the Park-and-Ride bus service and the minibus-taxi operations can then also be determined on event days when both services operate simultaneously.

3.1.2 Traffic congestion on Bertrams Road and Charlton Terrace

After an event, there is severe traffic congestion on Bertrams Road and Charlton Terrace. Bertrams Road southbound is the major exit route from the Precinct for the Park-and-Ride buses and the minibus-taxis and for this reason, Metropolitan Traffic attempts to ensure that traffic keeps moving in this direction. However, this will not always be possible, and this situation should be monitored. If buses and minibus-taxis are continually delayed on this route, an alternative exit route should be considered.

3.1.3 Funding of the Park-and-Ride service and related activities

Presently, each GJTMC and non Council roleplayer is responsible for the costs of providing its particular aspect of the overall service. However, since budgeting for the provision of these services is impossible due to the ad-hoc nature of events, especially concerts, staged in the Precinct, many of these services are provided on shoe-string budgets, with most Council Departments having to re-direct funds to the provision of their service. This is resulting in Departments not allocating sufficient manpower and other resources to the operations of the services. The services are therefore not of a standard that they should be and it is proposed that, in future, each Department should rather over estimate the number of events to be staged in the Precinct and thereby ensure that sufficient funds are available to provide an acceptable and professional standard of service.

Only MBS has a means to potentially recover its costs from the fares it collects from passengers using the Park-and Ride service.

3 PROPOSED ENHANCEMENTS TO THE TRANSPORTATION PLANS TO IMPROVE THE ACCESSIBILITY OF THE ELLIS PARK PRECINCT

3.1 The Park-and-Ride Service Operated by Metropolitan Bus Services (MBS)

Although the enhancements proposed here are not directly related to the operation of the Park-and-Ride bus service, they should impact positively on the service.

3.1.1 Week-day events

The staging of events in the Precinct on week-days will always present a problem for two reasons. Firstly, Metropolitan Traffic cannot close roads in the early morning because of threats of legal action being taken against the Council by various businesses in the area, and secondly, because MBS operates its peak-period bus service, the Park-and-Ride service can only begin at 18:30.

In order to avoid vehicles parking within the Precinct when there are week-day events, Metropolitan Traffic should, if possible, deploy its personnel en-masse early in the morning, as is done for week end events. For week-day events, MBS should always consider operating an early afternoon Park-and-Ride service, prior to its peak-period. This will then enable those spectators who wish to get to the Precinct early, an opportunity to use the Park-and-Ride service. Details of such a consideration are contained in the section entitled "Park-and-Ride timetable".

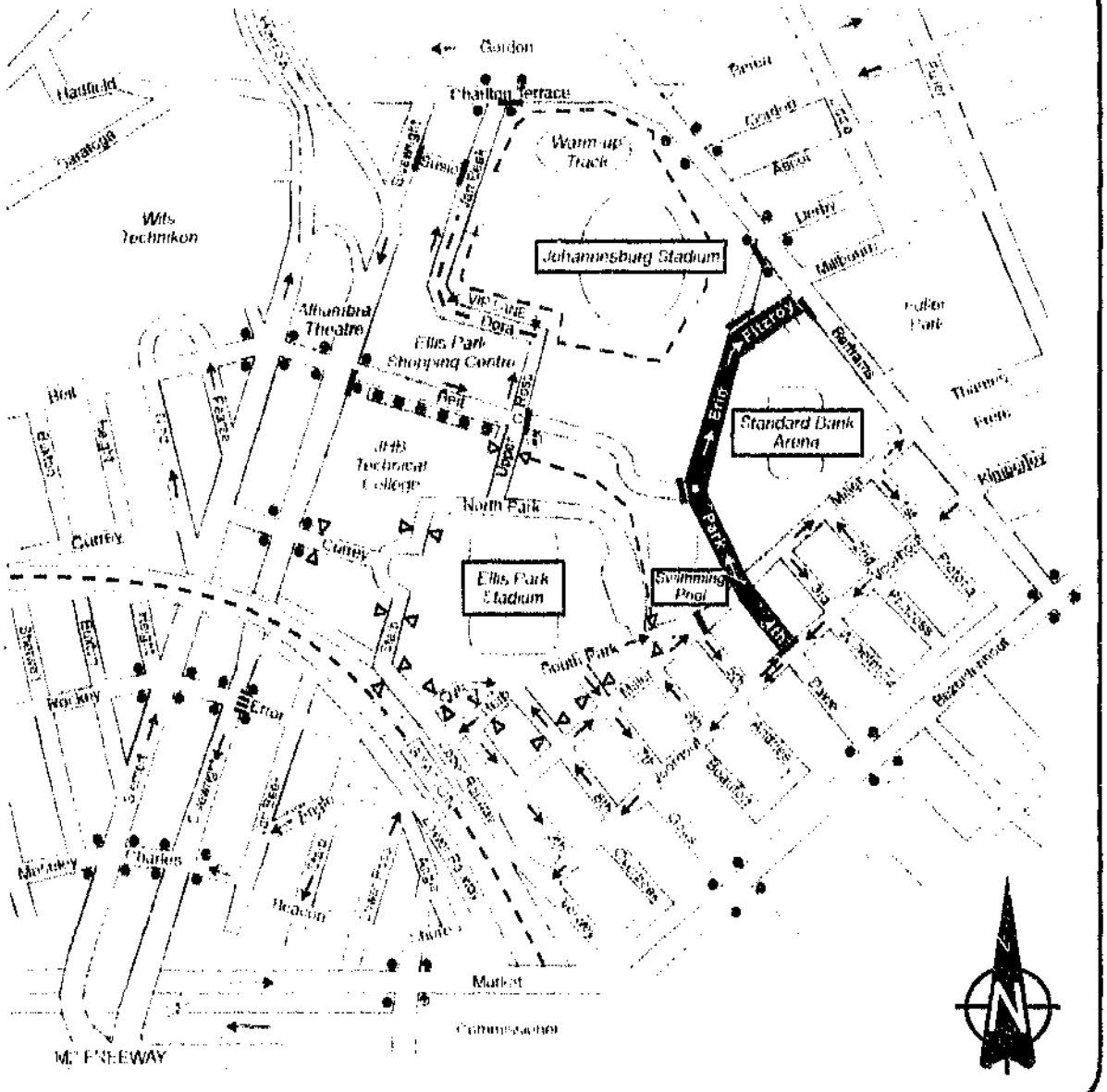
ELLIS PARK PRECINCT

METERED-TAXI OPERATIONS

KEY:

FIGURE 12

- Perimeter Fence
- Information Kiosk
- Traffic signals
- No stopping on event days
- No access on event days
- Security gates Closed only for Ellis Park Stadium events
- Stopping for JTD and Roodepoort buses (Event days Park-and-Ride)/ Stopping for Minibus-taxis (Soccer matches)
- Parking for private hire transport vehicles on event days
- Access for private hire transport and businesses on event days
- STATION Ellis Park Station
- Metered-taxi rank(Event days)



Diagrammatic only

2.5.5 Metered-taxi operations to the Ellis Park Precinct

Experience has shown that very few people arrive at the Precinct in metered-taxis. It is primarily after an event that this mode of transport is required. Therefore, the metered-taxi industry has been accommodated in the traffic and transportation manag ment plans by providing a ranking area f r metered-taxis on the southern side of Beit Street, between Sivewright Avenue and Upper Ross Street (which is closed-off on event days). This area is central to the entire Precinct and, being located within the traffic cordon, provides a secure area for both the taxi drivers as well as their passengers. Metropolitan Traffic has erected flip-signs demarcating this area as a metered-taxi zone. The demarcated area is shown in Figure 12.

For events at the Ellis Park Stadium however, the metered-taxis generally make use of the section of Currey Street between Sivewright Avenue and Siemert Road, which is also closed on event days, since this area is more accessible after events at this stadium.

2.5.4 Private hire transport vehicles

With the re-development of the Ellis Park Precinct, some work was also done to upgrade the bus-rank to the south of the Ellis Park Stadium (see Figures 2 to 5). It is here that private hire transport vehicles park on event days. The advantages of using this rank are that private hire transport vehicles have easy access to the rank and the M2 freeway, it is located right on the border of the Precinct (spectators need only walk through the pedestrian tunnels under the Ellis Park Station and they are in the Precinct) and most importantly, these vehicles can park exactly where they drop-off their passengers, so their passengers know where to find their transport after an event.

During the course of the Rugby World Cup, discussions were held with approximately 52 bus and tour operators, informing them that this rank is available for their use, so most bus operators in Gauteng are aware of this rank. On event days when the minibus-taxi industry also uses this rank for their operations, the rank is appropriately sectioned-off depending on the number of buses and taxis transporting spectators to the Precinct.

2.5.3 Train operations to the Ellis Park Precinct

The Ellis Park Precinct is fortunate in that a train service runs along its south-western boundary and stops at the Ellis Park Station. Due to a train's dedicated track, the greatest advantage that a train service offers is that it cannot get caught in a traffic jam, whereas road-based modes are always susceptible to this. At the time of the initial implementation of the traffic and transportation management plans for the Ellis Park Precinct in 1994, and before the current redevelopment of the Johannesburg Station had begun, Metro-Wits Rail Services ran train shuttle services and provided special rugby trains, not only from the Johannesburg Station, but also from stations on the East Rand. Unfortunately, due to the generally negative public perception of trains in Johannesburg as a result of the violence on trains at that time, the services were very under-utilised and thus were not continued.

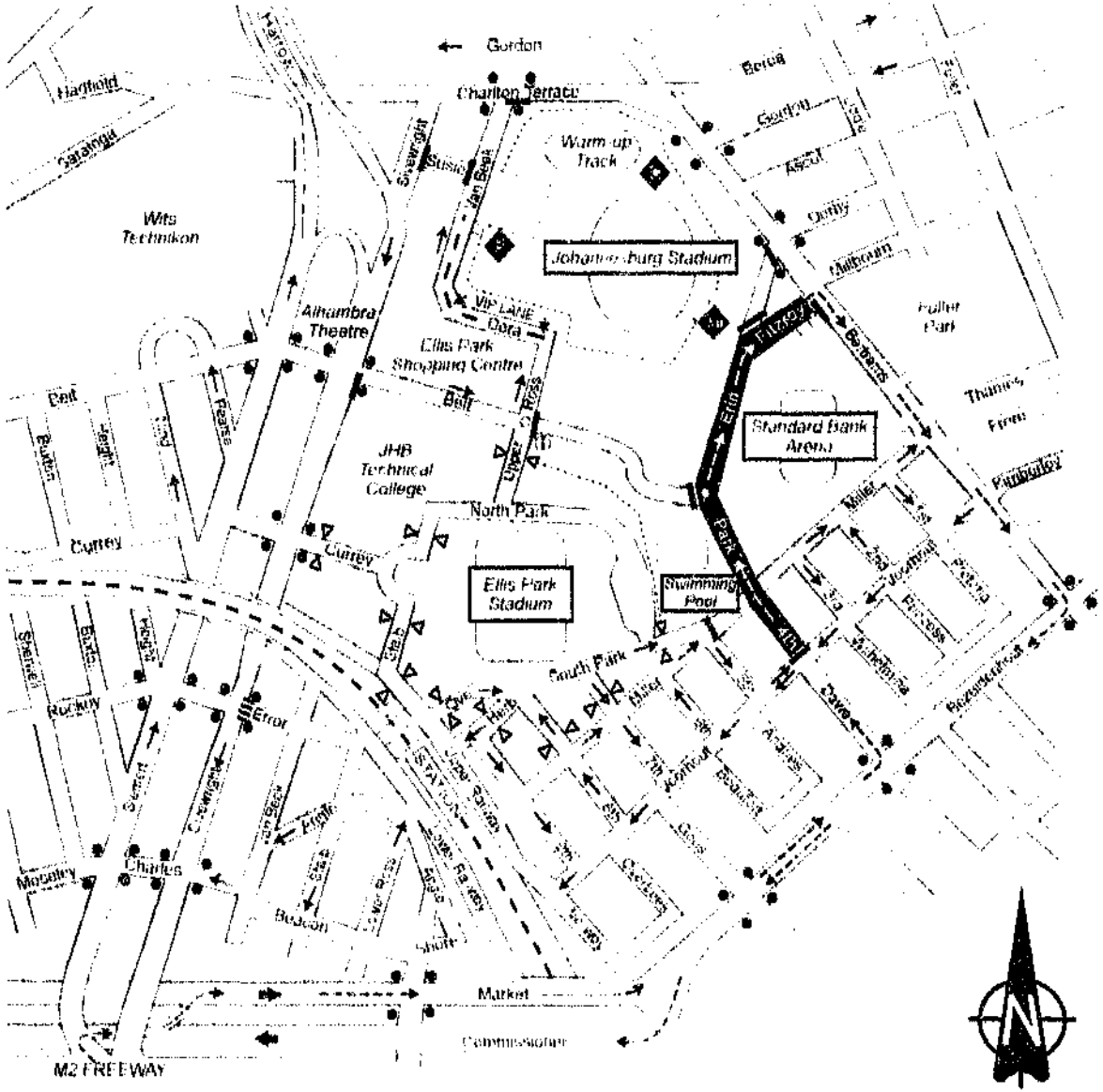
Currently on event days, only the everyday Metro-Wits train services stop at the Ellis Park Station as part of their routine schedule. Due to there being a train service to numerous areas in the townships which house many of the previously disadvantaged communities in Greater Johannesburg, a large number of soccer spectators attending matches played in the Ellis Park Precinct therefore make use of the train to get to the Precinct. For major international events though, and because of the disruption caused by the current re-development of the Johannesburg Station, a very limited train shuttle service is operated to Ellis Park from the Johannesburg Station.

ELLIS PARK PRECINCT

SOCCER MATCHES AT JOHANNESBURG STADIUM

(Minibus-taxi Operations)

FIGURE 11



KEY:

- Perimeter Fence
- Information Kiosk
- Traffic signals
- No stopping on event days
- No access on event days
- Security gates Closed only for Ellis Park Stadium events
- Stopping for minibus-taxi when Park-and-Ride is not in operation
- Stopping for minibus-taxis when Park-and-Ride is in operation
- Minibus-taxi route to and from the Ellis Park Precinct
- STATION — Ellis Park Station
- A — Entrance gate numbers
- M — Marathon Tunnel

Diagrammatic only

On occasions when both the MBS Park-and-Ride service is operating and a large number of minibus-taxis are expected to transport spectators to an event or events in the Precinct, the minibus-taxi operations are then located at the bus rank just south of the railway line. This bus rank is already used by the minibus-taxi industry on weekdays and is not used by either buses or taxis on weekends or at night, thereby making the rank available for these operations. Metropolitan Traffic assists the taxis in accessing and egressing this rank. A plan of these minibus-taxi operations is shown in Figure 11.

The taxi associations that operate within Greater Johannesburg had no objections to these operational plans and acknowledged that such plans would benefit the industry as far as their operations to the Precinct were concerned. In order to establish the extent to which the bus lane is utilised by the industry as opposed to the ad-hoc dropping off and picking up of passengers in and around the Precinct, the minibus-taxi operations are continuously monitored. If it is found that the ad-hoc operations continue, further efforts are undertaken to inform the industry of the availability of the bus lane, including the distribution of the plan showing these operations to those taxi drivers who do not conform to the plan or who are unaware of the plan.

The implementation of formal transportation plans for the minibus-taxi industry has potential widespread benefits in that it enables commuters from the previously disadvantaged communities to conveniently utilise and confidently locate their desired mode of transport to and from the Ellis Park Precinct, while at the same time the minibus-taxi industry is assured that they too receive priority of movement in and around the Precinct on event days, which hopefully will encourage spectators to utilise public transport to and from the Precinct. Further benefits are that the traffic management plans implemented by Metropolitan Traffic are consistent on all event days which requires that their personnel need only be familiar with one uniform traffic management plan. Also, the movement of traffic around the Precinct, and especially through traffic, is not interfered with by the minibus-taxis dropping off and picking up event spectators on the roads around the Precinct on an ad-hoc basis.

Phase one of minibus-taxi operations to the Ellis Park Precinct

The short-term, first phase allows the minibus-taxi industry to operate of its own accord to the Ellis Park Precinct and a designated drop-off and pick-up area has been identified within the Precinct for these operations. It is important that this designated area be within the traffic cordon around the Precinct so as to avoid accusations of bias towards the Metropolitan Bus Services (MBS) which operate the bus Park-and-Ride service to the Precinct. Due to the low number of spectators that use public transport, including the Park-and-Ride service, to get to events such as rugby matches and concerts at the Precinct, the minibus-taxi industry has shown no interest in operating together with the MBS buses on their Park-and-Ride routes, as they did for the Rugby World Cup. However, for soccer events, which are primarily attended by black spectators, public transport and particularly the minibus-taxi industry, plays an important role.

The Johannesburg Stadium is the home ground of Kaiser Chiefs, one of South Africa's most popular soccer clubs, and the Ellis Park Stadium is the home ground of Moroka Swallows. Therefore the number of soccer matches that take place in the Precinct has increased significantly. Consequently there is a need for proper traffic and transportation management plans to be implemented for minibus-taxi operations to the Precinct. For soccer events in the Precinct, MBS do not operate their Park-and-Ride service and therefore the dedicated bus lane inside the traffic cordon is available for use by the minibus-taxi industry on these event days. Since the number of destinations offered by minibus-taxis is large compared to the bus Park-and-Ride venues, it is not feasible to identify specific taxi drop-off and pick-up points along this dedicated lane or to erect destination signboards at each point. The taxi marshals and drivers usually tout for their passengers, and the spectators, being familiar with the taxi operations, thus have their public transport needs provided for.

2.5.2 Minibus-taxi operations to the Ellis Park Precinct

The minibus-taxi industry plays a major role in the transportation of the previously disadvantaged communities in South Africa, and plays a similar role in the transportation of these communities to the Ellis Park Precinct. Since the backbone of the transportation management plans for the Ellis Park Precinct is the establishment of Park-and-Ride services, a similar service was considered for the minibus-taxi operations to the Precinct. However, the effect of the apartheid system that existed in South Africa until the early 1990's and the nature of the minibus-taxi industry, has a major influence on the transportation plan that can be implemented for the industry.

The apartheid system resulted in there generally being an enormous gap in the socio-economic status between the black and white populations of South Africa. Black people in Greater Johannesburg generally live in "townships" that are located some distance from the Central Business District (CBD) of Johannesburg and therefore, the Ellis Park Precinct. While the majority of white households have at least one motor vehicle, this is not the case among black households and in Greater Johannesburg, almost all of the people utilising minibus-taxis are black. Consequently, and since the concept of a Park-and-Ride usually involves the "parking" of one's private vehicle, the establishment of a Park-and-Ride collection point in the townships is not thought feasible.

One possibility that could be considered is to identify a central collection point at which the residents of an area could gather or be dropped-off and a dedicated bus or minibus-taxi service could then operate from this point to a particular venue, in this case the Ellis Park Precinct. Such a collection point would have to be conveniently accessible to the community and would in all probability, be an already established public transport rank such as the Baragwanath Bus and Taxi Terminus in Soweto. However, due to the current volatility within the minibus-taxi industry in Greater Johannesburg, it is not feasible to establish collection points of this nature in the townships due to the conflict that might arise and it is therefore proposed that a two phased, short- and medium-term, approach should be adopted to planning for minibus-taxi operations to the Ellis Park Precinct. The short-term, first phase has already been implemented and the proposed medium-term, second phase is presented in Section 3.2.

Although the background colours on these flip-signs do not conform with the specifications contained in the South African Road Traffic Signs Manual[6], the international park-and-ride symbol and standard fonts have been used. The background colours were used for ease of identification by the Park-and-Ride passengers. It is MBS's responsibility to flip these signs to show the appropriate drop-off and pick-up points according to the event and venue for which the Park-and-Ride service is operating. After the event, MBS again flips these signs into the closed position.

Since the Fourth, Park, Erin and Fitzroy Streets corridor is a one-way corridor, buses off-load and load passengers on the left-hand-side of the road, and use the right-hand-side of the road as a passing lane.

After major events, two rows of buses should be in place at the pick-up points of the more popular Park-and-Ride venues. These two rows should be staggered to allow the outer row of buses to be loaded first. Since the buses are operating on a one-way bus corridor, other buses can still pass these buses in the right-hand lane.

Buses departing from the Precinct turn right into Bertrams Road, turn right into Bezuidenhout Street and then proceed to their respective Park-and-Ride venues. Metropolitan Traffic ensures that Bertrams Road southbound keeps moving in order to ensure that these buses do not get caught in the traffic congestion that develops along Bertrams Road, especially after an event. Buses going to Bezuidenhout Park turn left into Bertrams Road, right into Derby Street, left into Viljoen Street, right into Berea Road and then proceed to Bezuidenhout Park. (These routes are shown on the respective bus route plans contained in Appendix B.)



RUGBY WORLD CUP

27 MAY TO 24 JUNE 1995

Removable slats

ELLIS PARK PRECINCT

TYPICAL PARK-AND-RIDE DIRECTION SIGN

Diagrammatic only

FIGURE A1

APPENDIX A

TYPICAL PARK-AND-RIDE DIRECTION SIGN

5 CONCLUSIONS

All of the public transport services detailed in this project report, with the exception of the proposed service for the physically disabled, have been implemented to the varying degrees as described, and in the case of the MBS operated Park-and-Ride service, it is already well established. However, the ultimate success of any of these services will depend on the availability of funds as well as the willingness and level of commitment of all of the roleplayers, not only in providing the transport services but all the related activities as well. The extent, continuity and effectiveness of the marketing campaigns that will have to be launched in order to ensure that the public as a whole is aware that such services are available to transport them to the Ellis Park Precinct, will also impact heavily on the success or failure of the transportation management plans for the Precinct. Ways of funding these marketing campaigns should be investigated together with all the transport operators and the stadia management of the venues in the Precinct.

Unfortunately in the South African context, some of the biggest stumbling blocks in determining the success and viability of such public transport services to the Precinct, are the negative perceptions of public transport that have been created due to train violence and taxi violence and, with regard to the spectators of rugby matches at the Ellis Park Stadium, experience has shown that there is a general preference for using one's private vehicle to get to the stadium.

Be that as it may, the implementation on event days of the permanent traffic and transportation management plans at the Ellis Park Precinct involving a Park-and-Ride bus service and other public transport modes as detailed in this project report, is a first in South Africa and by the successful implementation of all of the proposed enhancements to the public transport services, the transportation accessibility of the Ellis Park Precinct for all the people of Johannesburg, and especially the previously disadvantaged communities, will be greatly improved.

4.4 A Possible Future Scenario

Once the policies contained in the White Paper on National Transport Policy have been implemented and all the Park-and-Ride services are operating on a permission, contract or concession basis, the price of a public transport ticket could be built into the price of a ticket to an event at the Ellis Park Precinct. A spectator in possession of a ticket to the event could then present his ticket when boarding the public transport mode providing a service to the Precinct. Modal transfers could also be allowed for in the establishment of such a system. Were such a system to be implemented, issues such as the redistribution of fare income would have to be investigated. An integrated ticketing system of this nature could serve as a pilot project for the possible future establishment of an integrated ticketing system for all daily public transport modes in Greater Johannesburg.

The implications of the new system for the transportation plans for the Ellis Park Precinct are that it would be possible to establish Park-and-Ride venues in the previously disadvantaged areas and provide a direct bus or taxi service to Ellis Park. (The existing bus permits generally preclude this at present.) This would then further improve the transportation accessibility of the Ellis Park Precinct should such a contract or permission be awarded. Any bus company could apply for these Park-and-Ride contracts or permissions, be they MBS, Putco or any of the private hire bus companies. The obvious advantage of a joint venture approach is that for events that attract fewer spectators, minibus-taxis could be used to provide the service, whereas for the major events, both buses and minibus-taxis could be used.

4.2 Minibus-Taxis

Some of the policies contained in the White Paper on National Transport Policy that relate to minibus-taxi operations as well as the recommendations of the National Taxi Task Team (NTTT) are already being implemented. Under the new policy, minibus-taxis will operate in terms of a permission on a route or network, or they may compete for the awarding of contracts by transport authorities. The transport authority will need to carry out a careful study of the demand for the routes so as to ascertain how many contracts, if more than one contract, and/or permissions should be issued on a particular route. The implications of the new system for the minibus-taxi operations to the Ellis Park Precinct are as discussed above.

4.3 Trains

In terms of the White Paper, it is envisaged that in the longer-term, rail passenger transport will be run on a concession basis whereby operating and maintenance concessions will be awarded by the transport authorities, initially on a national, and later at provincial or metropolitan level. Concessioning will take place on a competition basis, whether to the public or private sector. Transport authorities will determine fare levels based on a common cost structure and by taking account of the fares of other modes. A Park-and-Ride train service to the Ellis Park Precinct could conceivably be included in such a concession agreement in the future, once the National Transport Policy's implementation programme has been established. Alternatively, such a service might fall away altogether.

4 REGULATORY ISSUES RELATED TO THE OPERATION OF TRANSPORT SERVICES TO THE ELLIS PARK PRECINCT

In terms of the White Paper on National Transport Policy[9] there will be extensive changes in the operations of all land passenger transport in South Africa. The policies concerning the minibus-taxi industry are already being implemented. Besides the minibus-taxi operations, the operations of other modes to the Ellis Park Precinct will, in the short term, continue to operate under the old permit system.

4.1 Buses

Metropolitan Bus Services (MBS), which is an amalgamation of the previous Johannesburg Transportation Directorate (JTD) and Roodepoort Municipality Transportation, currently has metropolitan-wide permits which enables it to operate anywhere in the previously white "group areas", i.e. most areas of Johannes g, but excluding the so-called coloured areas around Soweto, Soweto itself and any other formally black areas. With these permits, MBS can operate from a Park-and-Ride venue located anywhere within the areas covered by its permits, without having to apply for special permits.

Under the new policy, all bus operators, including MBS, will have to obtain permissions from the provincial permit board or be awarded contracts by the future Transport Authority to operate bus services in terms of Transport Plans. The Park-and-Ride service to the Ellis Park Precinct could be operated either in terms of permissions, or in terms of a contract if tenders are invited, with the contract being awarded to the bus company wh'h submits the most favourable tender to operate the service. A bus operator will be able to apply for permissions or contracts together with a taxi operator as a joint venture.

3.4.4 The cost of the service

The cost of a Park-and-Ride service of this nature would have to be based on affordability. Since a lot of disabled people, especially black disabled people, are unemployed, the service would need to be subsidised to some degree, and negotiations in this regard are already underway between the GJTMC and the Association for the Physically Disabled.

3.4.5 Expected patronage of the Park-and-Ride service

When considering the possible number of people that would make use of such a Park-and-Ride service, the first consideration is the price of a ticket to the event. Again, since many disabled people are unemployed, the affordability of a ticket to the event will be the determining factor as to whether or not such a service is utilised. The Association for the Physically Disabled estimates that for a major event, approximately 50 people would utilise a Park-and-Ride service of this nature. The benefit of the Park-and-Ride service is immediately evident when one considers the space required should all 50 disabled people arrive in private vehicles.

3.4.6 Marketing of the service

Should the proposed Park-and-Ride service be established, it can be marketed through a magazine for disabled people entitled "Link", which is compiled by the Independent Living Centre of the Association for the Physically Disabled. Furthermore, this publication could be used to investigate the need for and requirements of such a Park-and-Ride service by conducting a survey through the magazine by placing a questionnaire in the magazine.

The introduction of such a service would have many benefits. It would allow disabled people to attend events in the Precinct without having to arrange for their own transport to the Precinct itself. They would need only to request the Dial-a-Ride vehicles to take them to the Mandeville Club. (Alternatively, family members and friends could take the disabled person to the Club, from where they all could board the buses to Ellis Park.) Since the Dial-a-Ride vehicles will not get caught up in traffic in and around the Precinct, remembering that the passenger would ordinarily need to be dropped-off right outside the event's venue, the Dial-a-Ride vehicles will be more freely available to other disabled people. Parking in and around the Precinct on event days is very limited and the arrival of a bus load of physically disabled people who can alight outside the stadium, relieves the demand for disabled parking at the venue itself. A parking bay reserved for physically disabled people is bigger than a standard parking bay and therefore the demand for parking space is further lessened. The accessible buses would also be more easily identified on arriving at the Precinct, and could immediately be given right-of-way access to the Precinct.

3.4.3 A dedicated route and drop-off and pick-up zone

A bus route between the various venues in the Precinct and the Mandeville Club would need to be identified and such a route is proposed in Appendix B. Also, a designated drop-off and pick-up zone for these buses could be identified at a place which would afford physically disabled people the most convenient access to the venue in the Precinct at which the event is being held.

In considering the location of the drop-off and pick-up zone, an organisation entitled the National Environmental Accessibility Programme (NEAP) should be consulted. NEAP is currently looking at all aspects of facilities for the disabled, including facilities at stadia. One particular aspect that they are looking at is the desire of disabled people in wheelchairs to sit together with their families and friends in a stadium and not in the aisle at the end of a row or at the back of a seating block in the stadium. Should seating of this nature be available at a stadium, it will be important to ensure that these areas are accessible from the Park-and-Ride drop-off and pick-up zone.

3.4.2 A proposed Park-and-Ride service for the physically disabled

The concept of Park-and-Ride is based on the creation of collection points where people make their own way to such a collection point, usually in their private vehicle, park their vehicle, and then board a public transport vehicle which will take them to their final destination. In terms of physically disabled people, many of them would not have their own private transport, and would therefore not be able to gather at a collection point so as to make use of a Park-and-Ride service.

The Dial-a-Ride service as discussed above, however, can play the role of the 'private vehicle' for the physically disabled person. Using the Dial-a-Ride service, the concept of a Park-and-Ride for physically disabled people can now be considered. The Mandeville Sports and Social Club for the Disabled is located in Bezuidenhout Park, less than five kilometres from the Ellis Park Precinct, and would serve as an ideal collection point for physically disabled people wishing to go to the Precinct on an event day. A physically disabled person could request the Dial-a-Ride service to transport him or her to the Mandeville Club, from where a group of physically disabled people can be transported in a specially equipped bus to the Precinct.

The Mandeville Sports Club has acquired an "accessible bus" (a bus with a low bed enabling easier embarking and alighting for disabled people) which could initially provide the service to the Precinct for the physically disabled who gather at Mandeville. This bus should then be given a right of way access to the Precinct on event days, just as are the MBS Park-and-Ride buses and the minibus-taxis. Should the GJTMC in future purchase an accessible bus, then they could provide the bus service from the Mandeville Club. Alternatively, in terms of the White Paper on National Transport Policy[9], this service could be operated on a contract or permission, whereby any bus company that has an accessible bus in its fleet, could be invited to tender or apply for the operation of such a service.

The need for accessible public transport, and measures to achieve this, are being investigated by the Department of Transport (DOT) on a national level, the Provinces and Local Authorities. One such example is a joint demonstration project that is underway between the DOT, the GJTMC and the Association for the Physically Disabled - Greater Johannesburg. This demonstration project involves the establishment of a "Dial-A-Ride Service for Disabled People". The Automobile Association of South Africa (AA) has been approached to help install and manage the scheduling software that will be needed to run such a service. This "Dial-A-Ride Service" would enable disabled people in the Greater Johannesburg area to telephone the toll-free number of the AA and, on a demand-response basis, book in advance, an accessible door-to-door transport ride. The purpose of the trip could be work/clinic/sports/movies or for personal recreation.

The "Dial-A-Ride Service" would operate on the following basis: a small fleet of accessible vehicles would be managed by Metropolitan Bus Services of the GJTMC. It is intended that some of these vehicles are equipped with lifts and that all of them are accessible to disabled people. The AA would receive the transport requests and despatch drivers to help disabled people in their transport requirements. Using the AA's radio technology, a message detailing the transport request would be displayed to the Dial-A-Ride vehicles which would then be despatched. In certain cases, personal care attendants could accompany the disabled passenger to assist that person get into and out of the vehicle. The drivers of the Dial-a-Ride vehicles would receive special sensitivity training so as to know how to handle disabled people.

This initiative with the DOT and GJTMC is a pilot project and its success will be monitored to assess whether it can be replicated throughout the country.

3.4 A Park-and-Ride Service for the Physically Disabled

Physically disabled people can be considered to be part of the previously disadvantaged communities in terms of transportation accessibility. Currently, the transportation demands of the physically disabled to the Ellis Park Precinct are accommodated by the provision of a limited number of parking spaces reserved for disabled parking on the southern side of the Ellis Park Stadium and some bays are reserved at the Johannesburg Stadium and Standard Bank Arena. Due to the specific requirements of disabled parking areas, and the limited space available for such areas in the Ellis Park Precinct, a Park-and-Ride service for the physically disabled is proposed.

3.4.1 Current initiatives with regards to the transportation of the physically disabled

In a Discussion Paper[10] regarding an integrated national disability strategy for South Africa it is stated that, "with the exception of air travel, no accessible transport system is available for the majority of disabled South Africans. No commuter transport system exists that transports disabled people to and from the workplace and other public amenities. New and refurbished buses and trains are being commissioned throughout South Africa, that take no cognisance of the disabled passenger. For those disabled persons fortunate enough to own their own transport, an appropriate national parking system is still awaited. Disabled commuters, who are reliant on the minibus (-taxi) network, are confronted daily by hostility and prejudice (it takes time loading a wheelchair) and discrimination (an extra fee is charged for the wheelchair)."

The above is an indication that a national concern is emerging regarding the whole question of accessibility for disabled people.

3.3 Train Operations to the Ellis Park Precinct

Due to the train service extending to many of the townships in and around Greater Johannesburg, Metro-Wits Rail Services is ideally placed to transport spectators from these previously disadvantaged areas directly to the Ellis Park Precinct, at relatively little expense to the commuter. Provided the availability of a special, direct train service is advertised widely and extensively, the train service can play a vital role in transporting all spectators, and not only soccer supporters, to the Ellis Park Precinct. Special trains of this nature were provided for the African Cup of Nations Soccer Tournament held in early 1996 at the First National Bank (FNB) Stadium adjacent to the National Sport and Recreation Exhibition Centre, or NASREC, just south of Johannesburg. This service was, however, under-utilised primarily due to the lack of publicity of its availability.

A significant advantage of the train service is that the service is not bound by permits as are the road-based public transport modes and can therefore provide train services to Ellis Park from all areas inside and outside of Greater Johannesburg, in fact from all areas to which the rail service currently operates. Prior to an event at the Ellis Park Precinct and the running of train shuttle services for that event, exact operating timetables can be drawn up and distributed extensively by Metro-Wits Rail Services. The services can then be monitored and should they prove popular, such services can become regular services for all events in the Precinct.

Once the re-development of the Johannesburg Station has been completed, the station will have ample parking available and, to complement this parking, there are numerous public parking areas surrounding the station. This lends itself ideally for the operation of a train shuttle service, or train Park-and-Ride service, between the Johannesburg Station and the Ellis Park Station on event days. Even if only this shuttle service is formally and permanently established, all spectators travelling to Ellis Park can either park their private vehicles at the Johannesburg Station, or those spectators from the previously disadvantaged areas who do not have their own transport can board a train to the Johannesburg Station, and then use the shuttle train service to get to Ellis Park. Again, the marketing of this shuttle service will ultimately determine its success or failure.

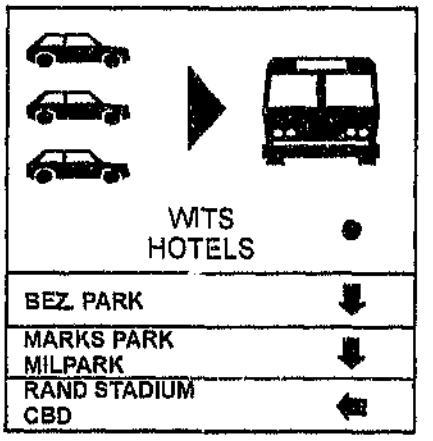
ELLIS PARK PRECINCT

FLIP-SIGNS INDICATING
PARK-AND-RIDE DROP-OFF AND PICK-UP POINTS
WITS UNIVERSITY AND HOTELS

LOCATION: 3 * ON FIGURE 9 COLOUR OF SIGN: YELLOW

SIGN No. 3A

DIRECTION THAT SIGN No 3A WILL FACE: NORTH



SIGN No. 3B

DIRECTION THAT SIGN No 3B WILL FACE: SOUTH

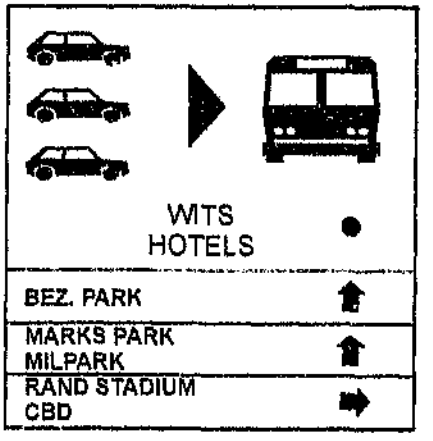


FIGURE C5

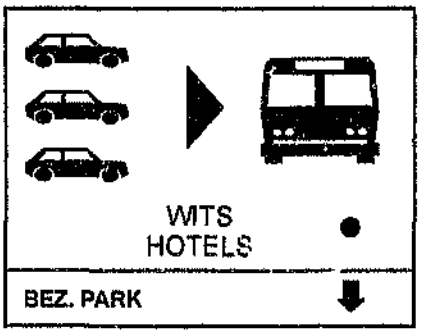
ELLIS PARK PRECINCT

FLIP-SIGNS INDICATING
PARK-AND-RIDE DROP-OFF AND PICK-UP POINTS
WITS UNIVERSITY AND HOTELS

LOCATION: 2* ON FIGURES 9 AND 10 COLOUR OF SIGN: YELLOW

SIGN No. 2C

DIRECTION THAT SIGN No. 2C WILL FACE: NORTH



SIGN No. 2D

DIRECTION THAT SIGN No. 2D WILL FACE: SOUTH

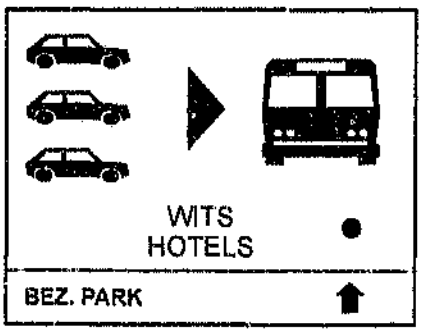


FIGURE C4

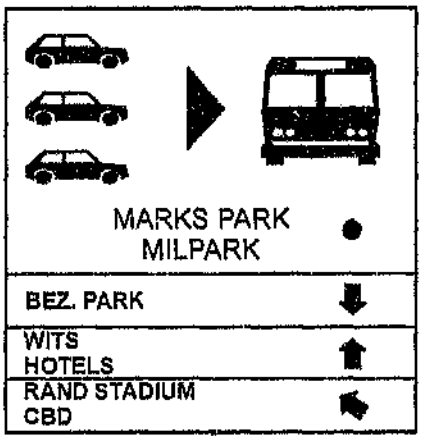
ELLIS PARK PRECINCT

FLIP-SIGNS INDICATING
PARK-AND-RIDE DROP-OFF AND PICK-UP POINTS
MARKS PARK AND MILPARK

LOCATION: 2 * ON FIGURE 9 AND 10 COLOUR OF SIGN: RED

SIGN No. 2A

DIRECTION THAT SIGN No. 2A WILL FACE: NORTH



SIGN No. 2B

DIRECTION THAT SIGN No. 2B WILL FACE: SOUTH

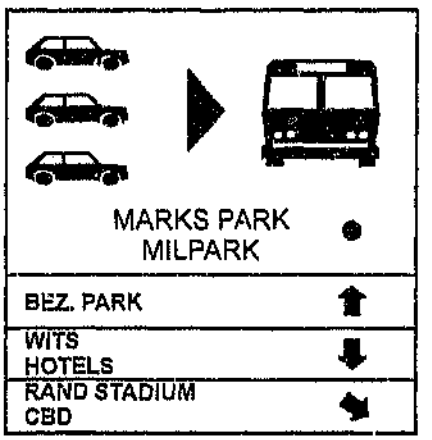


FIGURE C3

ELLIS PARK PRECINCT

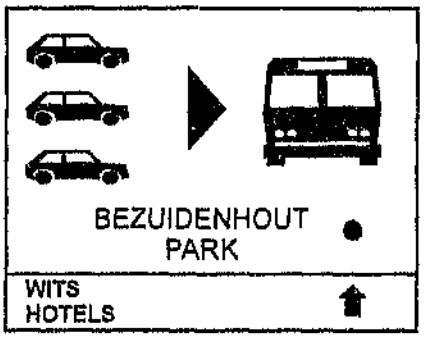
FLIP-SIGNS INDICATING
PARK-AND-RIDE DROP-OFF AND PICK-UP POINTS
BEZUIDENHOUT PARK

LOCATION: 1 * ON FIGURES 9 AND 10

COLOUR OF SIGN: BLUE

SIGN No. 1C

DIRECTION THAT SIGN No. 1C WILL FACE: NORTH



SIGN No. 1D

DIRECTION THAT SIGN No. 1D WILL FACE: SOUTH

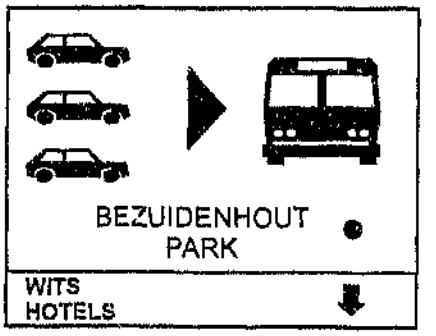


FIGURE C2

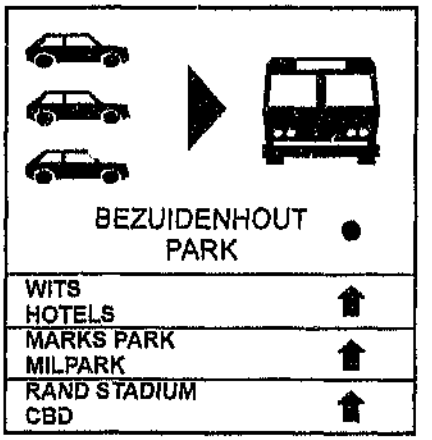
ELLIS PARK PRECINCT

FLIP-SIGNS INDICATING
PARK-AND-RIDE DROP-OFF AND PICK-UP POINTS:
BEZUIDENHOUT PARK

LOCATION: 1* ON FIGURES 9 AND 10 COLOUR OF SIGN: BLUE

SIGN No. 1A

DIRECTION THAT SIGN No. 1A WILL FACE: NORTH



SIGN No. 1B

DIRECTION THAT SIGN No. 1B WILL FACE: SOUTH

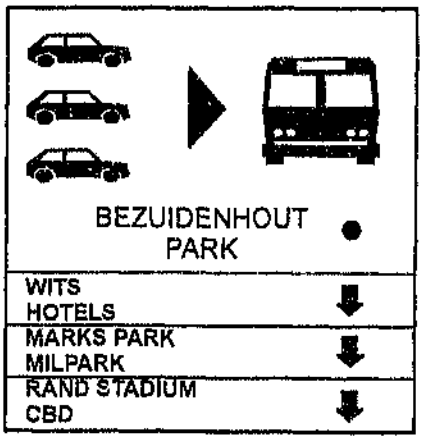
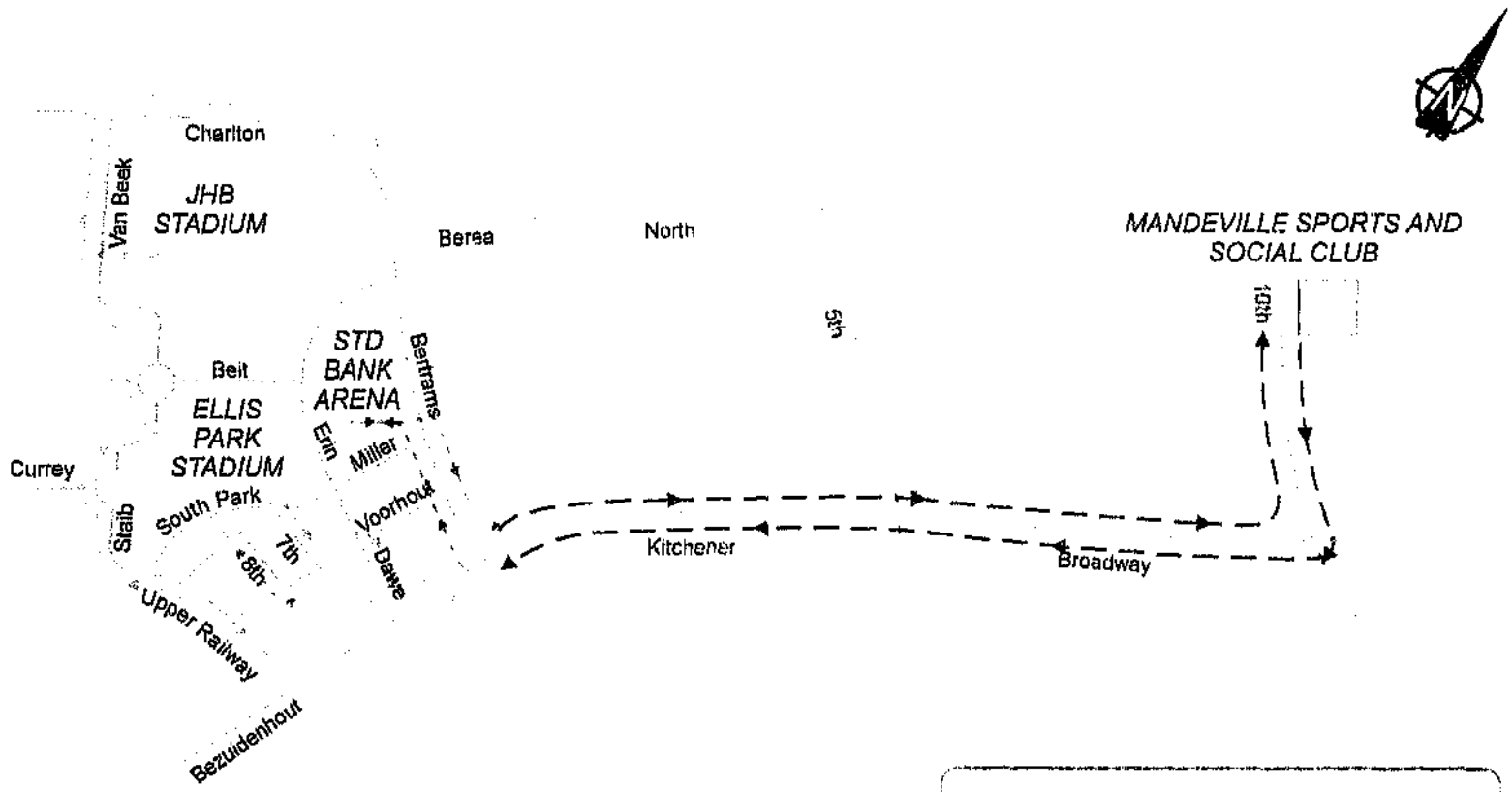


FIGURE C1

APPENDIX C

FLIP-SIGNS INDICATING THE PARK-AND-RIDE
DROP-OFF AND PICK-UP POINTS



KEY:

- - - - Route to the Standard Bank Arena
- - - - Route to the Ellis Park Stadium
Route to the Johannesburg Stadium

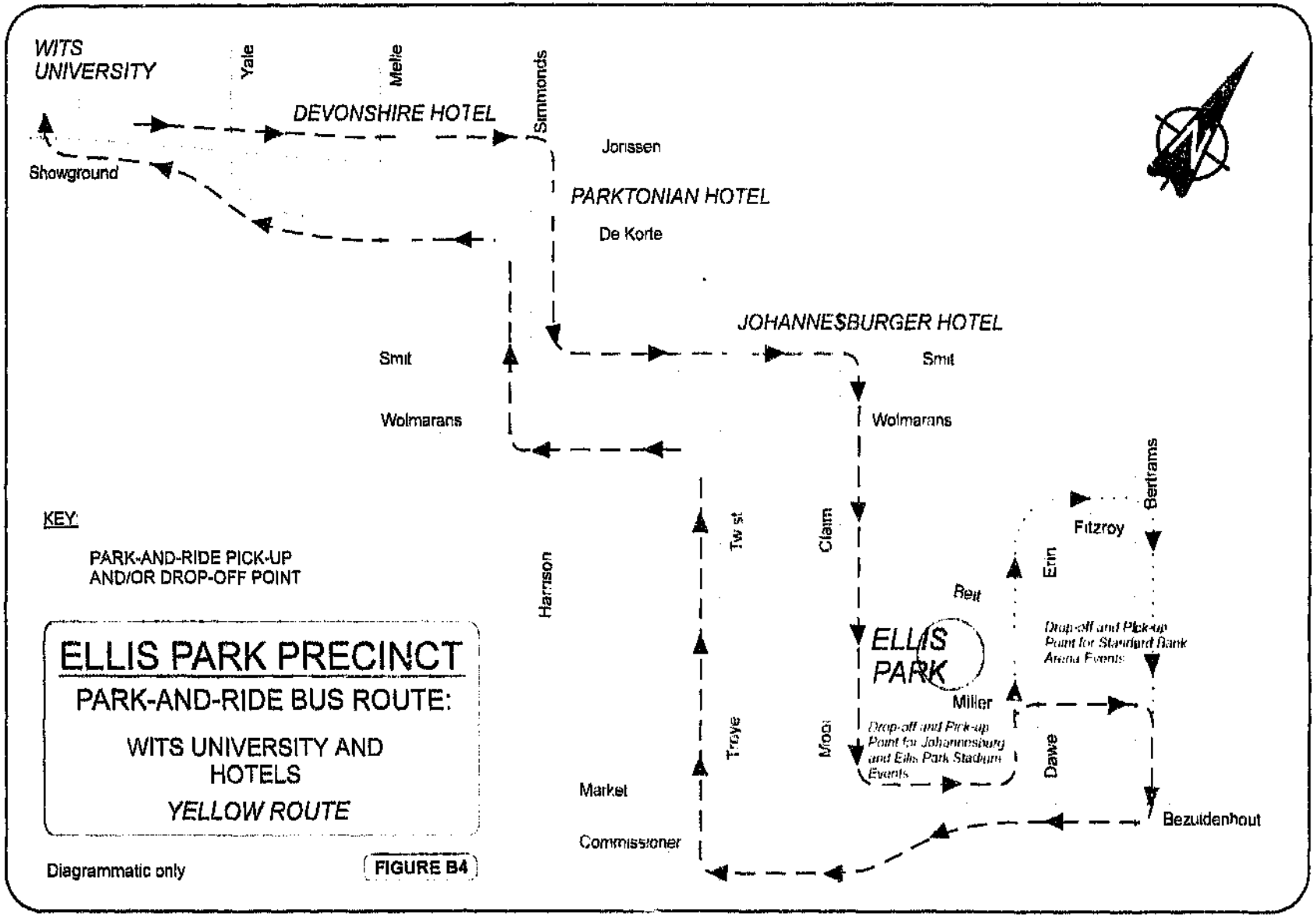
Diagrammatic only

ELLIS PARK PRECINCT

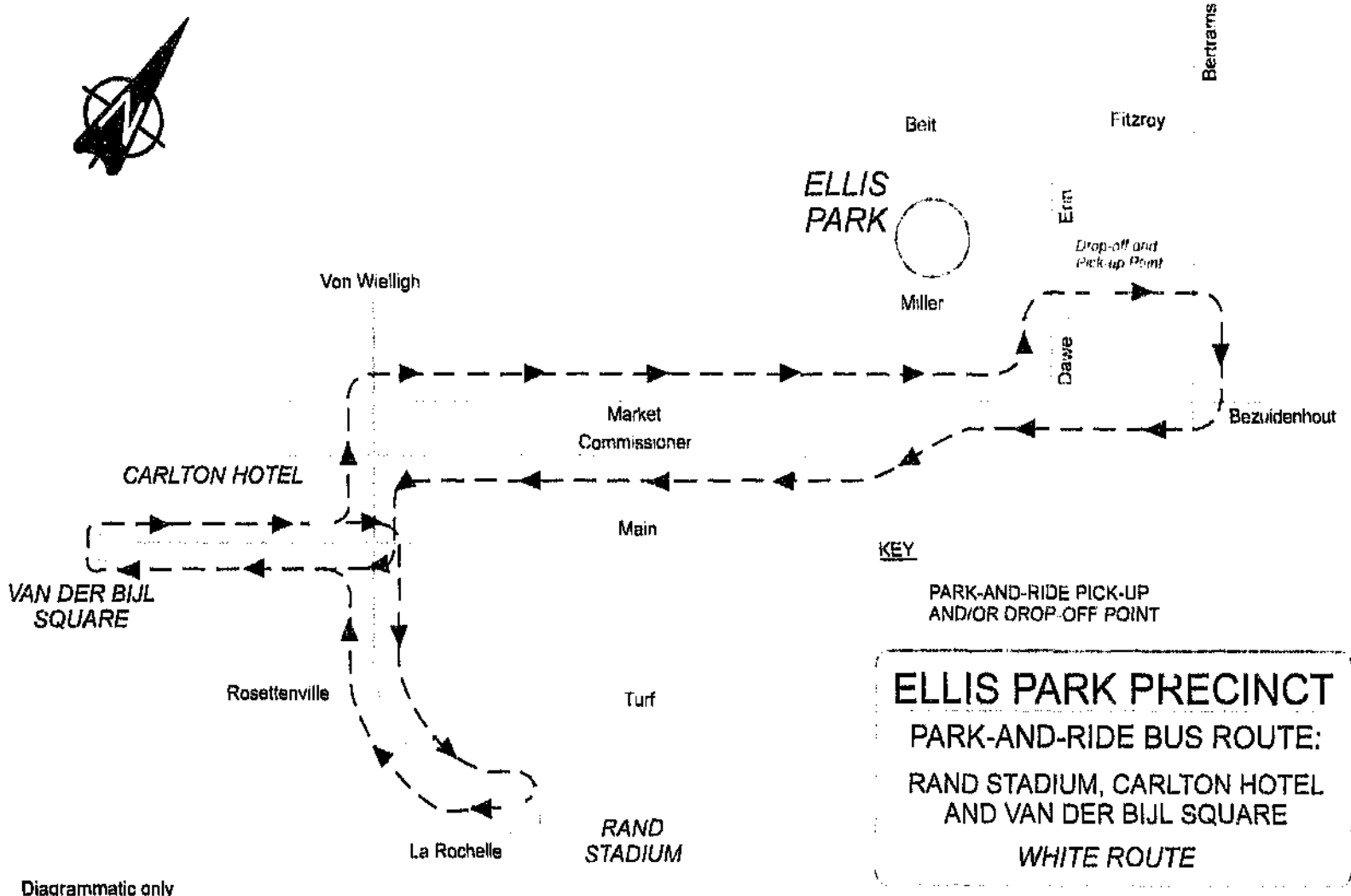
DISABLED PARK-AND-RIDE BUS ROUTE

MANDEVILLE SPORTS CLUB

FIGURE B5


WITS UNIVERSITY
Yale
Melle
Simmonds
DEVONSHIRE HOTEL
Showground
Jonissen
PARKTONIAN HOTEL
De Korte
JOHANNESBURGER HOTEL
Smit
Wolmarans
Smit
Wolmarans
KEY:
PARK-AND-RIDE PICK-UP AND/OR DROP-OFF POINT
Harrison
Twist
Claim
Bell
Fitzroy
Bertrams
Erin
ELLIS PARK
Drop-off and Pick-up Point for Standard Bank Arena Events
Miller
Drop-off and Pick-up Point for Johannesburg and Ellis Park Stadium Events
Troye
Moos
Dawe
Market
Commissioner
Bezuidenhout
ELLIS PARK PRECINCT
PARK-AND-RIDE BUS ROUTE:
WITS UNIVERSITY AND HOTELS
YELLOW ROUTE
Diagrammatic only
FIGURE B4

TB6*86YR-18/0



ELLIS PARK PRECINCT

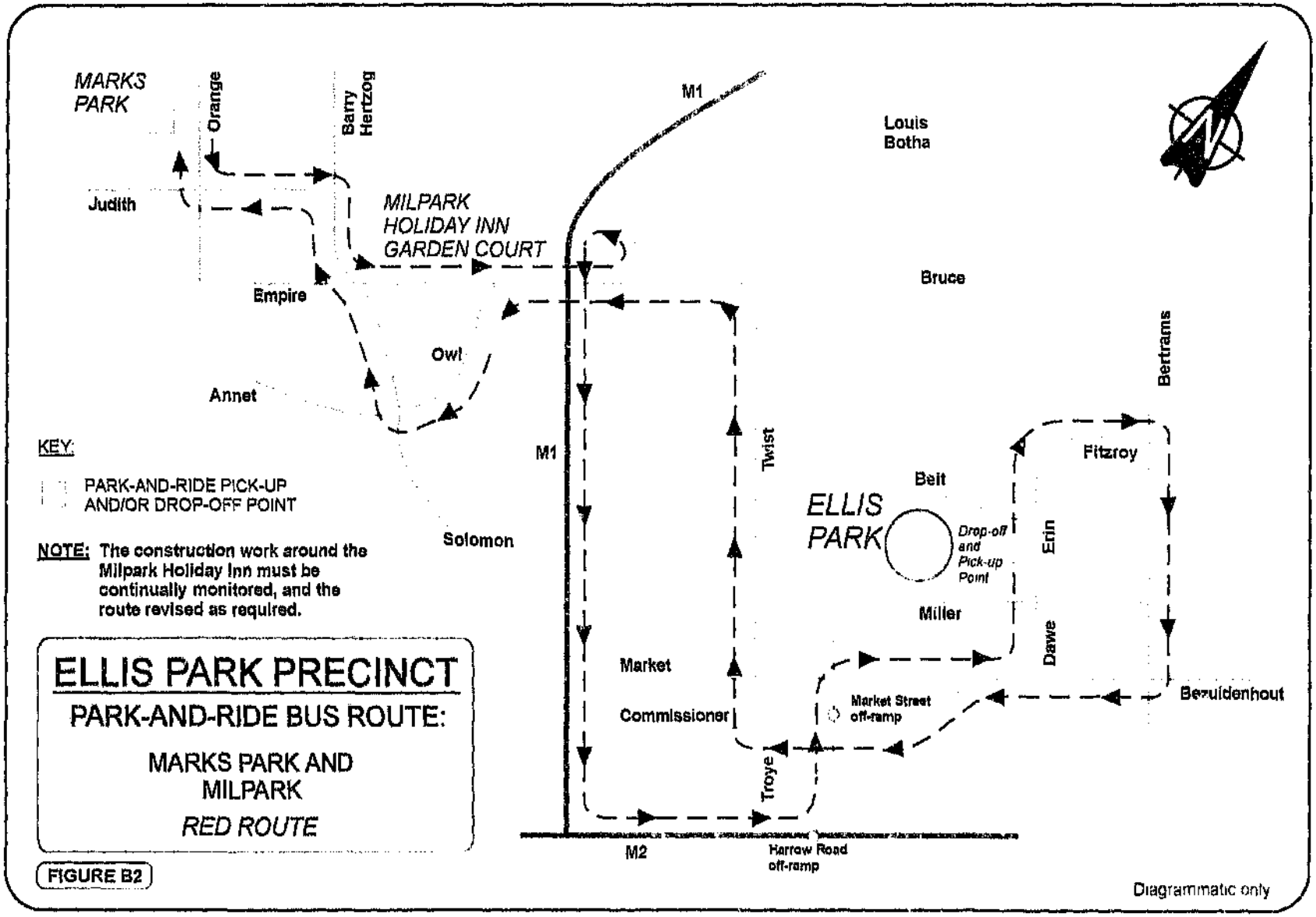
PARK-AND-RIDE BUS ROUTE:

RAND STADIUM, CARLTON HOTEL AND VAN DER BIJL SQUARE

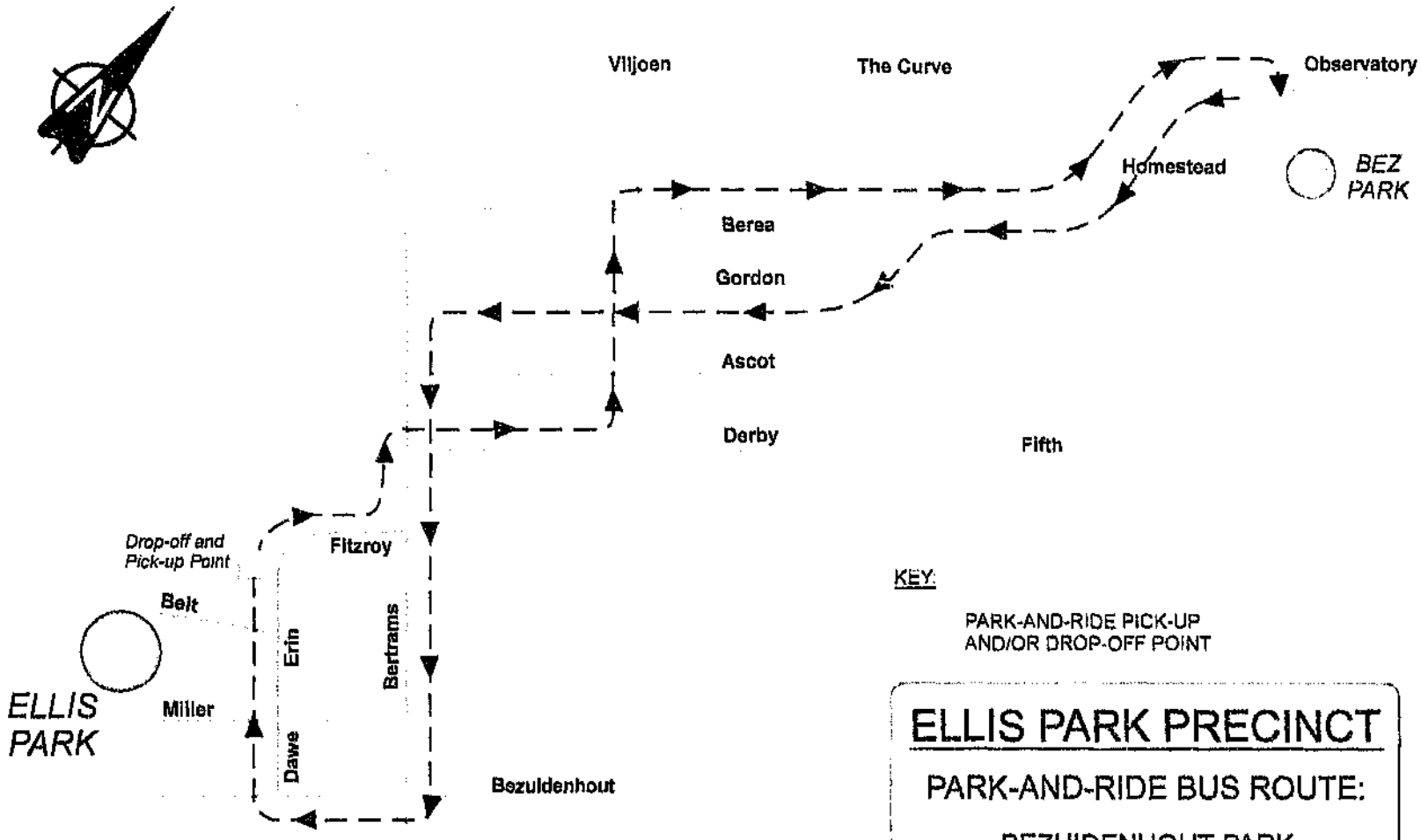
WHITE ROUTE

FIGURE B3

T05'56WR-1810



T95155RR-11/3



T9515GBR-10 10

APPENDIX B

PARK-AND-RIDE BUS ROUTES

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ELLIS PARK PRECINCT

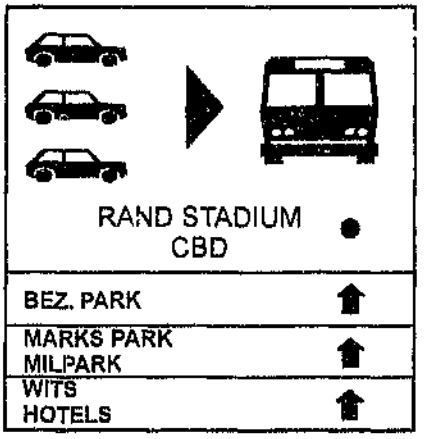
FLIP-SIGNS INDICATING
PARK-AND-RIDE DROP-OFF AND PICK-UP POINTS:
RAND STADIUM AND CBD

LOCATION: 4 * ON FIGURE B

COLOUR OF SIGN: WHITE

SIGN No. 4A

DIRECTION THAT SIGN No. 4A WILL FACE: EAST



SIGN No. 4B

DIRECTION THAT SIGN No. 4B WILL FACE: WEST

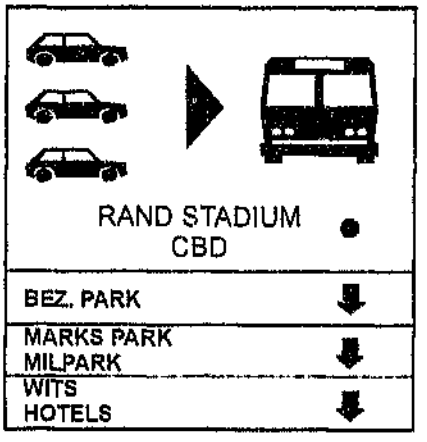


FIGURE C6

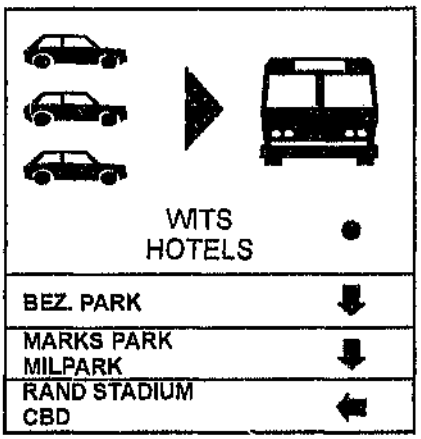
ELLIS PARK PRECINCT

FLIP-SIGNS INDICATING
PARK-AND-RIDE DROP-OFF AND PICK-UP POINTS
WITS UNIVERSITY AND HOTELS

LOCATION: 3 * ON FIGURE 9 COLOUR OF SIGN: YELLOW

SIGN No. 3A

DIRECTION THAT SIGN No. 3A WILL FACE: NORTH



SIGN No. 3B

DIRECTION THAT SIGN No. 3B WILL FACE: SOUTH

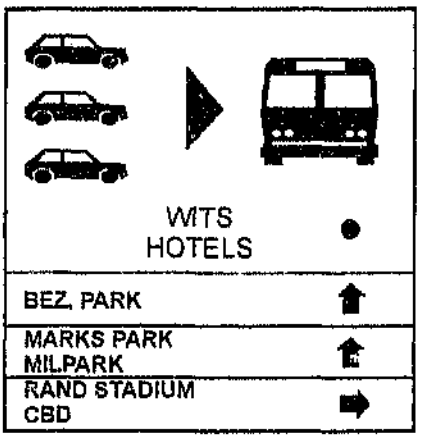


FIGURE C5

Author: Abelson, Duncan Bernard.
Name of thesis: Improving the transportation accessibility of the Ellis Park precinct for all the people of Johannesburg, and especially the previously disadvantaged communities.

PUBLISHER:
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